

**UMA11LSCEP15BDRLN_A
UMC 0.11um AI 1.5V
EE2PROM Low Leakage
Tapless Standard Cell Library
Databook**

Revision History

Version	Date	Description
A01	2016/08/17	Initial publication

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Library Description

The tapless standard cell library UMA11LSCEP15BDRLN_A is based on UMC's 0.11um EE2PROM Low Leakage process. This library passes the design verification and intensive testing to provide the highest quality environment for ASIC design with more multiplex cell functions. With this conscientious physical design, this library's 6-track cell height (0.4 um per track) achieves high density and optimized area efficiency. Using only metal one within layout, this library offers 160 cell types and the total cells amount to 822 with multiple drive strengths included in each cell type. Supporting most metal options in UMC, UMA11LSCEP15BDRLN_A is applied with voltage ranging from 1.08 V to 1.65 V.

Library Attributes

Operating Conditions

Table1 gives the recommended operating conditions for standard cell library UMA11LSCEP15BDRLN_A.

Table 1. Operating Conditions

Operating Condition	Process	Voltage (V)	Temperature (°C)
Best1	FF	1.32	-40
Best2	FF	1.65	-40
Leakage1	FF	1.65	125
Leakage2	FF	1.32	125
Typical1	TT	1.5	25
Typical2	TT	1.2	25
Worst1	SS	1.08	125
Worst2	SS	1.35	125

Physical Specification

Table 2 shows the physical specifications for standard cell library UMA11LSCEP15BDRLN_A.

Table 2. Physical Specifications

Characteristic	Specification
Cell height	2.4 um
Drawn gate length	0.12 um
Vertical routing track	6 tracks
Vertical pin grid	0.4 um
Horizontal grid	0.4 um
POWER/GND rail width	0.28 um
Metal layers used in cell layout	Metal1,Metal2

Cell Performance

Propagation Delay

The propagation delay is decided by the following factors.

- Device process corner
- Operating voltage
- Fan out loading
- Input transition time
- Impedance matching
- Input polarity

The associated timing models use a look-up table to obtain accurate timing while the datasheet only provides an appropriate input slew corresponding to different output loads' propagation delay values at the typical corner.

Timing Constraints

Setup Time Definition

Setup time is the time interval a change of state with the data signal and the transition of the clock input (enable input) on a flip-flop (latch), during which the data input must be maintained and recognized. In general, each data input on the device can have a different setup time.

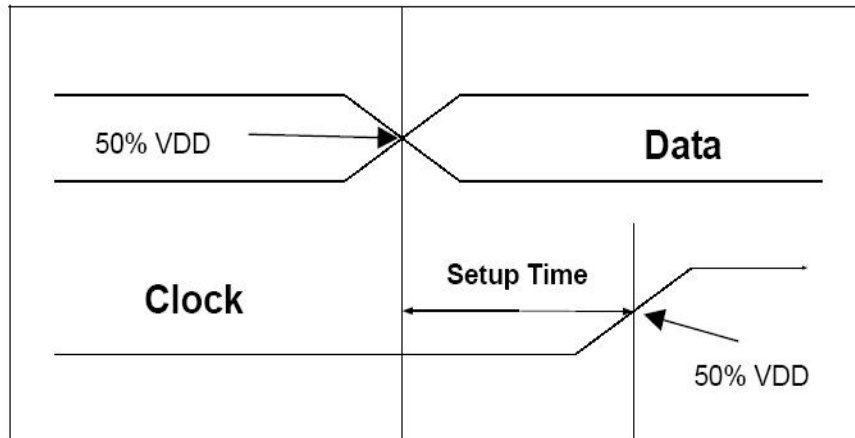


Figure 1. Setup time

Hold Time Definition

Hold time is the time interval between transition of the clock input (enable input) on a flip-flop (latch) and a change of state in the data signal, during which the data input must be maintained and recognized. In general, each data input to a device can have a different hold time.

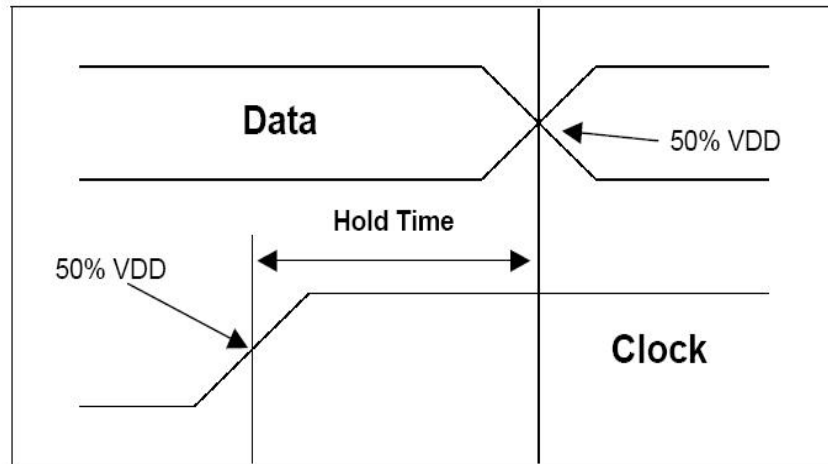


Figure 2. Hold time

Recovery Time Definition

The time interval between an asynchronous control pin going inactive and the clock edge that latches the data for a flip-flop. It is similar to the setup time for data inputs, but applies to asynchronous control inputs.

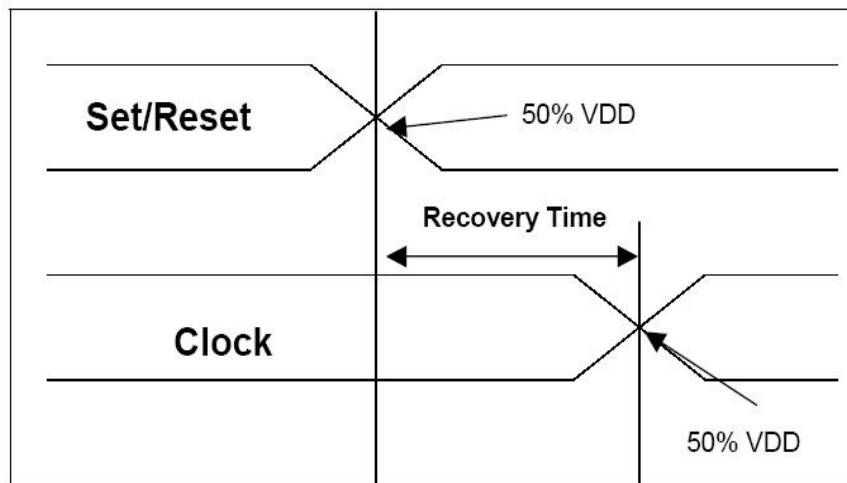


Figure 3. Recovery time

Removal Time Definition

The removal time is defined as the time interval between the active clock edge that latches the data for a flip-flop while an asynchronous control pin is active and the following inactive edge of the same control pin. It is similar to the hold time for data inputs, but applies to asynchronous control inputs.

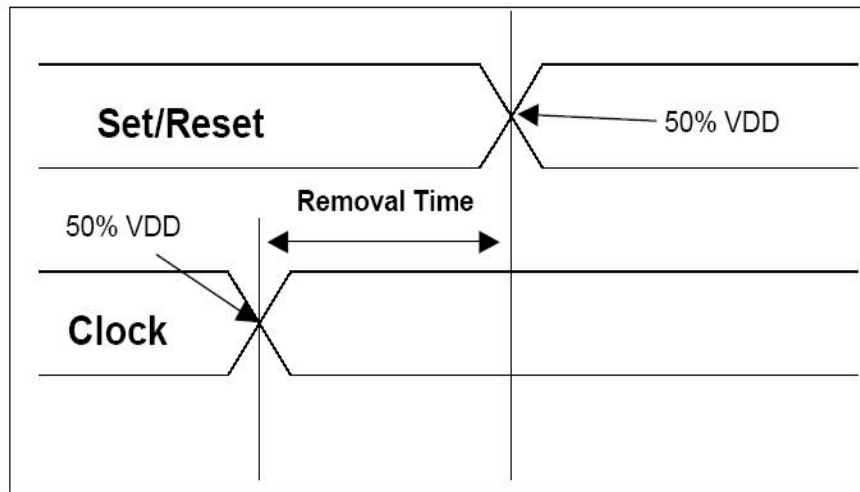


Figure 4. Removal time

Minimum Pulse Width Definition

Minimum pulse width is the minimum time interval of leading and trailing edges of a pulse waveform. The pulse width high is measured from the rising edge of the signal to the falling edge. The pulse width low is measured from the falling edge of the signal to the rising edge.

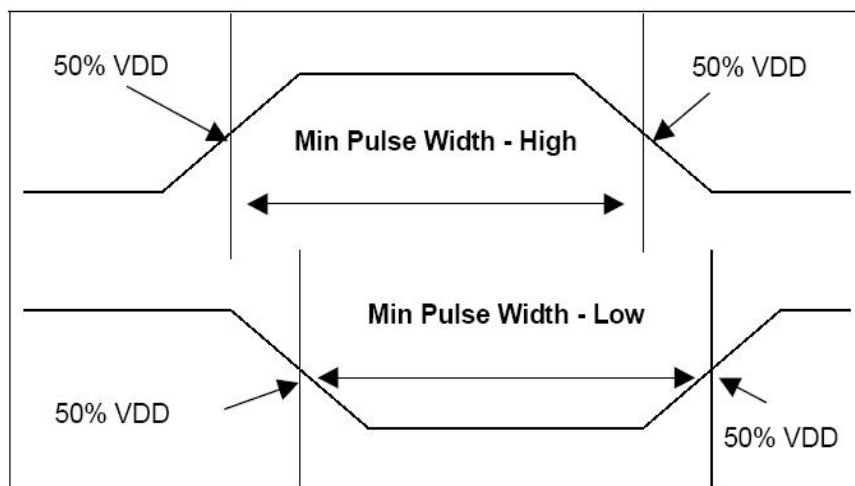
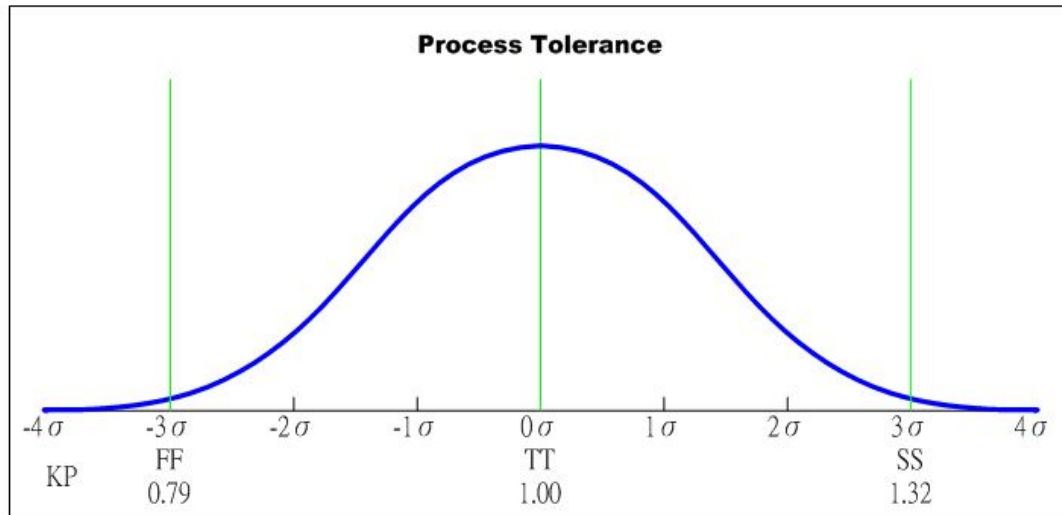


Figure 5. Minimum Pulse Width

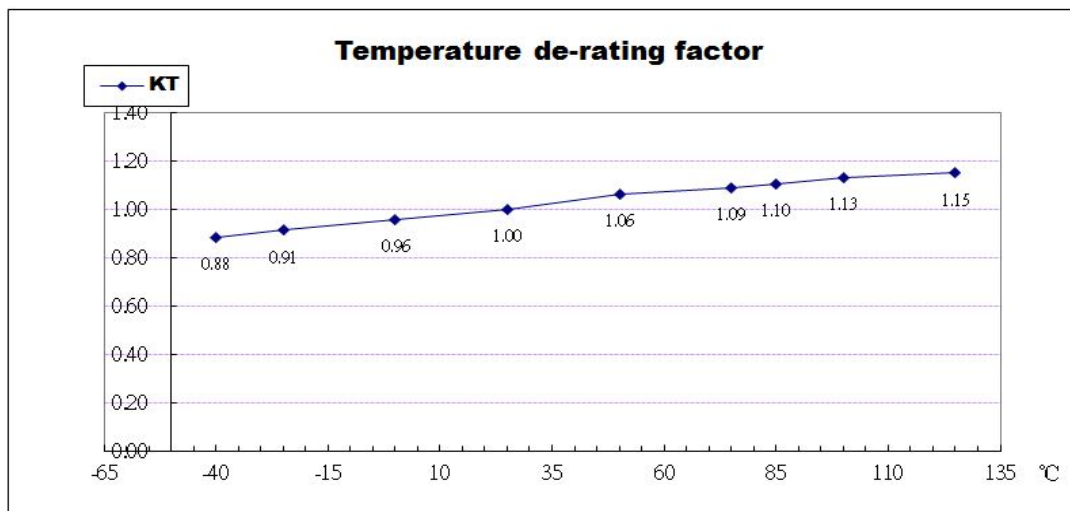
Derating Factors

Since the datasheet only includes typical corner propagation delay data, the derating factor provides designers an easy way to estimate the delay under proper operating conditions. The derating factor is calculated by averaging different standard cells in the library. Specific cells may have better or worse performance as a result of derating. Again, it is only for quick and easy estimations of delay. For accuracy, please refer to the timing model.

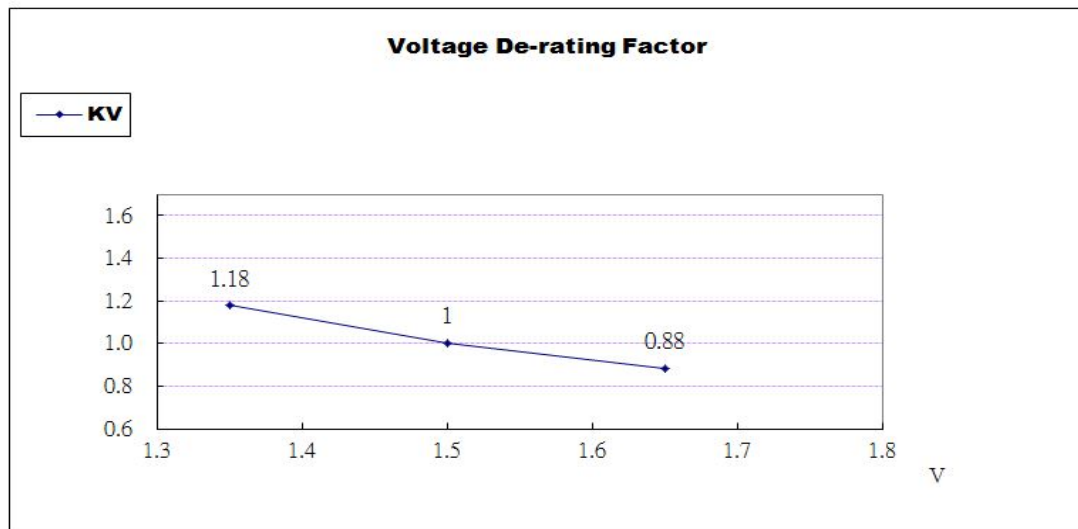
Process Derating Factor



Temperature Derating Factor



Voltage Derating Factor



Delay Estimation

$$t_{\text{delay}} = K_{\text{temperature}} \times K_{\text{voltage}} \times K_{\text{process}} \times t_{\text{typical}}$$

Where:

t_{delay} = Total delay

$K_{\text{temperature}}$ = Junction temperature derating coefficient

K_{voltage} = Operating voltage derating coefficient

K_{process} = Process variation derating coefficient

t_{typical} = Typical delay time in data sheet

For example, if the operation condition is

Temperature: 85°C

Voltage: 1.65V

Process: Fast corner

$t_{\text{typical}} = 0.0028\text{ns}$

$$\rightarrow t_{\text{delay}} = 1.1 \times 0.88 \times 0.79 \times 0.0028\text{ns} = 0.00214\text{ns}$$

Estimated Power Consumption

Energy is a function of voltage and current. Given the flow of current I through a power source of constant voltage V , these measurements are related as shown in the following equations:

$$\begin{aligned}\text{Energy (Joules)} &= V \int_0^T I(t) dt \\ \text{Average Power (Watts)} &= \text{Energy} / \Delta T\end{aligned}$$

Leakage Power

Leakage power, also known as static power, is due to subthreshold leakage and the current flow through the reverse-biased p-n junction between the diffusion layer and the substrate.

Total Dynamic Energy Consumption

Total dynamic energy (E_{total}) is the energy delivered to all of the power supplies, as shown in the following equation:

$$E_{\text{total}} = \sum V_{xx} \int_{T_0}^T I_{xx}(t) dt$$

Short-Circuit Energy

It results from a phenomenon in which pull-up and pull-down transistors in a CMOS logic gate are briefly turned on during a change of state on the input node. The switching results in a momentary short circuit from power to ground.

Internal Energy

Internal energy is the short-circuit energy lost to charging internal nodes and ground when complementary transistors change states. It specifically covers the case when both inputs and outputs are switching. Internal energy is acquired by subtracting switching energy from total energy, as illustrated in the following equation and diagram.

$$E_{\text{internal}} = E_{\text{total}} - E_{\text{sw}}$$

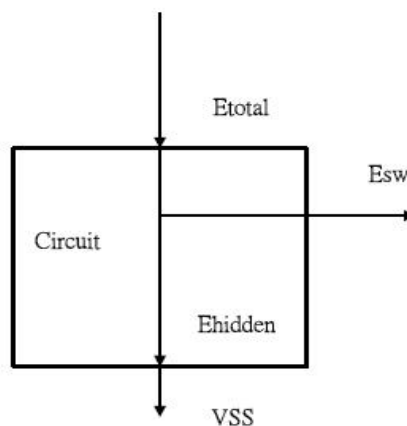


Figure 6. Internal Energy

Hidden Energy

Hidden energy is the short-circuit energy occurring with changing an input transition but not changing outputs transition. The following equation and diagram expand on this definition.

$$E_{\text{hidden}} = E_{\text{total}}$$

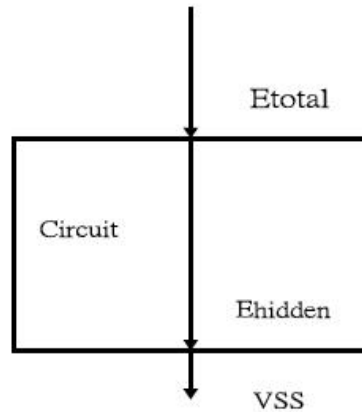


Figure 7. Hidden Energy

Switching Energy

Switching energy (also called output capacitance power) is the energy consumed by the charging and discharging load capacitance of transistor gates and interconnecting lines when the states of nodes are changing. It is the dominant component of power dissipation in CMOS logic. Switching power is primarily dependent on output load; input transition time has a secondary effect on switching power.

Switching energy (E_{sw}) is computed as CV^2 for the rising transition only, where C is the load capacitance and V is the supply voltage.

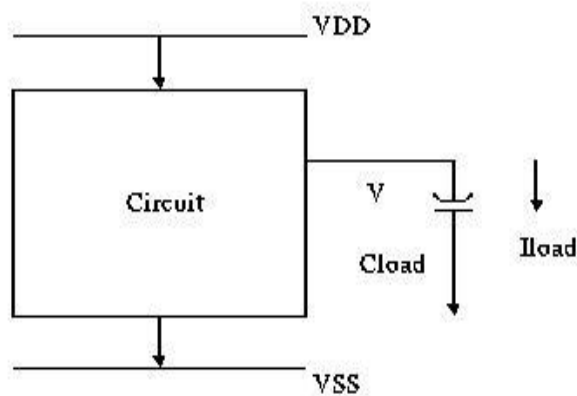


Figure 8. Switching Power

Calculating Power Dissipation

Power dissipation is defined by the following formula for a given library element at a given frequency:

$$P_{\text{diss}} = (E_{\text{rise}} + E_{\text{fall}} + (C_{\text{load}} \times V^2)) \times F_{\text{switching}} + P_{\text{static}}$$

Where:

P_{diss} = Power dissipation of the circuit (in μW)

E_{rise} = Energy for rising transition (in pJ)

E_{fall} = Energy for falling transition (in pJ)

C_{load} = Output load capacitance (in pF)

V = Supply voltage

$F_{\text{switching}}$ = Switching frequency of the transition (in MHz)

P_{static} = Static power dissipation of the library cell (in pW)

Cell Naming Conventions

The section discusses the naming rule of this library. Following the Table 3, you can understand the structure of cell name.

Table 3. Cell Naming Conventions

Filed1	Filed2	Filed3	Filed4
--------	--------	--------	--------

Field 1: high speed (H) / low power (L) / scan (S) cell index

Field 2: cell function name

Field 3: cell driving strength index (0, 1, 2, 3,...)

Field 4: Device type

N, NA: Regular Threshold Voltage for SP process;

H, HA: High Threshold Voltage for SP process;

L, LA: Low Threshold Voltage for SP process;

R, RA: Regular Threshold Voltage for LL process;

S, SA: High Threshold Voltage for LL process;

W, WA: Low Threshold Voltage for LL process

Ex: ^{Field2}**S** ^{Field4}**DFRS** ^{Field1}**M1** ^{Field3}**HM** (**SDFRSM1HM**)

- ◆ The cell name contains four fields without separation.
- ◆ The driving strength field consists of the letter "M" (multiple) and the strength level number ("0" means low driving strength).
- ◆ Field1 + Field2 → Cell Type Name
- ◆ Field2 Naming Convention:
 - Combinational Cell:
 - "B": invert input or output
 - Sequential Cell :
 - "C": negative-edge triggered
 - "E": enable signal
 - "ES": enable & scan enable signal
 - "M": multi-data select
 - "Q": single output
 - "R": reset
 - "S": set
 - Arithmetic Cell:
 - "C": active-low carry-in
 - "CG": carry-generator
 - "CS": carry-select
 - "IO": active-low carry-out (no carry-in)
 - "O": active-low carry-out

Table 4. Cell Types and Naming Table

Cell Type Key Word	Description
INV/CKINV	Inverter / Clock Inverter
BUF/CKBUF/BUFT	Buffer / Clock Buffer / Tri-State Buffer
DEL	Delay Cell
AN/CKAN	AND Gate / Clock AND Gate
ND/CKND	NAND Gate / Clock NAND Gate
OR	OR Gate
NR	NOR Gate
AO	AND into OR Complex Gate
AOI	AND into NOR Complex Gate
OA	OR into AND Complex Gate
OAI	OR into NAND Complex Gate
XNR/XOR/CKXOR	Exclusive NOR Gate / Exclusive OR Gate/ Clock Exclusive OR Gate
MUX/MXB/CKMUX	Multiplexer Cell
DF	D-type Flip-Flop Cell
LA/LAG	Latch Cell / Clock Gating Latch Cell
AD/ADF/ADH	Adder Cell
ANT	Antenna Cell
BHD	Bus Hold Cell
FIL/FILE	Fill Cell
TIE	Tie Cell
WT	Well Tap Cell

Special Cells

The UMA11LSCEP15BDRLN_A cell library provides some cells for special circuit using. This section discusses the types of the special cells.

Antenna Cell - ANT

In order to prevent the antenna rule violation defined in the UMC antenna rule (0.11um EE2PROM Low Leakage Process Topological Layout Rule), the library includes the antenna diode cell ANTHM, which is designed to fix the antenna rule violation.

Bus Hold Cell - BHD

The Bus Hold cell (BHDM1HM) provided in this library is combined by two inverter drivers connected in series. This cell holds data at a known value. It is often used for holding data on a tri-state bus and acts as a latch to prevent the attached net from floating.

Filler Cells

Filler cells are used to connect power and ground rails across areas containing no cells. This library contains two kinds of fill cells. FIL cells are empty inside. FILE cells contain P/N MOS gate capacitors between the VDD and VSS power rails. Table 5 below shows all the filler cells contained in this library.

Table 5. Filler Cells

FIL Cell	FILE Cell
FIL1HM	FILE3HM
FIL2HM	FILE4HM
FIL4HM	FILE8HM
FIL8HM	FILE16HM
FIL16HM	FILE32HM
FIL32HM	FILE64HM
FIL64HM	FILE128HM

TIE High and TIE Low Cells - TIE1, TIE0

This library contains a tie high cell (TIE1HM) and a tie low cell (TIE0HM), which provide logic level 1 output and logic level 0 output. TIE1HM and TIE0HM can also provide isolation from the power and ground rails for better ESD protection.

Delay Cells

The library provides delay cells: DEL1, DEL2, DEL3 and DEL4. These delay cells can adjust delay timing of signal path.

Well Tap Cells

A well/sub. tap cell is provided to tie NW to VDD and tie substrate to VSS. It is required to be pre-placed in each placement row before P&R (Place & Route). Based on UMC TLR, Well Tap cell should be pre-placed every 30 um. There are four well-tap cells provided in this library. WT2HM is provided for normal application. WTBB2HM, WTBP2HM, and WTBN2HM are for low power application. Please refer to the application note for more details.

Reading The Standard Cell Datasheet

Please refer to the datasheet example for DF at the end of this section for the datasheet section arrangement. Datasheet titles (red words at the upper right corner of each cell datasheet's beginning) indicate the UMC cell names. Cell names and lists for specific cell type of the library are reflected in the "cell list" description on each datasheet.

1. Cell Name

The cell name field contains the cell name. The datasheets are presented alphabetically by cell name. The cell name presented here is the base cell name. The Cell List displays cell names for your specific library.

2. Cell Description

The cell description gives the function of the cell.

3. Truth Table

The truth table represents the logic function of the cell. It gives all the combinations of the input and output signals. Table 6 defines the symbols used in datasheet truth tables.

Table 6. Symbol Descriptions of Truth Table

Symbol	Description
0	Logic Low
1	Logic High
R	Low to High Transition
F	High to Low Transition
X	Don't Care
Hi-Z	High Impedance
'	The inverting state

4. Symbol

The symbol is a graphical representation to instantiate a cell. The symbol denotes the pin names and directions in illustration.

5. Cell List

The cell list shows all the drive strengths of the cells offered for the specific cell type in the library.

6. Pin Capacitance

The pin capacitance table shows the typical loading (pF) at the input pins of the cell for each drive strength of the cell.

7. Power

There are two kinds of power tables in the datasheet:

- Switching Power ("Power Dissipation" table shown in the datasheet)
- Hidden Power

The switching power table shows the amount of energy consumed (pJ) within the cell when the corresponding pin changes state and make the output state change.

The power characterization is obtained by calculating rising and falling transition separately. The formula is as the following equation:

$$\text{Energy}_{\text{int}} = I_{\text{vdd}} \times V_{\text{vdd}} \times t - C_{\text{load}} \times V_{\text{vdd}}^2$$

This equation removes the amount of energy used to charge the loading capacitor. When the output pin capacitor charges and discharges, power consumption is equal to $C_{\text{load}} V_{\text{vdd}}^2$ and 0, respectively.

Hidden Power table shows the amount of energy consumed (pJ) within the cell when the corresponding pin changes state but leads to no output state change.

8. Propagation Delay

The cell delay characterization is dependent upon:

- Input Slew Rate
- Capacitive Load

This datasheet gives propagation delays for different loads with the input slew rate fixed. The delay tables contain rising and falling transitions of all possible combinations.

Delay Time

The delays are defined as the time interval between the input crossing 50% Power level and the output crossing 50% power level. Figure 9 illustrates the delay time of an output pad.

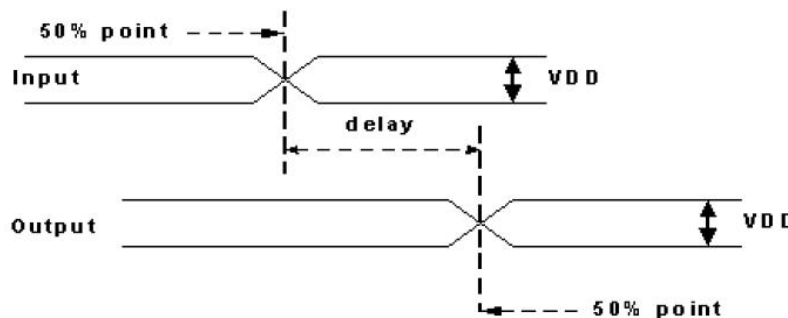


Figure 9. Output Signal Description

9. Timing Constraints

The timing constraints, include setup time, hold time and minimum pulse width, are the timing required for maintaining the cell's functionality. And the library use degrade mode to characterize the timing constraint.

Timing Constraint Characterization Methodology

The most aggressive methodology, independent setup characterization and independent hold characterization (degrade mode), has been used to characterize the setup/hold time for sequential cells. Figure 10 and 11 below illustrate this characterization mode.

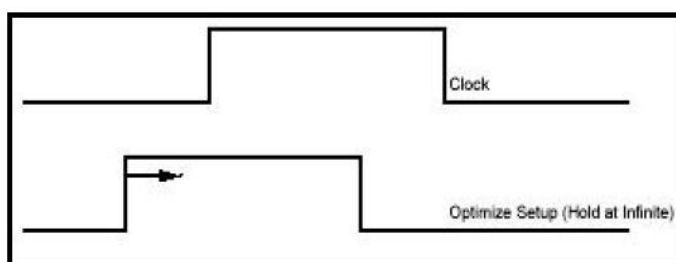


Figure 10. Independent Setup Characterization

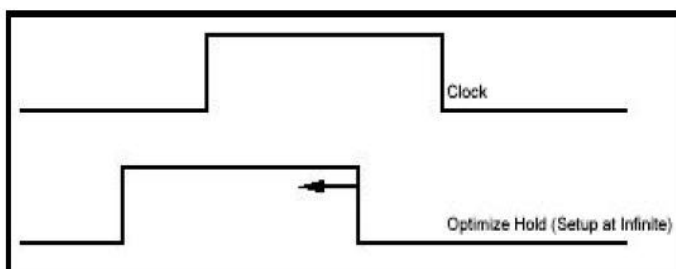


Figure 11. Independent Hold Characterization

This methodology would force the sequential cells performing better in timing constraints, but would cause the "Negative Meta-Stable" of setup/hold timing window, as figure 12 shown below. Therefore, the users should take care of the design margin upon their own considerations to ensure the design functionality.

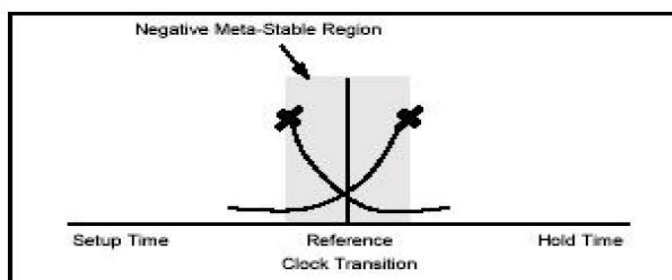


Figure 12. Negative Meta-Stable Region

This datasheet contains sample characterization values.



Sequential Cells

Cell Description

The DF cell is a positive-edge triggered, static D-type flip-flop.

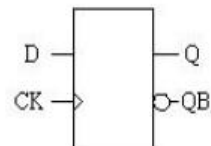
Truth Table

D	CK	Q[n+1]	QB[n+1]
0	R	0	1
1	R	1	0
X	F	Q[n]	QB[n]

Cell List

DFM0N ,DFM1N ,DFM2N ,DFM4N

Symbol



DF

1

4

2

3

5

This datasheet contains sample characterization values.



DF Pin direction and Cap (pF)

Pin	in/out	M0N	M1N	M2N	M4N
CK	input	0.00099	0.00106	0.00115	0.00159
D	input	0.00092	0.00092	0.00098	0.00124
Q	output				
QB	output				

6

Power Dissipation (uW/MHz)

DFM0N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0013 pF		0.0060 pF		0.0149 pF		0.0288 pF		0.0483 pF		0.0740 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0100	0.0105	0.0113	0.0121	0.0140	0.0147	0.0168	0.0170	0.0177	0.0177	0.0183	0.0182

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DFM1N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0022 pF		0.0100 pF		0.0248 pF		0.0480 pF		0.0804 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0120	0.0126	0.0140	0.0153	0.0186	0.0198	0.0232	0.0235	0.0248	0.0247	0.0257	0.0255

DFM2N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0031 pF		0.0140 pF		0.0349 pF		0.0673 pF		0.1129 pF		0.1728 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0146	0.0154	0.0173	0.0192	0.0238	0.0258	0.0299	0.0305	0.0323	0.0325	0.0335	0.0335

DFM4N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0062 pF		0.0281 pF		0.0699 pF		0.1350 pF		0.2263 pF		0.3464 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0231	0.0255	0.0287	0.0333	0.0416	0.0456	0.0539	0.0559	0.0585	0.0601	0.0608	0.0619

Hidden Power (uW/MHz)

DF at input slew = 0.036 ns , 25 degree C, 1.2V, Typical Process

Pin	R/F	M0N	M1N	M2N	M4N
CK	R	0.0043	0.0046	0.0049	0.0071
CK	F	0.0057	0.0059	0.0060	0.0085
D	R	0.0017	0.0018	0.0020	0.0033
D	F	0.0024	0.0025	0.0029	0.0042

This datasheet contains sample characterization values.



Propagation Delays (ns)

DFM0N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0013 pF		0.0060 pF		0.0149 pF		0.0288 pF		0.0483 pF		0.0740 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.0778	0.0672	0.1015	0.0883	0.1419	0.1195	0.2035	0.1641	0.2888	0.2260	0.4021	0.3033
CK(R)->QB	0.0863	0.0972	0.1072	0.1139	0.1469	0.1423	0.2078	0.1849	0.2939	0.2469	0.4053	0.3249

DFM1N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0022 pF		0.0100 pF		0.0248 pF		0.0480 pF		0.0804 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.0746	0.0616	0.0980	0.0819	0.1383	0.1126	0.2000	0.1573	0.2853	0.2197	0.3988	0.2986
CK(R)->QB	0.0818	0.0953	0.1022	0.1120	0.1418	0.1407	0.2031	0.1833	0.2882	0.2451	0.4012	0.3233

DFM2N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0031 pF		0.0140 pF		0.0349 pF		0.0673 pF		0.1129 pF		0.1728 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.0732	0.0572	0.0964	0.0762	0.1367	0.1051	0.1986	0.1468	0.2845	0.2063	0.3968	0.2788
CK(R)->QB	0.0778	0.0916	0.0979	0.1072	0.1374	0.1335	0.1988	0.1737	0.2837	0.2317	0.3956	0.3037

DFM4N at input slew= 0.036 ns, 25 degree C, 1.2V typical process

output load	0.0062 pF		0.0281 pF		0.0699 pF		0.1350 pF		0.2263 pF		0.3464 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.0695	0.0524	0.0923	0.0705	0.1325	0.0979	0.1940	0.1374	0.2789	0.1946	0.3911	0.2630
CK(R)->QB	0.0713	0.0857	0.0911	0.1007	0.1303	0.1262	0.1919	0.1651	0.2765	0.2227	0.3884	0.2925

Timing Constraint at input slew = 0.036 ns , 0.036 ns, 25 degree C, 1.2V, Typical Process

Pin	Constraint	Unit(ns)			
		M0N	M1N	M2N	M4N
CK	minpwl	0.1266	0.1265	0.1266	0.1265
CK	minpwh	0.1351	0.1352	0.1352	0.1354
D	setupD(R)->CK(R)	0.0579	0.0579	0.0579	0.0580
D	setupD(F)->CK(R)	0.0556	0.0558	0.0554	0.0558
D	holdD(R)->CK(R)	0.0123	0.0122	0.0127	0.0121
D	holdD(F)->CK(R)	0.0241	0.0241	0.0241	0.0145

Combinational Cell

AN2

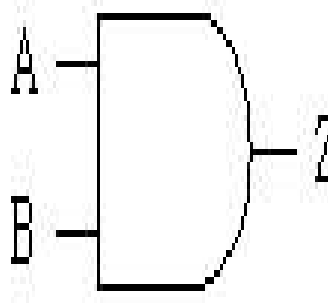
Cell Description

The AN2 cell provides the logical AND with two inputs (A, B).

Truth Table

A	B	Z
0	X	0
X	0	0
1	1	1

Symbol



Cell List

AN2M0HM, AN2M1HM, AN2M2HM
 , AN2M4HM, AN2M6HM
 , AN2M8HM, AN2M12HM
 , AN2M16HM

AN2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00115	0.00116	0.00112	0.00156	0.00178	0.00298	0.00423	0.00464
B	input	0.00121	0.00122	0.00121	0.00162	0.00199	0.00325	0.00424	0.00465
Z	output								

Power Dissipation (uW/MHz)

AN2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0153 pF		0.0250 pF		0.0377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0029	0.0060	0.0030	0.0061	0.0030	0.0061	0.0031	0.0061	0.0031	0.0061	0.0031	0.0061
B->Z	0.0029	0.0070	0.0030	0.0070	0.0031	0.0071	0.0031	0.0071	0.0031	0.0071	0.0031	0.0071

AN2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0064	0.0034	0.0065	0.0035	0.0066	0.0035	0.0066	0.0035	0.0066	0.0035	0.0066
B->Z	0.0033	0.0074	0.0034	0.0075	0.0035	0.0075	0.0035	0.0076	0.0035	0.0076	0.0035	0.0076

AN2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0042	0.0073	0.0043	0.0074	0.0044	0.0075	0.0045	0.0075	0.0045	0.0075	0.0045	0.0075
B->Z	0.0042	0.0083	0.0043	0.0084	0.0045	0.0085	0.0045	0.0085	0.0045	0.0085	0.0046	0.0085

AN2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0072	0.0115	0.0075	0.0117	0.0077	0.0118	0.0079	0.0119	0.0079	0.0119	0.0080	0.0119
B->Z	0.0072	0.0130	0.0075	0.0131	0.0078	0.0133	0.0079	0.0133	0.0080	0.0134	0.0080	0.0134

AN2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0412 pF		0.0785 pF		0.1310 pF		0.2001 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0113	0.0163	0.0116	0.0166	0.0120	0.0168	0.0122	0.0169	0.0124	0.0169	0.0124	0.0170
B->Z	0.0113	0.0178	0.0116	0.0180	0.0120	0.0182	0.0122	0.0184	0.0124	0.0184	0.0124	0.0184

AN2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0547 pF		0.1047 pF		0.1748 pF		0.2671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0143	0.0217	0.0148	0.0220	0.0154	0.0223	0.0157	0.0225	0.0158	0.0225	0.0159	0.0226
B->Z	0.0143	0.0246	0.0149	0.0249	0.0155	0.0252	0.0157	0.0253	0.0159	0.0254	0.0159	0.0254

AN2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1562 pF		0.2611 pF		0.3993 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0214	0.0327	0.0222	0.0333	0.0230	0.0337	0.0234	0.0339	0.0237	0.0340	0.0238	0.0341
B->Z	0.0214	0.0385	0.0223	0.0389	0.0231	0.0393	0.0235	0.0395	0.0237	0.0396	0.0238	0.0397

AN2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1077 pF		0.2071 pF		0.3465 pF		0.5299 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0285	0.0415	0.0296	0.0420	0.0307	0.0426	0.0313	0.0429	0.0316	0.0430	0.0317	0.0431
B->Z	0.0286	0.0479	0.0297	0.0481	0.0308	0.0486	0.0314	0.0489	0.0316	0.0491	0.0318	0.0492

Hidden Power (uW/MHz)

AN2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0005	-0.0005	-0.0005	-0.0007	-0.0012	-0.0014	-0.0010	-0.0013
A	F	0.0009	0.0009	0.0009	0.0014	0.0018	0.0027	0.0040	0.0046
B	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0015	-0.0021	-0.0032	-0.0036
B	F	0.0008	0.0008	0.0008	0.0011	0.0015	0.0021	0.0032	0.0036

Propagation Delays (ns)

AN2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0153 pF		0.0250 pF		0.0377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0866	0.0956	0.1167	0.1116	0.1732	0.1374	0.2613	0.1742	0.3848	0.2244	0.5463	0.2898
B->Z	0.0900	0.1082	0.1201	0.1246	0.1766	0.1509	0.2647	0.1880	0.3882	0.2384	0.5497	0.3039

AN2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0848	0.0980	0.1161	0.1157	0.1744	0.1434	0.2647	0.1824	0.3913	0.2355	0.5582	0.3052
B->Z	0.0882	0.1105	0.1195	0.1286	0.1778	0.1567	0.2681	0.1961	0.3946	0.2494	0.5616	0.3192

AN2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0842	0.1036	0.1164	0.1232	0.1750	0.1525	0.2655	0.1929	0.3931	0.2476	0.5606	0.3190
B->Z	0.0877	0.1163	0.1199	0.1363	0.1785	0.1661	0.2690	0.2068	0.3965	0.2617	0.5640	0.3332

AN2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0778	0.0997	0.1107	0.1204	0.1700	0.1500	0.2619	0.1901	0.3903	0.2434	0.5594	0.3129
B->Z	0.0808	0.1115	0.1137	0.1326	0.1730	0.1627	0.2650	0.2031	0.3934	0.2567	0.5624	0.3263

AN2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0412 pF		0.0785 pF		0.1310 pF		0.2001 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0902	0.0951	0.1238	0.1152	0.1837	0.1444	0.2754	0.1838	0.4040	0.2365	0.5731	0.3050
B->Z	0.0932	0.1035	0.1268	0.1240	0.1867	0.1535	0.2784	0.1932	0.4070	0.2460	0.5761	0.3147

AN2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0547 pF		0.1047 pF		0.1748 pF		0.2671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0739	0.0970	0.1069	0.1178	0.1667	0.1472	0.2589	0.1867	0.3878	0.2392	0.5574	0.3075
B->Z	0.0771	0.1077	0.1101	0.1288	0.1699	0.1585	0.2621	0.1983	0.3910	0.2509	0.5606	0.3193

AN2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1562 pF		0.2611 pF		0.3993 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0734	0.0954	0.1066	0.1161	0.1664	0.1454	0.2588	0.1846	0.3878	0.2368	0.5577	0.3047
B->Z	0.0779	0.1102	0.1111	0.1316	0.1709	0.1614	0.2633	0.2011	0.3924	0.2536	0.5622	0.3217

AN2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1077 pF		0.2071 pF		0.3465 pF		0.5299 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0767	0.1010	0.1103	0.1225	0.1702	0.1525	0.2626	0.1921	0.3917	0.2443	0.5614	0.3118
B->Z	0.0810	0.1153	0.1146	0.1374	0.1745	0.1679	0.2669	0.2079	0.3960	0.2604	0.5657	0.3282

Combinational Cell

AN3

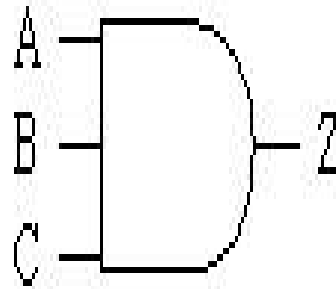
Cell Description

The AN3 cell provides the logical AND with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	X	X	0
X	0	X	0
X	X	0	0
1	1	1	1

Symbol



Cell List

AN3M0HM, AN3M1HM, AN3M2HM
 , AN3M4HM, AN3M6HM
 , AN3M8HM, AN3M12HM
 , AN3M16HM

AN3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00122	0.00121	0.00121	0.00153	0.00160	0.00304	0.00432	0.00472
B	input	0.00129	0.00128	0.00128	0.00162	0.00165	0.00340	0.00433	0.00473
C	input	0.00138	0.00138	0.00137	0.00172	0.00178	0.00352	0.00438	0.00478
Z	output								

Power Dissipation (uW/MHz)

AN3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0038	0.0071	0.0039	0.0071	0.0039	0.0072	0.0039	0.0072	0.0040	0.0072	0.0040	0.0072
B->Z	0.0038	0.0083	0.0039	0.0083	0.0039	0.0084	0.0040	0.0084	0.0040	0.0084	0.0040	0.0084
C->Z	0.0038	0.0093	0.0039	0.0094	0.0039	0.0094	0.0040	0.0094	0.0040	0.0094	0.0040	0.0094

AN3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0041	0.0075	0.0042	0.0076	0.0042	0.0076	0.0043	0.0076	0.0043	0.0076	0.0043	0.0076
B->Z	0.0041	0.0087	0.0042	0.0087	0.0042	0.0088	0.0043	0.0088	0.0043	0.0088	0.0043	0.0088
C->Z	0.0041	0.0097	0.0042	0.0098	0.0042	0.0098	0.0043	0.0098	0.0043	0.0099	0.0043	0.0099

AN3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	0.0084	0.0051	0.0084	0.0052	0.0085	0.0053	0.0085	0.0053	0.0086	0.0053	0.0086
B->Z	0.0050	0.0095	0.0051	0.0096	0.0052	0.0097	0.0053	0.0097	0.0053	0.0097	0.0053	0.0097
C->Z	0.0050	0.0106	0.0051	0.0106	0.0052	0.0107	0.0053	0.0107	0.0053	0.0108	0.0053	0.0108

AN3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0082	0.0126	0.0084	0.0128	0.0087	0.0129	0.0088	0.0130	0.0089	0.0130	0.0090	0.0130
B->Z	0.0083	0.0143	0.0085	0.0144	0.0087	0.0145	0.0088	0.0146	0.0089	0.0147	0.0090	0.0147
C->Z	0.0082	0.0159	0.0085	0.0159	0.0087	0.0160	0.0088	0.0161	0.0089	0.0162	0.0089	0.0162

AN3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0411 pF		0.0785 pF		0.1310 pF		0.2000 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0120	0.0167	0.0123	0.0168	0.0126	0.0170	0.0128	0.0171	0.0130	0.0172	0.0131	0.0172
B->Z	0.0121	0.0184	0.0123	0.0185	0.0126	0.0187	0.0128	0.0188	0.0130	0.0189	0.0131	0.0189
C->Z	0.0121	0.0200	0.0123	0.0201	0.0126	0.0202	0.0128	0.0203	0.0130	0.0204	0.0131	0.0204

AN3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1045 pF		0.1746 pF		0.2667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0153	0.0235	0.0158	0.0238	0.0163	0.0241	0.0166	0.0242	0.0167	0.0243	0.0168	0.0243
B->Z	0.0153	0.0269	0.0158	0.0271	0.0163	0.0273	0.0166	0.0275	0.0168	0.0276	0.0169	0.0276
C->Z	0.0153	0.0300	0.0158	0.0301	0.0163	0.0303	0.0166	0.0305	0.0168	0.0306	0.0169	0.0306

AN3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0812 pF		0.1559 pF		0.2606 pF		0.3985 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0233	0.0350	0.0239	0.0354	0.0247	0.0358	0.0251	0.0360	0.0254	0.0361	0.0256	0.0362
B->Z	0.0233	0.0414	0.0240	0.0416	0.0248	0.0420	0.0252	0.0422	0.0255	0.0424	0.0256	0.0424
C->Z	0.0233	0.0473	0.0240	0.0473	0.0248	0.0476	0.0252	0.0479	0.0255	0.0480	0.0256	0.0481

AN3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0438 pF		0.1075 pF		0.2066 pF		0.3457 pF		0.5288 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0306	0.0437	0.0314	0.0442	0.0324	0.0447	0.0330	0.0450	0.0334	0.0451	0.0336	0.0452
B->Z	0.0306	0.0509	0.0314	0.0510	0.0325	0.0515	0.0331	0.0518	0.0335	0.0519	0.0337	0.0520
C->Z	0.0306	0.0573	0.0315	0.0572	0.0325	0.0576	0.0331	0.0579	0.0334	0.0581	0.0336	0.0582

Hidden Power (uW/MHz)

AN3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0000	-0.0000	-0.0000	-0.0001	-0.0003	-0.0003	0.0010	0.0009
A	F	0.0010	0.0010	0.0010	0.0014	0.0016	0.0027	0.0041	0.0046
B	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0013	-0.0020	-0.0029	-0.0033
B	F	0.0008	0.0008	0.0008	0.0012	0.0014	0.0023	0.0033	0.0038
C	R	-0.0008	-0.0008	-0.0008	-0.0011	-0.0013	-0.0021	-0.0032	-0.0036
C	F	0.0007	0.0007	0.0007	0.0011	0.0013	0.0021	0.0032	0.0036

Propagation Delays (ns)
AN3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1092	0.1129	0.1401	0.1301	0.1982	0.1579	0.2889	0.1969	0.4137	0.2482	0.5791	0.3154
B->Z	0.1162	0.1280	0.1473	0.1456	0.2053	0.1740	0.2960	0.2134	0.4208	0.2650	0.5862	0.3324
C->Z	0.1197	0.1395	0.1507	0.1575	0.2087	0.1863	0.2994	0.2262	0.4242	0.2780	0.5896	0.3456

AN3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1051	0.1134	0.1379	0.1325	0.1966	0.1618	0.2873	0.2018	0.4132	0.2548	0.5796	0.3240
B->Z	0.1120	0.1283	0.1449	0.1480	0.2036	0.1777	0.2943	0.2183	0.4202	0.2716	0.5866	0.3409
C->Z	0.1155	0.1399	0.1483	0.1599	0.2071	0.1901	0.2977	0.2311	0.4236	0.2847	0.5900	0.3542

AN3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1053	0.1187	0.1386	0.1391	0.1979	0.1700	0.2886	0.2114	0.4157	0.2660	0.5828	0.3367
B->Z	0.1122	0.1336	0.1456	0.1546	0.2049	0.1860	0.2955	0.2278	0.4226	0.2828	0.5897	0.3537
C->Z	0.1156	0.1452	0.1490	0.1666	0.2083	0.1985	0.2990	0.2407	0.4260	0.2959	0.5931	0.3671

AN3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0980	0.1103	0.1330	0.1318	0.1934	0.1629	0.2852	0.2037	0.4134	0.2572	0.5822	0.3265
B->Z	0.1046	0.1238	0.1396	0.1460	0.2000	0.1775	0.2918	0.2188	0.4200	0.2726	0.5888	0.3420
C->Z	0.1078	0.1345	0.1428	0.1571	0.2032	0.1891	0.2950	0.2308	0.4232	0.2849	0.5920	0.3545

AN3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0411 pF		0.0785 pF		0.1310 pF		0.2000 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1126	0.1133	0.1495	0.1355	0.2105	0.1668	0.3025	0.2078	0.4310	0.2612	0.5997	0.3298
B->Z	0.1195	0.1250	0.1563	0.1476	0.2173	0.1794	0.3094	0.2208	0.4379	0.2745	0.6066	0.3433
C->Z	0.1228	0.1341	0.1597	0.1571	0.2206	0.1893	0.3127	0.2310	0.4412	0.2850	0.6098	0.3540

AN3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1045 pF		0.1746 pF		0.2667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0898	0.1054	0.1250	0.1273	0.1852	0.1577	0.2774	0.1979	0.4064	0.2507	0.5757	0.3189
B->Z	0.0964	0.1183	0.1316	0.1406	0.1919	0.1714	0.2840	0.2119	0.4131	0.2650	0.5823	0.3333
C->Z	0.0996	0.1285	0.1349	0.1511	0.1951	0.1824	0.2873	0.2232	0.4163	0.2765	0.5855	0.3450

AN3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0812 pF		0.1559 pF		0.2606 pF		0.3985 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0876	0.1029	0.1231	0.1246	0.1835	0.1548	0.2758	0.1947	0.4047	0.2471	0.5743	0.3149
B->Z	0.0960	0.1196	0.1315	0.1419	0.1919	0.1728	0.2842	0.2132	0.4131	0.2659	0.5827	0.3339
C->Z	0.1002	0.1327	0.1357	0.1557	0.1961	0.1871	0.2884	0.2281	0.4173	0.2811	0.5869	0.3494

AN3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0438 pF		0.1075 pF		0.2066 pF		0.3457 pF		0.5288 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0926	0.1079	0.1286	0.1302	0.1893	0.1610	0.2816	0.2012	0.4106	0.2537	0.5801	0.3212
B->Z	0.1008	0.1239	0.1368	0.1467	0.1976	0.1782	0.2899	0.2189	0.4189	0.2717	0.5884	0.3394
C->Z	0.1049	0.1365	0.1410	0.1600	0.2017	0.1920	0.2939	0.2332	0.4229	0.2863	0.5924	0.3544

Combinational Cell

AN4

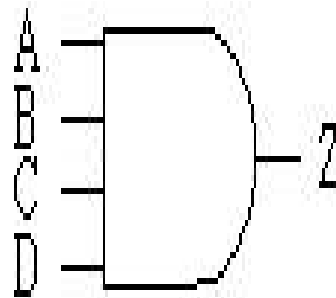
Cell Description

The AN4 cell provides the logical AND with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	X	X	X	0
X	0	X	X	0
X	X	0	X	0
X	X	X	0	0
1	1	1	1	1

Symbol



Cell List

AN4M0HM, AN4M1HM, AN4M2HM
, AN4M4HM, AN4M6HM
, AN4M8HM, AN4M12HM
, AN4M16HM

AN4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00123	0.00122	0.00122	0.00147	0.00264	0.00298	0.00446	0.00465
B	input	0.00131	0.00131	0.00130	0.00156	0.00280	0.00321	0.00447	0.00467
C	input	0.00132	0.00132	0.00132	0.00158	0.00301	0.00317	0.00447	0.00467
D	input	0.00143	0.00143	0.00143	0.00167	0.00330	0.00300	0.00452	0.00472
Z	output								

Power Dissipation (uW/MHz)

AN4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0038	0.0076	0.0039	0.0076	0.0040	0.0077	0.0040	0.0077	0.0040	0.0077	0.0040	0.0077
B->Z	0.0039	0.0089	0.0039	0.0089	0.0040	0.0090	0.0040	0.0090	0.0040	0.0090	0.0041	0.0090
C->Z	0.0039	0.0101	0.0039	0.0101	0.0040	0.0101	0.0040	0.0102	0.0040	0.0102	0.0040	0.0102
D->Z	0.0039	0.0112	0.0039	0.0112	0.0040	0.0112	0.0040	0.0113	0.0040	0.0113	0.0040	0.0113

AN4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0042	0.0080	0.0042	0.0080	0.0043	0.0081	0.0044	0.0081	0.0044	0.0081	0.0044	0.0081
B->Z	0.0042	0.0093	0.0043	0.0093	0.0043	0.0094	0.0044	0.0094	0.0044	0.0094	0.0044	0.0094
C->Z	0.0042	0.0105	0.0043	0.0105	0.0043	0.0105	0.0044	0.0106	0.0044	0.0106	0.0044	0.0106
D->Z	0.0042	0.0116	0.0043	0.0116	0.0043	0.0116	0.0044	0.0117	0.0044	0.0117	0.0044	0.0117

AN4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	0.0088	0.0051	0.0089	0.0052	0.0090	0.0052	0.0090	0.0053	0.0090	0.0053	0.0090
B->Z	0.0050	0.0101	0.0051	0.0102	0.0052	0.0102	0.0052	0.0103	0.0053	0.0103	0.0053	0.0103
C->Z	0.0050	0.0113	0.0051	0.0114	0.0052	0.0114	0.0052	0.0115	0.0053	0.0115	0.0053	0.0115
D->Z	0.0050	0.0124	0.0051	0.0125	0.0052	0.0125	0.0052	0.0125	0.0053	0.0126	0.0053	0.0126

AN4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0085	0.0129	0.0087	0.0130	0.0089	0.0132	0.0090	0.0132	0.0091	0.0133	0.0092	0.0133
B->Z	0.0085	0.0147	0.0087	0.0147	0.0089	0.0148	0.0090	0.0149	0.0091	0.0149	0.0092	0.0150
C->Z	0.0085	0.0163	0.0087	0.0163	0.0089	0.0164	0.0090	0.0165	0.0091	0.0165	0.0091	0.0165
D->Z	0.0085	0.0178	0.0087	0.0178	0.0089	0.0178	0.0090	0.0179	0.0091	0.0179	0.0091	0.0180

AN4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0410 pF		0.0783 pF		0.1306 pF		0.1994 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0127	0.0192	0.0130	0.0194	0.0134	0.0196	0.0136	0.0197	0.0138	0.0197	0.0139	0.0197
B->Z	0.0128	0.0223	0.0131	0.0224	0.0134	0.0226	0.0137	0.0227	0.0138	0.0228	0.0139	0.0228
C->Z	0.0128	0.0253	0.0131	0.0253	0.0134	0.0255	0.0137	0.0256	0.0138	0.0257	0.0139	0.0257
D->Z	0.0128	0.0280	0.0131	0.0280	0.0134	0.0281	0.0136	0.0282	0.0138	0.0283	0.0139	0.0283

AN4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0544 pF		0.1042 pF		0.1741 pF		0.2660 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0166	0.0240	0.0169	0.0243	0.0174	0.0245	0.0177	0.0247	0.0179	0.0248	0.0181	0.0248
B->Z	0.0167	0.0274	0.0170	0.0275	0.0174	0.0278	0.0178	0.0279	0.0180	0.0280	0.0181	0.0280
C->Z	0.0166	0.0326	0.0170	0.0326	0.0174	0.0328	0.0178	0.0330	0.0180	0.0331	0.0181	0.0331
D->Z	0.0167	0.0355	0.0170	0.0354	0.0174	0.0355	0.0178	0.0357	0.0180	0.0358	0.0181	0.0358

AN4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1556 pF		0.2602 pF		0.3979 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0248	0.0370	0.0253	0.0373	0.0261	0.0377	0.0265	0.0380	0.0268	0.0381	0.0270	0.0381
B->Z	0.0249	0.0442	0.0254	0.0443	0.0261	0.0446	0.0266	0.0449	0.0269	0.0450	0.0270	0.0451
C->Z	0.0249	0.0509	0.0254	0.0508	0.0261	0.0511	0.0266	0.0513	0.0269	0.0515	0.0270	0.0515
D->Z	0.0249	0.0571	0.0254	0.0569	0.0261	0.0571	0.0265	0.0573	0.0268	0.0574	0.0270	0.0575

AN4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0437 pF		0.1072 pF		0.2061 pF		0.3449 pF		0.5276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0325	0.0455	0.0330	0.0458	0.0338	0.0463	0.0345	0.0466	0.0349	0.0468	0.0352	0.0468
B->Z	0.0326	0.0528	0.0331	0.0528	0.0339	0.0532	0.0345	0.0535	0.0349	0.0537	0.0352	0.0538
C->Z	0.0326	0.0596	0.0331	0.0594	0.0339	0.0597	0.0345	0.0600	0.0349	0.0602	0.0351	0.0603
D->Z	0.0326	0.0659	0.0331	0.0655	0.0339	0.0657	0.0345	0.0660	0.0349	0.0661	0.0351	0.0662

Hidden Power (uW/MHz)

AN4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	0.0003	0.0003	0.0003	0.0003	0.0008	0.0012	0.0028	0.0024
A	F	0.0010	0.0010	0.0010	0.0013	0.0021	0.0026	0.0042	0.0046
B	R	-0.0005	-0.0005	-0.0005	-0.0007	-0.0010	-0.0007	-0.0019	-0.0023
B	F	0.0008	0.0008	0.0008	0.0011	0.0017	0.0021	0.0033	0.0038
C	R	-0.0007	-0.0007	-0.0007	-0.0010	-0.0015	-0.0020	-0.0032	-0.0036
C	F	0.0007	0.0007	0.0007	0.0010	0.0015	0.0020	0.0032	0.0036
D	R	-0.0007	-0.0007	-0.0007	-0.0010	-0.0015	-0.0020	-0.0032	-0.0036
D	F	0.0007	0.0007	0.0007	0.0010	0.0015	0.0020	0.0032	0.0036

Propagation Delays (ns)

AN4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1218	0.1191	0.1544	0.1371	0.2132	0.1657	0.3042	0.2052	0.4292	0.2568	0.5947	0.3240
B->Z	0.1321	0.1357	0.1647	0.1542	0.2235	0.1834	0.3145	0.2234	0.4394	0.2753	0.6050	0.3427
C->Z	0.1387	0.1492	0.1713	0.1681	0.2302	0.1978	0.3211	0.2383	0.4460	0.2905	0.6116	0.3581
D->Z	0.1423	0.1601	0.1749	0.1793	0.2337	0.2095	0.3246	0.2505	0.4495	0.3030	0.6151	0.3710

AN4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1178	0.1196	0.1525	0.1394	0.2122	0.1694	0.3031	0.2101	0.4292	0.2634	0.5957	0.3326
B->Z	0.1281	0.1361	0.1628	0.1565	0.2225	0.1871	0.3134	0.2283	0.4394	0.2818	0.6059	0.3512
C->Z	0.1347	0.1496	0.1694	0.1705	0.2291	0.2016	0.3200	0.2432	0.4460	0.2972	0.6125	0.3668
D->Z	0.1382	0.1604	0.1729	0.1818	0.2326	0.2134	0.3235	0.2555	0.4495	0.3098	0.6160	0.3797

AN4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1177	0.1243	0.1533	0.1455	0.2138	0.1771	0.3049	0.2190	0.4320	0.2739	0.5992	0.3446
B->Z	0.1279	0.1409	0.1635	0.1627	0.2240	0.1949	0.3151	0.2373	0.4422	0.2925	0.6094	0.3634
C->Z	0.1345	0.1544	0.1700	0.1768	0.2306	0.2095	0.3216	0.2524	0.4488	0.3079	0.6159	0.3791
D->Z	0.1379	0.1653	0.1735	0.1881	0.2340	0.2214	0.3250	0.2647	0.4522	0.3206	0.6193	0.3920

AN4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1150	0.1202	0.1528	0.1429	0.2145	0.1749	0.3066	0.2166	0.4349	0.2706	0.6033	0.3398
B->Z	0.1249	0.1354	0.1626	0.1586	0.2243	0.1912	0.3165	0.2334	0.4447	0.2877	0.6132	0.3572
C->Z	0.1312	0.1478	0.1689	0.1716	0.2306	0.2047	0.3227	0.2473	0.4510	0.3020	0.6194	0.3716
D->Z	0.1344	0.1580	0.1722	0.1823	0.2339	0.2159	0.3260	0.2590	0.4542	0.3140	0.6227	0.3839

AN4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0410 pF		0.0783 pF		0.1306 pF		0.1994 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0996	0.1115	0.1362	0.1334	0.1971	0.1643	0.2892	0.2051	0.4176	0.2582	0.5863	0.3265
B->Z	0.1096	0.1290	0.1462	0.1516	0.2071	0.1832	0.2992	0.2245	0.4276	0.2780	0.5963	0.3465
C->Z	0.1160	0.1432	0.1526	0.1664	0.2135	0.1986	0.3056	0.2405	0.4340	0.2943	0.6027	0.3631
D->Z	0.1194	0.1548	0.1560	0.1786	0.2169	0.2115	0.3090	0.2538	0.4374	0.3081	0.6061	0.3772

AN4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0544 pF		0.1042 pF		0.1741 pF		0.2660 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1070	0.1149	0.1453	0.1378	0.2072	0.1695	0.2996	0.2110	0.4285	0.2648	0.5976	0.3338
B->Z	0.1168	0.1284	0.1552	0.1517	0.2170	0.1838	0.3095	0.2256	0.4383	0.2796	0.6074	0.3488
C->Z	0.1285	0.1464	0.1668	0.1704	0.2287	0.2032	0.3212	0.2456	0.4500	0.3001	0.6191	0.3696
D->Z	0.1313	0.1566	0.1696	0.1812	0.2315	0.2146	0.3239	0.2575	0.4528	0.3124	0.6218	0.3823

AN4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1556 pF		0.2602 pF		0.3979 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0989	0.1092	0.1370	0.1317	0.1988	0.1627	0.2912	0.2032	0.4201	0.2558	0.5895	0.3236
B->Z	0.1111	0.1278	0.1492	0.1510	0.2111	0.1827	0.3035	0.2237	0.4324	0.2768	0.6018	0.3448
C->Z	0.1192	0.1431	0.1573	0.1670	0.2191	0.1994	0.3115	0.2410	0.4404	0.2945	0.6099	0.3629
D->Z	0.1235	0.1558	0.1616	0.1805	0.2234	0.2135	0.3157	0.2558	0.4447	0.3097	0.6141	0.3784

AN4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0437 pF		0.1072 pF		0.2061 pF		0.3449 pF		0.5276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1109	0.1129	0.1503	0.1359	0.2129	0.1673	0.3055	0.2081	0.4345	0.2608	0.6038	0.3283
B->Z	0.1231	0.1292	0.1625	0.1528	0.2252	0.1849	0.3178	0.2261	0.4467	0.2792	0.6160	0.3470
C->Z	0.1312	0.1427	0.1705	0.1668	0.2332	0.1995	0.3258	0.2413	0.4547	0.2948	0.6240	0.3628
D->Z	0.1354	0.1539	0.1748	0.1786	0.2374	0.2119	0.3301	0.2542	0.4589	0.3081	0.6282	0.3765

Combinational Cell

AO211

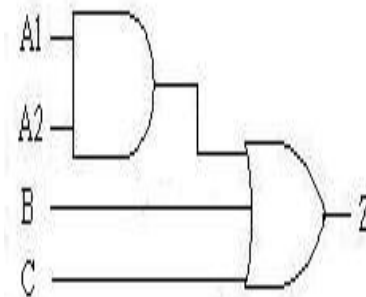
Cell Description

The AO211 cell provides an OR gate with three inputs, one of which is an AND gate's output.

Truth Table

A1	A2	B	C	Z
0	X	0	0	0
X	0	0	0	0
X	X	X	1	1
X	X	1	X	1
1	1	X	X	1

Symbol



Cell List

AO211M0HM, AO211M1HM, AO211M2HM
, AO211M4HM, AO211M8HM

AO211 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00165	0.00165	0.00164	0.00165	0.00314
A2	input	0.00172	0.00170	0.00169	0.00170	0.00355
B	input	0.00156	0.00156	0.00156	0.00157	0.00334
C	input	0.00158	0.00158	0.00158	0.00158	0.00313
Z	output					

Power Dissipation (uW/MHz)

AO211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0152 pF		0.0248 pF		0.0375 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0032	0.0092	0.0033	0.0092	0.0034	0.0092	0.0034	0.0092	0.0034	0.0093	0.0035	0.0093
A2->Z	0.0033	0.0105	0.0033	0.0105	0.0034	0.0105	0.0034	0.0105	0.0035	0.0105	0.0035	0.0105
B->Z	0.0052	0.0119	0.0052	0.0119	0.0053	0.0119	0.0053	0.0119	0.0053	0.0119	0.0054	0.0119
C->Z	0.0059	0.0130	0.0059	0.0130	0.0060	0.0131	0.0060	0.0131	0.0060	0.0131	0.0060	0.0131

AO211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0036	0.0095	0.0037	0.0095	0.0037	0.0096	0.0038	0.0096	0.0038	0.0096	0.0038	0.0096
A2->Z	0.0036	0.0108	0.0037	0.0108	0.0038	0.0108	0.0038	0.0108	0.0038	0.0109	0.0038	0.0109
B->Z	0.0055	0.0122	0.0056	0.0122	0.0056	0.0122	0.0057	0.0123	0.0057	0.0123	0.0057	0.0123
C->Z	0.0062	0.0133	0.0062	0.0133	0.0063	0.0134	0.0063	0.0134	0.0064	0.0134	0.0064	0.0134

AO211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0104	0.0047	0.0104	0.0048	0.0105	0.0049	0.0105	0.0049	0.0105	0.0050	0.0105
A2->Z	0.0046	0.0117	0.0047	0.0117	0.0048	0.0117	0.0049	0.0117	0.0049	0.0118	0.0050	0.0118
B->Z	0.0065	0.0131	0.0066	0.0131	0.0067	0.0131	0.0068	0.0131	0.0068	0.0132	0.0068	0.0132
C->Z	0.0072	0.0142	0.0073	0.0142	0.0074	0.0143	0.0074	0.0143	0.0075	0.0143	0.0075	0.0143

AO211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0145	0.0079	0.0142	0.0082	0.0142	0.0083	0.0142	0.0084	0.0142	0.0085	0.0142
A2->Z	0.0077	0.0160	0.0079	0.0156	0.0082	0.0155	0.0084	0.0155	0.0085	0.0155	0.0085	0.0155
B->Z	0.0096	0.0172	0.0098	0.0169	0.0100	0.0168	0.0102	0.0168	0.0103	0.0168	0.0103	0.0169
C->Z	0.0103	0.0183	0.0105	0.0180	0.0107	0.0180	0.0108	0.0180	0.0109	0.0180	0.0110	0.0180

AO211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1759 pF		0.2687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0151	0.0280	0.0156	0.0274	0.0161	0.0274	0.0164	0.0275	0.0166	0.0275	0.0167	0.0275
A2->Z	0.0151	0.0310	0.0156	0.0302	0.0161	0.0301	0.0165	0.0301	0.0166	0.0301	0.0167	0.0302
B->Z	0.0188	0.0340	0.0192	0.0334	0.0198	0.0334	0.0201	0.0334	0.0203	0.0334	0.0204	0.0335
C->Z	0.0203	0.0364	0.0207	0.0358	0.0212	0.0358	0.0215	0.0358	0.0217	0.0359	0.0219	0.0359

Hidden Power (uW/MHz)

AO211 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0005	-0.0010
A1	F	0.0013	0.0013	0.0013	0.0013	0.0026
A2	R	-0.0006	-0.0006	-0.0006	-0.0006	-0.0011
A2	F	0.0012	0.0012	0.0012	0.0012	0.0025
B	R	-0.0008	-0.0008	-0.0008	-0.0008	-0.0017
B	F	0.0009	0.0009	0.0009	0.0009	0.0020
C	R	-0.0014	-0.0014	-0.0014	-0.0014	-0.0029
C	F	0.0016	0.0016	0.0016	0.0016	0.0034

Propagation Delays (ns)

AO211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0152 pF		0.0248 pF		0.0375 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0931	0.1402	0.1235	0.1627	0.1804	0.1970	0.2678	0.2412	0.3908	0.2968	0.5534	0.3657
A2->Z	0.0962	0.1602	0.1266	0.1832	0.1836	0.2181	0.2710	0.2628	0.3940	0.3188	0.5566	0.3880
B->Z	0.0995	0.2100	0.1301	0.2330	0.1872	0.2679	0.2748	0.3126	0.3980	0.3686	0.5608	0.4379
C->Z	0.1033	0.2197	0.1338	0.2427	0.1911	0.2775	0.2788	0.3223	0.4021	0.3783	0.5650	0.4475

AO211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0888	0.1401	0.1207	0.1649	0.1797	0.2014	0.2701	0.2480	0.3962	0.3060	0.5631	0.3779
A2->Z	0.0919	0.1601	0.1239	0.1854	0.1829	0.2226	0.2733	0.2697	0.3994	0.3281	0.5663	0.4003
B->Z	0.0948	0.2099	0.1266	0.2353	0.1857	0.2724	0.2764	0.3196	0.4026	0.3779	0.5697	0.4502
C->Z	0.0986	0.2196	0.1306	0.2449	0.1899	0.2821	0.2807	0.3293	0.4070	0.3876	0.5742	0.4599

AO211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0884	0.1475	0.1204	0.1739	0.1792	0.2119	0.2696	0.2601	0.3968	0.3200	0.5645	0.3939
A2->Z	0.0915	0.1676	0.1236	0.1945	0.1823	0.2332	0.2727	0.2818	0.3999	0.3422	0.5677	0.4164
B->Z	0.0941	0.2176	0.1257	0.2445	0.1847	0.2831	0.2752	0.3318	0.4026	0.3922	0.5705	0.4663
C->Z	0.0979	0.2273	0.1298	0.2542	0.1889	0.2928	0.2796	0.3415	0.4071	0.4019	0.5750	0.4760

AO211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0929	0.1815	0.1267	0.2125	0.1866	0.2550	0.2784	0.3070	0.4069	0.3696	0.5755	0.4447
A2->Z	0.0960	0.2023	0.1298	0.2340	0.1897	0.2772	0.2815	0.3297	0.4100	0.3928	0.5786	0.4682
B->Z	0.0950	0.2524	0.1277	0.2841	0.1874	0.3273	0.2794	0.3798	0.4080	0.4429	0.5767	0.5183
C->Z	0.0984	0.2621	0.1315	0.2938	0.1914	0.3370	0.2834	0.3895	0.4122	0.4526	0.5809	0.5280

AO211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1759 pF		0.2687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0879	0.1686	0.1220	0.1997	0.1820	0.2418	0.2742	0.2932	0.4033	0.3553	0.5728	0.4302
A2->Z	0.0911	0.1875	0.1252	0.2192	0.1852	0.2618	0.2775	0.3138	0.4066	0.3763	0.5760	0.4515
B->Z	0.0933	0.2389	0.1264	0.2707	0.1863	0.3133	0.2788	0.3652	0.4080	0.4278	0.5776	0.5029
C->Z	0.0966	0.2487	0.1302	0.2804	0.1903	0.3231	0.2830	0.3750	0.4123	0.4375	0.5820	0.5127

Combinational Cell

AO21

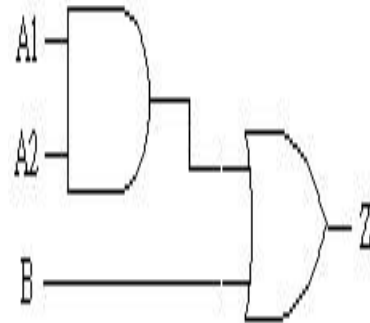
Cell Description

The AO21 cell provides an OR gate with two inputs, one of which is an AND gate's output.

Truth Table

A1	A2	B	Z
0	X	0	0
X	0	0	0
X	X	1	1
1	1	X	1

Symbol



Cell List

AO21M0HM, AO21M1HM, AO21M2HM
, AO21M4HM, AO21M8HM

AO21 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00166	0.00166	0.00158	0.00175	0.00317
A2	input	0.00157	0.00156	0.00154	0.00171	0.00315
B	input	0.00158	0.00158	0.00157	0.00173	0.00296
Z	output					

Power Dissipation (uW/MHz)

AO21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0152 pF		0.0248 pF		0.0374 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0079	0.0035	0.0080	0.0035	0.0080	0.0036	0.0080	0.0036	0.0080	0.0036	0.0080
A2->Z	0.0034	0.0092	0.0035	0.0092	0.0036	0.0093	0.0036	0.0093	0.0036	0.0093	0.0036	0.0093
B->Z	0.0049	0.0104	0.0050	0.0105	0.0050	0.0105	0.0051	0.0105	0.0051	0.0105	0.0051	0.0105

AO21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0037	0.0083	0.0038	0.0083	0.0039	0.0084	0.0039	0.0084	0.0040	0.0084	0.0040	0.0084
A2->Z	0.0037	0.0096	0.0038	0.0096	0.0039	0.0097	0.0039	0.0097	0.0040	0.0097	0.0040	0.0097
B->Z	0.0052	0.0108	0.0053	0.0109	0.0054	0.0109	0.0054	0.0109	0.0054	0.0109	0.0054	0.0110

AO21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0090	0.0046	0.0091	0.0048	0.0092	0.0048	0.0092	0.0049	0.0092	0.0049	0.0092
A2->Z	0.0045	0.0103	0.0047	0.0104	0.0048	0.0104	0.0048	0.0105	0.0049	0.0105	0.0049	0.0105
B->Z	0.0060	0.0115	0.0061	0.0116	0.0062	0.0117	0.0063	0.0117	0.0063	0.0117	0.0063	0.0117

AO21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1343 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0131	0.0080	0.0131	0.0082	0.0132	0.0084	0.0133	0.0085	0.0133	0.0085	0.0133
A2->Z	0.0077	0.0146	0.0080	0.0146	0.0083	0.0147	0.0084	0.0147	0.0085	0.0148	0.0085	0.0148
B->Z	0.0095	0.0159	0.0097	0.0159	0.0099	0.0161	0.0100	0.0161	0.0101	0.0161	0.0102	0.0162

AO21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0148	0.0256	0.0153	0.0256	0.0159	0.0258	0.0162	0.0260	0.0163	0.0260	0.0164	0.0261
A2->Z	0.0148	0.0302	0.0154	0.0300	0.0159	0.0302	0.0162	0.0303	0.0164	0.0304	0.0165	0.0304
B->Z	0.0182	0.0317	0.0186	0.0316	0.0191	0.0318	0.0194	0.0320	0.0196	0.0320	0.0197	0.0321

Hidden Power (uW/MHz)

AO21 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0007	-0.0008
A1	F	0.0011	0.0011	0.0011	0.0013	0.0026
A2	R	-0.0006	-0.0006	-0.0006	-0.0008	-0.0015
A2	F	0.0010	0.0010	0.0010	0.0012	0.0024
B	R	-0.0011	-0.0011	-0.0011	-0.0013	-0.0026
B	F	0.0014	0.0014	0.0014	0.0016	0.0032

Propagation Delays (ns)

AO21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0152 pF		0.0248 pF		0.0374 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0884	0.1148	0.1186	0.1334	0.1754	0.1624	0.2627	0.2014	0.3856	0.2526	0.5467	0.3179
A2->Z	0.0919	0.1302	0.1221	0.1491	0.1790	0.1786	0.2662	0.2180	0.3891	0.2695	0.5502	0.3350
B->Z	0.0943	0.1553	0.1247	0.1741	0.1817	0.2037	0.2691	0.2430	0.3922	0.2945	0.5534	0.3600

AO21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0842	0.1156	0.1159	0.1363	0.1748	0.1675	0.2651	0.2091	0.3910	0.2630	0.5578	0.3324
A2->Z	0.0877	0.1309	0.1194	0.1520	0.1783	0.1837	0.2686	0.2257	0.3945	0.2798	0.5612	0.3495
B->Z	0.0899	0.1561	0.1218	0.1771	0.1808	0.2089	0.2713	0.2508	0.3973	0.3050	0.5642	0.3746

AO21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0823	0.1198	0.1139	0.1419	0.1724	0.1744	0.2638	0.2179	0.3904	0.2735	0.5581	0.3450
A2->Z	0.0857	0.1350	0.1173	0.1574	0.1758	0.1904	0.2672	0.2343	0.3938	0.2902	0.5615	0.3618
B->Z	0.0874	0.1602	0.1192	0.1826	0.1778	0.2155	0.2694	0.2595	0.3962	0.3154	0.5640	0.3870

AO21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1343 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0843	0.1330	0.1173	0.1580	0.1770	0.1930	0.2687	0.2376	0.3971	0.2938	0.5662	0.3647
A2->Z	0.0876	0.1475	0.1207	0.1729	0.1803	0.2083	0.2720	0.2532	0.4004	0.3098	0.5696	0.3808
B->Z	0.0869	0.1717	0.1191	0.1971	0.1788	0.2325	0.2706	0.2774	0.3991	0.3340	0.5683	0.4050

AO21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0820	0.1296	0.1157	0.1551	0.1754	0.1901	0.2677	0.2345	0.3968	0.2903	0.5663	0.3604
A2->Z	0.0878	0.1506	0.1215	0.1769	0.1813	0.2125	0.2736	0.2575	0.4027	0.3138	0.5722	0.3842
B->Z	0.0871	0.1744	0.1211	0.2007	0.1809	0.2363	0.2734	0.2813	0.4026	0.3376	0.5722	0.4080

Combinational Cell

AO221

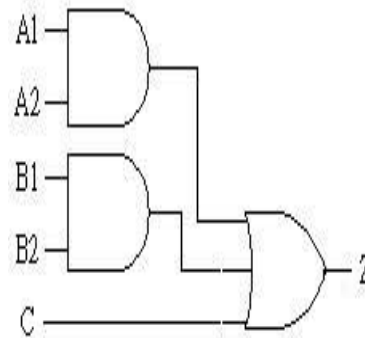
Cell Description

The AO221 cell provides an OR gate with three inputs, two of which are AND gates' outputs.

Truth Table

A1	A2	B1	B2	C	Z
0	X	0	X	0	0
0	X	X	0	0	0
X	0	0	X	0	0
X	0	X	0	0	0
X	X	X	X	1	1
X	X	1	1	X	1
1	1	X	X	X	1

Symbol



Cell List

AO221M0HM, AO221M1HM, AO221M2HM
, AO221M4HM, AO221M8HM

AO221 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00172	0.00172	0.00171	0.00171	0.00356
A2	input	0.00164	0.00164	0.00163	0.00163	0.00334
B1	input	0.00170	0.00169	0.00169	0.00166	0.00344
B2	input	0.00166	0.00166	0.00166	0.00163	0.00325
C	input	0.00156	0.00155	0.00155	0.00158	0.00284
Z	output					

Power Dissipation (uW/MHz)

AO221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0102	0.0035	0.0102	0.0035	0.0103	0.0036	0.0103	0.0036	0.0103	0.0036	0.0103
A2->Z	0.0034	0.0115	0.0035	0.0115	0.0035	0.0115	0.0036	0.0116	0.0036	0.0116	0.0036	0.0116
B1->Z	0.0059	0.0133	0.0060	0.0133	0.0061	0.0133	0.0061	0.0133	0.0061	0.0133	0.0061	0.0133
B2->Z	0.0059	0.0145	0.0060	0.0145	0.0061	0.0146	0.0061	0.0146	0.0061	0.0146	0.0062	0.0146
C->Z	0.0075	0.0158	0.0075	0.0158	0.0076	0.0158	0.0076	0.0158	0.0076	0.0158	0.0076	0.0158

AO221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0037	0.0106	0.0038	0.0106	0.0039	0.0107	0.0039	0.0107	0.0040	0.0107	0.0040	0.0107
A2->Z	0.0037	0.0119	0.0038	0.0119	0.0039	0.0119	0.0039	0.0119	0.0040	0.0119	0.0040	0.0120
B1->Z	0.0063	0.0137	0.0063	0.0137	0.0064	0.0137	0.0065	0.0137	0.0065	0.0137	0.0065	0.0137
B2->Z	0.0063	0.0149	0.0063	0.0149	0.0064	0.0149	0.0065	0.0150	0.0065	0.0150	0.0065	0.0150
C->Z	0.0078	0.0162	0.0079	0.0162	0.0079	0.0162	0.0080	0.0162	0.0080	0.0162	0.0080	0.0162

AO221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0115	0.0047	0.0115	0.0048	0.0116	0.0049	0.0116	0.0049	0.0116	0.0050	0.0116
A2->Z	0.0046	0.0128	0.0047	0.0128	0.0049	0.0128	0.0049	0.0128	0.0050	0.0128	0.0050	0.0128
B1->Z	0.0071	0.0146	0.0072	0.0146	0.0073	0.0146	0.0074	0.0146	0.0075	0.0146	0.0075	0.0146
B2->Z	0.0072	0.0158	0.0073	0.0158	0.0074	0.0158	0.0074	0.0159	0.0075	0.0159	0.0075	0.0159
C->Z	0.0087	0.0171	0.0088	0.0171	0.0089	0.0171	0.0089	0.0171	0.0090	0.0171	0.0090	0.0171

AO221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0154	0.0080	0.0151	0.0082	0.0151	0.0084	0.0151	0.0085	0.0151	0.0085	0.0151
A2->Z	0.0077	0.0169	0.0080	0.0165	0.0082	0.0165	0.0084	0.0164	0.0085	0.0164	0.0085	0.0165
B1->Z	0.0103	0.0185	0.0104	0.0182	0.0107	0.0181	0.0108	0.0182	0.0109	0.0182	0.0110	0.0182
B2->Z	0.0103	0.0200	0.0105	0.0196	0.0107	0.0195	0.0108	0.0195	0.0109	0.0195	0.0110	0.0195
C->Z	0.0118	0.0210	0.0120	0.0208	0.0122	0.0207	0.0123	0.0207	0.0124	0.0207	0.0125	0.0207

AO221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1760 pF		0.2689 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0155	0.0322	0.0159	0.0314	0.0165	0.0314	0.0168	0.0314	0.0170	0.0314	0.0171	0.0314
A2->Z	0.0155	0.0351	0.0159	0.0342	0.0165	0.0340	0.0168	0.0340	0.0170	0.0340	0.0171	0.0340
B1->Z	0.0201	0.0381	0.0203	0.0373	0.0208	0.0372	0.0211	0.0372	0.0213	0.0372	0.0215	0.0372
B2->Z	0.0201	0.0410	0.0203	0.0401	0.0208	0.0399	0.0211	0.0398	0.0213	0.0398	0.0215	0.0398
C->Z	0.0235	0.0432	0.0238	0.0426	0.0242	0.0424	0.0246	0.0425	0.0248	0.0425	0.0249	0.0425

Hidden Power (uW/MHz)

AO221 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0006	-0.0006	-0.0006	-0.0006	-0.0013
A1	F	0.0018	0.0018	0.0018	0.0018	0.0034
A2	R	-0.0007	-0.0007	-0.0007	-0.0007	-0.0014
A2	F	0.0017	0.0017	0.0017	0.0017	0.0033
B1	R	-0.0009	-0.0009	-0.0009	-0.0009	-0.0019
B1	F	0.0012	0.0012	0.0012	0.0012	0.0025
B2	R	-0.0010	-0.0010	-0.0010	-0.0010	-0.0020
B2	F	0.0011	0.0011	0.0011	0.0011	0.0024
C	R	-0.0013	-0.0013	-0.0013	-0.0013	-0.0026
C	F	0.0018	0.0018	0.0018	0.0018	0.0036

Propagation Delays (ns)
AO221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1025	0.1602	0.1334	0.1837	0.1917	0.2202	0.2815	0.2672	0.4083	0.3260	0.5733	0.3970
A2->Z	0.1059	0.1793	0.1369	0.2033	0.1951	0.2403	0.2850	0.2879	0.4117	0.3470	0.5767	0.4183
B1->Z	0.1197	0.2307	0.1506	0.2542	0.2093	0.2908	0.2996	0.3379	0.4268	0.3967	0.5921	0.4678
B2->Z	0.1230	0.2490	0.1539	0.2731	0.2126	0.3102	0.3029	0.3577	0.4301	0.4168	0.5954	0.4882
C->Z	0.1169	0.2704	0.1480	0.2944	0.2069	0.3315	0.2973	0.3790	0.4246	0.4381	0.5899	0.5095

AO221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0981	0.1609	0.1308	0.1870	0.1898	0.2253	0.2802	0.2739	0.4062	0.3338	0.5729	0.4073
A2->Z	0.1015	0.1800	0.1342	0.2066	0.1932	0.2455	0.2836	0.2946	0.4096	0.3549	0.5763	0.4287
B1->Z	0.1154	0.2315	0.1480	0.2576	0.2075	0.2960	0.2983	0.3447	0.4246	0.4046	0.5917	0.4782
B2->Z	0.1187	0.2499	0.1513	0.2765	0.2108	0.3154	0.3016	0.3645	0.4279	0.4248	0.5950	0.4986
C->Z	0.1122	0.2712	0.1450	0.2979	0.2048	0.3367	0.2957	0.3859	0.4222	0.4461	0.5893	0.5199

AO221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0967	0.1675	0.1296	0.1953	0.1885	0.2353	0.2794	0.2859	0.4063	0.3479	0.5737	0.4234
A2->Z	0.1000	0.1866	0.1330	0.2150	0.1919	0.2555	0.2828	0.3066	0.4097	0.3690	0.5771	0.4448
B1->Z	0.1141	0.2385	0.1470	0.2663	0.2062	0.3064	0.2975	0.3571	0.4248	0.4191	0.5925	0.4946
B2->Z	0.1174	0.2568	0.1503	0.2852	0.2095	0.3257	0.3008	0.3768	0.4281	0.4392	0.5958	0.5150
C->Z	0.1105	0.2783	0.1434	0.3066	0.2028	0.3472	0.2944	0.3983	0.4218	0.4606	0.5895	0.5364

AO221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1000	0.2000	0.1352	0.2323	0.1955	0.2765	0.2872	0.3304	0.4157	0.3948	0.5845	0.4716
A2->Z	0.1033	0.2197	0.1385	0.2527	0.1988	0.2976	0.2906	0.3519	0.4190	0.4168	0.5878	0.4939
B1->Z	0.1163	0.2711	0.1511	0.3035	0.2115	0.3478	0.3036	0.4017	0.4324	0.4661	0.6015	0.5431
B2->Z	0.1195	0.2899	0.1543	0.3230	0.2147	0.3678	0.3069	0.4221	0.4357	0.4870	0.6048	0.5641
C->Z	0.1094	0.3120	0.1438	0.3450	0.2042	0.3898	0.2965	0.4442	0.4253	0.5090	0.5945	0.5862

AO221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1760 pF		0.2689 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0981	0.2019	0.1342	0.2358	0.1949	0.2809	0.2871	0.3355	0.4164	0.4005	0.5861	0.4778
A2->Z	0.1012	0.2219	0.1374	0.2566	0.1980	0.3025	0.2903	0.3576	0.4196	0.4231	0.5893	0.5008
B1->Z	0.1135	0.2643	0.1491	0.2981	0.2098	0.3433	0.3024	0.3978	0.4320	0.4628	0.6019	0.5401
B2->Z	0.1166	0.2843	0.1523	0.3190	0.2130	0.3648	0.3056	0.4199	0.4352	0.4855	0.6051	0.5631
C->Z	0.1111	0.3076	0.1467	0.3422	0.2075	0.3881	0.3003	0.4432	0.4301	0.5088	0.6001	0.5864

Combinational Cell

AO222

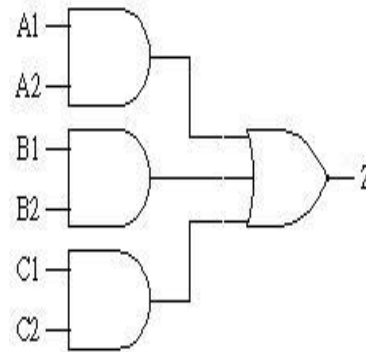
Cell Description

The AO222 cell provides an OR gate with three inputs, all of which are AND gates' outputs.

Truth Table

A1	A2	B1	B2	C1	C2	Z
0	X	0	X	0	X	0
0	X	0	X	X	0	0
0	X	X	0	0	X	0
0	X	X	0	X	0	0
X	0	0	X	0	X	0
X	0	0	X	X	0	0
X	0	X	0	0	X	0
X	0	X	0	X	0	0
X	X	X	X	1	1	1
X	X	1	1	X	X	1
1	1	X	X	X	X	1

Symbol



Cell List

AO222M0HM, AO222M1HM, AO222M2HM
, AO222M4HM, AO222M8HM

AO222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00135	0.00132	0.00132	0.00164	0.00324
A2	input	0.00133	0.00133	0.00133	0.00167	0.00354
B1	input	0.00134	0.00133	0.00132	0.00163	0.00319
B2	input	0.00135	0.00137	0.00136	0.00162	0.00357
C1	input	0.00136	0.00136	0.00136	0.00165	0.00319
C2	input	0.00138	0.00138	0.00138	0.00171	0.00352
Z	output					

Power Dissipation (uW/MHz)

AO222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0099	0.0034	0.0099	0.0035	0.0099	0.0035	0.0099	0.0036	0.0099	0.0036	0.0099
A2->Z	0.0034	0.0109	0.0035	0.0109	0.0035	0.0109	0.0036	0.0109	0.0036	0.0109	0.0036	0.0109
B1->Z	0.0053	0.0124	0.0053	0.0124	0.0054	0.0124	0.0054	0.0124	0.0055	0.0125	0.0055	0.0125
B2->Z	0.0053	0.0134	0.0053	0.0134	0.0054	0.0134	0.0054	0.0134	0.0055	0.0135	0.0055	0.0135
C1->Z	0.0068	0.0147	0.0068	0.0147	0.0069	0.0147	0.0069	0.0147	0.0069	0.0147	0.0069	0.0147
C2->Z	0.0068	0.0157	0.0068	0.0157	0.0069	0.0157	0.0069	0.0157	0.0069	0.0157	0.0069	0.0157

AO222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0037	0.0103	0.0038	0.0103	0.0039	0.0103	0.0039	0.0103	0.0040	0.0103	0.0040	0.0103
A2->Z	0.0037	0.0113	0.0038	0.0113	0.0039	0.0113	0.0039	0.0113	0.0040	0.0113	0.0040	0.0113
B1->Z	0.0056	0.0128	0.0057	0.0128	0.0058	0.0128	0.0058	0.0128	0.0058	0.0128	0.0059	0.0128
B2->Z	0.0056	0.0139	0.0057	0.0138	0.0058	0.0138	0.0058	0.0138	0.0058	0.0138	0.0059	0.0138
C1->Z	0.0071	0.0151	0.0072	0.0151	0.0072	0.0151	0.0073	0.0151	0.0073	0.0151	0.0073	0.0151
C2->Z	0.0071	0.0161	0.0072	0.0160	0.0072	0.0160	0.0073	0.0161	0.0073	0.0161	0.0073	0.0161

AO222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0112	0.0046	0.0111	0.0048	0.0112	0.0048	0.0112	0.0049	0.0112	0.0049	0.0112
A2->Z	0.0045	0.0123	0.0046	0.0122	0.0048	0.0122	0.0048	0.0122	0.0049	0.0122	0.0049	0.0122
B1->Z	0.0064	0.0137	0.0065	0.0137	0.0066	0.0137	0.0067	0.0137	0.0067	0.0137	0.0068	0.0137
B2->Z	0.0064	0.0148	0.0065	0.0147	0.0066	0.0147	0.0067	0.0147	0.0067	0.0147	0.0068	0.0147
C1->Z	0.0079	0.0160	0.0080	0.0159	0.0081	0.0160	0.0081	0.0160	0.0082	0.0160	0.0082	0.0160
C2->Z	0.0079	0.0170	0.0080	0.0169	0.0081	0.0169	0.0081	0.0169	0.0082	0.0169	0.0082	0.0169

AO222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0881 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0078	0.0167	0.0080	0.0164	0.0082	0.0163	0.0084	0.0163	0.0085	0.0164	0.0085	0.0164
A2->Z	0.0078	0.0181	0.0080	0.0178	0.0082	0.0177	0.0084	0.0177	0.0085	0.0177	0.0085	0.0177
B1->Z	0.0103	0.0199	0.0104	0.0196	0.0106	0.0195	0.0108	0.0195	0.0109	0.0195	0.0110	0.0195
B2->Z	0.0103	0.0213	0.0104	0.0209	0.0106	0.0208	0.0108	0.0208	0.0109	0.0208	0.0110	0.0208
C1->Z	0.0122	0.0225	0.0123	0.0222	0.0124	0.0221	0.0126	0.0221	0.0127	0.0222	0.0127	0.0222
C2->Z	0.0122	0.0239	0.0123	0.0236	0.0125	0.0234	0.0126	0.0234	0.0127	0.0234	0.0127	0.0234

AO222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1744 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0151	0.0317	0.0155	0.0311	0.0161	0.0311	0.0164	0.0311	0.0166	0.0311	0.0167	0.0311
A2->Z	0.0151	0.0346	0.0156	0.0339	0.0161	0.0337	0.0164	0.0337	0.0166	0.0337	0.0167	0.0337
B1->Z	0.0200	0.0378	0.0203	0.0372	0.0208	0.0371	0.0211	0.0371	0.0213	0.0372	0.0214	0.0372
B2->Z	0.0200	0.0407	0.0203	0.0399	0.0208	0.0398	0.0211	0.0398	0.0213	0.0398	0.0215	0.0398
C1->Z	0.0241	0.0431	0.0243	0.0425	0.0247	0.0424	0.0250	0.0424	0.0252	0.0424	0.0253	0.0425
C2->Z	0.0241	0.0460	0.0243	0.0452	0.0247	0.0450	0.0250	0.0450	0.0252	0.0450	0.0253	0.0451

Hidden Power (uW/MHz)

AO222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0007	-0.0016
A1	F	0.0013	0.0013	0.0013	0.0018	0.0036
A2	R	-0.0006	-0.0006	-0.0006	-0.0008	-0.0018
A2	F	0.0013	0.0013	0.0013	0.0017	0.0034
B1	R	-0.0008	-0.0008	-0.0008	-0.0011	-0.0023
B1	F	0.0011	0.0011	0.0011	0.0014	0.0030
B2	R	-0.0009	-0.0009	-0.0009	-0.0012	-0.0025
B2	F	0.0010	0.0010	0.0010	0.0013	0.0028
C1	R	-0.0010	-0.0010	-0.0010	-0.0013	-0.0027
C1	F	0.0012	0.0012	0.0012	0.0017	0.0034
C2	R	-0.0011	-0.0011	-0.0011	-0.0014	-0.0029
C2	F	0.0012	0.0012	0.0012	0.0016	0.0032

Propagation Delays (ns)

AO222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1184	0.2163	0.1506	0.2428	0.2093	0.2830	0.3004	0.3344	0.4257	0.3960	0.5917	0.4704
A2->Z	0.1223	0.2362	0.1545	0.2632	0.2132	0.3040	0.3043	0.3560	0.4296	0.4179	0.5956	0.4927
B1->Z	0.1374	0.2931	0.1695	0.3196	0.2285	0.3598	0.3200	0.4114	0.4457	0.4729	0.6120	0.5475
B2->Z	0.1412	0.3124	0.1733	0.3394	0.2322	0.3802	0.3238	0.4321	0.4494	0.4941	0.6158	0.5689
C1->Z	0.1506	0.3232	0.1838	0.3496	0.2437	0.3898	0.3360	0.4412	0.4623	0.5027	0.6290	0.5771
C2->Z	0.1539	0.3438	0.1871	0.3708	0.2470	0.4115	0.3393	0.4635	0.4655	0.5254	0.6323	0.6002

AO222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1140	0.2177	0.1483	0.2471	0.2079	0.2892	0.2982	0.3415	0.4250	0.4052	0.5915	0.4814
A2->Z	0.1178	0.2375	0.1522	0.2675	0.2118	0.3102	0.3021	0.3631	0.4289	0.4271	0.5954	0.5037
B1->Z	0.1331	0.2946	0.1672	0.3240	0.2271	0.3662	0.3178	0.4186	0.4450	0.4823	0.6118	0.5585
B2->Z	0.1368	0.3139	0.1710	0.3438	0.2308	0.3866	0.3216	0.4394	0.4488	0.5035	0.6156	0.5800
C1->Z	0.1457	0.3246	0.1810	0.3538	0.2420	0.3959	0.3336	0.4482	0.4613	0.5117	0.6286	0.5878
C2->Z	0.1489	0.3454	0.1843	0.3754	0.2453	0.4181	0.3368	0.4710	0.4646	0.5350	0.6318	0.6115

AO222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1123	0.2263	0.1473	0.2577	0.2074	0.3022	0.2987	0.3570	0.4257	0.4226	0.5929	0.5011
A2->Z	0.1162	0.2461	0.1512	0.2780	0.2113	0.3232	0.3026	0.3785	0.4295	0.4446	0.5967	0.5233
B1->Z	0.1317	0.3033	0.1664	0.3346	0.2267	0.3792	0.3183	0.4341	0.4457	0.4997	0.6132	0.5783
B2->Z	0.1354	0.3224	0.1701	0.3543	0.2305	0.3995	0.3221	0.4548	0.4495	0.5209	0.6170	0.5996
C1->Z	0.1442	0.3330	0.1802	0.3642	0.2417	0.4087	0.3342	0.4634	0.4621	0.5289	0.6300	0.6073
C2->Z	0.1474	0.3539	0.1835	0.3859	0.2450	0.4310	0.3374	0.4864	0.4654	0.5524	0.6333	0.6311

AO222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0881 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1053	0.2303	0.1419	0.2640	0.2027	0.3097	0.2948	0.3650	0.4230	0.4305	0.5920	0.5083
A2->Z	0.1087	0.2490	0.1453	0.2834	0.2061	0.3296	0.2982	0.3854	0.4264	0.4513	0.5954	0.5295
B1->Z	0.1229	0.3025	0.1591	0.3362	0.2200	0.3819	0.3124	0.4373	0.4410	0.5028	0.6102	0.5807
B2->Z	0.1262	0.3207	0.1624	0.3551	0.2233	0.4013	0.3157	0.4571	0.4443	0.5230	0.6135	0.6011
C1->Z	0.1329	0.3268	0.1702	0.3604	0.2321	0.4060	0.3252	0.4612	0.4542	0.5265	0.6238	0.6043
C2->Z	0.1359	0.3477	0.1732	0.3821	0.2351	0.4283	0.3282	0.4841	0.4572	0.5500	0.6268	0.6281

AO222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1744 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0992	0.2126	0.1360	0.2459	0.1969	0.2904	0.2893	0.3440	0.4184	0.4079	0.5878	0.4837
A2->Z	0.1024	0.2307	0.1392	0.2647	0.2001	0.3098	0.2925	0.3639	0.4216	0.4281	0.5910	0.5042
B1->Z	0.1153	0.2797	0.1515	0.3130	0.2124	0.3574	0.3051	0.4111	0.4345	0.4750	0.6041	0.5509
B2->Z	0.1183	0.2976	0.1545	0.3317	0.2155	0.3767	0.3082	0.4308	0.4375	0.4950	0.6072	0.5712
C1->Z	0.1242	0.3077	0.1617	0.3410	0.2236	0.3854	0.3170	0.4391	0.4468	0.5030	0.6168	0.5789
C2->Z	0.1272	0.3253	0.1646	0.3593	0.2266	0.4043	0.3200	0.4585	0.4498	0.5227	0.6198	0.5988

Combinational Cell

AO22B10

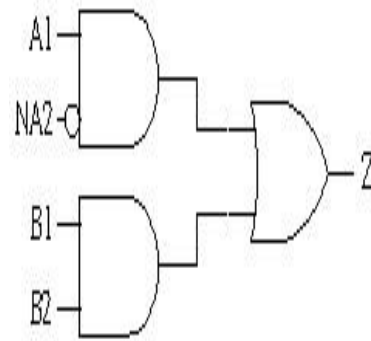
Cell Description

The AO22B10 cell provides an OR gate with two AND gates' outputs as inputs. One of the AND gate's input is inverted (NA2).

Truth Table

A1	NA2	B1	B2	Z
0	X	0	X	0
0	X	X	0	0
X	1	0	X	0
X	1	X	0	0
X	X	1	1	1
1	0	X	X	1

Symbol



Cell List

AO22B10M0HM, AO22B10M1HM, AO22B10M2HM
, AO22B10M4HM, AO22B10M8HM

AO22B10 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00139	0.00139	0.00139	0.00181	0.00359
B1	input	0.00131	0.00131	0.00131	0.00173	0.00360
B2	input	0.00143	0.00143	0.00143	0.00184	0.00345
NA2	input	0.00128	0.00128	0.00127	0.00127	0.00138
Z	output					

Power Dissipation (uW/MHz)

AO22B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0035	0.0092	0.0035	0.0092	0.0036	0.0092	0.0036	0.0092	0.0037	0.0092	0.0037	0.0093
B1->Z	0.0050	0.0116	0.0050	0.0116	0.0051	0.0116	0.0051	0.0116	0.0051	0.0116	0.0052	0.0116
B2->Z	0.0050	0.0125	0.0050	0.0125	0.0051	0.0125	0.0051	0.0126	0.0051	0.0126	0.0052	0.0126
NA2->Z	0.0096	0.0105	0.0096	0.0105	0.0097	0.0105	0.0097	0.0105	0.0097	0.0105	0.0098	0.0105

AO22B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0038	0.0095	0.0039	0.0096	0.0040	0.0096	0.0040	0.0096	0.0041	0.0097	0.0041	0.0097
B1->Z	0.0053	0.0119	0.0054	0.0120	0.0054	0.0120	0.0055	0.0120	0.0055	0.0120	0.0055	0.0120
B2->Z	0.0053	0.0129	0.0054	0.0129	0.0054	0.0129	0.0055	0.0130	0.0055	0.0130	0.0056	0.0130
NA2->Z	0.0099	0.0108	0.0100	0.0109	0.0101	0.0109	0.0101	0.0109	0.0101	0.0109	0.0102	0.0109

AO22B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0048	0.0104	0.0049	0.0104	0.0050	0.0105	0.0051	0.0105	0.0051	0.0105	0.0052	0.0105
B1->Z	0.0063	0.0128	0.0064	0.0128	0.0065	0.0128	0.0065	0.0129	0.0066	0.0129	0.0066	0.0129
B2->Z	0.0063	0.0137	0.0064	0.0138	0.0065	0.0138	0.0065	0.0138	0.0066	0.0138	0.0066	0.0138
NA2->Z	0.0108	0.0117	0.0110	0.0117	0.0111	0.0117	0.0111	0.0118	0.0112	0.0118	0.0112	0.0118

AO22B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0282 pF		0.0535 pF		0.0890 pF		0.1357 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0081	0.0154	0.0084	0.0154	0.0086	0.0154	0.0088	0.0155	0.0089	0.0155	0.0089	0.0156
B1->Z	0.0104	0.0187	0.0106	0.0187	0.0108	0.0188	0.0110	0.0189	0.0111	0.0189	0.0111	0.0189
B2->Z	0.0104	0.0202	0.0106	0.0202	0.0108	0.0202	0.0110	0.0203	0.0111	0.0203	0.0111	0.0203
NA2->Z	0.0152	0.0174	0.0155	0.0173	0.0157	0.0173	0.0159	0.0174	0.0160	0.0174	0.0160	0.0174

AO22B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1050 pF		0.1754 pF		0.2681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0157	0.0286	0.0162	0.0286	0.0167	0.0287	0.0170	0.0289	0.0172	0.0289	0.0173	0.0290
B1->Z	0.0199	0.0347	0.0203	0.0346	0.0208	0.0348	0.0211	0.0350	0.0213	0.0350	0.0214	0.0351
B2->Z	0.0199	0.0377	0.0203	0.0375	0.0208	0.0377	0.0211	0.0378	0.0213	0.0379	0.0214	0.0379
NA2->Z	0.0264	0.0323	0.0268	0.0321	0.0274	0.0322	0.0277	0.0324	0.0279	0.0325	0.0280	0.0325

Hidden Power (uW/MHz)

AO22B10 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0008	-0.0018
A1	F	0.0011	0.0011	0.0011	0.0017	0.0033
B1	R	-0.0008	-0.0008	-0.0008	-0.0013	-0.0026
B1	F	0.0011	0.0011	0.0011	0.0017	0.0034
B2	R	-0.0010	-0.0010	-0.0010	-0.0015	-0.0030
B2	F	0.0010	0.0010	0.0010	0.0015	0.0031
NA2	R	0.0011	0.0011	0.0011	0.0016	0.0030
NA2	F	0.0050	0.0050	0.0050	0.0056	0.0076

Propagation Delays (ns)

AO22B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1117	0.1720	0.1429	0.1942	0.2023	0.2295	0.2918	0.2743	0.4180	0.3310	0.5835	0.4013
B1->Z	0.1274	0.2126	0.1586	0.2349	0.2183	0.2702	0.3082	0.3149	0.4347	0.3716	0.6005	0.4420
B2->Z	0.1305	0.2296	0.1618	0.2525	0.2215	0.2884	0.3114	0.3336	0.4379	0.3907	0.6037	0.4613
NA2->Z	0.1710	0.2121	0.2022	0.2349	0.2617	0.2708	0.3512	0.3160	0.4774	0.3731	0.6429	0.4438

AO22B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1085	0.1736	0.1404	0.1974	0.2001	0.2342	0.2896	0.2802	0.4164	0.3387	0.5825	0.4110
B1->Z	0.1244	0.2142	0.1561	0.2381	0.2161	0.2749	0.3060	0.3209	0.4332	0.3793	0.5996	0.4516
B2->Z	0.1275	0.2312	0.1593	0.2556	0.2193	0.2930	0.3092	0.3396	0.4364	0.3984	0.6028	0.4710
NA2->Z	0.1679	0.2135	0.1997	0.2379	0.2595	0.2753	0.3490	0.3219	0.4758	0.3807	0.6419	0.4533

AO22B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1065	0.1793	0.1407	0.2061	0.1997	0.2440	0.2908	0.2923	0.4175	0.3521	0.5847	0.4263
B1->Z	0.1226	0.2199	0.1566	0.2467	0.2158	0.2846	0.3073	0.3330	0.4343	0.3927	0.6018	0.4669
B2->Z	0.1258	0.2368	0.1597	0.2643	0.2190	0.3028	0.3106	0.3517	0.4375	0.4119	0.6050	0.4864
NA2->Z	0.1658	0.2189	0.1999	0.2464	0.2590	0.2849	0.3501	0.3338	0.4768	0.3939	0.6440	0.4684

AO22B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0282 pF		0.0535 pF		0.0890 pF		0.1357 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0953	0.1624	0.1302	0.1897	0.1904	0.2275	0.2823	0.2749	0.4109	0.3336	0.5798	0.4063
B1->Z	0.1101	0.1987	0.1445	0.2261	0.2050	0.2639	0.2972	0.3112	0.4261	0.3700	0.5952	0.4427
B2->Z	0.1130	0.2141	0.1475	0.2421	0.2079	0.2806	0.3002	0.3284	0.4291	0.3875	0.5982	0.4605
NA2->Z	0.1634	0.2037	0.1983	0.2317	0.2586	0.2702	0.3505	0.3179	0.4790	0.3770	0.6479	0.4500

AO22B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1050 pF		0.1754 pF		0.2681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0891	0.1526	0.1243	0.1797	0.1845	0.2163	0.2766	0.2622	0.4057	0.3194	0.5754	0.3905
B1->Z	0.1025	0.1860	0.1372	0.2131	0.1976	0.2498	0.2900	0.2957	0.4193	0.3529	0.5893	0.4241
B2->Z	0.1056	0.2012	0.1403	0.2289	0.2006	0.2662	0.2931	0.3125	0.4224	0.3701	0.5924	0.4415
NA2->Z	0.1728	0.1987	0.2081	0.2265	0.2684	0.2638	0.3605	0.3101	0.4896	0.3677	0.6593	0.4390

Combinational Cell

AO22B11

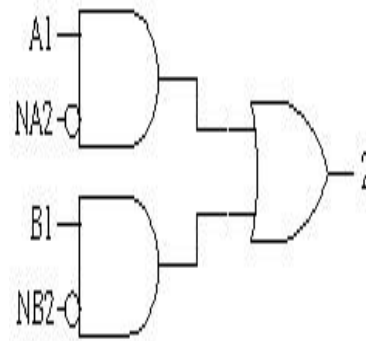
Cell Description

The AO22B11 cell provides an OR gate with two AND gates' outputs as inputs. Each AND gate has an inverted input (NA2 or NB2).

Truth Table

A1	NA2	B1	NB2	Z
0	X	0	X	0
0	X	X	1	0
X	1	0	X	0
X	1	X	1	0
X	X	1	0	1
1	0	X	X	1

Symbol



Cell List

AO22B11M0HM, AO22B11M1HM, AO22B11M2HM
, AO22B11M4HM, AO22B11M8HM

AO22B11 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00145	0.00145	0.00145	0.00191	0.00364
B1	input	0.00133	0.00131	0.00130	0.00189	0.00368
NA2	input	0.00128	0.00128	0.00128	0.00131	0.00141
NB2	input	0.00129	0.00128	0.00129	0.00146	0.00139
Z	output					

Power Dissipation (uW/MHz)

AO22B11M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0081	0.0035	0.0082	0.0036	0.0082	0.0036	0.0082	0.0036	0.0082	0.0036	0.0083
B1->Z	0.0052	0.0106	0.0052	0.0107	0.0053	0.0107	0.0053	0.0107	0.0053	0.0107	0.0054	0.0107
NA2->Z	0.0092	0.0094	0.0093	0.0094	0.0093	0.0095	0.0094	0.0095	0.0094	0.0095	0.0094	0.0095
NB2->Z	0.0107	0.0119	0.0107	0.0119	0.0108	0.0119	0.0108	0.0120	0.0109	0.0120	0.0109	0.0120

AO22B11M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0038	0.0085	0.0039	0.0086	0.0039	0.0086	0.0040	0.0086	0.0040	0.0086	0.0040	0.0087
B1->Z	0.0055	0.0110	0.0056	0.0110	0.0056	0.0111	0.0057	0.0111	0.0057	0.0111	0.0057	0.0111
NA2->Z	0.0095	0.0098	0.0096	0.0098	0.0097	0.0098	0.0097	0.0099	0.0098	0.0099	0.0098	0.0099
NB2->Z	0.0110	0.0123	0.0111	0.0123	0.0111	0.0123	0.0112	0.0123	0.0112	0.0124	0.0113	0.0124

AO22B11M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0093	0.0047	0.0094	0.0048	0.0095	0.0048	0.0095	0.0049	0.0095	0.0049	0.0095
B1->Z	0.0063	0.0119	0.0064	0.0119	0.0065	0.0119	0.0065	0.0120	0.0066	0.0120	0.0066	0.0120
NA2->Z	0.0103	0.0106	0.0104	0.0106	0.0105	0.0107	0.0106	0.0107	0.0106	0.0107	0.0107	0.0108
NB2->Z	0.0118	0.0132	0.0119	0.0131	0.0120	0.0132	0.0120	0.0132	0.0121	0.0132	0.0121	0.0132

AO22B11M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0889 pF		0.1355 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0092	0.0151	0.0094	0.0150	0.0097	0.0151	0.0099	0.0152	0.0099	0.0152	0.0100	0.0152
B1->Z	0.0117	0.0180	0.0118	0.0180	0.0121	0.0180	0.0122	0.0181	0.0123	0.0181	0.0124	0.0181
NA2->Z	0.0149	0.0149	0.0151	0.0149	0.0154	0.0150	0.0155	0.0151	0.0156	0.0151	0.0157	0.0151
NB2->Z	0.0173	0.0178	0.0175	0.0178	0.0177	0.0179	0.0178	0.0180	0.0179	0.0180	0.0180	0.0180

AO22B11M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0157	0.0285	0.0162	0.0285	0.0167	0.0287	0.0170	0.0288	0.0172	0.0289	0.0173	0.0289
B1->Z	0.0203	0.0341	0.0207	0.0341	0.0211	0.0343	0.0214	0.0345	0.0216	0.0345	0.0218	0.0346
NA2->Z	0.0265	0.0322	0.0269	0.0321	0.0275	0.0322	0.0278	0.0323	0.0280	0.0324	0.0281	0.0324
NB2->Z	0.0309	0.0380	0.0313	0.0378	0.0317	0.0379	0.0320	0.0380	0.0322	0.0381	0.0324	0.0382

Hidden Power (uW/MHz)

AO22B11 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0011	-0.0018
A1	F	0.0012	0.0012	0.0012	0.0015	0.0034
B1	R	-0.0008	-0.0008	-0.0008	-0.0015	-0.0025
B1	F	0.0011	0.0011	0.0011	0.0015	0.0034
NA2	R	0.0011	0.0011	0.0011	0.0018	0.0031
NA2	F	0.0047	0.0047	0.0047	0.0049	0.0077
NB2	R	0.0011	0.0011	0.0011	0.0018	0.0032
NB2	F	0.0044	0.0044	0.0044	0.0048	0.0073

Propagation Delays (ns)

AO22B11M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1056	0.1577	0.1365	0.1791	0.1959	0.2132	0.2854	0.2569	0.4117	0.3128	0.5760	0.3821
B1->Z	0.1214	0.2033	0.1524	0.2248	0.2123	0.2590	0.3023	0.3028	0.4289	0.3588	0.5936	0.4282
NA2->Z	0.1624	0.1947	0.1934	0.2166	0.2527	0.2511	0.3423	0.2952	0.4685	0.3513	0.6329	0.4209
NB2->Z	0.1757	0.2378	0.2067	0.2597	0.2666	0.2943	0.3566	0.3383	0.4833	0.3945	0.6479	0.4640

AO22B11M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1014	0.1584	0.1341	0.1822	0.1928	0.2172	0.2836	0.2627	0.4096	0.3198	0.5762	0.3917
B1->Z	0.1173	0.2040	0.1500	0.2279	0.2092	0.2630	0.3004	0.3086	0.4269	0.3659	0.5937	0.4378
NA2->Z	0.1583	0.1953	0.1910	0.2195	0.2497	0.2550	0.3404	0.3009	0.4665	0.3583	0.6331	0.4303
NB2->Z	0.1714	0.2383	0.2042	0.2625	0.2633	0.2981	0.3546	0.3440	0.4810	0.4014	0.6479	0.4734

AO22B11M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1002	0.1647	0.1340	0.1906	0.1932	0.2274	0.2839	0.2744	0.4111	0.3333	0.5783	0.4067
B1->Z	0.1162	0.2103	0.1500	0.2363	0.2096	0.2732	0.3009	0.3203	0.4284	0.3794	0.5959	0.4529
NA2->Z	0.1571	0.2013	0.1909	0.2277	0.2501	0.2650	0.3409	0.3124	0.4681	0.3716	0.6353	0.4452
NB2->Z	0.1704	0.2445	0.2042	0.2709	0.2638	0.3082	0.3551	0.3556	0.4826	0.4148	0.6502	0.4884

AO22B11M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0889 pF		0.1355 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0992	0.1733	0.1342	0.2011	0.1944	0.2390	0.2865	0.2864	0.4153	0.3452	0.5843	0.4178
B1->Z	0.1143	0.2069	0.1490	0.2347	0.2091	0.2726	0.3016	0.3200	0.4308	0.3788	0.5999	0.4514
NA2->Z	0.1554	0.1822	0.1905	0.2094	0.2506	0.2467	0.3427	0.2937	0.4716	0.3522	0.6405	0.4246
NB2->Z	0.1694	0.2169	0.2040	0.2440	0.2641	0.2813	0.3566	0.3282	0.4858	0.3866	0.6550	0.4590

AO22B11M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0894	0.1532	0.1244	0.1802	0.1848	0.2169	0.2770	0.2628	0.4060	0.3200	0.5755	0.3910
B1->Z	0.1025	0.1854	0.1371	0.2124	0.1976	0.2490	0.2901	0.2949	0.4194	0.3520	0.5892	0.4230
NA2->Z	0.1735	0.1996	0.2086	0.2272	0.2690	0.2645	0.3613	0.3110	0.4903	0.3685	0.6599	0.4397
NB2->Z	0.1848	0.2356	0.2194	0.2632	0.2799	0.3006	0.3724	0.3470	0.5017	0.4045	0.6715	0.4758

Combinational Cell

AO22

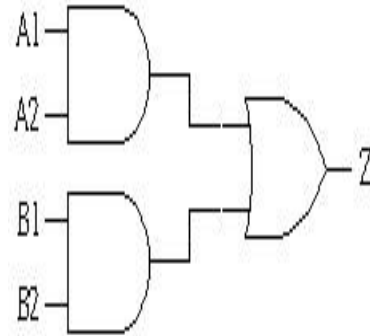
Cell Description

The AO22 cell provides an OR gate with two AND gates' outputs as inputs.

Truth Table

A1	A2	B1	B2	Z
0	X	0	X	0
0	X	X	0	0
X	0	0	X	0
X	0	X	0	0
X	X	1	1	1
1	1	X	X	1

Symbol



Cell List

AO22M0HM, AO22M1HM, AO22M2HM
, AO22M4HM, AO22M8HM

AO22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00134	0.00133	0.00133	0.00172	0.00325
A2	input	0.00145	0.00145	0.00145	0.00172	0.00367
B1	input	0.00131	0.00131	0.00131	0.00175	0.00320
B2	input	0.00127	0.00127	0.00126	0.00178	0.00351
Z	output					

Power Dissipation (uW/MHz)

AO22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0158 pF		0.0259 pF		0.0391 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0033	0.0076	0.0034	0.0076	0.0035	0.0076	0.0035	0.0076	0.0035	0.0077	0.0035	0.0077
A2->Z	0.0033	0.0086	0.0034	0.0086	0.0035	0.0086	0.0035	0.0087	0.0035	0.0087	0.0035	0.0087
B1->Z	0.0049	0.0098	0.0050	0.0099	0.0050	0.0099	0.0051	0.0099	0.0051	0.0099	0.0051	0.0099
B2->Z	0.0049	0.0108	0.0050	0.0108	0.0050	0.0109	0.0051	0.0109	0.0051	0.0109	0.0051	0.0109

AO22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0322 pF		0.0488 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0036	0.0079	0.0037	0.0080	0.0038	0.0080	0.0039	0.0080	0.0039	0.0081	0.0039	0.0081
A2->Z	0.0037	0.0089	0.0037	0.0090	0.0038	0.0090	0.0039	0.0090	0.0039	0.0091	0.0039	0.0091
B1->Z	0.0052	0.0102	0.0053	0.0102	0.0054	0.0103	0.0054	0.0103	0.0055	0.0103	0.0055	0.0103
B2->Z	0.0052	0.0112	0.0053	0.0112	0.0054	0.0112	0.0054	0.0113	0.0055	0.0113	0.0055	0.0113

AO22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0452 pF		0.0687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0088	0.0047	0.0089	0.0048	0.0089	0.0049	0.0090	0.0049	0.0090	0.0049	0.0090
A2->Z	0.0046	0.0098	0.0047	0.0099	0.0048	0.0099	0.0049	0.0100	0.0049	0.0100	0.0049	0.0100
B1->Z	0.0061	0.0111	0.0062	0.0112	0.0063	0.0112	0.0064	0.0112	0.0065	0.0112	0.0065	0.0113
B2->Z	0.0061	0.0121	0.0062	0.0121	0.0063	0.0122	0.0064	0.0122	0.0065	0.0122	0.0065	0.0122

AO22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0142	0.0079	0.0142	0.0082	0.0143	0.0083	0.0144	0.0084	0.0144	0.0085	0.0144
A2->Z	0.0077	0.0157	0.0080	0.0157	0.0082	0.0158	0.0084	0.0158	0.0084	0.0159	0.0085	0.0159
B1->Z	0.0101	0.0172	0.0102	0.0172	0.0105	0.0173	0.0106	0.0174	0.0107	0.0174	0.0108	0.0174
B2->Z	0.0101	0.0187	0.0102	0.0186	0.0105	0.0187	0.0106	0.0188	0.0107	0.0188	0.0108	0.0188

AO22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1054 pF		0.1760 pF		0.2689 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0147	0.0270	0.0152	0.0270	0.0158	0.0272	0.0161	0.0274	0.0162	0.0274	0.0163	0.0275
A2->Z	0.0147	0.0299	0.0153	0.0299	0.0158	0.0300	0.0161	0.0301	0.0163	0.0302	0.0164	0.0303
B1->Z	0.0192	0.0328	0.0195	0.0328	0.0201	0.0330	0.0204	0.0332	0.0206	0.0332	0.0207	0.0333
B2->Z	0.0192	0.0356	0.0196	0.0356	0.0201	0.0357	0.0204	0.0359	0.0206	0.0360	0.0207	0.0360

Hidden Power (uW/MHz)

AO22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0005	-0.0005	-0.0009	-0.0018
A1	F	0.0011	0.0011	0.0011	0.0016	0.0032
A2	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0022
A2	F	0.0010	0.0010	0.0010	0.0015	0.0029
B1	R	-0.0008	-0.0008	-0.0008	-0.0013	-0.0026
B1	F	0.0011	0.0011	0.0011	0.0017	0.0034
B2	R	-0.0010	-0.0010	-0.0010	-0.0015	-0.0030
B2	F	0.0010	0.0010	0.0010	0.0015	0.0031

Propagation Delays (ns)

AO22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0158 pF		0.0259 pF		0.0391 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0998	0.1487	0.1314	0.1701	0.1899	0.2026	0.2793	0.2452	0.4063	0.3005	0.5721	0.3695
A2->Z	0.1033	0.1643	0.1349	0.1861	0.1934	0.2191	0.2829	0.2621	0.4099	0.3176	0.5757	0.3869
B1->Z	0.1158	0.1886	0.1475	0.2100	0.2064	0.2425	0.2964	0.2852	0.4238	0.3405	0.5899	0.4096
B2->Z	0.1193	0.2033	0.1510	0.2251	0.2100	0.2581	0.2999	0.3011	0.4273	0.3566	0.5934	0.4259

AO22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0322 pF		0.0488 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0971	0.1508	0.1291	0.1735	0.1870	0.2071	0.2778	0.2516	0.4046	0.3081	0.5714	0.3793
A2->Z	0.1006	0.1664	0.1326	0.1895	0.1906	0.2235	0.2814	0.2685	0.4081	0.3253	0.5749	0.3966
B1->Z	0.1131	0.1907	0.1452	0.2134	0.2037	0.2470	0.2949	0.2916	0.4221	0.3482	0.5892	0.4193
B2->Z	0.1167	0.2054	0.1488	0.2285	0.2072	0.2626	0.2985	0.3075	0.4256	0.3643	0.5927	0.4356

AO22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0452 pF		0.0687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0957	0.1576	0.1290	0.1826	0.1882	0.2184	0.2790	0.2644	0.4058	0.3223	0.5731	0.3949
A2->Z	0.0992	0.1730	0.1325	0.1984	0.1917	0.2348	0.2825	0.2812	0.4093	0.3393	0.5766	0.4121
B1->Z	0.1122	0.1976	0.1455	0.2226	0.2051	0.2585	0.2963	0.3045	0.4235	0.3624	0.5911	0.4351
B2->Z	0.1157	0.2122	0.1490	0.2376	0.2086	0.2740	0.2998	0.3203	0.4271	0.3784	0.5946	0.4512

AO22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0902	0.1505	0.1244	0.1763	0.1842	0.2122	0.2762	0.2577	0.4048	0.3145	0.5737	0.3854
A2->Z	0.0935	0.1657	0.1277	0.1920	0.1876	0.2285	0.2796	0.2743	0.4081	0.3315	0.5770	0.4026
B1->Z	0.1026	0.1824	0.1363	0.2082	0.1964	0.2439	0.2886	0.2893	0.4175	0.3461	0.5866	0.4169
B2->Z	0.1057	0.1984	0.1394	0.2247	0.1995	0.2612	0.2917	0.3070	0.4205	0.3642	0.5896	0.4353

AO22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1054 pF		0.1760 pF		0.2689 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0870	0.1445	0.1219	0.1709	0.1821	0.2069	0.2745	0.2524	0.4036	0.3094	0.5732	0.3807
A2->Z	0.0902	0.1579	0.1251	0.1849	0.1853	0.2213	0.2777	0.2671	0.4068	0.3244	0.5764	0.3958
B1->Z	0.1010	0.1759	0.1356	0.2024	0.1959	0.2384	0.2887	0.2840	0.4181	0.3410	0.5880	0.4122
B2->Z	0.1041	0.1890	0.1387	0.2159	0.1991	0.2524	0.2919	0.2983	0.4213	0.3555	0.5912	0.4269

Combinational Cell

AO31

Cell Description

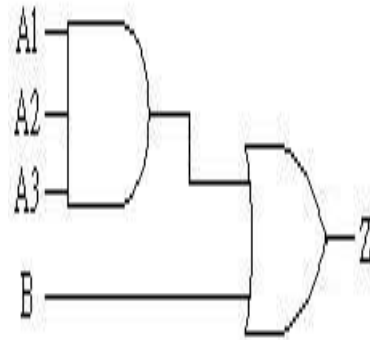
The AO31 cell provides an OR gate with two inputs, one of which is an AND gate's output.

The AND gate has three inputs.

Truth Table

A1	A2	A3	B	Z
0	X	X	0	0
X	0	X	0	0
X	X	0	0	0
X	X	X	1	1
1	1	1	X	1

Symbol



Cell List

AO31M0HM, AO31M1HM, AO31M2HM
, AO31M4HM, AO31M8HM

AO31 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00157	0.00157	0.00156	0.00174	0.00320
A2	input	0.00159	0.00160	0.00159	0.00180	0.00353
A3	input	0.00151	0.00151	0.00150	0.00173	0.00337
B	input	0.00153	0.00153	0.00153	0.00171	0.00292
Z	output					

Power Dissipation (uW/MHz)

AO31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0086	0.0043	0.0086	0.0044	0.0086	0.0044	0.0086	0.0044	0.0087	0.0045	0.0087
A2->Z	0.0043	0.0101	0.0043	0.0101	0.0044	0.0101	0.0044	0.0101	0.0045	0.0101	0.0045	0.0101
A3->Z	0.0043	0.0114	0.0043	0.0114	0.0044	0.0115	0.0044	0.0115	0.0045	0.0115	0.0045	0.0115
B->Z	0.0061	0.0118	0.0061	0.0118	0.0062	0.0119	0.0062	0.0119	0.0062	0.0119	0.0062	0.0119

AO31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0089	0.0046	0.0090	0.0047	0.0090	0.0048	0.0091	0.0048	0.0091	0.0048	0.0091
A2->Z	0.0046	0.0104	0.0046	0.0105	0.0047	0.0105	0.0048	0.0105	0.0048	0.0106	0.0048	0.0106
A3->Z	0.0046	0.0118	0.0046	0.0118	0.0047	0.0119	0.0048	0.0119	0.0048	0.0119	0.0048	0.0119
B->Z	0.0064	0.0122	0.0064	0.0122	0.0065	0.0123	0.0065	0.0123	0.0066	0.0123	0.0066	0.0123

AO31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0054	0.0098	0.0055	0.0098	0.0056	0.0099	0.0057	0.0099	0.0057	0.0099	0.0057	0.0099
A2->Z	0.0054	0.0113	0.0055	0.0113	0.0056	0.0114	0.0057	0.0114	0.0057	0.0114	0.0057	0.0114
A3->Z	0.0054	0.0127	0.0055	0.0127	0.0056	0.0127	0.0057	0.0127	0.0057	0.0128	0.0057	0.0128
B->Z	0.0072	0.0130	0.0073	0.0130	0.0074	0.0131	0.0074	0.0131	0.0075	0.0132	0.0075	0.0132

AO31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0088	0.0140	0.0090	0.0140	0.0092	0.0141	0.0094	0.0141	0.0095	0.0141	0.0095	0.0142
A2->Z	0.0088	0.0157	0.0090	0.0156	0.0092	0.0157	0.0094	0.0158	0.0095	0.0158	0.0095	0.0158
A3->Z	0.0088	0.0173	0.0090	0.0172	0.0092	0.0172	0.0094	0.0172	0.0095	0.0173	0.0096	0.0173
B->Z	0.0108	0.0176	0.0110	0.0176	0.0113	0.0177	0.0114	0.0177	0.0115	0.0178	0.0115	0.0178

AO31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1052 pF		0.1756 pF		0.2684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0165	0.0275	0.0169	0.0274	0.0174	0.0276	0.0177	0.0277	0.0179	0.0278	0.0180	0.0278
A2->Z	0.0165	0.0326	0.0169	0.0323	0.0174	0.0324	0.0177	0.0325	0.0179	0.0326	0.0181	0.0326
A3->Z	0.0165	0.0356	0.0169	0.0352	0.0174	0.0352	0.0178	0.0353	0.0180	0.0354	0.0181	0.0354
B->Z	0.0213	0.0361	0.0217	0.0360	0.0222	0.0362	0.0225	0.0363	0.0227	0.0364	0.0228	0.0364

Hidden Power (uW/MHz)

AO31 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0004	-0.0004	-0.0005	-0.0004
A1	F	0.0011	0.0011	0.0011	0.0012	0.0025
A2	R	-0.0007	-0.0007	-0.0007	-0.0009	-0.0017
A2	F	0.0010	0.0010	0.0010	0.0012	0.0023
A3	R	-0.0007	-0.0007	-0.0007	-0.0009	-0.0017
A3	F	0.0009	0.0009	0.0009	0.0011	0.0023
B	R	-0.0011	-0.0011	-0.0011	-0.0013	-0.0026
B	F	0.0014	0.0014	0.0014	0.0016	0.0032

Propagation Delays (ns)

AO31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1056	0.1282	0.1366	0.1479	0.1950	0.1791	0.2850	0.2206	0.4107	0.2737	0.5759	0.3410
A2->Z	0.1124	0.1465	0.1434	0.1667	0.2018	0.1984	0.2918	0.2403	0.4175	0.2939	0.5827	0.3614
A3->Z	0.1157	0.1609	0.1468	0.1815	0.2052	0.2138	0.2953	0.2561	0.4209	0.3100	0.5861	0.3779
B->Z	0.1050	0.1895	0.1354	0.2101	0.1938	0.2423	0.2839	0.2846	0.4096	0.3385	0.5749	0.4064

AO31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1014	0.1288	0.1343	0.1508	0.1924	0.1832	0.2829	0.2262	0.4091	0.2811	0.5761	0.3509
A2->Z	0.1082	0.1472	0.1411	0.1697	0.1992	0.2025	0.2898	0.2460	0.4159	0.3013	0.5829	0.3713
A3->Z	0.1115	0.1616	0.1444	0.1846	0.2027	0.2179	0.2932	0.2619	0.4193	0.3175	0.5863	0.3879
B->Z	0.1005	0.1903	0.1324	0.2133	0.1905	0.2466	0.2812	0.2906	0.4074	0.3461	0.5745	0.4165

AO31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1001	0.1336	0.1333	0.1571	0.1923	0.1913	0.2833	0.2359	0.4102	0.2925	0.5776	0.3640
A2->Z	0.1068	0.1519	0.1401	0.1760	0.1991	0.2108	0.2900	0.2558	0.4170	0.3128	0.5843	0.3845
A3->Z	0.1102	0.1665	0.1435	0.1909	0.2025	0.2262	0.2935	0.2718	0.4204	0.3291	0.5877	0.4011
B->Z	0.0983	0.1953	0.1303	0.2197	0.1891	0.2550	0.2801	0.3006	0.4071	0.3579	0.5745	0.4299

AO31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1059	0.1460	0.1417	0.1725	0.2020	0.2090	0.2940	0.2552	0.4222	0.3126	0.5909	0.3839
A2->Z	0.1126	0.1630	0.1485	0.1901	0.2088	0.2272	0.3008	0.2738	0.4290	0.3316	0.5977	0.4032
A3->Z	0.1159	0.1766	0.1518	0.2040	0.2121	0.2416	0.3041	0.2887	0.4324	0.3467	0.6011	0.4186
B->Z	0.0975	0.2044	0.1307	0.2318	0.1902	0.2694	0.2821	0.3165	0.4104	0.3745	0.5791	0.4463

AO31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1052 pF		0.1756 pF		0.2684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1011	0.1398	0.1378	0.1669	0.1986	0.2038	0.2910	0.2502	0.4198	0.3078	0.5893	0.3795
A2->Z	0.1118	0.1636	0.1485	0.1916	0.2094	0.2293	0.3018	0.2764	0.4306	0.3345	0.6001	0.4065
A3->Z	0.1146	0.1780	0.1513	0.2065	0.2121	0.2448	0.3046	0.2924	0.4334	0.3510	0.6029	0.4234
B->Z	0.0989	0.2112	0.1335	0.2397	0.1935	0.2780	0.2859	0.3256	0.4148	0.3842	0.5845	0.4566

Combinational Cell

AO32

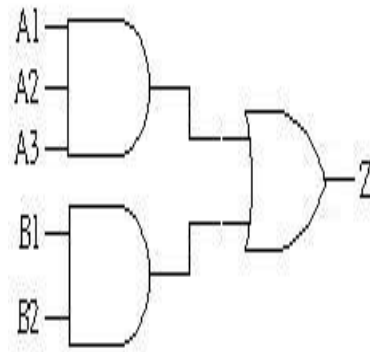
Cell Description

The AO32 cell provides an OR gate with two inputs, both of which are AND gates' outputs. One AND gate has three inputs while the other has two.

Truth Table

A1	A2	A3	B1	B2	Z
0	X	X	0	X	0
0	X	X	X	0	0
X	0	X	0	X	0
X	0	X	X	0	0
X	X	0	0	X	0
X	X	0	X	0	0
X	X	X	1	1	1
1	1	1	X	X	1

Symbol



Cell List

AO32M0HM, AO32M1HM, AO32M2HM
, AO32M4HM, AO32M8HM

AO32 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00137	0.00137	0.00136	0.00180	0.00332
A2	input	0.00136	0.00140	0.00134	0.00180	0.00364
A3	input	0.00126	0.00131	0.00126	0.00167	0.00340
B1	input	0.00131	0.00131	0.00131	0.00175	0.00359
B2	input	0.00146	0.00147	0.00147	0.00186	0.00340
Z	output					

Power Dissipation (uW/MHz)

AO32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0393 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0038	0.0087	0.0039	0.0088	0.0040	0.0088	0.0040	0.0088	0.0040	0.0088	0.0041	0.0088
A2->Z	0.0038	0.0099	0.0039	0.0099	0.0040	0.0100	0.0040	0.0100	0.0040	0.0100	0.0041	0.0100
A3->Z	0.0038	0.0109	0.0039	0.0110	0.0040	0.0110	0.0040	0.0110	0.0040	0.0110	0.0041	0.0110
B1->Z	0.0057	0.0117	0.0058	0.0118	0.0058	0.0118	0.0059	0.0118	0.0059	0.0118	0.0059	0.0118
B2->Z	0.0057	0.0127	0.0058	0.0128	0.0058	0.0128	0.0059	0.0128	0.0059	0.0128	0.0059	0.0128

AO32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0107 pF		0.0197 pF		0.0324 pF		0.0491 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0092	0.0042	0.0092	0.0043	0.0093	0.0044	0.0093	0.0044	0.0093	0.0044	0.0093
A2->Z	0.0042	0.0103	0.0042	0.0104	0.0043	0.0104	0.0044	0.0104	0.0044	0.0104	0.0044	0.0104
A3->Z	0.0042	0.0114	0.0042	0.0114	0.0043	0.0114	0.0044	0.0115	0.0044	0.0115	0.0044	0.0115
B1->Z	0.0060	0.0122	0.0061	0.0122	0.0061	0.0123	0.0062	0.0123	0.0062	0.0123	0.0062	0.0123
B2->Z	0.0060	0.0132	0.0061	0.0132	0.0061	0.0132	0.0062	0.0132	0.0062	0.0133	0.0062	0.0133

AO32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0275 pF		0.0455 pF		0.0691 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0050	0.0099	0.0051	0.0100	0.0052	0.0100	0.0052	0.0101	0.0053	0.0101	0.0053	0.0101
A2->Z	0.0050	0.0111	0.0051	0.0111	0.0052	0.0112	0.0053	0.0112	0.0053	0.0112	0.0053	0.0112
A3->Z	0.0050	0.0122	0.0051	0.0122	0.0052	0.0122	0.0053	0.0122	0.0053	0.0123	0.0053	0.0123
B1->Z	0.0068	0.0130	0.0069	0.0130	0.0070	0.0130	0.0071	0.0131	0.0071	0.0131	0.0071	0.0131
B2->Z	0.0068	0.0140	0.0069	0.0140	0.0070	0.0140	0.0071	0.0140	0.0071	0.0140	0.0071	0.0140

AO32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0282 pF		0.0535 pF		0.0891 pF		0.1359 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0088	0.0154	0.0089	0.0153	0.0092	0.0154	0.0093	0.0155	0.0094	0.0155	0.0095	0.0155
A2->Z	0.0088	0.0171	0.0090	0.0170	0.0092	0.0171	0.0094	0.0171	0.0094	0.0171	0.0095	0.0171
A3->Z	0.0088	0.0187	0.0089	0.0185	0.0092	0.0185	0.0094	0.0186	0.0095	0.0186	0.0095	0.0186
B1->Z	0.0115	0.0195	0.0117	0.0195	0.0119	0.0196	0.0120	0.0196	0.0121	0.0197	0.0122	0.0197
B2->Z	0.0115	0.0210	0.0117	0.0209	0.0119	0.0210	0.0120	0.0211	0.0121	0.0211	0.0122	0.0211

AO32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1756 pF		0.2683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0165	0.0295	0.0169	0.0294	0.0174	0.0296	0.0177	0.0297	0.0179	0.0298	0.0180	0.0298
A2->Z	0.0165	0.0344	0.0169	0.0342	0.0174	0.0343	0.0177	0.0345	0.0179	0.0346	0.0181	0.0346
A3->Z	0.0166	0.0374	0.0169	0.0371	0.0174	0.0372	0.0177	0.0373	0.0179	0.0374	0.0181	0.0374
B1->Z	0.0222	0.0383	0.0225	0.0383	0.0230	0.0384	0.0233	0.0386	0.0235	0.0386	0.0236	0.0387
B2->Z	0.0223	0.0413	0.0225	0.0411	0.0230	0.0413	0.0233	0.0414	0.0235	0.0415	0.0237	0.0415

Hidden Power (uW/MHz)

AO32 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0003	-0.0003	-0.0005	-0.0002
A1	F	0.0010	0.0010	0.0010	0.0015	0.0032
A2	R	-0.0008	-0.0008	-0.0008	-0.0011	-0.0024
A2	F	0.0009	0.0009	0.0009	0.0014	0.0028
A3	R	-0.0008	-0.0008	-0.0008	-0.0012	-0.0024
A3	F	0.0009	0.0009	0.0009	0.0013	0.0027
B1	R	-0.0007	-0.0007	-0.0007	-0.0012	-0.0024
B1	F	0.0012	0.0012	0.0012	0.0017	0.0035
B2	R	-0.0010	-0.0010	-0.0010	-0.0015	-0.0030
B2	F	0.0010	0.0010	0.0010	0.0015	0.0031

Propagation Delays (ns)

AO32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0393 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1236	0.1694	0.1571	0.1925	0.2161	0.2274	0.3065	0.2729	0.4329	0.3299	0.5990	0.4006
A2->Z	0.1307	0.1883	0.1642	0.2120	0.2232	0.2474	0.3136	0.2933	0.4400	0.3506	0.6061	0.4216
A3->Z	0.1343	0.2033	0.1678	0.2274	0.2268	0.2633	0.3173	0.3096	0.4436	0.3673	0.6097	0.4386
B1->Z	0.1325	0.2341	0.1652	0.2579	0.2241	0.2934	0.3148	0.3395	0.4415	0.3970	0.6079	0.4682
B2->Z	0.1359	0.2480	0.1686	0.2721	0.2274	0.3080	0.3181	0.3543	0.4448	0.4120	0.6112	0.4833

AO32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0107 pF		0.0197 pF		0.0324 pF		0.0491 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1210	0.1720	0.1553	0.1967	0.2151	0.2333	0.3056	0.2801	0.4326	0.3390	0.5995	0.4118
A2->Z	0.1281	0.1908	0.1624	0.2160	0.2222	0.2532	0.3126	0.3005	0.4397	0.3597	0.6066	0.4328
A3->Z	0.1316	0.2058	0.1659	0.2315	0.2258	0.2692	0.3163	0.3169	0.4433	0.3765	0.6102	0.4498
B1->Z	0.1297	0.2368	0.1630	0.2620	0.2225	0.2993	0.3133	0.3468	0.4407	0.4062	0.6078	0.4794
B2->Z	0.1330	0.2505	0.1663	0.2762	0.2259	0.3139	0.3166	0.3616	0.4439	0.4212	0.6110	0.4946

AO32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0275 pF		0.0455 pF		0.0691 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1186	0.1766	0.1547	0.2036	0.2152	0.2420	0.3065	0.2906	0.4342	0.3510	0.6014	0.4253
A2->Z	0.1256	0.1953	0.1618	0.2230	0.2223	0.2619	0.3136	0.3110	0.4413	0.3718	0.6085	0.4463
A3->Z	0.1292	0.2104	0.1653	0.2384	0.2259	0.2778	0.3172	0.3274	0.4449	0.3885	0.6121	0.4633
B1->Z	0.1269	0.2413	0.1618	0.2690	0.2218	0.3081	0.3133	0.3573	0.4413	0.4183	0.6088	0.4930
B2->Z	0.1302	0.2550	0.1651	0.2831	0.2250	0.3225	0.3165	0.3721	0.4446	0.4332	0.6120	0.5080

AO32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0282 pF		0.0535 pF		0.0891 pF		0.1359 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1135	0.1651	0.1512	0.1928	0.2129	0.2311	0.3049	0.2786	0.4336	0.3374	0.6025	0.4098
A2->Z	0.1202	0.1817	0.1580	0.2100	0.2197	0.2488	0.3117	0.2967	0.4403	0.3559	0.6092	0.4285
A3->Z	0.1236	0.1949	0.1613	0.2237	0.2231	0.2629	0.3150	0.3112	0.4437	0.3707	0.6126	0.4436
B1->Z	0.1154	0.2207	0.1499	0.2490	0.2102	0.2879	0.3023	0.3359	0.4312	0.3952	0.6003	0.4680
B2->Z	0.1184	0.2337	0.1529	0.2624	0.2132	0.3016	0.3053	0.3499	0.4342	0.4094	0.6033	0.4823

AO32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1756 pF		0.2683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1079	0.1579	0.1466	0.1860	0.2084	0.2238	0.3009	0.2711	0.4299	0.3296	0.5993	0.4017
A2->Z	0.1187	0.1812	0.1574	0.2101	0.2193	0.2487	0.3117	0.2966	0.4408	0.3555	0.6102	0.4280
A3->Z	0.1215	0.1955	0.1602	0.2249	0.2221	0.2641	0.3145	0.3125	0.4436	0.3718	0.6129	0.4446
B1->Z	0.1148	0.2196	0.1521	0.2484	0.2132	0.2872	0.3058	0.3351	0.4351	0.3941	0.6047	0.4666
B2->Z	0.1179	0.2351	0.1552	0.2645	0.2163	0.3037	0.3089	0.3521	0.4382	0.4114	0.6078	0.4842

Combinational Cell

AO33

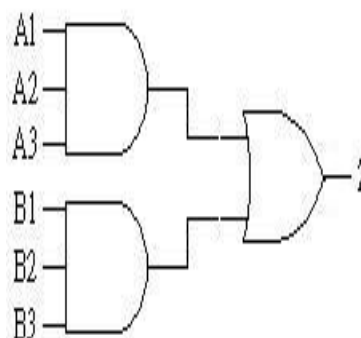
Cell Description

The AO33 cell provides an OR gate with two inputs, both of which are AND gates' outputs.
Both AND gates have three inputs each.

Truth Table

A1	A2	A3	B1	B2	B3	Z
0	X	X	0	X	X	0
0	X	X	X	0	X	0
0	X	X	X	X	0	0
X	0	X	0	X	X	0
X	0	X	X	0	X	0
X	0	X	X	X	0	0
X	X	0	0	X	X	0
X	X	0	X	0	X	0
X	X	0	X	X	0	0
X	X	X	1	1	1	1
1	1	1	X	X	X	1

Symbol



Cell List

AO33M0HM, AO33M1HM, AO33M2HM
, AO33M4HM, AO33M8HM

AO33 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00131	0.00131	0.00181	0.00334
A2	input	0.00129	0.00128	0.00126	0.00176	0.00367
A3	input	0.00120	0.00119	0.00118	0.00168	0.00341
B1	input	0.00131	0.00129	0.00130	0.00174	0.00332
B2	input	0.00132	0.00130	0.00131	0.00179	0.00361
B3	input	0.00128	0.00128	0.00128	0.00182	0.00344
Z	output					

Power Dissipation (uW/MHz)

AO33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0040	0.0090	0.0040	0.0090	0.0041	0.0090	0.0041	0.0090	0.0041	0.0090	0.0042	0.0090
A2->Z	0.0040	0.0101	0.0040	0.0101	0.0041	0.0101	0.0041	0.0101	0.0042	0.0101	0.0042	0.0101
A3->Z	0.0040	0.0110	0.0040	0.0110	0.0041	0.0110	0.0041	0.0110	0.0042	0.0111	0.0042	0.0111
B1->Z	0.0059	0.0117	0.0059	0.0117	0.0059	0.0118	0.0060	0.0118	0.0060	0.0118	0.0060	0.0118
B2->Z	0.0059	0.0128	0.0059	0.0128	0.0060	0.0128	0.0060	0.0128	0.0060	0.0128	0.0060	0.0128
B3->Z	0.0059	0.0138	0.0059	0.0137	0.0060	0.0138	0.0060	0.0138	0.0060	0.0138	0.0060	0.0138

AO33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0043	0.0094	0.0044	0.0093	0.0044	0.0094	0.0045	0.0094	0.0045	0.0094	0.0045	0.0094
A2->Z	0.0043	0.0105	0.0044	0.0104	0.0044	0.0105	0.0045	0.0105	0.0045	0.0105	0.0045	0.0105
A3->Z	0.0043	0.0114	0.0044	0.0114	0.0044	0.0114	0.0045	0.0114	0.0045	0.0114	0.0046	0.0115
B1->Z	0.0062	0.0121	0.0063	0.0121	0.0063	0.0121	0.0063	0.0122	0.0064	0.0122	0.0064	0.0122
B2->Z	0.0062	0.0132	0.0063	0.0131	0.0063	0.0132	0.0063	0.0132	0.0064	0.0132	0.0064	0.0132
B3->Z	0.0062	0.0141	0.0063	0.0141	0.0063	0.0141	0.0063	0.0141	0.0064	0.0141	0.0064	0.0142

AO33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0051	0.0102	0.0052	0.0102	0.0053	0.0102	0.0054	0.0103	0.0054	0.0103	0.0054	0.0103
A2->Z	0.0051	0.0113	0.0052	0.0113	0.0053	0.0113	0.0054	0.0113	0.0054	0.0114	0.0054	0.0114
A3->Z	0.0051	0.0123	0.0052	0.0123	0.0053	0.0123	0.0054	0.0123	0.0054	0.0123	0.0054	0.0123
B1->Z	0.0070	0.0130	0.0071	0.0130	0.0071	0.0130	0.0072	0.0130	0.0072	0.0131	0.0073	0.0131
B2->Z	0.0071	0.0141	0.0071	0.0140	0.0071	0.0140	0.0072	0.0141	0.0072	0.0141	0.0073	0.0141
B3->Z	0.0071	0.0151	0.0071	0.0150	0.0071	0.0150	0.0072	0.0150	0.0072	0.0150	0.0073	0.0150

AO33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1338 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0088	0.0159	0.0090	0.0159	0.0092	0.0159	0.0094	0.0160	0.0095	0.0160	0.0096	0.0161
A2->Z	0.0088	0.0176	0.0090	0.0175	0.0092	0.0176	0.0094	0.0176	0.0095	0.0177	0.0096	0.0177
A3->Z	0.0088	0.0191	0.0090	0.0190	0.0093	0.0191	0.0094	0.0191	0.0095	0.0192	0.0096	0.0192
B1->Z	0.0120	0.0199	0.0121	0.0199	0.0122	0.0200	0.0123	0.0200	0.0124	0.0200	0.0125	0.0201
B2->Z	0.0120	0.0216	0.0121	0.0215	0.0122	0.0216	0.0123	0.0216	0.0124	0.0217	0.0125	0.0217
B3->Z	0.0120	0.0231	0.0121	0.0230	0.0122	0.0231	0.0123	0.0231	0.0124	0.0231	0.0125	0.0232

AO33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1755 pF		0.2682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0165	0.0301	0.0168	0.0301	0.0173	0.0303	0.0176	0.0304	0.0178	0.0305	0.0179	0.0305
A2->Z	0.0165	0.0351	0.0168	0.0350	0.0174	0.0351	0.0177	0.0352	0.0179	0.0353	0.0180	0.0354
A3->Z	0.0165	0.0381	0.0169	0.0379	0.0174	0.0379	0.0177	0.0381	0.0179	0.0381	0.0180	0.0382
B1->Z	0.0235	0.0387	0.0236	0.0386	0.0239	0.0388	0.0242	0.0390	0.0244	0.0390	0.0246	0.0391
B2->Z	0.0235	0.0437	0.0236	0.0435	0.0239	0.0436	0.0242	0.0437	0.0244	0.0438	0.0246	0.0438
B3->Z	0.0235	0.0466	0.0236	0.0463	0.0239	0.0464	0.0242	0.0465	0.0245	0.0466	0.0246	0.0466

Hidden Power (uW/MHz)

AO33 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0003	-0.0003	-0.0006	0.0000
A1	F	0.0010	0.0010	0.0010	0.0017	0.0035
A2	R	-0.0008	-0.0008	-0.0008	-0.0013	-0.0027
A2	F	0.0009	0.0009	0.0009	0.0015	0.0030
A3	R	-0.0008	-0.0008	-0.0008	-0.0013	-0.0027
A3	F	0.0009	0.0009	0.0009	0.0014	0.0030
B1	R	-0.0004	-0.0004	-0.0004	-0.0007	-0.0003
B1	F	0.0011	0.0011	0.0011	0.0018	0.0036
B2	R	-0.0009	-0.0009	-0.0009	-0.0015	-0.0031
B2	F	0.0010	0.0010	0.0010	0.0016	0.0031
B3	R	-0.0009	-0.0009	-0.0009	-0.0015	-0.0031
B3	F	0.0009	0.0009	0.0009	0.0015	0.0031

Propagation Delays (ns)

AO33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1378	0.2030	0.1731	0.2269	0.2340	0.2633	0.3246	0.3096	0.4505	0.3668	0.6159	0.4368
A2->Z	0.1454	0.2227	0.1806	0.2471	0.2415	0.2841	0.3321	0.3309	0.4580	0.3884	0.6235	0.4587
A3->Z	0.1490	0.2379	0.1843	0.2627	0.2452	0.3001	0.3358	0.3473	0.4617	0.4052	0.6271	0.4758
B1->Z	0.1647	0.2536	0.1993	0.2774	0.2598	0.3137	0.3509	0.3600	0.4773	0.4171	0.6431	0.4871
B2->Z	0.1718	0.2726	0.2062	0.2970	0.2668	0.3339	0.3578	0.3807	0.4842	0.4382	0.6501	0.5084
B3->Z	0.1752	0.2889	0.2097	0.3137	0.2703	0.3511	0.3613	0.3983	0.4877	0.4562	0.6535	0.5267

AO33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1329	0.2046	0.1709	0.2312	0.2328	0.2695	0.3238	0.3175	0.4498	0.3765	0.6165	0.4490
A2->Z	0.1404	0.2243	0.1784	0.2515	0.2403	0.2903	0.3313	0.3388	0.4573	0.3981	0.6241	0.4710
A3->Z	0.1441	0.2394	0.1821	0.2670	0.2440	0.3064	0.3350	0.3553	0.4610	0.4149	0.6277	0.4880
B1->Z	0.1600	0.2550	0.1971	0.2815	0.2586	0.3197	0.3500	0.3677	0.4765	0.4266	0.6436	0.4991
B2->Z	0.1670	0.2740	0.2041	0.3012	0.2656	0.3400	0.3569	0.3884	0.4834	0.4477	0.6506	0.5205
B3->Z	0.1705	0.2902	0.2075	0.3179	0.2691	0.3572	0.3604	0.4061	0.4869	0.4657	0.6540	0.5388

AO33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1316	0.2119	0.1708	0.2403	0.2331	0.2803	0.3246	0.3303	0.4522	0.3916	0.6192	0.4660
A2->Z	0.1392	0.2315	0.1783	0.2606	0.2406	0.3011	0.3322	0.3516	0.4597	0.4133	0.6268	0.4879
A3->Z	0.1428	0.2466	0.1820	0.2762	0.2443	0.3172	0.3359	0.3681	0.4634	0.4300	0.6304	0.5049
B1->Z	0.1593	0.2624	0.1973	0.2908	0.2591	0.3307	0.3509	0.3806	0.4789	0.4418	0.6464	0.5162
B2->Z	0.1663	0.2814	0.2043	0.3104	0.2661	0.3509	0.3579	0.4013	0.4859	0.4629	0.6534	0.5375
B3->Z	0.1697	0.2977	0.2077	0.3272	0.2695	0.3682	0.3613	0.4191	0.4893	0.4810	0.6568	0.5559

AO33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1338 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1179	0.1840	0.1584	0.2123	0.2213	0.2509	0.3138	0.2990	0.4421	0.3577	0.6105	0.4297
A2->Z	0.1247	0.2007	0.1652	0.2296	0.2281	0.2687	0.3206	0.3172	0.4489	0.3763	0.6173	0.4484
A3->Z	0.1280	0.2139	0.1685	0.2432	0.2314	0.2828	0.3239	0.3315	0.4522	0.3909	0.6206	0.4633
B1->Z	0.1431	0.2262	0.1804	0.2544	0.2418	0.2930	0.3343	0.3410	0.4630	0.3997	0.6318	0.4716
B2->Z	0.1496	0.2429	0.1870	0.2717	0.2483	0.3108	0.3409	0.3592	0.4696	0.4182	0.6383	0.4903
B3->Z	0.1527	0.2572	0.1900	0.2864	0.2514	0.3260	0.3440	0.3748	0.4727	0.4341	0.6414	0.5065

AO33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1755 pF		0.2682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1098	0.1771	0.1526	0.2058	0.2166	0.2445	0.3096	0.2924	0.4385	0.3514	0.6080	0.4241
A2->Z	0.1206	0.2008	0.1634	0.2303	0.2274	0.2697	0.3204	0.3182	0.4493	0.3777	0.6187	0.4507
A3->Z	0.1234	0.2154	0.1662	0.2454	0.2302	0.2853	0.3232	0.3343	0.4521	0.3942	0.6216	0.4675
B1->Z	0.1403	0.2255	0.1814	0.2542	0.2449	0.2929	0.3383	0.3410	0.4678	0.4000	0.6377	0.4727
B2->Z	0.1508	0.2481	0.1920	0.2776	0.2555	0.3169	0.3489	0.3654	0.4784	0.4249	0.6483	0.4979
B3->Z	0.1536	0.2627	0.1948	0.2927	0.2583	0.3326	0.3517	0.3817	0.4812	0.4415	0.6511	0.5148

Combinational Cell

AOI211

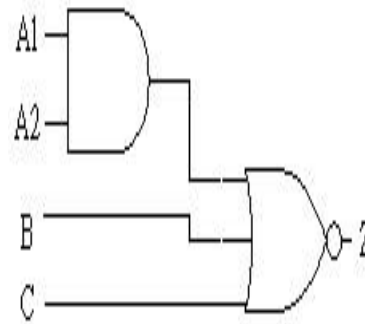
Cell Description

The AOI211 cell provides a NOR gate with three inputs, one of which is an AND gate's output.

Truth Table

A1	A2	B	C	Z
0	X	0	0	1
X	0	0	0	1
X	X	X	1	0
X	X	1	X	0
1	1	X	X	0

Symbol



Cell List

AOI211M0HM, AOI211M1HM, AOI211M2HM
, AOI211M4HM, AOI211M8HM

AOI211 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00116	0.00134	0.00160	0.00301	0.00626
A2	input	0.00125	0.00141	0.00168	0.00345	0.00679
B	input	0.00110	0.00124	0.00148	0.00289	0.00581
C	input	0.00104	0.00116	0.00144	0.00278	0.00583
Z	output					

Power Dissipation (uW/MHz)

AOI211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0030 pF		0.0049 pF		0.0076 pF		0.0111 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0004	0.0045	0.0004	0.0046	0.0005	0.0046	0.0005	0.0046	0.0005	0.0046	0.0005
A2->Z	0.0054	0.0004	0.0055	0.0004	0.0055	0.0005	0.0055	0.0005	0.0055	0.0005	0.0055	0.0005
B->Z	0.0059	0.0022	0.0059	0.0022	0.0059	0.0022	0.0059	0.0022	0.0059	0.0022	0.0059	0.0022
C->Z	0.0066	0.0027	0.0066	0.0027	0.0066	0.0027	0.0066	0.0027	0.0066	0.0027	0.0066	0.0027

AOI211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0051	0.0005	0.0051	0.0005	0.0051	0.0006	0.0051	0.0006	0.0052	0.0006	0.0052	0.0006
A2->Z	0.0061	0.0005	0.0061	0.0005	0.0061	0.0006	0.0061	0.0006	0.0061	0.0006	0.0061	0.0006
B->Z	0.0072	0.0020	0.0072	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020
C->Z	0.0081	0.0025	0.0081	0.0025	0.0081	0.0025	0.0081	0.0025	0.0082	0.0025	0.0082	0.0025

AOI211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0048 pF		0.0084 pF		0.0134 pF		0.0200 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0059	0.0007	0.0059	0.0007	0.0059	0.0007	0.0060	0.0007	0.0060	0.0008	0.0060	0.0008
A2->Z	0.0071	0.0007	0.0071	0.0007	0.0072	0.0007	0.0072	0.0007	0.0072	0.0008	0.0072	0.0008
B->Z	0.0085	0.0026	0.0085	0.0026	0.0085	0.0026	0.0085	0.0026	0.0085	0.0026	0.0085	0.0026
C->Z	0.0096	0.0033	0.0096	0.0033	0.0097	0.0033	0.0097	0.0033	0.0097	0.0033	0.0097	0.0033

AOI211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0088 pF		0.0161 pF		0.0263 pF		0.0397 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0108	0.0013	0.0109	0.0013	0.0110	0.0014	0.0111	0.0015	0.0111	0.0015	0.0112	0.0015
A2->Z	0.0134	0.0013	0.0134	0.0013	0.0135	0.0014	0.0135	0.0015	0.0135	0.0015	0.0135	0.0015
B->Z	0.0165	0.0050	0.0165	0.0051	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051
C->Z	0.0188	0.0065	0.0188	0.0065	0.0189	0.0065	0.0189	0.0065	0.0189	0.0065	0.0189	0.0065

AOI211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0073 pF		0.0166 pF		0.0312 pF		0.0516 pF		0.0785 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0223	0.0025	0.0225	0.0027	0.0228	0.0028	0.0229	0.0029	0.0231	0.0030	0.0232	0.0031
A2->Z	0.0275	0.0025	0.0276	0.0027	0.0277	0.0028	0.0278	0.0029	0.0278	0.0030	0.0279	0.0031
B->Z	0.0336	0.0098	0.0337	0.0098	0.0338	0.0098	0.0339	0.0099	0.0339	0.0099	0.0339	0.0099
C->Z	0.0383	0.0127	0.0383	0.0127	0.0384	0.0127	0.0385	0.0127	0.0385	0.0127	0.0386	0.0127

Hidden Power (uW/MHz)

AOI211 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0004	-0.0005	-0.0010	-0.0021
A1	F	0.0011	0.0010	0.0013	0.0025	0.0050
A2	R	-0.0004	-0.0004	-0.0006	-0.0011	-0.0023
A2	F	0.0010	0.0010	0.0012	0.0025	0.0048
B	R	-0.0005	-0.0006	-0.0008	-0.0016	-0.0032
B	F	0.0006	0.0007	0.0009	0.0019	0.0038
C	R	-0.0009	-0.0011	-0.0014	-0.0028	-0.0055
C	F	0.0009	0.0012	0.0016	0.0032	0.0064

Propagation Delays (ns)

AOI211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0030 pF		0.0049 pF		0.0076 pF		0.0111 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1249	0.0432	0.1481	0.0489	0.1939	0.0601	0.2661	0.0779	0.3681	0.1030	0.5000	0.1355
A2->Z	0.1476	0.0467	0.1706	0.0524	0.2162	0.0637	0.2883	0.0814	0.3903	0.1065	0.5224	0.1390
B->Z	0.2107	0.0565	0.2336	0.0622	0.2792	0.0734	0.3512	0.0908	0.4532	0.1151	0.5852	0.1463
C->Z	0.2207	0.0595	0.2436	0.0656	0.2892	0.0773	0.3612	0.0954	0.4632	0.1206	0.5952	0.1527

AOI211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1059	0.0423	0.1328	0.0499	0.1802	0.0633	0.2567	0.0849	0.3621	0.1148	0.4993	0.1537
A2->Z	0.1251	0.0457	0.1519	0.0534	0.1991	0.0667	0.2756	0.0884	0.3811	0.1182	0.5186	0.1571
B->Z	0.1784	0.0572	0.2050	0.0650	0.2522	0.0784	0.3286	0.0999	0.4340	0.1293	0.5715	0.1673
C->Z	0.1882	0.0612	0.2148	0.0693	0.2620	0.0835	0.3384	0.1059	0.4438	0.1362	0.5813	0.1752

AOI211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0048 pF		0.0084 pF		0.0134 pF		0.0200 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0905	0.0377	0.1173	0.0454	0.1682	0.0598	0.2471	0.0821	0.3561	0.1131	0.4996	0.1539
A2->Z	0.1087	0.0409	0.1354	0.0485	0.1860	0.0629	0.2649	0.0853	0.3739	0.1162	0.5177	0.1570
B->Z	0.1572	0.0459	0.1838	0.0527	0.2344	0.0654	0.3131	0.0847	0.4222	0.1112	0.5659	0.1459
C->Z	0.1669	0.0498	0.1934	0.0572	0.2440	0.0708	0.3228	0.0915	0.4318	0.1195	0.5756	0.1558

AOI211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0088 pF		0.0161 pF		0.0263 pF		0.0397 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0757	0.0329	0.1030	0.0406	0.1559	0.0551	0.2372	0.0774	0.3500	0.1084	0.4978	0.1490
A2->Z	0.0937	0.0362	0.1207	0.0438	0.1730	0.0583	0.2537	0.0806	0.3660	0.1116	0.5133	0.1522
B->Z	0.1454	0.0476	0.1723	0.0554	0.2244	0.0703	0.3050	0.0927	0.4172	0.1235	0.5644	0.1637
C->Z	0.1552	0.0509	0.1821	0.0592	0.2343	0.0750	0.3148	0.0984	0.4270	0.1303	0.5742	0.1716

AOI211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0073 pF		0.0166 pF		0.0312 pF		0.0516 pF		0.0785 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0731	0.0316	0.1013	0.0394	0.1540	0.0537	0.2359	0.0757	0.3496	0.1063	0.4990	0.1466
A2->Z	0.0915	0.0348	0.1193	0.0425	0.1716	0.0568	0.2530	0.0788	0.3662	0.1094	0.5153	0.1497
B->Z	0.1418	0.0447	0.1695	0.0524	0.2216	0.0666	0.3028	0.0882	0.4160	0.1179	0.5650	0.1568
C->Z	0.1517	0.0468	0.1794	0.0549	0.2315	0.0697	0.3127	0.0920	0.4259	0.1222	0.5749	0.1615

Combinational Cell

AOI21B01

Cell Description

The AOI21B01 cell provides a NOR gate with two inputs, one of which is an AND gate's output, the other input is inverted (NB).

Truth Table

A1	A2	NB	Z
0	X	1	1
X	0	1	1
X	X	0	0
1	1	X	0

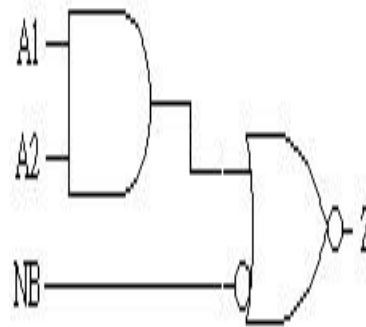
Cell List

AOI21B01M0HM, AOI21B01M1HM, AOI21B01M2HM
, AOI21B01M4HM, AOI21B01M8HM

AOI21B01 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00123	0.00139	0.00172	0.00322	0.00638
A2	input	0.00126	0.00139	0.00173	0.00360	0.00693
NB	input	0.00138	0.00139	0.00136	0.00142	0.00186
Z	output					

Symbol



Power Dissipation (uW/MHz)

AOI21B01M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0118 pF		0.0175 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0040	0.0006	0.0041	0.0006	0.0041	0.0007	0.0041	0.0007	0.0041	0.0007	0.0042	0.0007
A2->Z	0.0050	0.0006	0.0050	0.0006	0.0050	0.0007	0.0050	0.0007	0.0050	0.0007	0.0050	0.0007
NB->Z	0.0060	0.0074	0.0060	0.0074	0.0061	0.0074	0.0061	0.0074	0.0061	0.0074	0.0061	0.0074

AOI21B01M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0006	0.0045	0.0007	0.0046	0.0007	0.0046	0.0007	0.0046	0.0007	0.0046	0.0007
A2->Z	0.0056	0.0006	0.0056	0.0007	0.0057	0.0007	0.0057	0.0007	0.0057	0.0007	0.0057	0.0007
NB->Z	0.0067	0.0080	0.0068	0.0080	0.0068	0.0080	0.0068	0.0080	0.0068	0.0080	0.0068	0.0080

AOI21B01M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0129 pF		0.0209 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0054	0.0006	0.0054	0.0007	0.0055	0.0007	0.0056	0.0007	0.0056	0.0008	0.0056	0.0008
A2->Z	0.0069	0.0006	0.0069	0.0007	0.0069	0.0007	0.0069	0.0007	0.0070	0.0008	0.0070	0.0008
NB->Z	0.0083	0.0090	0.0084	0.0090	0.0084	0.0091	0.0084	0.0091	0.0084	0.0091	0.0084	0.0091

AOI21B01M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0105	0.0012	0.0107	0.0013	0.0109	0.0014	0.0110	0.0015	0.0111	0.0015	0.0111	0.0015
A2->Z	0.0136	0.0012	0.0137	0.0013	0.0137	0.0014	0.0138	0.0015	0.0138	0.0015	0.0138	0.0015
NB->Z	0.0164	0.0146	0.0164	0.0147	0.0165	0.0147	0.0166	0.0148	0.0166	0.0148	0.0166	0.0148

AOI21B01M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0486 pF		0.0808 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0208	0.0024	0.0212	0.0027	0.0214	0.0028	0.0216	0.0030	0.0218	0.0030	0.0218	0.0031
A2->Z	0.0263	0.0025	0.0265	0.0027	0.0266	0.0029	0.0267	0.0030	0.0267	0.0030	0.0268	0.0031
NB->Z	0.0315	0.0260	0.0317	0.0261	0.0319	0.0262	0.0320	0.0262	0.0320	0.0262	0.0321	0.0262

Hidden Power (uW/MHz)

AOI21B01 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0014	-0.0027
A1	F	0.0008	0.0010	0.0014	0.0028	0.0054
A2	R	-0.0005	-0.0006	-0.0008	-0.0016	-0.0032
A2	F	0.0008	0.0010	0.0013	0.0026	0.0050
NB	R	0.0010	0.0012	0.0017	0.0033	0.0064
NB	F	0.0046	0.0047	0.0049	0.0064	0.0102

Propagation Delays (ns)

AOI21B01M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0118 pF		0.0175 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0954	0.0413	0.1213	0.0503	0.1728	0.0681	0.2520	0.0956	0.3640	0.1346	0.5088	0.1849
A2->Z	0.1102	0.0450	0.1358	0.0540	0.1868	0.0718	0.2655	0.0993	0.3768	0.1382	0.5209	0.1886
NB->Z	0.1597	0.0994	0.1853	0.1073	0.2363	0.1224	0.3149	0.1449	0.4263	0.1761	0.5703	0.2161

AOI21B01M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0845	0.0378	0.1117	0.0473	0.1653	0.0661	0.2452	0.0942	0.3595	0.1343	0.5082	0.1866
A2->Z	0.0989	0.0414	0.1257	0.0509	0.1789	0.0697	0.2583	0.0977	0.3720	0.1379	0.5201	0.1902
NB->Z	0.1468	0.0995	0.1736	0.1083	0.2268	0.1248	0.3061	0.1486	0.4198	0.1820	0.5678	0.2251

AOI21B01M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0129 pF		0.0209 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0700	0.0330	0.1000	0.0439	0.1530	0.0628	0.2376	0.0930	0.3538	0.1346	0.5061	0.1892
A2->Z	0.0836	0.0364	0.1131	0.0472	0.1657	0.0661	0.2499	0.0963	0.3656	0.1379	0.5173	0.1925
NB->Z	0.1315	0.1007	0.1609	0.1111	0.2135	0.1283	0.2976	0.1547	0.4133	0.1900	0.5650	0.2360

AOI21B01M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0632	0.0299	0.0928	0.0406	0.1479	0.0598	0.2327	0.0893	0.3507	0.1305	0.5067	0.1850
A2->Z	0.0770	0.0333	0.1061	0.0437	0.1606	0.0629	0.2447	0.0925	0.3621	0.1337	0.5173	0.1882
NB->Z	0.1301	0.1087	0.1592	0.1194	0.2137	0.1376	0.2979	0.1638	0.4153	0.1991	0.5704	0.2451

AOI21B01M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0486 pF		0.0808 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0596	0.0305	0.0892	0.0421	0.1448	0.0633	0.2299	0.0958	0.3490	0.1414	0.5057	0.2013
A2->Z	0.0723	0.0338	0.1015	0.0452	0.1566	0.0664	0.2414	0.0989	0.3602	0.1445	0.5164	0.2044
NB->Z	0.1297	0.1224	0.1588	0.1344	0.2139	0.1550	0.2987	0.1842	0.4175	0.2233	0.5737	0.2740

Combinational Cell

AOI21B10

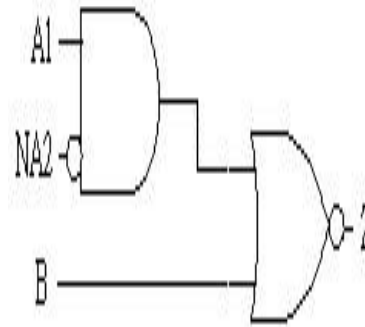
Cell Description

The AOI21B10 cell provides a NOR gate with two inputs, one of which is an AND gate's output. One of the AND gate's input is inverted (NA2).

Truth Table

A1	NA2	B	Z
0	X	0	1
X	1	0	1
X	X	1	0
1	0	X	0

Symbol



Cell List

AOI21B10M0HM, AOI21B10M1HM, AOI21B10M2HM
, AOI21B10M4HM, AOI21B10M8HM

AOI21B10 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00133	0.00149	0.00182	0.00324	0.00643
B	input	0.00120	0.00130	0.00157	0.00298	0.00547
NA2	input	0.00135	0.00135	0.00135	0.00147	0.00181
Z	output					

Power Dissipation (uW/MHz)

AOI21B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0117 pF		0.0174 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0008	0.0042	0.0009	0.0042	0.0009	0.0042	0.0009	0.0043	0.0009	0.0043	0.0009
B->Z	0.0061	0.0018	0.0061	0.0018	0.0062	0.0018	0.0062	0.0018	0.0062	0.0018	0.0062	0.0018
NA2->Z	0.0054	0.0073	0.0054	0.0073	0.0054	0.0073	0.0054	0.0073	0.0054	0.0073	0.0054	0.0074

AOI21B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0091 pF		0.0147 pF		0.0219 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0009	0.0046	0.0009	0.0047	0.0010	0.0047	0.0010	0.0047	0.0010	0.0047	0.0010
B->Z	0.0069	0.0021	0.0069	0.0021	0.0069	0.0021	0.0069	0.0021	0.0069	0.0021	0.0069	0.0021
NA2->Z	0.0061	0.0078	0.0061	0.0078	0.0061	0.0079	0.0061	0.0079	0.0061	0.0079	0.0061	0.0079

AOI21B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0207 pF		0.0312 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0055	0.0009	0.0056	0.0010	0.0057	0.0010	0.0057	0.0010	0.0058	0.0011	0.0058	0.0011
B->Z	0.0084	0.0025	0.0085	0.0025	0.0085	0.0025	0.0085	0.0026	0.0085	0.0026	0.0085	0.0026
NA2->Z	0.0074	0.0085	0.0074	0.0086	0.0075	0.0087	0.0075	0.0087	0.0075	0.0087	0.0075	0.0087

AOI21B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0250 pF		0.0412 pF		0.0626 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0103	0.0018	0.0105	0.0019	0.0106	0.0020	0.0107	0.0021	0.0108	0.0021	0.0108	0.0021
B->Z	0.0163	0.0051	0.0164	0.0051	0.0165	0.0051	0.0165	0.0052	0.0165	0.0052	0.0165	0.0052
NA2->Z	0.0139	0.0140	0.0140	0.0142	0.0141	0.0144	0.0142	0.0145	0.0142	0.0145	0.0142	0.0146

AOI21B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0486 pF		0.0808 pF		0.1231 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0195	0.0036	0.0199	0.0039	0.0202	0.0041	0.0203	0.0042	0.0205	0.0042	0.0205	0.0043
B->Z	0.0306	0.0096	0.0307	0.0097	0.0308	0.0097	0.0309	0.0098	0.0309	0.0098	0.0310	0.0098
NA2->Z	0.0261	0.0245	0.0263	0.0248	0.0265	0.0252	0.0266	0.0254	0.0267	0.0256	0.0268	0.0257

Hidden Power (uW/MHz)

AOI21B10 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0014	-0.0027
A1	F	0.0008	0.0011	0.0014	0.0028	0.0053
B	R	-0.0008	-0.0010	-0.0014	-0.0027	-0.0054
B	F	0.0010	0.0012	0.0016	0.0032	0.0062
NA2	R	0.0008	0.0010	0.0013	0.0026	0.0049
NA2	F	0.0055	0.0058	0.0062	0.0094	0.0155

Propagation Delays (ns)

AOI21B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0117 pF		0.0174 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0992	0.0425	0.1251	0.0514	0.1766	0.0692	0.2558	0.0966	0.3652	0.1345	0.5100	0.1846
B->Z	0.1432	0.0461	0.1689	0.0536	0.2198	0.0682	0.2985	0.0904	0.4073	0.1208	0.5514	0.1608
NA2->Z	0.1381	0.1046	0.1638	0.1142	0.2148	0.1325	0.2935	0.1602	0.4023	0.1982	0.5464	0.2485

AOI21B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0091 pF		0.0147 pF		0.0219 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0881	0.0389	0.1152	0.0484	0.1668	0.0664	0.2467	0.0943	0.3610	0.1342	0.5077	0.1856
B->Z	0.1294	0.0440	0.1562	0.0522	0.2073	0.0675	0.2867	0.0909	0.4004	0.1241	0.5464	0.1665
NA2->Z	0.1277	0.1043	0.1546	0.1145	0.2058	0.1334	0.2852	0.1617	0.3990	0.2019	0.5450	0.2532

AOI21B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0207 pF		0.0312 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0732	0.0339	0.1032	0.0447	0.1561	0.0635	0.2393	0.0931	0.3540	0.1340	0.5064	0.1883
B->Z	0.1112	0.0401	0.1406	0.0495	0.1931	0.0659	0.2759	0.0912	0.3902	0.1259	0.5420	0.1717
NA2->Z	0.1140	0.1044	0.1436	0.1164	0.1963	0.1365	0.2791	0.1668	0.3934	0.2079	0.5453	0.2623

AOI21B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0250 pF		0.0412 pF		0.0626 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0639	0.0302	0.0933	0.0408	0.1480	0.0600	0.2329	0.0898	0.3509	0.1312	0.5065	0.1859
B->Z	0.1031	0.0369	0.1319	0.0462	0.1859	0.0630	0.2700	0.0886	0.3870	0.1238	0.5415	0.1701
NA2->Z	0.1128	0.1197	0.1418	0.1326	0.1960	0.1544	0.2803	0.1858	0.3974	0.2279	0.5520	0.2828

AOI21B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0486 pF		0.0808 pF		0.1231 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0595	0.0304	0.0892	0.0420	0.1444	0.0631	0.2301	0.0958	0.3494	0.1414	0.5059	0.2013
B->Z	0.0967	0.0373	0.1257	0.0474	0.1806	0.0657	0.2657	0.0936	0.3847	0.1321	0.5407	0.1824
NA2->Z	0.1151	0.1327	0.1444	0.1475	0.1995	0.1721	0.2849	0.2070	0.4039	0.2536	0.5600	0.3137

Combinational Cell

AOI21B20

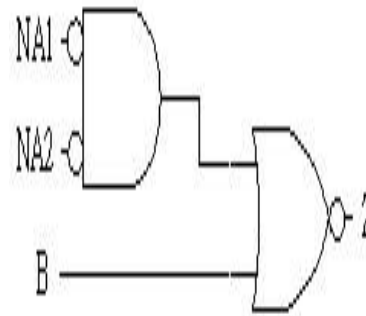
Cell Description

The AOI21B20 cell provides a NOR gate with two inputs, one of which is an AND gate's output. Both of AND gate's inputs are inverted (NA1 and NA2).

Truth Table

NA1	NA2	B	Z
1	X	0	1
X	1	0	1
X	X	1	0
0	0	X	0

Symbol



Cell List

AOI21B20M0HM, AOI21B20M1HM, AOI21B20M2HM
, AOI21B20M4HM, AOI21B20M8HM

AOI21B20 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00123	0.00133	0.00159	0.00300	0.00596
NA1	input	0.00140	0.00140	0.00139	0.00160	0.00150
NA2	input	0.00148	0.00147	0.00148	0.00164	0.00161
Z	output					

Power Dissipation (uW/MHz)

AOI21B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0077 pF		0.0122 pF		0.0182 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0034	0.0002	0.0034	0.0002	0.0034	0.0002	0.0034	0.0002	0.0035	0.0002	0.0035	0.0002
NA1->Z	0.0043	0.0075	0.0043	0.0075	0.0044	0.0076	0.0044	0.0076	0.0044	0.0076	0.0044	0.0076
NA2->Z	0.0050	0.0086	0.0050	0.0086	0.0050	0.0086	0.0050	0.0086	0.0051	0.0086	0.0051	0.0086

AOI21B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0095 pF		0.0152 pF		0.0228 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0036	0.0002	0.0036	0.0002	0.0037	0.0002	0.0037	0.0003	0.0037	0.0003	0.0037	0.0003
NA1->Z	0.0047	0.0079	0.0047	0.0079	0.0048	0.0079	0.0048	0.0079	0.0048	0.0079	0.0048	0.0079
NA2->Z	0.0054	0.0089	0.0054	0.0089	0.0054	0.0090	0.0055	0.0090	0.0055	0.0090	0.0055	0.0090

AOI21B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0073 pF		0.0131 pF		0.0214 pF		0.0322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0044	0.0002	0.0044	0.0003	0.0045	0.0003	0.0045	0.0003	0.0046	0.0003	0.0046	0.0003
NA1->Z	0.0058	0.0087	0.0059	0.0088	0.0059	0.0088	0.0059	0.0088	0.0059	0.0088	0.0060	0.0088
NA2->Z	0.0065	0.0098	0.0065	0.0099	0.0066	0.0099	0.0066	0.0099	0.0066	0.0099	0.0066	0.0099

AOI21B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0061 pF		0.0137 pF		0.0256 pF		0.0422 pF		0.0641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0085	-0.0002	0.0086	-0.0001	0.0087	0.0000	0.0088	0.0001	0.0089	0.0001	0.0089	0.0001
NA1->Z	0.0112	0.0138	0.0113	0.0139	0.0114	0.0139	0.0115	0.0139	0.0115	0.0140	0.0115	0.0140
NA2->Z	0.0119	0.0151	0.0120	0.0151	0.0121	0.0152	0.0122	0.0152	0.0122	0.0152	0.0123	0.0152

AOI21B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0265 pF		0.0503 pF		0.0836 pF		0.1275 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0160	-0.0004	0.0163	-0.0001	0.0166	0.0001	0.0167	0.0002	0.0168	0.0003	0.0169	0.0003
NA1->Z	0.0212	0.0228	0.0214	0.0227	0.0216	0.0227	0.0218	0.0226	0.0219	0.0226	0.0219	0.0226
NA2->Z	0.0219	0.0240	0.0221	0.0239	0.0223	0.0239	0.0224	0.0239	0.0225	0.0239	0.0226	0.0238

Hidden Power (uW/MHz)

AOI21B20 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0003	-0.0004	-0.0005	-0.0010	-0.0020
B	F	0.0007	0.0009	0.0012	0.0024	0.0050
NA1	R	0.0001	0.0002	0.0003	0.0008	0.0019
NA1	F	0.0025	0.0025	0.0026	0.0036	0.0046
NA2	R	-0.0002	-0.0001	0.0000	0.0004	0.0015
NA2	F	0.0031	0.0031	0.0032	0.0044	0.0054

Propagation Delays (ns)

AOI21B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0077 pF		0.0122 pF		0.0182 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0845	0.0319	0.1127	0.0401	0.1661	0.0551	0.2470	0.0778	0.3605	0.1096	0.5117	0.1520
NA1->Z	0.1227	0.1168	0.1508	0.1273	0.2041	0.1451	0.2849	0.1699	0.3984	0.2027	0.5495	0.2450
NA2->Z	0.1270	0.1284	0.1551	0.1388	0.2084	0.1567	0.2893	0.1815	0.4028	0.2142	0.5539	0.2565

AOI21B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0095 pF		0.0152 pF		0.0228 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0742	0.0299	0.1032	0.0387	0.1563	0.0544	0.2396	0.0788	0.3552	0.1126	0.5091	0.1577
NA1->Z	0.1126	0.1163	0.1414	0.1278	0.1944	0.1466	0.2777	0.1734	0.3931	0.2083	0.5470	0.2534
NA2->Z	0.1168	0.1279	0.1456	0.1393	0.1986	0.1582	0.2819	0.1849	0.3974	0.2198	0.5513	0.2649

AOI21B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0073 pF		0.0131 pF		0.0214 pF		0.0322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0641	0.0275	0.0922	0.0365	0.1476	0.0534	0.2317	0.0789	0.3517	0.1153	0.5077	0.1627
NA1->Z	0.1040	0.1201	0.1319	0.1323	0.1872	0.1533	0.2713	0.1818	0.3912	0.2196	0.5472	0.2672
NA2->Z	0.1082	0.1317	0.1361	0.1438	0.1914	0.1649	0.2754	0.1933	0.3954	0.2312	0.5514	0.2788

AOI21B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0061 pF		0.0137 pF		0.0256 pF		0.0422 pF		0.0641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0536	0.0234	0.0837	0.0330	0.1397	0.0498	0.2268	0.0756	0.3480	0.1114	0.5076	0.1585
NA1->Z	0.1026	0.1402	0.1325	0.1551	0.1884	0.1784	0.2755	0.2097	0.3967	0.2491	0.5562	0.2983
NA2->Z	0.1068	0.1514	0.1366	0.1663	0.1925	0.1896	0.2796	0.2208	0.4007	0.2602	0.5603	0.3095

AOI21B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0265 pF		0.0503 pF		0.0836 pF		0.1275 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0489	0.0223	0.0793	0.0323	0.1357	0.0497	0.2234	0.0761	0.3457	0.1130	0.5068	0.1617
NA1->Z	0.1157	0.1908	0.1460	0.2090	0.2025	0.2365	0.2902	0.2721	0.4126	0.3155	0.5737	0.3681
NA2->Z	0.1196	0.2018	0.1500	0.2200	0.2064	0.2475	0.2941	0.2831	0.4165	0.3265	0.5775	0.3791

Combinational Cell

AOI21

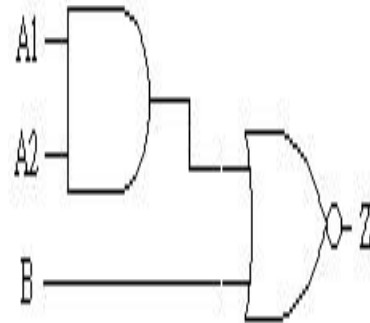
Cell Description

The AOI21 cell provides a NOR gate with two inputs, one of which is an AND gate's output.

Truth Table

A1	A2	B	Z
0	X	0	1
X	0	0	1
X	X	1	0
1	1	X	0

Symbol



Cell List

AOI21M0HM, AOI21M1HM, AOI21M2HM
, AOI21M3HM, AOI21M4HM
, AOI21M6HM, AOI21M8HM

AOI21 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A1	input	0.00124	0.00139	0.00171	0.00287	0.00340	0.00505	0.00668
A2	input	0.00116	0.00130	0.00160	0.00306	0.00357	0.00516	0.00709
B	input	0.00123	0.00131	0.00156	0.00238	0.00282	0.00393	0.00533
Z	output							

Power Dissipation (uW/MHz)

AOI21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0075 pF		0.0118 pF		0.0176 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0007	0.0042	0.0007	0.0043	0.0007	0.0043	0.0007	0.0043	0.0007	0.0043	0.0007
A2->Z	0.0052	0.0007	0.0052	0.0007	0.0052	0.0007	0.0052	0.0007	0.0052	0.0007	0.0052	0.0007
B->Z	0.0061	0.0018	0.0061	0.0018	0.0061	0.0018	0.0061	0.0018	0.0061	0.0018	0.0061	0.0018

AOI21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0007	0.0047	0.0007	0.0047	0.0007	0.0047	0.0007	0.0048	0.0007	0.0048	0.0007
A2->Z	0.0058	0.0007	0.0058	0.0007	0.0058	0.0007	0.0058	0.0007	0.0058	0.0007	0.0059	0.0007
B->Z	0.0068	0.0020	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021

AOI21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0056	0.0007	0.0057	0.0008	0.0057	0.0008	0.0058	0.0008	0.0058	0.0009	0.0058	0.0009
A2->Z	0.0071	0.0007	0.0072	0.0008	0.0072	0.0008	0.0072	0.0008	0.0072	0.0009	0.0072	0.0009
B->Z	0.0083	0.0026	0.0083	0.0026	0.0084	0.0026	0.0084	0.0026	0.0084	0.0026	0.0084	0.0026

AOI21M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0089	0.0010	0.0090	0.0011	0.0091	0.0011	0.0092	0.0012	0.0092	0.0012	0.0093	0.0012
A2->Z	0.0113	0.0010	0.0113	0.0011	0.0114	0.0012	0.0114	0.0012	0.0114	0.0012	0.0114	0.0012
B->Z	0.0136	0.0038	0.0137	0.0039	0.0137	0.0039	0.0137	0.0039	0.0138	0.0039	0.0138	0.0039

AOI21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0105	0.0012	0.0107	0.0013	0.0109	0.0014	0.0110	0.0015	0.0110	0.0015	0.0111	0.0015
A2->Z	0.0135	0.0012	0.0136	0.0013	0.0137	0.0014	0.0137	0.0015	0.0137	0.0015	0.0138	0.0015
B->Z	0.0162	0.0047	0.0162	0.0048	0.0163	0.0048	0.0164	0.0048	0.0164	0.0048	0.0164	0.0048

AOI21M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0196 pF		0.0369 pF		0.0613 pF		0.0933 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0156	0.0018	0.0159	0.0020	0.0161	0.0021	0.0163	0.0022	0.0164	0.0023	0.0164	0.0023
A2->Z	0.0201	0.0019	0.0202	0.0020	0.0203	0.0021	0.0204	0.0022	0.0204	0.0023	0.0205	0.0023
B->Z	0.0237	0.0068	0.0238	0.0068	0.0239	0.0068	0.0240	0.0069	0.0240	0.0069	0.0241	0.0069

AOI21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0487 pF		0.0810 pF		0.1234 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0213	0.0024	0.0217	0.0026	0.0220	0.0028	0.0222	0.0030	0.0224	0.0030	0.0224	0.0030
A2->Z	0.0274	0.0025	0.0275	0.0027	0.0277	0.0029	0.0277	0.0030	0.0278	0.0030	0.0278	0.0031
B->Z	0.0324	0.0092	0.0325	0.0092	0.0327	0.0093	0.0327	0.0093	0.0328	0.0093	0.0328	0.0093

Hidden Power (uW/MHz)

AOI21 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A1	R	-0.0004	-0.0005	-0.0006	-0.0010	-0.0013	-0.0020	-0.0026
A1	F	0.0008	0.0010	0.0014	0.0021	0.0027	0.0039	0.0052
A2	R	-0.0004	-0.0006	-0.0008	-0.0012	-0.0016	-0.0023	-0.0031
A2	F	0.0008	0.0009	0.0013	0.0019	0.0025	0.0036	0.0048
B	R	-0.0008	-0.0010	-0.0013	-0.0020	-0.0026	-0.0040	-0.0053
B	F	0.0010	0.0012	0.0016	0.0025	0.0032	0.0048	0.0064

Propagation Delays (ns)

AOI21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0075 pF		0.0118 pF		0.0176 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0969	0.0420	0.1227	0.0510	0.1737	0.0688	0.2548	0.0971	0.3634	0.1351	0.5096	0.1863
A2->Z	0.1121	0.0458	0.1376	0.0548	0.1882	0.0726	0.2689	0.1009	0.3770	0.1389	0.5227	0.1901
B->Z	0.1405	0.0465	0.1660	0.0541	0.2166	0.0690	0.2974	0.0923	0.4055	0.1233	0.5512	0.1647

AOI21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0858	0.0383	0.1128	0.0478	0.1662	0.0666	0.2456	0.0946	0.3593	0.1347	0.5073	0.1869
A2->Z	0.1004	0.0419	0.1271	0.0515	0.1801	0.0702	0.2592	0.0982	0.3724	0.1383	0.5199	0.1906
B->Z	0.1266	0.0442	0.1532	0.0526	0.2062	0.0688	0.2853	0.0927	0.3985	0.1265	0.5460	0.1702

AOI21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0721	0.0336	0.1019	0.0445	0.1548	0.0633	0.2378	0.0930	0.3539	0.1345	0.5073	0.1894
A2->Z	0.0862	0.0372	0.1157	0.0479	0.1682	0.0668	0.2509	0.0964	0.3666	0.1379	0.5196	0.1929
B->Z	0.1099	0.0404	0.1393	0.0499	0.1917	0.0665	0.2744	0.0922	0.3900	0.1278	0.5431	0.1746

AOI21M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0686	0.0316	0.0983	0.0421	0.1526	0.0608	0.2363	0.0897	0.3540	0.1304	0.5078	0.1835
A2->Z	0.0828	0.0351	0.1120	0.0454	0.1658	0.0641	0.2488	0.0930	0.3658	0.1336	0.5187	0.1868
B->Z	0.1091	0.0384	0.1382	0.0476	0.1920	0.0640	0.2750	0.0888	0.3920	0.1234	0.5449	0.1683

AOI21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0632	0.0302	0.0928	0.0409	0.1479	0.0603	0.2326	0.0902	0.3507	0.1319	0.5066	0.1870
A2->Z	0.0768	0.0335	0.1059	0.0441	0.1604	0.0635	0.2446	0.0934	0.3619	0.1351	0.5170	0.1902
B->Z	0.1008	0.0369	0.1298	0.0464	0.1843	0.0634	0.2683	0.0891	0.3857	0.1246	0.5408	0.1712

AOI21M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0196 pF		0.0369 pF		0.0613 pF		0.0933 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0609	0.0291	0.0904	0.0398	0.1456	0.0592	0.2308	0.0891	0.3504	0.1311	0.5069	0.1862
A2->Z	0.0751	0.0324	0.1042	0.0429	0.1592	0.0623	0.2443	0.0922	0.3639	0.1342	0.5205	0.1893
B->Z	0.0972	0.0366	0.1262	0.0462	0.1811	0.0636	0.2661	0.0900	0.3857	0.1268	0.5423	0.1746

AOI21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0487 pF		0.0810 pF		0.1234 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0605	0.0286	0.0901	0.0392	0.1456	0.0584	0.2311	0.0878	0.3505	0.1290	0.5069	0.1831
A2->Z	0.0746	0.0319	0.1036	0.0422	0.1588	0.0614	0.2438	0.0909	0.3627	0.1321	0.5187	0.1861
B->Z	0.0974	0.0362	0.1264	0.0458	0.1814	0.0632	0.2663	0.0894	0.3853	0.1258	0.5412	0.1732

Combinational Cell

AOI221

Cell Description

The AOI221 cell provides a NOR gate with three inputs, two of which are AND gates' outputs.

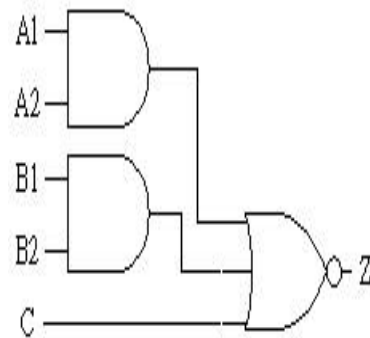
Truth Table

A1	A2	B1	B2	C	Z
0	X	0	X	0	1
0	X	X	0	0	1
X	0	0	X	0	1
X	0	X	0	0	1
X	X	X	X	1	0
X	X	1	1	X	0
1	1	X	X	X	0

Cell List

AOI221M0HM, AOI221M1HM, AOI221M2HM
, AOI221M4HM, AOI221M8HM

Symbol



AOI221 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00125	0.00132	0.00160	0.00310	0.00614
A2	input	0.00118	0.00132	0.00171	0.00341	0.00667
B1	input	0.00116	0.00131	0.00166	0.00317	0.00613
B2	input	0.00115	0.00130	0.00173	0.00339	0.00664
C	input	0.00106	0.00116	0.00145	0.00272	0.00526
Z	output					

Power Dissipation (uW/MHz)

AOI221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0035 pF		0.0058 pF		0.0091 pF		0.0133 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0057	0.0007	0.0057	0.0007	0.0058	0.0007	0.0058	0.0007	0.0058	0.0007	0.0058	0.0007
A2->Z	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007
B1->Z	0.0079	0.0024	0.0079	0.0024	0.0079	0.0024	0.0079	0.0024	0.0079	0.0024	0.0079	0.0024
B2->Z	0.0087	0.0024	0.0087	0.0024	0.0087	0.0024	0.0087	0.0024	0.0087	0.0024	0.0087	0.0024
C->Z	0.0095	0.0034	0.0095	0.0034	0.0095	0.0034	0.0095	0.0034	0.0095	0.0034	0.0096	0.0034

AOI221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0072 pF		0.0115 pF		0.0170 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0061	0.0007	0.0062	0.0007	0.0062	0.0007	0.0062	0.0007	0.0062	0.0007	0.0062	0.0007
A2->Z	0.0071	0.0007	0.0071	0.0007	0.0071	0.0007	0.0071	0.0007	0.0071	0.0007	0.0071	0.0007
B1->Z	0.0085	0.0027	0.0085	0.0027	0.0086	0.0027	0.0086	0.0027	0.0086	0.0027	0.0086	0.0027
B2->Z	0.0095	0.0027	0.0095	0.0027	0.0095	0.0027	0.0095	0.0027	0.0095	0.0027	0.0095	0.0027
C->Z	0.0104	0.0039	0.0104	0.0039	0.0104	0.0039	0.0104	0.0039	0.0104	0.0039	0.0104	0.0039

AOI221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0100 pF		0.0161 pF		0.0242 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0074	0.0006	0.0074	0.0007	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007
A2->Z	0.0086	0.0006	0.0087	0.0007	0.0087	0.0007	0.0087	0.0007	0.0087	0.0007	0.0087	0.0007
B1->Z	0.0104	0.0032	0.0105	0.0032	0.0105	0.0032	0.0105	0.0032	0.0105	0.0032	0.0106	0.0032
B2->Z	0.0117	0.0032	0.0117	0.0032	0.0117	0.0032	0.0117	0.0032	0.0117	0.0032	0.0117	0.0032
C->Z	0.0129	0.0047	0.0130	0.0048	0.0130	0.0048	0.0130	0.0048	0.0130	0.0048	0.0130	0.0048

AOI221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0136	0.0013	0.0137	0.0013	0.0138	0.0014	0.0139	0.0014	0.0139	0.0015	0.0139	0.0015
A2->Z	0.0161	0.0013	0.0162	0.0013	0.0162	0.0014	0.0162	0.0015	0.0162	0.0015	0.0163	0.0015
B1->Z	0.0194	0.0060	0.0195	0.0060	0.0196	0.0060	0.0196	0.0060	0.0197	0.0060	0.0197	0.0060
B2->Z	0.0219	0.0060	0.0220	0.0060	0.0220	0.0060	0.0220	0.0060	0.0220	0.0060	0.0220	0.0060
C->Z	0.0245	0.0091	0.0245	0.0092	0.0246	0.0092	0.0246	0.0092	0.0246	0.0092	0.0247	0.0092

AOI221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0086 pF		0.0200 pF		0.0376 pF		0.0624 pF		0.0950 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0271	0.0025	0.0273	0.0026	0.0275	0.0028	0.0277	0.0029	0.0278	0.0030	0.0279	0.0030
A2->Z	0.0324	0.0025	0.0325	0.0027	0.0326	0.0028	0.0326	0.0029	0.0327	0.0030	0.0327	0.0030
B1->Z	0.0386	0.0116	0.0387	0.0116	0.0389	0.0117	0.0390	0.0117	0.0391	0.0117	0.0392	0.0117
B2->Z	0.0438	0.0116	0.0439	0.0116	0.0439	0.0117	0.0440	0.0117	0.0440	0.0117	0.0440	0.0117
C->Z	0.0490	0.0176	0.0491	0.0176	0.0492	0.0176	0.0492	0.0176	0.0492	0.0176	0.0493	0.0176

Hidden Power (uW/MHz)

AOI221 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0004	-0.0006	-0.0012	-0.0023
A1	F	0.0012	0.0014	0.0018	0.0034	0.0066
A2	R	-0.0004	-0.0005	-0.0007	-0.0013	-0.0027
A2	F	0.0011	0.0013	0.0017	0.0033	0.0064
B1	R	-0.0006	-0.0006	-0.0009	-0.0018	-0.0035
B1	F	0.0007	0.0009	0.0012	0.0024	0.0047
B2	R	-0.0006	-0.0007	-0.0010	-0.0020	-0.0039
B2	F	0.0007	0.0008	0.0011	0.0023	0.0044
C	R	-0.0008	-0.0010	-0.0013	-0.0026	-0.0052
C	F	0.0011	0.0013	0.0018	0.0035	0.0071

Propagation Delays (ns)

AOI221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0035 pF		0.0058 pF		0.0091 pF		0.0133 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1565	0.0509	0.1868	0.0590	0.2435	0.0741	0.3299	0.0971	0.4533	0.1301	0.6102	0.1720
A2->Z	0.1762	0.0543	0.2064	0.0624	0.2628	0.0774	0.3489	0.1005	0.4721	0.1335	0.6286	0.1754
B1->Z	0.2429	0.0704	0.2732	0.0790	0.3299	0.0948	0.4164	0.1185	0.5401	0.1520	0.6972	0.1941
B2->Z	0.2619	0.0738	0.2920	0.0824	0.3483	0.0982	0.4343	0.1218	0.5574	0.1553	0.7139	0.1975
C->Z	0.2863	0.0700	0.3164	0.0783	0.3728	0.0933	0.4588	0.1156	0.5821	0.1465	0.7386	0.1850

AOI221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0072 pF		0.0115 pF		0.0170 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1359	0.0466	0.1665	0.0550	0.2244	0.0709	0.3153	0.0960	0.4449	0.1318	0.6103	0.1776
A2->Z	0.1543	0.0498	0.1847	0.0583	0.2423	0.0742	0.3328	0.0993	0.4621	0.1351	0.6271	0.1808
B1->Z	0.2143	0.0653	0.2449	0.0742	0.3028	0.0909	0.3938	0.1166	0.5236	0.1528	0.6894	0.1987
B2->Z	0.2320	0.0685	0.2623	0.0775	0.3198	0.0941	0.4102	0.1198	0.5394	0.1560	0.7044	0.2019
C->Z	0.2542	0.0606	0.2846	0.0687	0.3422	0.0835	0.4327	0.1060	0.5619	0.1372	0.7270	0.1761

AOI221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0100 pF		0.0161 pF		0.0242 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1143	0.0410	0.1475	0.0504	0.2090	0.0677	0.3027	0.0942	0.4352	0.1315	0.6106	0.1811
A2->Z	0.1319	0.0442	0.1649	0.0536	0.2262	0.0708	0.3197	0.0973	0.4520	0.1346	0.6273	0.1842
B1->Z	0.1844	0.0589	0.2176	0.0689	0.2790	0.0869	0.3728	0.1140	0.5055	0.1519	0.6812	0.2017
B2->Z	0.2014	0.0620	0.2344	0.0719	0.2955	0.0900	0.3889	0.1171	0.5211	0.1550	0.6964	0.2048
C->Z	0.2228	0.0563	0.2558	0.0655	0.3170	0.0820	0.4105	0.1062	0.5427	0.1394	0.7180	0.1825

AOI221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1006	0.0362	0.1344	0.0458	0.1981	0.0634	0.2955	0.0904	0.4321	0.1283	0.6111	0.1781
A2->Z	0.1176	0.0395	0.1511	0.0490	0.2142	0.0666	0.3110	0.0935	0.4468	0.1315	0.6250	0.1812
B1->Z	0.1659	0.0528	0.1997	0.0628	0.2632	0.0812	0.3604	0.1088	0.4969	0.1471	0.6759	0.1970
B2->Z	0.1829	0.0559	0.2163	0.0659	0.2792	0.0843	0.3759	0.1119	0.5116	0.1502	0.6897	0.2001
C->Z	0.2047	0.0497	0.2382	0.0589	0.3012	0.0755	0.3979	0.0998	0.5338	0.1327	0.7120	0.1750

AOI221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0086 pF		0.0200 pF		0.0376 pF		0.0624 pF		0.0950 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0974	0.0343	0.1311	0.0437	0.1955	0.0611	0.2939	0.0878	0.4319	0.1253	0.6128	0.1745
A2->Z	0.1158	0.0378	0.1492	0.0470	0.2131	0.0645	0.3111	0.0912	0.4486	0.1287	0.6290	0.1779
B1->Z	0.1614	0.0503	0.1950	0.0601	0.2592	0.0783	0.3574	0.1057	0.4953	0.1436	0.6761	0.1929
B2->Z	0.1797	0.0536	0.2130	0.0634	0.2768	0.0816	0.3746	0.1090	0.5120	0.1469	0.6923	0.1962
C->Z	0.2009	0.0496	0.2343	0.0590	0.2981	0.0763	0.3960	0.1014	0.5334	0.1356	0.7138	0.1794

Combinational Cell

AOI222

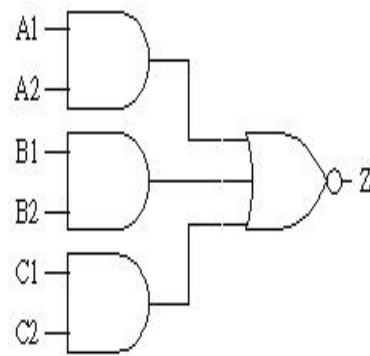
Cell Description

The AOI222 cell provides a NOR gate with three inputs, all of which are AND gates' outputs.

Truth Table

A1	A2	B1	B2	C1	C2	Z
0	X	0	X	0	X	1
0	X	0	X	X	0	1
0	X	X	0	0	X	1
0	X	X	0	X	0	1
X	0	0	X	0	X	1
X	0	0	X	X	0	1
X	0	X	0	0	X	1
X	0	X	0	X	0	1
X	X	X	X	1	1	0
X	X	1	1	X	X	0
1	1	X	X	X	X	0

Symbol



Cell List

AOI222M0HM, AOI222M1HM, AOI222M2HM
, AOI222M4HM, AOI222M8HM

AOI222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00115	0.00128	0.00158	0.00305	0.00610
A2	input	0.00131	0.00142	0.00171	0.00336	0.00662
B1	input	0.00120	0.00133	0.00156	0.00317	0.00611
B2	input	0.00138	0.00151	0.00174	0.00336	0.00664
C1	input	0.00118	0.00132	0.00158	0.00314	0.00619
C2	input	0.00116	0.00129	0.00157	0.00341	0.00669
Z	output					

Power Dissipation (uW/MHz)

AOI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0073 pF		0.0115 pF		0.0171 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007	0.0066	0.0007	0.0067	0.0007	0.0067	0.0007
A2->Z	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007	0.0075	0.0007
B1->Z	0.0088	0.0022	0.0088	0.0022	0.0089	0.0022	0.0089	0.0022	0.0089	0.0022	0.0089	0.0022
B2->Z	0.0097	0.0022	0.0097	0.0022	0.0097	0.0022	0.0097	0.0022	0.0097	0.0022	0.0097	0.0022
C1->Z	0.0109	0.0037	0.0109	0.0037	0.0110	0.0037	0.0110	0.0037	0.0110	0.0037	0.0110	0.0037
C2->Z	0.0118	0.0037	0.0118	0.0037	0.0118	0.0037	0.0118	0.0037	0.0118	0.0037	0.0118	0.0037

AOI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0090 pF		0.0144 pF		0.0216 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0071	0.0007	0.0072	0.0007	0.0072	0.0007	0.0072	0.0007	0.0072	0.0007	0.0072	0.0007
A2->Z	0.0082	0.0007	0.0082	0.0007	0.0082	0.0007	0.0082	0.0007	0.0082	0.0007	0.0082	0.0007
B1->Z	0.0097	0.0025	0.0097	0.0025	0.0097	0.0026	0.0097	0.0026	0.0097	0.0026	0.0097	0.0026
B2->Z	0.0106	0.0025	0.0106	0.0026	0.0106	0.0026	0.0107	0.0026	0.0107	0.0026	0.0107	0.0026
C1->Z	0.0120	0.0043	0.0120	0.0043	0.0120	0.0043	0.0120	0.0043	0.0120	0.0043	0.0120	0.0043
C2->Z	0.0129	0.0043	0.0129	0.0043	0.0129	0.0043	0.0129	0.0043	0.0129	0.0043	0.0129	0.0043

AOI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0070 pF		0.0126 pF		0.0204 pF		0.0308 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0086	0.0006	0.0086	0.0007	0.0086	0.0007	0.0087	0.0007	0.0087	0.0007	0.0087	0.0007
A2->Z	0.0098	0.0007	0.0098	0.0007	0.0098	0.0007	0.0099	0.0007	0.0099	0.0007	0.0099	0.0007
B1->Z	0.0116	0.0032	0.0116	0.0032	0.0116	0.0032	0.0117	0.0032	0.0117	0.0032	0.0117	0.0032
B2->Z	0.0128	0.0032	0.0128	0.0032	0.0128	0.0032	0.0129	0.0032	0.0129	0.0032	0.0129	0.0032
C1->Z	0.0142	0.0054	0.0142	0.0054	0.0143	0.0054	0.0143	0.0054	0.0143	0.0054	0.0143	0.0054
C2->Z	0.0154	0.0054	0.0154	0.0054	0.0154	0.0054	0.0154	0.0054	0.0155	0.0054	0.0155	0.0054

AOI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0132 pF		0.0245 pF		0.0405 pF		0.0614 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0150	0.0013	0.0151	0.0013	0.0152	0.0014	0.0152	0.0015	0.0153	0.0015	0.0153	0.0015
A2->Z	0.0175	0.0013	0.0175	0.0014	0.0175	0.0014	0.0176	0.0015	0.0176	0.0015	0.0176	0.0015
B1->Z	0.0208	0.0059	0.0209	0.0060	0.0210	0.0060	0.0210	0.0060	0.0210	0.0060	0.0211	0.0060
B2->Z	0.0233	0.0060	0.0233	0.0060	0.0233	0.0060	0.0234	0.0060	0.0234	0.0060	0.0234	0.0060
C1->Z	0.0260	0.0097	0.0261	0.0097	0.0262	0.0097	0.0262	0.0097	0.0263	0.0097	0.0263	0.0097
C2->Z	0.0285	0.0097	0.0285	0.0097	0.0286	0.0097	0.0286	0.0097	0.0286	0.0097	0.0286	0.0097

AOI222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0253 pF		0.0480 pF		0.0798 pF		0.1216 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0302	0.0025	0.0304	0.0027	0.0306	0.0028	0.0307	0.0029	0.0308	0.0030	0.0309	0.0030
A2->Z	0.0354	0.0025	0.0355	0.0027	0.0356	0.0028	0.0356	0.0029	0.0357	0.0030	0.0357	0.0030
B1->Z	0.0416	0.0115	0.0418	0.0115	0.0420	0.0116	0.0421	0.0116	0.0422	0.0116	0.0422	0.0116
B2->Z	0.0469	0.0115	0.0469	0.0116	0.0470	0.0116	0.0470	0.0116	0.0470	0.0116	0.0470	0.0116
C1->Z	0.0521	0.0191	0.0523	0.0191	0.0524	0.0191	0.0525	0.0191	0.0526	0.0191	0.0527	0.0191
C2->Z	0.0573	0.0191	0.0574	0.0191	0.0574	0.0191	0.0575	0.0191	0.0575	0.0191	0.0575	0.0191

Hidden Power (uW/MHz)

AOI222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0015	-0.0028
A1	F	0.0011	0.0014	0.0018	0.0034	0.0068
A2	R	-0.0005	-0.0006	-0.0008	-0.0017	-0.0034
A2	F	0.0011	0.0013	0.0017	0.0032	0.0064
B1	R	-0.0006	-0.0008	-0.0011	-0.0021	-0.0042
B1	F	0.0009	0.0011	0.0015	0.0029	0.0058
B2	R	-0.0007	-0.0009	-0.0012	-0.0024	-0.0048
B2	F	0.0008	0.0010	0.0014	0.0027	0.0054
C1	R	-0.0008	-0.0010	-0.0013	-0.0027	-0.0053
C1	F	0.0010	0.0012	0.0017	0.0034	0.0067
C2	R	-0.0009	-0.0011	-0.0014	-0.0029	-0.0058
C2	F	0.0009	0.0011	0.0016	0.0032	0.0064

Propagation Delays (ns)

AOI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0073 pF		0.0115 pF		0.0171 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1939	0.0547	0.2322	0.0647	0.3044	0.0839	0.4218	0.1149	0.5802	0.1569	0.7910	0.2129
A2->Z	0.2165	0.0584	0.2547	0.0684	0.3270	0.0876	0.4446	0.1186	0.6034	0.1606	0.8148	0.2166
B1->Z	0.2776	0.0729	0.3158	0.0834	0.3879	0.1030	0.5049	0.1343	0.6631	0.1761	0.8736	0.2315
B2->Z	0.2992	0.0764	0.3374	0.0869	0.4096	0.1064	0.5270	0.1377	0.6858	0.1796	0.8972	0.2350
C1->Z	0.3186	0.0840	0.3569	0.0957	0.4293	0.1172	0.5469	0.1508	0.7058	0.1950	0.9173	0.2527
C2->Z	0.3387	0.0876	0.3768	0.0993	0.4490	0.1208	0.5665	0.1545	0.7252	0.1987	0.9367	0.2564

AOI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0090 pF		0.0144 pF		0.0216 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1708	0.0502	0.2110	0.0612	0.2876	0.0822	0.4036	0.1139	0.5678	0.1589	0.7864	0.2188
A2->Z	0.1920	0.0539	0.2321	0.0648	0.3088	0.0858	0.4250	0.1175	0.5896	0.1625	0.8088	0.2225
B1->Z	0.2485	0.0682	0.2886	0.0797	0.3651	0.1011	0.4808	0.1331	0.6448	0.1780	0.8630	0.2374
B2->Z	0.2686	0.0716	0.3086	0.0830	0.3852	0.1045	0.5013	0.1364	0.6659	0.1813	0.8850	0.2407
C1->Z	0.2850	0.0790	0.3252	0.0919	0.4020	0.1154	0.5182	0.1498	0.6829	0.1971	0.9021	0.2589
C2->Z	0.3037	0.0826	0.3438	0.0953	0.4204	0.1189	0.5365	0.1533	0.7010	0.2006	0.9201	0.2624

AOI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0070 pF		0.0126 pF		0.0204 pF		0.0308 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1447	0.0441	0.1869	0.0559	0.2662	0.0781	0.3888	0.1126	0.5588	0.1603	0.7852	0.2240
A2->Z	0.1629	0.0472	0.2050	0.0590	0.2843	0.0812	0.4070	0.1156	0.5773	0.1634	0.8042	0.2271
B1->Z	0.2132	0.0611	0.2552	0.0734	0.3343	0.0962	0.4566	0.1308	0.6264	0.1784	0.8525	0.2415
B2->Z	0.2316	0.0643	0.2737	0.0766	0.3528	0.0994	0.4754	0.1340	0.6457	0.1816	0.8724	0.2447
C1->Z	0.2437	0.0708	0.2859	0.0846	0.3653	0.1095	0.4880	0.1465	0.6584	0.1965	0.8852	0.2618
C2->Z	0.2612	0.0741	0.3032	0.0879	0.3823	0.1129	0.5049	0.1499	0.6752	0.1998	0.9020	0.2651

AOI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0132 pF		0.0245 pF		0.0405 pF		0.0614 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1258	0.0382	0.1686	0.0502	0.2498	0.0727	0.3745	0.1075	0.5503	0.1566	0.7795	0.2206
A2->Z	0.1429	0.0414	0.1853	0.0534	0.2659	0.0760	0.3900	0.1107	0.5652	0.1597	0.7937	0.2237
B1->Z	0.1913	0.0546	0.2339	0.0672	0.3150	0.0904	0.4396	0.1255	0.6154	0.1745	0.8447	0.2380
B2->Z	0.2081	0.0577	0.2504	0.0702	0.3309	0.0935	0.4549	0.1285	0.6300	0.1775	0.8584	0.2410
C1->Z	0.2188	0.0629	0.2616	0.0769	0.3428	0.1023	0.4677	0.1397	0.6439	0.1909	0.8737	0.2564
C2->Z	0.2349	0.0660	0.2771	0.0801	0.3576	0.1055	0.4817	0.1429	0.6567	0.1941	0.8851	0.2596

AOI222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0253 pF		0.0480 pF		0.0798 pF		0.1216 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1238	0.0363	0.1671	0.0482	0.2487	0.0704	0.3754	0.1050	0.5520	0.1531	0.7837	0.2164
A2->Z	0.1422	0.0398	0.1852	0.0516	0.2663	0.0738	0.3926	0.1083	0.5688	0.1565	0.8001	0.2198
B1->Z	0.1878	0.0524	0.2310	0.0648	0.3124	0.0878	0.4389	0.1228	0.6155	0.1711	0.8472	0.2343
B2->Z	0.2060	0.0556	0.2489	0.0681	0.3299	0.0911	0.4560	0.1261	0.6321	0.1744	0.8633	0.2376
C1->Z	0.2154	0.0598	0.2586	0.0739	0.3401	0.0989	0.4668	0.1361	0.6436	0.1864	0.8755	0.2512
C2->Z	0.2332	0.0632	0.2760	0.0772	0.3570	0.1023	0.4831	0.1394	0.6592	0.1897	0.8904	0.2545

Combinational Cell

AOI22B20

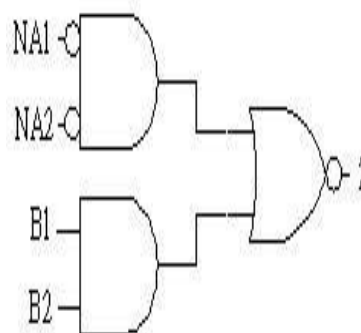
Cell Description

The AOI22B20 cell provides a NOR gate with two inputs that are both AND gates' outputs. One of the AND gate's inputs are inverted (NA1 and NA2).

Truth Table

NA1	NA2	B1	B2	Z
1	X	0	X	1
1	X	X	0	1
X	1	0	X	1
X	1	X	0	1
X	X	1	1	0
0	0	X	X	0

Symbol



Cell List

AOI22B20M0HM, AOI22B20M1HM, AOI22B20M2HM
, AOI22B20M4HM, AOI22B20M8HM

AOI22B20 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B1	input	0.00126	0.00139	0.00172	0.00341	0.00665
B2	input	0.00128	0.00146	0.00174	0.00360	0.00706
NA1	input	0.00113	0.00111	0.00116	0.00163	0.00158
NA2	input	0.00125	0.00123	0.00130	0.00161	0.00163
Z	output					

Power Dissipation (uW/MHz)

AOI22B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0075 pF		0.0118 pF		0.0176 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0039	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007
B2->Z	0.0049	0.0007	0.0049	0.0007	0.0049	0.0007	0.0049	0.0007	0.0049	0.0007	0.0049	0.0007
NA1->Z	0.0059	0.0077	0.0060	0.0077	0.0060	0.0077	0.0060	0.0077	0.0060	0.0077	0.0060	0.0077
NA2->Z	0.0064	0.0083	0.0064	0.0084	0.0064	0.0084	0.0064	0.0084	0.0064	0.0084	0.0065	0.0084

AOI22B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0044	0.0007	0.0044	0.0007	0.0044	0.0007	0.0045	0.0007	0.0045	0.0007	0.0045	0.0007
B2->Z	0.0055	0.0007	0.0055	0.0007	0.0055	0.0007	0.0055	0.0007	0.0055	0.0007	0.0055	0.0007
NA1->Z	0.0066	0.0081	0.0067	0.0082	0.0067	0.0082	0.0067	0.0082	0.0067	0.0082	0.0067	0.0082
NA2->Z	0.0071	0.0088	0.0071	0.0088	0.0071	0.0089	0.0071	0.0089	0.0072	0.0089	0.0072	0.0089

AOI22B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0210 pF		0.0316 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0052	0.0006	0.0052	0.0007	0.0053	0.0007	0.0054	0.0007	0.0054	0.0008	0.0054	0.0008
B2->Z	0.0067	0.0006	0.0067	0.0007	0.0067	0.0007	0.0067	0.0007	0.0068	0.0008	0.0068	0.0008
NA1->Z	0.0080	0.0094	0.0080	0.0094	0.0081	0.0094	0.0081	0.0094	0.0081	0.0094	0.0081	0.0094
NA2->Z	0.0084	0.0101	0.0084	0.0101	0.0085	0.0101	0.0085	0.0101	0.0085	0.0101	0.0085	0.0101

AOI22B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0105	0.0012	0.0107	0.0013	0.0109	0.0014	0.0110	0.0015	0.0110	0.0015	0.0111	0.0015
B2->Z	0.0136	0.0012	0.0136	0.0013	0.0137	0.0014	0.0137	0.0015	0.0138	0.0015	0.0138	0.0015
NA1->Z	0.0165	0.0158	0.0166	0.0158	0.0167	0.0159	0.0168	0.0159	0.0168	0.0159	0.0168	0.0159
NA2->Z	0.0173	0.0170	0.0174	0.0171	0.0175	0.0171	0.0175	0.0172	0.0176	0.0172	0.0176	0.0172

AOI22B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0487 pF		0.0810 pF		0.1234 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0214	0.0024	0.0218	0.0027	0.0221	0.0028	0.0223	0.0030	0.0225	0.0030	0.0226	0.0031
B2->Z	0.0275	0.0025	0.0276	0.0027	0.0278	0.0029	0.0279	0.0030	0.0279	0.0030	0.0279	0.0031
NA1->Z	0.0325	0.0273	0.0326	0.0273	0.0328	0.0274	0.0329	0.0274	0.0330	0.0274	0.0331	0.0274
NA2->Z	0.0332	0.0286	0.0333	0.0286	0.0335	0.0286	0.0337	0.0286	0.0338	0.0286	0.0339	0.0286

Hidden Power (uW/MHz)

AOI22B20 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B1	R	-0.0005	-0.0006	-0.0009	-0.0018	-0.0035
B1	F	0.0010	0.0012	0.0015	0.0032	0.0062
B2	R	-0.0007	-0.0008	-0.0011	-0.0022	-0.0044
B2	F	0.0008	0.0010	0.0014	0.0028	0.0056
NA1	R	0.0001	0.0001	0.0002	0.0004	0.0010
NA1	F	0.0014	0.0015	0.0015	0.0023	0.0030
NA2	R	-0.0002	-0.0002	-0.0001	-0.0003	0.0004
NA2	F	0.0017	0.0018	0.0018	0.0030	0.0037

Propagation Delays (ns)

AOI22B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0075 pF		0.0118 pF		0.0176 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0944	0.0410	0.1205	0.0500	0.1719	0.0678	0.2537	0.0962	0.3631	0.1342	0.5105	0.1855
B2->Z	0.1090	0.0446	0.1347	0.0536	0.1856	0.0714	0.2668	0.0997	0.3756	0.1378	0.5223	0.1890
NA1->Z	0.1744	0.1613	0.2001	0.1710	0.2511	0.1888	0.3325	0.2146	0.4414	0.2470	0.5880	0.2889
NA2->Z	0.1789	0.1738	0.2046	0.1834	0.2557	0.2012	0.3370	0.2271	0.4459	0.2594	0.5926	0.3013

AOI22B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0092 pF		0.0148 pF		0.0221 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0836	0.0375	0.1108	0.0471	0.1645	0.0659	0.2443	0.0940	0.3585	0.1341	0.5072	0.1865
B2->Z	0.0978	0.0410	0.1246	0.0505	0.1777	0.0693	0.2571	0.0974	0.3707	0.1376	0.5186	0.1899
NA1->Z	0.1620	0.1631	0.1888	0.1740	0.2421	0.1937	0.3215	0.2203	0.4352	0.2559	0.5832	0.3003
NA2->Z	0.1665	0.1756	0.1933	0.1865	0.2466	0.2061	0.3260	0.2328	0.4397	0.2684	0.5877	0.3128

AOI22B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0210 pF		0.0316 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0702	0.0331	0.0986	0.0435	0.1529	0.0629	0.2358	0.0927	0.3532	0.1349	0.5065	0.1900
B2->Z	0.0838	0.0365	0.1118	0.0468	0.1657	0.0662	0.2483	0.0960	0.3652	0.1382	0.5180	0.1933
NA1->Z	0.1495	0.1721	0.1775	0.1847	0.2315	0.2063	0.3141	0.2359	0.4311	0.2745	0.5839	0.3226
NA2->Z	0.1540	0.1845	0.1820	0.1971	0.2359	0.2187	0.3185	0.2483	0.4355	0.2869	0.5884	0.3349

AOI22B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0134 pF		0.0249 pF		0.0410 pF		0.0623 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0631	0.0301	0.0927	0.0408	0.1478	0.0602	0.2326	0.0901	0.3507	0.1317	0.5067	0.1867
B2->Z	0.0768	0.0335	0.1059	0.0440	0.1604	0.0634	0.2445	0.0932	0.3619	0.1349	0.5171	0.1899
NA1->Z	0.1342	0.1412	0.1633	0.1535	0.2179	0.1738	0.3020	0.2021	0.4195	0.2388	0.5746	0.2856
NA2->Z	0.1402	0.1523	0.1693	0.1644	0.2239	0.1849	0.3081	0.2132	0.4256	0.2499	0.5808	0.2966

AOI22B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0487 pF		0.0810 pF		0.1234 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0605	0.0288	0.0901	0.0393	0.1457	0.0586	0.2310	0.0881	0.3503	0.1294	0.5066	0.1836
B2->Z	0.0746	0.0320	0.1037	0.0424	0.1588	0.0616	0.2437	0.0912	0.3626	0.1325	0.5184	0.1867
NA1->Z	0.1487	0.1935	0.1778	0.2077	0.2329	0.2311	0.3179	0.2624	0.4369	0.3019	0.5928	0.3504
NA2->Z	0.1551	0.2046	0.1842	0.2188	0.2394	0.2421	0.3245	0.2734	0.4435	0.3130	0.5994	0.3614

Combinational Cell

AOI22

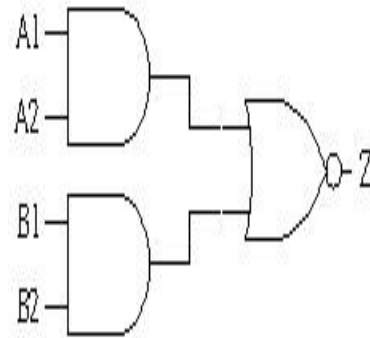
Cell Description

The AOI22 cell provides a NOR gate with two AND gates' outputs as inputs.

Truth Table

A1	A2	B1	B2	Z
0	X	0	X	1
0	X	X	0	1
X	0	0	X	1
X	0	X	0	1
X	X	1	1	0
1	1	X	X	0

Symbol



Cell List

AOI22M0HM, AOI22M1HM, AOI22M2HM
, AOI22M4HM, AOI22M8HM

AOI22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00123	0.00138	0.00166	0.00319	0.00661
A2	input	0.00127	0.00137	0.00173	0.00357	0.00704
B1	input	0.00120	0.00134	0.00170	0.00323	0.00663
B2	input	0.00116	0.00126	0.00166	0.00355	0.00710
Z	output					

Power Dissipation (uW/MHz)

AOI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0100 pF		0.0162 pF		0.0242 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0043	0.0004	0.0043	0.0004	0.0044	0.0005	0.0044	0.0005	0.0044	0.0005	0.0044	0.0005
A2->Z	0.0052	0.0004	0.0052	0.0004	0.0053	0.0005	0.0053	0.0005	0.0053	0.0005	0.0053	0.0005
B1->Z	0.0057	0.0028	0.0057	0.0028	0.0057	0.0028	0.0058	0.0028	0.0058	0.0028	0.0058	0.0028
B2->Z	0.0066	0.0028	0.0066	0.0028	0.0066	0.0028	0.0066	0.0028	0.0066	0.0028	0.0066	0.0028

AOI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0298 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0048	0.0004	0.0049	0.0005	0.0049	0.0005	0.0050	0.0005	0.0050	0.0005	0.0050	0.0005
A2->Z	0.0058	0.0005	0.0059	0.0005	0.0059	0.0006	0.0059	0.0006	0.0059	0.0006	0.0059	0.0006
B1->Z	0.0064	0.0031	0.0064	0.0031	0.0065	0.0031	0.0065	0.0031	0.0065	0.0031	0.0065	0.0031
B2->Z	0.0074	0.0031	0.0074	0.0031	0.0074	0.0031	0.0074	0.0031	0.0074	0.0031	0.0074	0.0031

AOI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0044 pF		0.0094 pF		0.0171 pF		0.0281 pF		0.0424 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0062	0.0007	0.0063	0.0008	0.0063	0.0008	0.0064	0.0008	0.0064	0.0008	0.0064	0.0009
A2->Z	0.0077	0.0007	0.0077	0.0008	0.0077	0.0008	0.0077	0.0008	0.0078	0.0008	0.0078	0.0009
B1->Z	0.0092	0.0032	0.0092	0.0032	0.0093	0.0032	0.0093	0.0032	0.0094	0.0032	0.0094	0.0032
B2->Z	0.0106	0.0032	0.0107	0.0032	0.0107	0.0032	0.0107	0.0032	0.0107	0.0032	0.0107	0.0032

AOI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0077 pF		0.0177 pF		0.0333 pF		0.0552 pF		0.0840 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0124	0.0012	0.0126	0.0013	0.0127	0.0014	0.0128	0.0015	0.0129	0.0015	0.0129	0.0015
A2->Z	0.0154	0.0012	0.0155	0.0014	0.0155	0.0014	0.0156	0.0015	0.0156	0.0015	0.0156	0.0015
B1->Z	0.0181	0.0057	0.0182	0.0058	0.0184	0.0058	0.0184	0.0058	0.0185	0.0058	0.0185	0.0058
B2->Z	0.0211	0.0058	0.0212	0.0058	0.0212	0.0058	0.0213	0.0058	0.0213	0.0058	0.0213	0.0058

AOI22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0040 pF		0.0144 pF		0.0344 pF		0.0656 pF		0.1093 pF		0.1667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0251	0.0024	0.0255	0.0027	0.0258	0.0028	0.0259	0.0029	0.0261	0.0030	0.0261	0.0030
A2->Z	0.0311	0.0025	0.0312	0.0027	0.0313	0.0029	0.0314	0.0029	0.0315	0.0030	0.0315	0.0030
B1->Z	0.0363	0.0111	0.0366	0.0112	0.0369	0.0112	0.0370	0.0112	0.0371	0.0112	0.0371	0.0112
B2->Z	0.0423	0.0112	0.0424	0.0112	0.0424	0.0112	0.0425	0.0112	0.0425	0.0112	0.0425	0.0112

Hidden Power (uW/MHz)

AOI22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0007	-0.0009	-0.0018	-0.0035
A1	F	0.0012	0.0014	0.0016	0.0033	0.0064
A2	R	-0.0007	-0.0007	-0.0011	-0.0022	-0.0044
A2	F	0.0011	0.0012	0.0015	0.0029	0.0058
B1	R	-0.0008	-0.0009	-0.0013	-0.0025	-0.0051
B1	F	0.0010	0.0012	0.0017	0.0034	0.0069
B2	R	-0.0009	-0.0010	-0.0015	-0.0030	-0.0059
B2	F	0.0009	0.0010	0.0015	0.0031	0.0062

Propagation Delays (ns)

AOI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0100 pF		0.0162 pF		0.0242 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1083	0.0413	0.1470	0.0547	0.2183	0.0795	0.3271	0.1175	0.4835	0.1722	0.6850	0.2428
A2->Z	0.1226	0.0448	0.1608	0.0582	0.2315	0.0831	0.3397	0.1211	0.4952	0.1758	0.6957	0.2463
B1->Z	0.1519	0.0579	0.1905	0.0725	0.2619	0.0987	0.3709	0.1379	0.5277	0.1935	0.7298	0.2647
B2->Z	0.1653	0.0615	0.2034	0.0761	0.2741	0.1022	0.3821	0.1414	0.5376	0.1971	0.7380	0.2683

AOI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0298 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1027	0.0378	0.1426	0.0510	0.2190	0.0762	0.3362	0.1149	0.5005	0.1692	0.7163	0.2406
A2->Z	0.1250	0.0409	0.1669	0.0541	0.2476	0.0792	0.3714	0.1178	0.5453	0.1721	0.7738	0.2436
B1->Z	0.1425	0.0526	0.1822	0.0668	0.2586	0.0932	0.3758	0.1330	0.5403	0.1882	0.7565	0.2603
B2->Z	0.1672	0.0557	0.2090	0.0699	0.2895	0.0964	0.4133	0.1361	0.5871	0.1913	0.8156	0.2634

AOI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0044 pF		0.0094 pF		0.0171 pF		0.0281 pF		0.0424 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0895	0.0352	0.1297	0.0496	0.2032	0.0757	0.3155	0.1157	0.4753	0.1727	0.6828	0.2467
A2->Z	0.1027	0.0386	0.1425	0.0529	0.2153	0.0790	0.3268	0.1190	0.4856	0.1760	0.6918	0.2500
B1->Z	0.1228	0.0492	0.1629	0.0644	0.2363	0.0916	0.3486	0.1324	0.5085	0.1899	0.7162	0.2643
B2->Z	0.1354	0.0524	0.1750	0.0677	0.2477	0.0948	0.3591	0.1356	0.5179	0.1932	0.7241	0.2675

AOI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0077 pF		0.0177 pF		0.0333 pF		0.0552 pF		0.0840 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0836	0.0324	0.1229	0.0463	0.1973	0.0723	0.3122	0.1127	0.4729	0.1691	0.6840	0.2434
A2->Z	0.0969	0.0356	0.1358	0.0495	0.2095	0.0755	0.3237	0.1158	0.4836	0.1723	0.6936	0.2465
B1->Z	0.1144	0.0457	0.1536	0.0604	0.2278	0.0875	0.3426	0.1287	0.5034	0.1858	0.7145	0.2605
B2->Z	0.1280	0.0490	0.1667	0.0637	0.2402	0.0908	0.3544	0.1320	0.5142	0.1892	0.7242	0.2638

AOI22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0040 pF		0.0144 pF		0.0344 pF		0.0656 pF		0.1093 pF		0.1667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0808	0.0310	0.1205	0.0449	0.1954	0.0707	0.3112	0.1106	0.4728	0.1664	0.6847	0.2396
A2->Z	0.0945	0.0342	0.1338	0.0480	0.2083	0.0737	0.3236	0.1136	0.4847	0.1694	0.6960	0.2427
B1->Z	0.1112	0.0438	0.1507	0.0585	0.2254	0.0853	0.3411	0.1261	0.5026	0.1825	0.7146	0.2562
B2->Z	0.1247	0.0468	0.1638	0.0615	0.2381	0.0884	0.3534	0.1291	0.5144	0.1855	0.7257	0.2592

Combinational Cell

AOI31

Cell Description

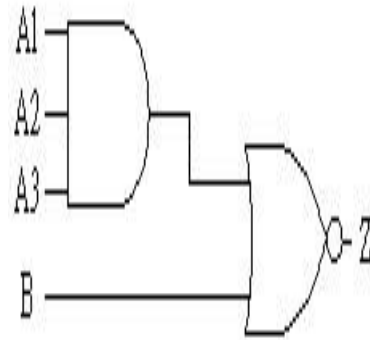
The AOI31 cell provides a NOR gate with two inputs, one of which is an AND gate's output.

The AND gate itself has three inputs.

Truth Table

A1	A2	A3	B	Z
0	X	X	0	1
X	0	X	0	1
X	X	0	0	1
X	X	X	1	0
1	1	1	X	0

Symbol



Cell List

AOI31M0HM, AOI31M1HM, AOI31M2HM
, AOI31M4HM, AOI31M8HM

AOI31 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00125	0.00138	0.00168	0.00313	0.00622
A2	input	0.00126	0.00140	0.00171	0.00315	0.00685
A3	input	0.00119	0.00134	0.00165	0.00317	0.00655
B	input	0.00116	0.00127	0.00152	0.00290	0.00555
Z	output					

Power Dissipation (uW/MHz)

AOI31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0072 pF		0.0114 pF		0.0169 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0048	0.0013	0.0049	0.0013	0.0049	0.0013	0.0049	0.0013	0.0049	0.0013	0.0050	0.0013
A2->Z	0.0059	0.0013	0.0059	0.0013	0.0060	0.0013	0.0060	0.0013	0.0060	0.0013	0.0060	0.0013
A3->Z	0.0069	0.0013	0.0069	0.0013	0.0069	0.0013	0.0069	0.0013	0.0069	0.0013	0.0069	0.0013
B->Z	0.0074	0.0026	0.0074	0.0026	0.0074	0.0026	0.0075	0.0026	0.0075	0.0026	0.0075	0.0026

AOI31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0051 pF		0.0090 pF		0.0144 pF		0.0215 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0053	0.0014	0.0053	0.0015	0.0054	0.0015	0.0054	0.0015	0.0054	0.0015	0.0054	0.0015
A2->Z	0.0066	0.0014	0.0066	0.0015	0.0066	0.0015	0.0066	0.0015	0.0066	0.0015	0.0066	0.0015
A3->Z	0.0077	0.0014	0.0077	0.0015	0.0077	0.0015	0.0077	0.0015	0.0077	0.0015	0.0077	0.0015
B->Z	0.0082	0.0030	0.0082	0.0030	0.0082	0.0030	0.0082	0.0030	0.0082	0.0030	0.0082	0.0030

AOI31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0069 pF		0.0124 pF		0.0202 pF		0.0303 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0065	0.0017	0.0065	0.0017	0.0066	0.0017	0.0066	0.0018	0.0067	0.0018	0.0067	0.0018
A2->Z	0.0081	0.0017	0.0082	0.0017	0.0082	0.0017	0.0082	0.0018	0.0082	0.0018	0.0082	0.0018
A3->Z	0.0096	0.0017	0.0096	0.0017	0.0096	0.0017	0.0096	0.0018	0.0097	0.0018	0.0097	0.0018
B->Z	0.0102	0.0038	0.0102	0.0038	0.0102	0.0038	0.0103	0.0038	0.0103	0.0038	0.0103	0.0038

AOI31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0130 pF		0.0242 pF		0.0400 pF		0.0607 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0124	0.0027	0.0125	0.0028	0.0127	0.0029	0.0128	0.0029	0.0128	0.0029	0.0129	0.0029
A2->Z	0.0166	0.0027	0.0167	0.0028	0.0167	0.0029	0.0168	0.0029	0.0168	0.0029	0.0168	0.0030
A3->Z	0.0208	0.0027	0.0208	0.0028	0.0209	0.0029	0.0209	0.0029	0.0209	0.0029	0.0209	0.0030
B->Z	0.0211	0.0078	0.0211	0.0078	0.0212	0.0078	0.0212	0.0078	0.0213	0.0078	0.0213	0.0078

AOI31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0107 pF		0.0252 pF		0.0478 pF		0.0795 pF		0.1211 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0231	0.0054	0.0235	0.0056	0.0238	0.0057	0.0240	0.0058	0.0241	0.0059	0.0242	0.0059
A2->Z	0.0325	0.0054	0.0326	0.0056	0.0327	0.0058	0.0328	0.0059	0.0329	0.0059	0.0329	0.0059
A3->Z	0.0383	0.0054	0.0383	0.0056	0.0384	0.0058	0.0384	0.0058	0.0384	0.0059	0.0384	0.0059
B->Z	0.0399	0.0145	0.0400	0.0145	0.0401	0.0145	0.0402	0.0146	0.0402	0.0146	0.0403	0.0145

Hidden Power (uW/MHz)

AOI31 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0003	-0.0005	-0.0005	-0.0010
A1	F	0.0007	0.0009	0.0012	0.0026	0.0051
A2	R	-0.0005	-0.0006	-0.0009	-0.0016	-0.0036
A2	F	0.0007	0.0009	0.0012	0.0023	0.0046
A3	R	-0.0005	-0.0006	-0.0009	-0.0018	-0.0036
A3	F	0.0007	0.0008	0.0011	0.0023	0.0045
B	R	-0.0008	-0.0010	-0.0013	-0.0026	-0.0052
B	F	0.0010	0.0012	0.0016	0.0033	0.0065

Propagation Delays (ns)

AOI31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0072 pF		0.0114 pF		0.0169 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1103	0.0561	0.1362	0.0674	0.1849	0.0890	0.2613	0.1229	0.3679	0.1702	0.5073	0.2322
A2->Z	0.1283	0.0633	0.1540	0.0747	0.2026	0.0962	0.2790	0.1301	0.3857	0.1775	0.5251	0.2394
A3->Z	0.1424	0.0669	0.1681	0.0783	0.2167	0.0998	0.2929	0.1337	0.3991	0.1810	0.5380	0.2430
B->Z	0.1762	0.0552	0.2020	0.0627	0.2506	0.0768	0.3269	0.0987	0.4332	0.1289	0.5721	0.1683

AOI31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0051 pF		0.0090 pF		0.0144 pF		0.0215 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0974	0.0514	0.1243	0.0637	0.1736	0.0861	0.2531	0.1224	0.3627	0.1725	0.5067	0.2385
A2->Z	0.1144	0.0585	0.1413	0.0707	0.1905	0.0931	0.2700	0.1294	0.3797	0.1796	0.5239	0.2455
A3->Z	0.1277	0.0620	0.1546	0.0742	0.2037	0.0966	0.2831	0.1329	0.3925	0.1830	0.5359	0.2489
B->Z	0.1579	0.0525	0.1848	0.0608	0.2341	0.0757	0.3135	0.0996	0.4229	0.1322	0.5665	0.1749

AOI31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0069 pF		0.0124 pF		0.0202 pF		0.0303 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0829	0.0459	0.1113	0.0592	0.1630	0.0833	0.2435	0.1212	0.3573	0.1747	0.5043	0.2440
A2->Z	0.0988	0.0527	0.1271	0.0659	0.1787	0.0901	0.2592	0.1279	0.3731	0.1814	0.5204	0.2507
A3->Z	0.1112	0.0560	0.1396	0.0692	0.1911	0.0934	0.2715	0.1312	0.3850	0.1847	0.5316	0.2540
B->Z	0.1391	0.0485	0.1674	0.0574	0.2191	0.0735	0.2995	0.0983	0.4131	0.1331	0.5597	0.1778

AOI31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0130 pF		0.0242 pF		0.0400 pF		0.0607 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0719	0.0411	0.0999	0.0542	0.1535	0.0795	0.2361	0.1187	0.3520	0.1738	0.5037	0.2459
A2->Z	0.0917	0.0501	0.1196	0.0632	0.1731	0.0885	0.2557	0.1277	0.3718	0.1828	0.5235	0.2549
A3->Z	0.1089	0.0554	0.1371	0.0686	0.1911	0.0939	0.2739	0.1330	0.3899	0.1881	0.5413	0.2602
B->Z	0.1422	0.0461	0.1705	0.0550	0.2245	0.0717	0.3074	0.0970	0.4235	0.1322	0.5750	0.1779

AOI31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0107 pF		0.0252 pF		0.0478 pF		0.0795 pF		0.1211 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0664	0.0378	0.0952	0.0512	0.1496	0.0768	0.2336	0.1163	0.3508	0.1717	0.5043	0.2442
A2->Z	0.0881	0.0481	0.1166	0.0615	0.1709	0.0871	0.2548	0.1266	0.3719	0.1820	0.5252	0.2545
A3->Z	0.1006	0.0512	0.1295	0.0646	0.1843	0.0902	0.2687	0.1297	0.3863	0.1851	0.5402	0.2576
B->Z	0.1309	0.0440	0.1599	0.0532	0.2148	0.0703	0.2992	0.0962	0.4169	0.1321	0.5709	0.1788

Combinational Cell

AOI32

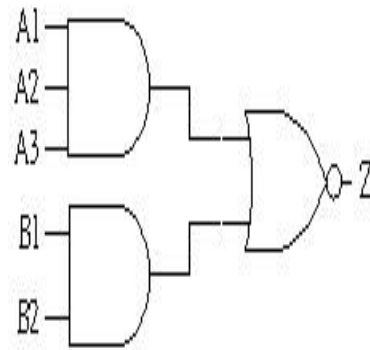
Cell Description

The AOI32 cell provides a NOR gate with two AND gates' outputs as inputs. One of the AND gates has three inputs (A1, A2 and A3), the other has two.

Truth Table

A1	A2	A3	B1	B2	Z
0	X	X	0	X	1
0	X	X	X	0	1
X	0	X	0	X	1
X	0	X	X	0	1
X	X	0	0	X	1
X	X	0	X	0	1
X	X	X	1	1	0
1	1	1	X	X	0

Symbol



Cell List

AOI32M0HM, AOI32M1HM, AOI32M2HM
, AOI32M4HM, AOI32M8HM

AOI32 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00120	0.00136	0.00164	0.00318	0.00616
A2	input	0.00126	0.00141	0.00172	0.00350	0.00683
A3	input	0.00130	0.00145	0.00175	0.00318	0.00655
B1	input	0.00122	0.00136	0.00165	0.00354	0.00680
B2	input	0.00124	0.00136	0.00167	0.00340	0.00666
Z	output					

Power Dissipation (uW/MHz)

AOI32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0055 pF		0.0097 pF		0.0155 pF		0.0232 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0054	0.0013	0.0054	0.0013	0.0054	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013
A2->Z	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013
A3->Z	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013
B1->Z	0.0082	0.0030	0.0082	0.0030	0.0082	0.0031	0.0082	0.0031	0.0083	0.0030	0.0083	0.0030
B2->Z	0.0091	0.0030	0.0091	0.0031	0.0091	0.0031	0.0091	0.0031	0.0091	0.0031	0.0091	0.0030

AOI32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0067 pF		0.0120 pF		0.0194 pF		0.0292 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0060	0.0014	0.0060	0.0015	0.0061	0.0015	0.0061	0.0015	0.0061	0.0015	0.0061	0.0015
A2->Z	0.0073	0.0014	0.0073	0.0015	0.0073	0.0015	0.0074	0.0015	0.0074	0.0015	0.0074	0.0015
A3->Z	0.0085	0.0014	0.0085	0.0015	0.0085	0.0015	0.0085	0.0015	0.0085	0.0015	0.0085	0.0015
B1->Z	0.0091	0.0035	0.0092	0.0035	0.0092	0.0035	0.0092	0.0035	0.0092	0.0035	0.0092	0.0035
B2->Z	0.0102	0.0035	0.0102	0.0035	0.0102	0.0035	0.0102	0.0035	0.0102	0.0035	0.0102	0.0035

AOI32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0274 pF		0.0414 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0072	0.0017	0.0073	0.0017	0.0074	0.0017	0.0074	0.0017	0.0074	0.0018	0.0074	0.0018
A2->Z	0.0089	0.0017	0.0089	0.0017	0.0089	0.0017	0.0090	0.0018	0.0090	0.0018	0.0090	0.0018
A3->Z	0.0104	0.0017	0.0104	0.0017	0.0104	0.0017	0.0104	0.0017	0.0104	0.0018	0.0104	0.0018
B1->Z	0.0112	0.0044	0.0113	0.0044	0.0113	0.0044	0.0114	0.0044	0.0114	0.0044	0.0114	0.0044
B2->Z	0.0127	0.0044	0.0127	0.0044	0.0127	0.0045	0.0127	0.0045	0.0127	0.0045	0.0127	0.0044

AOI32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0174 pF		0.0327 pF		0.0541 pF		0.0823 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0141	0.0030	0.0143	0.0031	0.0144	0.0031	0.0145	0.0032	0.0145	0.0032	0.0145	0.0032
A2->Z	0.0189	0.0030	0.0190	0.0031	0.0190	0.0031	0.0190	0.0032	0.0190	0.0032	0.0191	0.0032
A3->Z	0.0217	0.0030	0.0218	0.0031	0.0218	0.0031	0.0218	0.0032	0.0218	0.0032	0.0218	0.0032
B1->Z	0.0227	0.0087	0.0228	0.0087	0.0229	0.0087	0.0229	0.0087	0.0230	0.0087	0.0230	0.0087
B2->Z	0.0256	0.0087	0.0256	0.0087	0.0256	0.0087	0.0257	0.0087	0.0257	0.0087	0.0257	0.0087

AOI32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0142 pF		0.0339 pF		0.0645 pF		0.1074 pF		0.1639 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0275	0.0054	0.0279	0.0056	0.0282	0.0057	0.0283	0.0058	0.0284	0.0059	0.0285	0.0059
A2->Z	0.0368	0.0054	0.0369	0.0056	0.0371	0.0058	0.0371	0.0058	0.0372	0.0059	0.0372	0.0059
A3->Z	0.0425	0.0054	0.0426	0.0056	0.0427	0.0058	0.0427	0.0058	0.0427	0.0059	0.0427	0.0059
B1->Z	0.0441	0.0165	0.0444	0.0165	0.0446	0.0165	0.0447	0.0165	0.0448	0.0165	0.0449	0.0165
B2->Z	0.0502	0.0165	0.0503	0.0165	0.0503	0.0166	0.0504	0.0166	0.0504	0.0166	0.0504	0.0165

Hidden Power (uW/MHz)

AOI32 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0004	-0.0005	-0.0002	-0.0006
A1	F	0.0009	0.0012	0.0015	0.0032	0.0063
A2	R	-0.0007	-0.0009	-0.0012	-0.0024	-0.0048
A2	F	0.0009	0.0011	0.0014	0.0028	0.0055
A3	R	-0.0007	-0.0009	-0.0012	-0.0024	-0.0048
A3	F	0.0008	0.0010	0.0013	0.0027	0.0055
B1	R	-0.0007	-0.0009	-0.0012	-0.0025	-0.0048
B1	F	0.0011	0.0013	0.0017	0.0035	0.0071
B2	R	-0.0009	-0.0011	-0.0015	-0.0030	-0.0060
B2	F	0.0009	0.0011	0.0015	0.0031	0.0062

Propagation Delays (ns)

AOI32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0055 pF		0.0097 pF		0.0155 pF		0.0232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1303	0.0581	0.1663	0.0739	0.2353	0.1042	0.3421	0.1513	0.4890	0.2163	0.6838	0.3024
A2->Z	0.1484	0.0655	0.1843	0.0814	0.2531	0.1117	0.3596	0.1588	0.5063	0.2237	0.7009	0.3099
A3->Z	0.1625	0.0691	0.1984	0.0849	0.2670	0.1153	0.3731	0.1623	0.5192	0.2273	0.7127	0.3134
B1->Z	0.1935	0.0709	0.2299	0.0841	0.2992	0.1089	0.4063	0.1468	0.5536	0.1986	0.7487	0.2669
B2->Z	0.2068	0.0745	0.2426	0.0876	0.3113	0.1125	0.4174	0.1504	0.5635	0.2022	0.7570	0.2704

AOI32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0067 pF		0.0120 pF		0.0194 pF		0.0292 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1170	0.0535	0.1544	0.0702	0.2243	0.1017	0.3326	0.1507	0.4833	0.2189	0.6827	0.3092
A2->Z	0.1341	0.0607	0.1713	0.0775	0.2410	0.1089	0.3491	0.1579	0.4997	0.2261	0.6988	0.3164
A3->Z	0.1475	0.0642	0.1846	0.0809	0.2542	0.1124	0.3619	0.1613	0.5118	0.2295	0.7099	0.3198
B1->Z	0.1754	0.0655	0.2131	0.0793	0.2833	0.1046	0.3920	0.1433	0.5431	0.1968	0.7428	0.2672
B2->Z	0.1882	0.0689	0.2254	0.0827	0.2949	0.1080	0.4027	0.1467	0.5525	0.2002	0.7507	0.2706

AOI32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0274 pF		0.0414 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1012	0.0480	0.1398	0.0659	0.2118	0.0995	0.3227	0.1514	0.4769	0.2236	0.6802	0.3190
A2->Z	0.1168	0.0548	0.1553	0.0727	0.2271	0.1063	0.3379	0.1581	0.4919	0.2303	0.6952	0.3257
A3->Z	0.1292	0.0580	0.1677	0.0760	0.2394	0.1095	0.3497	0.1614	0.5031	0.2336	0.7053	0.3289
B1->Z	0.1543	0.0596	0.1933	0.0740	0.2657	0.1005	0.3770	0.1406	0.5316	0.1961	0.7353	0.2688
B2->Z	0.1667	0.0628	0.2052	0.0773	0.2768	0.1037	0.3872	0.1439	0.5406	0.1993	0.7428	0.2721

AOI32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0174 pF		0.0327 pF		0.0541 pF		0.0823 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0931	0.0444	0.1317	0.0627	0.2049	0.0976	0.3183	0.1518	0.4764	0.2276	0.6844	0.3273
A2->Z	0.1149	0.0553	0.1534	0.0737	0.2262	0.1086	0.3392	0.1628	0.4966	0.2386	0.7036	0.3383
A3->Z	0.1281	0.0584	0.1669	0.0768	0.2405	0.1117	0.3542	0.1659	0.5126	0.2416	0.7208	0.3414
B1->Z	0.1522	0.0566	0.1912	0.0710	0.2647	0.0977	0.3781	0.1385	0.5359	0.1948	0.7432	0.2685
B2->Z	0.1668	0.0597	0.2057	0.0741	0.2793	0.1008	0.3931	0.1416	0.5515	0.1979	0.7597	0.2717

AOI32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0142 pF		0.0339 pF		0.0645 pF		0.1074 pF		0.1639 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0880	0.0411	0.1274	0.0594	0.2014	0.0941	0.3154	0.1477	0.4747	0.2227	0.6841	0.3214
A2->Z	0.1095	0.0515	0.1487	0.0698	0.2226	0.1045	0.3363	0.1580	0.4953	0.2330	0.7043	0.3317
A3->Z	0.1224	0.0545	0.1620	0.0729	0.2363	0.1075	0.3507	0.1611	0.5103	0.2361	0.7199	0.3348
B1->Z	0.1452	0.0531	0.1850	0.0675	0.2595	0.0940	0.3738	0.1342	0.5331	0.1898	0.7424	0.2626
B2->Z	0.1600	0.0562	0.1996	0.0707	0.2739	0.0972	0.3883	0.1374	0.5479	0.1930	0.7576	0.2658

Combinational Cell

AOI33

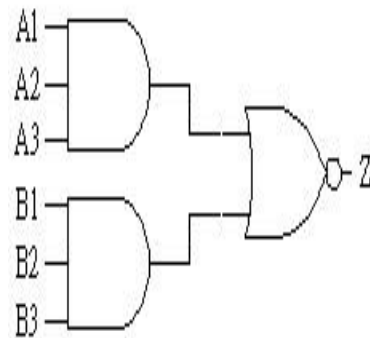
Cell Description

The AOI33 cell provides a NOR gate with two AND gates' outputs as inputs. Both AND gates have three inputs each.

Truth Table

A1	A2	A3	B1	B2	B3	Z
0	X	X	0	X	X	1
0	X	X	X	0	X	1
0	X	X	X	X	0	1
X	0	X	0	X	X	1
X	0	X	X	0	X	1
X	0	X	X	X	0	1
X	X	0	0	X	X	1
X	X	0	X	0	X	1
X	X	0	X	X	0	1
X	X	X	1	1	1	0
1	1	1	X	X	X	0

Symbol



Cell List

AOI33M0HM, AOI33M1HM, AOI33M2HM
, AOI33M4HM, AOI33M8HM

AOI33 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00123	0.00139	0.00165	0.00314	0.00610
A2	input	0.00128	0.00144	0.00173	0.00353	0.00685
A3	input	0.00129	0.00145	0.00175	0.00336	0.00655
B1	input	0.00123	0.00139	0.00165	0.00320	0.00619
B2	input	0.00127	0.00143	0.00172	0.00359	0.00693
B3	input	0.00120	0.00136	0.00166	0.00343	0.00665
Z	output					

Power Dissipation (uW/MHz)

AOI33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0062 pF		0.0110 pF		0.0177 pF		0.0266 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0056	0.0011	0.0056	0.0011	0.0056	0.0011	0.0056	0.0011	0.0057	0.0011	0.0057	0.0011
A2->Z	0.0066	0.0011	0.0066	0.0011	0.0067	0.0011	0.0067	0.0011	0.0067	0.0011	0.0067	0.0011
A3->Z	0.0076	0.0011	0.0076	0.0011	0.0076	0.0011	0.0076	0.0011	0.0076	0.0011	0.0076	0.0011
B1->Z	0.0083	0.0030	0.0084	0.0030	0.0084	0.0030	0.0084	0.0030	0.0084	0.0030	0.0084	0.0030
B2->Z	0.0094	0.0030	0.0094	0.0030	0.0094	0.0030	0.0094	0.0030	0.0094	0.0030	0.0094	0.0030
B3->Z	0.0104	0.0030	0.0104	0.0030	0.0104	0.0030	0.0104	0.0030	0.0104	0.0030	0.0104	0.0030

AOI33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0136 pF		0.0221 pF		0.0333 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0062	0.0012	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013
A2->Z	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013	0.0075	0.0013
A3->Z	0.0086	0.0013	0.0086	0.0013	0.0086	0.0013	0.0086	0.0013	0.0086	0.0013	0.0086	0.0013
B1->Z	0.0093	0.0036	0.0093	0.0036	0.0094	0.0036	0.0094	0.0036	0.0094	0.0036	0.0094	0.0036
B2->Z	0.0105	0.0036	0.0106	0.0036	0.0106	0.0036	0.0106	0.0036	0.0106	0.0036	0.0106	0.0036
B3->Z	0.0117	0.0036	0.0117	0.0036	0.0117	0.0036	0.0117	0.0036	0.0117	0.0036	0.0117	0.0036

AOI33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0102 pF		0.0188 pF		0.0309 pF		0.0468 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0016	0.0077	0.0017	0.0078	0.0017	0.0078	0.0017	0.0079	0.0017	0.0079	0.0017
A2->Z	0.0093	0.0017	0.0094	0.0017	0.0094	0.0017	0.0094	0.0017	0.0094	0.0017	0.0094	0.0017
A3->Z	0.0108	0.0016	0.0108	0.0017	0.0108	0.0017	0.0108	0.0017	0.0109	0.0017	0.0109	0.0017
B1->Z	0.0116	0.0047	0.0116	0.0047	0.0117	0.0047	0.0117	0.0047	0.0117	0.0047	0.0118	0.0047
B2->Z	0.0132	0.0047	0.0132	0.0048	0.0132	0.0048	0.0133	0.0048	0.0133	0.0047	0.0133	0.0047
B3->Z	0.0147	0.0047	0.0147	0.0048	0.0147	0.0047	0.0147	0.0047	0.0147	0.0047	0.0147	0.0047

AOI33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0197 pF		0.0371 pF		0.0615 pF		0.0937 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0144	0.0027	0.0146	0.0028	0.0147	0.0028	0.0148	0.0029	0.0148	0.0029	0.0148	0.0029
A2->Z	0.0193	0.0027	0.0193	0.0028	0.0194	0.0028	0.0194	0.0029	0.0194	0.0029	0.0194	0.0029
A3->Z	0.0221	0.0027	0.0222	0.0028	0.0222	0.0028	0.0222	0.0029	0.0222	0.0029	0.0222	0.0029
B1->Z	0.0223	0.0093	0.0224	0.0094	0.0225	0.0094	0.0226	0.0094	0.0226	0.0094	0.0227	0.0093
B2->Z	0.0271	0.0094	0.0272	0.0094	0.0272	0.0094	0.0272	0.0094	0.0272	0.0094	0.0272	0.0093
B3->Z	0.0299	0.0094	0.0300	0.0094	0.0300	0.0094	0.0300	0.0094	0.0300	0.0094	0.0300	0.0093

AOI33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0043 pF		0.0160 pF		0.0383 pF		0.0730 pF		0.1217 pF		0.1857 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0292	0.0053	0.0296	0.0055	0.0298	0.0057	0.0300	0.0057	0.0301	0.0058	0.0301	0.0058
A2->Z	0.0385	0.0054	0.0386	0.0055	0.0387	0.0057	0.0388	0.0058	0.0388	0.0058	0.0389	0.0058
A3->Z	0.0442	0.0054	0.0443	0.0055	0.0443	0.0057	0.0443	0.0057	0.0444	0.0058	0.0444	0.0058
B1->Z	0.0449	0.0183	0.0451	0.0184	0.0454	0.0184	0.0455	0.0184	0.0456	0.0184	0.0456	0.0184
B2->Z	0.0540	0.0184	0.0542	0.0184	0.0543	0.0184	0.0543	0.0184	0.0544	0.0184	0.0544	0.0184
B3->Z	0.0598	0.0184	0.0598	0.0184	0.0598	0.0184	0.0598	0.0184	0.0598	0.0184	0.0598	0.0184

Hidden Power (uW/MHz)

AOI33 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0004	-0.0006	0.0000	-0.0003
A1	F	0.0010	0.0013	0.0017	0.0035	0.0068
A2	R	-0.0008	-0.0009	-0.0013	-0.0027	-0.0055
A2	F	0.0010	0.0011	0.0015	0.0030	0.0059
A3	R	-0.0008	-0.0010	-0.0013	-0.0027	-0.0055
A3	F	0.0009	0.0010	0.0014	0.0030	0.0059
B1	R	-0.0004	-0.0005	-0.0007	-0.0003	-0.0010
B1	F	0.0011	0.0014	0.0018	0.0036	0.0071
B2	R	-0.0009	-0.0011	-0.0015	-0.0031	-0.0061
B2	F	0.0010	0.0012	0.0016	0.0031	0.0063
B3	R	-0.0009	-0.0011	-0.0015	-0.0031	-0.0061
B3	F	0.0009	0.0011	0.0015	0.0031	0.0061

Propagation Delays (ns)

AOI33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0062 pF		0.0110 pF		0.0177 pF		0.0266 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1460	0.0573	0.1875	0.0753	0.2669	0.1101	0.3889	0.1638	0.5585	0.2386	0.7833	0.3379
A2->Z	0.1638	0.0645	0.2051	0.0825	0.2844	0.1173	0.4064	0.1709	0.5760	0.2457	0.8009	0.3450
A3->Z	0.1781	0.0680	0.2193	0.0861	0.2984	0.1208	0.4199	0.1745	0.5887	0.2493	0.8125	0.3486
B1->Z	0.1972	0.0888	0.2387	0.1078	0.3182	0.1439	0.4403	0.1986	0.6100	0.2743	0.8351	0.3742
B2->Z	0.2149	0.0958	0.2562	0.1149	0.3356	0.1509	0.4577	0.2057	0.6275	0.2813	0.8528	0.3812
B3->Z	0.2284	0.0995	0.2696	0.1185	0.3486	0.1545	0.4701	0.2093	0.6389	0.2849	0.8626	0.3848

AOI33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0136 pF		0.0221 pF		0.0333 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1327	0.0532	0.1745	0.0718	0.2550	0.1078	0.3799	0.1640	0.5530	0.2421	0.7808	0.3451
A2->Z	0.1495	0.0601	0.1912	0.0787	0.2715	0.1147	0.3962	0.1709	0.5693	0.2490	0.7970	0.3520
A3->Z	0.1630	0.0636	0.2046	0.0821	0.2847	0.1181	0.4089	0.1743	0.5812	0.2525	0.8077	0.3554
B1->Z	0.1793	0.0832	0.2211	0.1028	0.3016	0.1402	0.4266	0.1974	0.6000	0.2763	0.8280	0.3798
B2->Z	0.1959	0.0901	0.2375	0.1097	0.3179	0.1470	0.4428	0.2042	0.6161	0.2832	0.8441	0.3867
B3->Z	0.2086	0.0935	0.2502	0.1131	0.3302	0.1504	0.4544	0.2077	0.6267	0.2866	0.8532	0.3901

AOI33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0102 pF		0.0188 pF		0.0309 pF		0.0468 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1173	0.0484	0.1609	0.0684	0.2422	0.1060	0.3680	0.1645	0.5443	0.2468	0.7756	0.3548
A2->Z	0.1330	0.0552	0.1763	0.0751	0.2574	0.1127	0.3831	0.1712	0.5592	0.2535	0.7903	0.3615
A3->Z	0.1455	0.0584	0.1888	0.0784	0.2695	0.1159	0.3947	0.1745	0.5699	0.2567	0.7997	0.3648
B1->Z	0.1602	0.0776	0.2038	0.0987	0.2851	0.1376	0.4113	0.1972	0.5881	0.2802	0.8199	0.3888
B2->Z	0.1756	0.0843	0.2189	0.1054	0.3000	0.1443	0.4259	0.2039	0.6023	0.2869	0.8338	0.3955
B3->Z	0.1874	0.0876	0.2305	0.1087	0.3113	0.1476	0.4364	0.2072	0.6116	0.2902	0.8414	0.3988

AOI33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0197 pF		0.0371 pF		0.0615 pF		0.0937 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1103	0.0419	0.1551	0.0621	0.2396	0.1007	0.3692	0.1604	0.5500	0.2441	0.7879	0.3544
A2->Z	0.1329	0.0524	0.1773	0.0727	0.2613	0.1113	0.3903	0.1710	0.5702	0.2547	0.8071	0.3651
A3->Z	0.1464	0.0553	0.1912	0.0755	0.2758	0.1141	0.4056	0.1739	0.5865	0.2575	0.8245	0.3679
B1->Z	0.1556	0.0715	0.2003	0.0930	0.2848	0.1331	0.4146	0.1940	0.5957	0.2784	0.8340	0.3892
B2->Z	0.1774	0.0820	0.2216	0.1036	0.3054	0.1437	0.4343	0.2045	0.6141	0.2889	0.8508	0.3997
B3->Z	0.1909	0.0848	0.2357	0.1064	0.3202	0.1465	0.4500	0.2073	0.6308	0.2917	0.8688	0.4025

AOI33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0043 pF		0.0160 pF		0.0383 pF		0.0730 pF		0.1217 pF		0.1857 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1070	0.0407	0.1525	0.0614	0.2371	0.1004	0.3671	0.1607	0.5485	0.2453	0.7862	0.3563
A2->Z	0.1290	0.0509	0.1742	0.0716	0.2584	0.1106	0.3881	0.1709	0.5691	0.2555	0.8064	0.3665
A3->Z	0.1423	0.0541	0.1878	0.0748	0.2725	0.1137	0.4027	0.1740	0.5843	0.2586	0.8223	0.3696
B1->Z	0.1516	0.0701	0.1970	0.0921	0.2816	0.1325	0.4118	0.1938	0.5935	0.2790	0.8317	0.3902
B2->Z	0.1729	0.0803	0.2179	0.1023	0.3021	0.1427	0.4317	0.2040	0.6127	0.2891	0.8499	0.4004
B3->Z	0.1862	0.0834	0.2315	0.1054	0.3162	0.1457	0.4464	0.2071	0.6280	0.2922	0.8659	0.4035

Combinational Cell

BUF

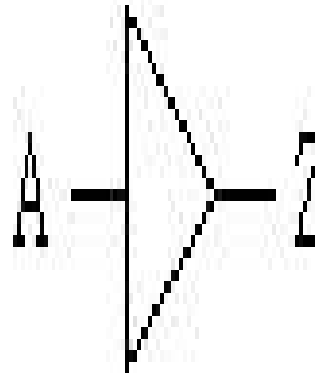
Cell Description

The BUF cell provides an logical buffer with a single input (A).

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

BUFM2HM, BUFM3HM, BUFM4HM
 , BUFM5HM, BUFM6HM
 , BUFM8HM, BUFM10HM
 , BUFM12HM, BUFM14HM
 , BUFM16HM, BUFM18HM
 , BUFM20HM, BUFM24HM
 , BUFM28HM, BUFM32HM
 , BUFM36HM, BUFM40HM
 , BUFM48HM

BUF Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M5HM	M6HM	M8HM					
A	input	0.00135	0.00134	0.00144	0.00171	0.00191	0.00185					
Z	output											
M10HM	M12HM	M14HM	M16HM	M18HM	M20HM	M24HM	M28HM	M32HM	M36HM	M40HM	M48HM	
0.00301	0.00340	0.00335	0.00336	0.00508	0.00516	0.00515	0.00672	0.00725	0.00849	0.00836	0.00994	

Power Dissipation (uW/MHz)

BUFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0040	0.0071	0.0041	0.0072	0.0042	0.0073	0.0043	0.0073	0.0043	0.0073	0.0043	0.0073

BUFM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0216 pF		0.0407 pF		0.0676 pF		0.1030 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0058	0.0090	0.0060	0.0092	0.0062	0.0093	0.0063	0.0093	0.0063	0.0094	0.0064	0.0094

BUFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0888 pF		0.1355 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0072	0.0107	0.0074	0.0109	0.0077	0.0110	0.0078	0.0111	0.0078	0.0111	0.0079	0.0112

BUFM5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0040 pF		0.0147 pF		0.0350 pF		0.0668 pF		0.1113 pF		0.1698 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0095	0.0138	0.0098	0.0141	0.0102	0.0142	0.0103	0.0143	0.0104	0.0144	0.0104	0.0144

BUFM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0413 pF		0.0789 pF		0.1316 pF		0.2010 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0109	0.0158	0.0114	0.0160	0.0117	0.0163	0.0119	0.0164	0.0120	0.0164	0.0120	0.0164

BUFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0135	0.0187	0.0140	0.0189	0.0146	0.0192	0.0148	0.0193	0.0150	0.0194	0.0151	0.0194

BUFM10HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0070 pF		0.0279 pF		0.0680 pF		0.1304 pF		0.2180 pF		0.3332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0172	0.0245	0.0179	0.0250	0.0185	0.0254	0.0188	0.0255	0.0190	0.0256	0.0190	0.0257

BUFM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1562 pF		0.2612 pF		0.3993 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0200	0.0287	0.0209	0.0293	0.0216	0.0297	0.0220	0.0299	0.0222	0.0300	0.0223	0.0301

BUFM14HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0093 pF		0.0386 pF		0.0945 pF		0.1815 pF		0.3037 pF		0.4645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0239	0.0326	0.0249	0.0332	0.0258	0.0337	0.0262	0.0339	0.0265	0.0341	0.0266	0.0341

BUFM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0440 pF		0.1078 pF		0.2073 pF		0.3469 pF		0.5306 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0268	0.0363	0.0280	0.0368	0.0290	0.0373	0.0296	0.0376	0.0298	0.0377	0.0300	0.0378

BUFM18HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0117 pF		0.0492 pF		0.1209 pF		0.2327 pF		0.3894 pF		0.5957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0310	0.0440	0.0323	0.0449	0.0335	0.0455	0.0340	0.0458	0.0343	0.0460	0.0344	0.0461

BUFM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0546 pF		0.1343 pF		0.2584 pF		0.4325 pF		0.6616 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0337	0.0475	0.0352	0.0483	0.0365	0.0490	0.0372	0.0494	0.0375	0.0495	0.0377	0.0496

BUFM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0152 pF		0.0652 pF		0.1606 pF		0.3092 pF		0.5178 pF		0.7922 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0406	0.0552	0.0424	0.0559	0.0440	0.0566	0.0447	0.0571	0.0451	0.0573	0.0454	0.0574

BUFM28HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0176 pF		0.0758 pF		0.1870 pF		0.3602 pF		0.6032 pF		0.9230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0471	0.0652	0.0492	0.0663	0.0510	0.0673	0.0519	0.0678	0.0524	0.0680	0.0527	0.0682

BUFM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0199 pF		0.0864 pF		0.2133 pF		0.4111 pF		0.6886 pF		1.0537 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0542	0.0742	0.0564	0.0750	0.0586	0.0761	0.0596	0.0767	0.0602	0.0770	0.0605	0.0771

BUFM36HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0223 pF		0.0969 pF		0.2395 pF		0.4616 pF		0.7732 pF		1.1833 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0609	0.0842	0.0635	0.0856	0.0660	0.0868	0.0671	0.0874	0.0678	0.0877	0.0681	0.0879

BUFM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0234 pF		0.1021 pF		0.2525 pF		0.4866 pF		0.8152 pF		1.2476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0647	0.0881	0.0675	0.0892	0.0700	0.0906	0.0713	0.0912	0.0719	0.0915	0.0723	0.0917

BUFM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0281 pF		0.1232 pF		0.3047 pF		0.5876 pF		0.9845 pF		1.5068 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0783	0.1062	0.0816	0.1076	0.0846	0.1092	0.0861	0.1099	0.0869	0.1103	0.0873	0.1106

Propagation Delays (ns)

BUFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0662	0.0828	0.0977	0.1004	0.1562	0.1278	0.2473	0.1675	0.3748	0.2222	0.5423	0.2939

BUFM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0216 pF		0.0407 pF		0.0676 pF		0.1030 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0701	0.0947	0.1022	0.1142	0.1615	0.1427	0.2531	0.1817	0.3817	0.2344	0.5508	0.3031

BUFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0888 pF		0.1355 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0678	0.0932	0.0997	0.1132	0.1590	0.1423	0.2510	0.1822	0.3795	0.2358	0.5489	0.3060

BUFM5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0040 pF		0.0147 pF		0.0350 pF		0.0668 pF		0.1113 pF		0.1698 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0694	0.0942	0.1014	0.1141	0.1607	0.1429	0.2530	0.1823	0.3818	0.2349	0.5510	0.3034

BUFM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0413 pF		0.0789 pF		0.1316 pF		0.2010 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0677	0.0913	0.0995	0.1110	0.1589	0.1398	0.2510	0.1792	0.3797	0.2321	0.5491	0.3011

BUFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0717	0.1015	0.1039	0.1231	0.1637	0.1534	0.2559	0.1935	0.3851	0.2466	0.5548	0.3154

BUFM10HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0070 pF		0.0279 pF		0.0680 pF		0.1304 pF		0.2180 pF		0.3332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0626	0.0846	0.0945	0.1039	0.1543	0.1319	0.2465	0.1705	0.3757	0.2228	0.5454	0.2910

BUFM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1562 pF		0.2612 pF		0.3993 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0621	0.0840	0.0942	0.1035	0.1539	0.1315	0.2463	0.1700	0.3756	0.2220	0.5455	0.2899

BUFM14HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0093 pF		0.0386 pF		0.0945 pF		0.1815 pF		0.3037 pF		0.4645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0656	0.0910	0.0979	0.1113	0.1576	0.1400	0.2498	0.1788	0.3791	0.2309	0.5490	0.2987

BUFM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0440 pF		0.1078 pF		0.2073 pF		0.3469 pF		0.5306 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0688	0.0979	0.1012	0.1191	0.1609	0.1487	0.2533	0.1882	0.3826	0.2404	0.5525	0.3082

BUFM18HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0117 pF		0.0492 pF		0.1209 pF		0.2327 pF		0.3894 pF		0.5957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0627	0.0855	0.0948	0.1051	0.1545	0.1332	0.2469	0.1716	0.3762	0.2233	0.5461	0.2907

BUFM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0546 pF		0.1343 pF		0.2584 pF		0.4325 pF		0.6616 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0646	0.0899	0.0969	0.1102	0.1567	0.1389	0.2491	0.1776	0.3784	0.2294	0.5484	0.2968

BUFM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0152 pF		0.0652 pF		0.1606 pF		0.3092 pF		0.5178 pF		0.7922 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0691	0.0992	0.1016	0.1206	0.1614	0.1503	0.2537	0.1898	0.3830	0.2419	0.5529	0.3093

BUFM28HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0176 pF		0.0758 pF		0.1870 pF		0.3602 pF		0.6032 pF		0.9230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0650	0.0913	0.0973	0.1117	0.1571	0.1406	0.2495	0.1793	0.3789	0.2309	0.5489	0.2982

BUFM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0199 pF		0.0864 pF		0.2133 pF		0.4111 pF		0.6886 pF		1.0537 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0685	0.0998	0.1010	0.1213	0.1608	0.1511	0.2532	0.1906	0.3825	0.2426	0.5525	0.3099

BUFM36HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0223 pF		0.0969 pF		0.2395 pF		0.4616 pF		0.7732 pF		1.1833 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0662	0.0937	0.0986	0.1144	0.1584	0.1436	0.2508	0.1825	0.3801	0.2342	0.5502	0.3014

BUFM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0234 pF		0.1021 pF		0.2525 pF		0.4866 pF		0.8152 pF		1.2476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0675	0.0963	0.1000	0.1174	0.1598	0.1469	0.2522	0.1860	0.3815	0.2377	0.5515	0.3049

BUFM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0281 pF		0.1232 pF		0.3047 pF		0.5876 pF		0.9845 pF		1.5068 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0675	0.0964	0.1000	0.1175	0.1598	0.1470	0.2521	0.1861	0.3814	0.2378	0.5513	0.3050

Combinational Cell

BUFT

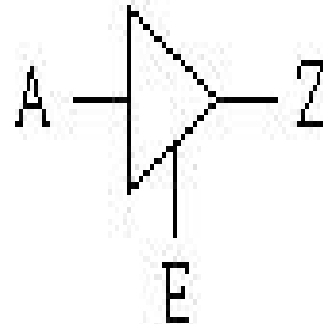
Cell Description

The BUFT cell provides an logical buffer with a single input (A) with an active-high output enable (E).

Truth Table

E	A	Z
0	X	Hi-Z
1	0	0
1	1	1

Symbol



Cell List

BUFTM1HM, BUFTM2HM, BUFTM3HM
 , BUFTM4HM, BUFTM6HM
 , BUFTM8HM, BUFTM12HM
 , BUFTM16HM, BUFTM20HM
 , BUFTM24HM

BUFT Pin direction and Cap

Pin	in/out	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00136	0.00138	0.00141	0.00150	0.00184	0.00236
E	input	0.00247	0.00247	0.00239	0.00245	0.00247	0.00250
Z	output	0.00116	0.00148	0.00176	0.00263	0.00337	0.00449
M12HM	M16HM	M20HM	M24HM				
0.00352	0.00411	0.00568	0.00666				
0.00266	0.00284	0.00341	0.00363				
0.00651	0.00843	0.01043	0.01168				

Power Dissipation (uW/MHz)

BUFTM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0060 pF		0.0117 pF		0.0206 pF		0.0331 pF		0.0495 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0051	0.0124	0.0052	0.0125	0.0053	0.0126	0.0053	0.0126	0.0053	0.0126	0.0053	0.0127
E->Z	0.0042	0.0078	0.0042	0.0078	0.0042	0.0078	0.0042	0.0078	0.0042	0.0078	0.0042	0.0078

BUFTM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0037 pF		0.0079 pF		0.0161 pF		0.0287 pF		0.0465 pF		0.0699 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0061	0.0135	0.0062	0.0136	0.0063	0.0138	0.0063	0.0138	0.0063	0.0138	0.0064	0.0139
E->Z	0.0051	0.0087	0.0051	0.0087	0.0051	0.0087	0.0051	0.0087	0.0051	0.0087	0.0051	0.0087

BUFTM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0111 pF		0.0234 pF		0.0426 pF		0.0696 pF		0.1051 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0075	0.0154	0.0077	0.0156	0.0079	0.0158	0.0080	0.0159	0.0080	0.0159	0.0080	0.0160
E->Z	0.0064	0.0101	0.0064	0.0101	0.0064	0.0101	0.0064	0.0101	0.0064	0.0101	0.0064	0.0101

BUFTM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF		0.0145 pF		0.0307 pF		0.0559 pF		0.0912 pF		0.1377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0099	0.0178	0.0102	0.0180	0.0104	0.0183	0.0105	0.0184	0.0106	0.0185	0.0106	0.0185
E->Z	0.0087	0.0120	0.0087	0.0120	0.0088	0.0120	0.0088	0.0120	0.0088	0.0120	0.0088	0.0120

BUFTM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0206 pF		0.0448 pF		0.0824 pF		0.1352 pF		0.2047 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0130	0.0219	0.0134	0.0223	0.0137	0.0227	0.0139	0.0229	0.0139	0.0230	0.0140	0.0230
E->Z	0.0117	0.0148	0.0118	0.0148	0.0118	0.0148	0.0119	0.0148	0.0119	0.0148	0.0119	0.0148

BUFTM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0271 pF		0.0593 pF		0.1094 pF		0.1798 pF		0.2723 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0164	0.0267	0.0170	0.0274	0.0174	0.0278	0.0176	0.0280	0.0177	0.0282	0.0177	0.0282
E->Z	0.0151	0.0182	0.0152	0.0182	0.0152	0.0182	0.0153	0.0182	0.0153	0.0182	0.0153	0.0182

BUFTM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0147 pF		0.0398 pF		0.0878 pF		0.1626 pF		0.2676 pF		0.4057 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0239	0.0375	0.0248	0.0385	0.0253	0.0391	0.0256	0.0395	0.0257	0.0396	0.0258	0.0397
E->Z	0.0224	0.0259	0.0225	0.0259	0.0227	0.0260	0.0226	0.0260	0.0227	0.0260	0.0227	0.0260

BUFTM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0189 pF		0.0522 pF		0.1156 pF		0.2146 pF		0.3533 pF		0.5360 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0309	0.0466	0.0321	0.0480	0.0329	0.0489	0.0332	0.0493	0.0334	0.0495	0.0335	0.0497
E->Z	0.0290	0.0332	0.0292	0.0332	0.0294	0.0332	0.0294	0.0332	0.0294	0.0332	0.0294	0.0332

BUFTM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0233 pF		0.0651 pF		0.1450 pF		0.2693 pF		0.4438 pF		0.6734 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0386	0.0607	0.0400	0.0624	0.0410	0.0636	0.0415	0.0641	0.0417	0.0644	0.0418	0.0645
E->Z	0.0363	0.0435	0.0365	0.0435	0.0367	0.0435	0.0367	0.0435	0.0367	0.0435	0.0367	0.0435

BUFTM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0267 pF		0.0758 pF		0.1696 pF		0.3158 pF		0.5209 pF		0.7908 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0436	0.0688	0.0452	0.0709	0.0463	0.0722	0.0467	0.0728	0.0469	0.0731	0.0471	0.0732
E->Z	0.0412	0.0493	0.0414	0.0494	0.0416	0.0494	0.0417	0.0494	0.0417	0.0494	0.0417	0.0494

Hidden Power (uW/MHz)

BUFT at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM	M24HM
A	R	-0.0009	-0.0009	-0.0009	-0.0011	-0.0015	-0.0021	-0.0032	-0.0039	-0.0053	-0.0061
A	F	0.0009	0.0009	0.0009	0.0011	0.0015	0.0021	0.0032	0.0039	0.0052	0.0061
E	F	0.0089	0.0090	0.0092	0.0095	0.0100	0.0105	0.0124	0.0143	0.0174	0.0189

Propagation Delays (ns)
BUFTM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0060 pF		0.0117 pF		0.0206 pF		0.0331 pF		0.0495 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1141	0.1640	0.1459	0.1880	0.2042	0.2226	0.2946	0.2675	0.4213	0.3245	0.5875	0.3957
E->Z	0.0817	0.1107	0.1131	0.1342	0.1710	0.1685	0.2611	0.2133	0.3877	0.2702	0.5538	0.3414

BUFTM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0037 pF		0.0079 pF		0.0161 pF		0.0287 pF		0.0465 pF		0.0699 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1138	0.1701	0.1459	0.1959	0.2052	0.2329	0.2955	0.2793	0.4229	0.3380	0.5903	0.4111
E->Z	0.0798	0.1116	0.1115	0.1369	0.1704	0.1735	0.2605	0.2198	0.3877	0.2784	0.5550	0.3515

BUFTM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0111 pF		0.0234 pF		0.0426 pF		0.0696 pF		0.1051 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1177	0.1806	0.1522	0.2102	0.2119	0.2488	0.3036	0.2965	0.4322	0.3553	0.6011	0.4274
E->Z	0.0806	0.1105	0.1146	0.1391	0.1737	0.1771	0.2651	0.2246	0.3935	0.2832	0.5623	0.3553

BUFTM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF		0.0145 pF		0.0307 pF		0.0559 pF		0.0912 pF		0.1377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1171	0.1755	0.1517	0.2048	0.2117	0.2429	0.3037	0.2897	0.4322	0.3469	0.6013	0.4172
E->Z	0.0836	0.1104	0.1176	0.1386	0.1772	0.1762	0.2688	0.2227	0.3971	0.2799	0.5661	0.3502

BUFTM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0206 pF		0.0448 pF		0.0824 pF		0.1352 pF		0.2047 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1132	0.1604	0.1483	0.1899	0.2086	0.2280	0.3007	0.2745	0.4296	0.3317	0.5993	0.4019
E->Z	0.0866	0.1085	0.1212	0.1371	0.1811	0.1748	0.2729	0.2212	0.4017	0.2783	0.5712	0.3486

BUFTM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0271 pF		0.0593 pF		0.1094 pF		0.1798 pF		0.2723 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1095	0.1535	0.1445	0.1827	0.2046	0.2203	0.2965	0.2665	0.4254	0.3235	0.5945	0.3936
E->Z	0.0845	0.1066	0.1191	0.1350	0.1787	0.1723	0.2703	0.2185	0.3990	0.2754	0.5681	0.3455

BUFTM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0147 pF		0.0398 pF		0.0878 pF		0.1626 pF		0.2676 pF		0.4057 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1029	0.1452	0.1378	0.1734	0.1978	0.2098	0.2898	0.2548	0.4188	0.3107	0.5882	0.3801
E->Z	0.0810	0.1030	0.1155	0.1304	0.1750	0.1665	0.2668	0.2115	0.3956	0.2674	0.5650	0.3367

BUFTM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0189 pF		0.0522 pF		0.1156 pF		0.2146 pF		0.3533 pF		0.5360 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1046	0.1460	0.1402	0.1744	0.2003	0.2107	0.2926	0.2557	0.4214	0.3113	0.5910	0.3804
E->Z	0.0825	0.1048	0.1176	0.1323	0.1773	0.1683	0.2693	0.2132	0.3980	0.2688	0.5675	0.3379

BUFTM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0233 pF		0.0651 pF		0.1450 pF		0.2693 pF		0.4438 pF		0.6734 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0989	0.1392	0.1340	0.1674	0.1942	0.2034	0.2864	0.2478	0.4155	0.3031	0.5852	0.3718
E->Z	0.0781	0.1046	0.1126	0.1318	0.1723	0.1675	0.2642	0.2118	0.3932	0.2671	0.5628	0.3358

BUFTM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0267 pF		0.0758 pF		0.1696 pF		0.3158 pF		0.5209 pF		0.7908 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0964	0.1375	0.1315	0.1663	0.1916	0.2035	0.2839	0.2499	0.4131	0.3082	0.5830	0.3813
E->Z	0.0768	0.1056	0.1113	0.1336	0.1710	0.1704	0.2631	0.2168	0.3922	0.2751	0.5620	0.3481

Combinational Cell

CKAN2

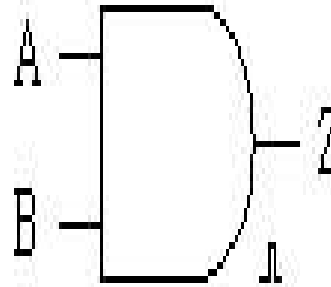
Cell Description

The CKAN2 cell provides an AND gate with two inputs (A, B) and balanced delays for clock signals.

Truth Table

A	B	Z
0	X	0
X	0	0
1	1	1

Symbol



Cell List

CKAN2M2HM, CKAN2M3HM, CKAN2M4HM
, CKAN2M6HM, CKAN2M8HM
, CKAN2M12HM, CKAN2M16HM

CKAN2 Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00097	0.00107	0.00136	0.00172	0.00175	0.00329	0.00340
B	input	0.00102	0.00115	0.00140	0.00177	0.00179	0.00357	0.00363
Z	output							

Power Dissipation (uW/MHz)

CKAN2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0038	0.0065	0.0039	0.0066	0.0040	0.0066	0.0040	0.0067	0.0040	0.0067	0.0040	0.0067
B->Z	0.0038	0.0072	0.0039	0.0072	0.0040	0.0073	0.0040	0.0073	0.0040	0.0074	0.0040	0.0074

CKAN2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0095 pF		0.0222 pF		0.0420 pF		0.0697 pF		0.1063 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0054	0.0081	0.0055	0.0082	0.0056	0.0084	0.0057	0.0084	0.0057	0.0084	0.0057	0.0085
B->Z	0.0054	0.0089	0.0055	0.0091	0.0056	0.0092	0.0057	0.0092	0.0057	0.0093	0.0057	0.0093

CKAN2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1351 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0065	0.0098	0.0067	0.0101	0.0069	0.0102	0.0070	0.0103	0.0070	0.0103	0.0071	0.0103
B->Z	0.0065	0.0108	0.0067	0.0110	0.0069	0.0112	0.0070	0.0112	0.0071	0.0113	0.0071	0.0113

CKAN2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0413 pF		0.0788 pF		0.1314 pF		0.2006 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0098	0.0142	0.0101	0.0146	0.0104	0.0148	0.0105	0.0149	0.0105	0.0149	0.0106	0.0150
B->Z	0.0098	0.0156	0.0101	0.0159	0.0104	0.0161	0.0105	0.0162	0.0105	0.0163	0.0106	0.0163

CKAN2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0128	0.0170	0.0133	0.0174	0.0136	0.0176	0.0138	0.0178	0.0139	0.0179	0.0139	0.0179
B->Z	0.0128	0.0184	0.0133	0.0187	0.0136	0.0190	0.0138	0.0192	0.0139	0.0193	0.0139	0.0193

CKAN2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1560 pF		0.2609 pF		0.3990 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0184	0.0259	0.0191	0.0266	0.0196	0.0271	0.0199	0.0273	0.0200	0.0274	0.0200	0.0275
B->Z	0.0184	0.0288	0.0191	0.0294	0.0197	0.0299	0.0199	0.0301	0.0200	0.0302	0.0201	0.0303

CKAN2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1077 pF		0.2072 pF		0.3466 pF		0.5302 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0245	0.0320	0.0253	0.0328	0.0260	0.0334	0.0263	0.0337	0.0265	0.0339	0.0266	0.0340
B->Z	0.0245	0.0349	0.0253	0.0356	0.0261	0.0362	0.0264	0.0365	0.0265	0.0367	0.0266	0.0368

Hidden Power (uW/MHz)

CKAN2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0005	-0.0006	-0.0008	-0.0012	-0.0012	-0.0023	-0.0024
A	F	0.0008	0.0010	0.0013	0.0018	0.0018	0.0036	0.0037
B	R	-0.0007	-0.0008	-0.0011	-0.0015	-0.0015	-0.0031	-0.0031
B	F	0.0007	0.0008	0.0011	0.0015	0.0015	0.0031	0.0032

Propagation Delays (ns)

CKAN2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1044	0.1141	0.1384	0.1419	0.1974	0.1860	0.2885	0.2511	0.4160	0.3414	0.5827	0.4595
B->Z	0.1084	0.1242	0.1425	0.1524	0.2015	0.1969	0.2926	0.2623	0.4200	0.3527	0.5868	0.4709

CKAN2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0095 pF		0.0222 pF		0.0420 pF		0.0697 pF		0.1063 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0923	0.1168	0.1260	0.1465	0.1856	0.1939	0.2774	0.2629	0.4057	0.3584	0.5751	0.4845
B->Z	0.0958	0.1274	0.1295	0.1576	0.1891	0.2053	0.2810	0.2746	0.4092	0.3703	0.5786	0.4965

CKAN2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1351 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0904	0.1001	0.1248	0.1276	0.1842	0.1702	0.2761	0.2326	0.4049	0.3192	0.5740	0.4329
B->Z	0.0936	0.1084	0.1280	0.1362	0.1874	0.1792	0.2793	0.2417	0.4082	0.3285	0.5773	0.4422

CKAN2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0413 pF		0.0788 pF		0.1314 pF		0.2006 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0878	0.0980	0.1221	0.1257	0.1818	0.1691	0.2738	0.2325	0.4025	0.3206	0.5718	0.4364
B->Z	0.0909	0.1059	0.1252	0.1339	0.1849	0.1777	0.2769	0.2413	0.4056	0.3295	0.5749	0.4453

CKAN2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0936	0.1096	0.1290	0.1391	0.1889	0.1834	0.2811	0.2470	0.4100	0.3346	0.5796	0.4498
B->Z	0.0966	0.1180	0.1321	0.1478	0.1920	0.1926	0.2842	0.2564	0.4131	0.3441	0.5827	0.4593

CKAN2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1560 pF		0.2609 pF		0.3990 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0806	0.0927	0.1150	0.1205	0.1749	0.1636	0.2671	0.2267	0.3964	0.3144	0.5664	0.4299
B->Z	0.0840	0.0995	0.1183	0.1274	0.1782	0.1708	0.2704	0.2340	0.3997	0.3218	0.5698	0.4373

CKAN2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1077 pF		0.2072 pF		0.3466 pF		0.5302 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0878	0.1038	0.1232	0.1332	0.1833	0.1775	0.2757	0.2413	0.4049	0.3294	0.5748	0.4452
B->Z	0.0910	0.1103	0.1264	0.1399	0.1865	0.1844	0.2789	0.2483	0.4080	0.3365	0.5780	0.4523

Combinational Cell

CKBUF

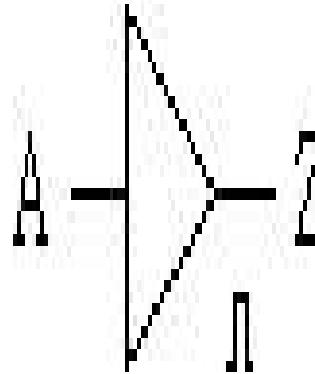
Cell Description

The CKBUF cell provides a buffer with a single input (A) and balanced delays for clock signals.

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

CKBUFM1HM, CKBUFM2HM, CKBUFM3HM
 , CKBUFM4HM, CKBUFM6HM
 , CKBUFM8HM, CKBUFM12HM
 , CKBUFM16HM, CKBUFM20HM
 , CKBUFM24HM, CKBUFM32HM
 , CKBUFM40HM, CKBUFM48HM

CKBUF Pin direction and Cap

Pin	in/out	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00114	0.00112	0.00111	0.00130	0.00158	0.00205
Z	output						
M12HM	M16HM	M20HM	M24HM	M32HM	M40HM	M48HM	
0.00285	0.00373	0.00458	0.00565	0.00745	0.00901	0.01082	

Power Dissipation (uW/MHz)

CKBUFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0029	0.0058	0.0030	0.0059	0.0030	0.0059	0.0030	0.0059	0.0031	0.0059	0.0031	0.0059

CKBUFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0034	0.0063	0.0035	0.0064	0.0036	0.0064	0.0036	0.0065	0.0036	0.0065	0.0036	0.0065

CKBUFM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0216 pF		0.0408 pF		0.0678 pF		0.1032 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	0.0075	0.0051	0.0077	0.0052	0.0078	0.0053	0.0078	0.0053	0.0079	0.0053	0.0079

CKBUFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0889 pF		0.1356 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0064	0.0092	0.0066	0.0095	0.0068	0.0096	0.0069	0.0097	0.0069	0.0097	0.0069	0.0097

CKBUFM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0414 pF		0.0790 pF		0.1317 pF		0.2012 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0097	0.0131	0.0100	0.0135	0.0103	0.0137	0.0104	0.0138	0.0104	0.0138	0.0105	0.0139

CKBUFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1755 pF		0.2681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0120	0.0165	0.0125	0.0170	0.0128	0.0173	0.0130	0.0174	0.0130	0.0175	0.0131	0.0175

CKBUFM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0814 pF		0.1563 pF		0.2614 pF		0.3997 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0176	0.0241	0.0183	0.0248	0.0189	0.0252	0.0191	0.0254	0.0192	0.0255	0.0192	0.0256

CKBUFM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0106 pF		0.0441 pF		0.1082 pF		0.2080 pF		0.3481 pF		0.5325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0234	0.0312	0.0243	0.0323	0.0250	0.0328	0.0253	0.0331	0.0254	0.0332	0.0255	0.0333

CKBUFM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0547 pF		0.1345 pF		0.2589 pF		0.4334 pF		0.6630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0292	0.0394	0.0304	0.0406	0.0313	0.0413	0.0316	0.0417	0.0317	0.0418	0.0318	0.0419

CKBUFM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0153 pF		0.0653 pF		0.1609 pF		0.3099 pF		0.5189 pF		0.7939 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0350	0.0475	0.0364	0.0490	0.0375	0.0498	0.0379	0.0502	0.0381	0.0504	0.0382	0.0505

CKBUFM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0200 pF		0.0866 pF		0.2139 pF		0.4122 pF		0.6905 pF		1.0566 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0456	0.0623	0.0475	0.0643	0.0489	0.0654	0.0495	0.0659	0.0497	0.0662	0.0499	0.0664

CKBUFM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0247 pF		0.1078 pF		0.2664 pF		0.5136 pF		0.8604 pF		1.3168 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0573	0.0777	0.0597	0.0801	0.0614	0.0815	0.0621	0.0822	0.0624	0.0825	0.0625	0.0827

CKBUFM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0293 pF		0.1288 pF		0.3188 pF		0.6147 pF		1.0300 pF		1.5764 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0689	0.0927	0.0718	0.0957	0.0738	0.0973	0.0746	0.0981	0.0750	0.0985	0.0752	0.0987

Propagation Delays (ns)
CKBUFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0808	0.0902	0.1108	0.1141	0.1699	0.1583	0.2602	0.2249	0.3869	0.3183	0.5531	0.4408

CKBUFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0771	0.0910	0.1087	0.1187	0.1671	0.1660	0.2583	0.2388	0.3853	0.3400	0.5532	0.4738

CKBUFM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0216 pF		0.0408 pF		0.0678 pF		0.1032 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0819	0.1017	0.1146	0.1323	0.1737	0.1823	0.2655	0.2577	0.3945	0.3634	0.5636	0.5018

CKBUFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0889 pF		0.1356 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0833	0.0991	0.1162	0.1288	0.1753	0.1763	0.2672	0.2475	0.3960	0.3469	0.5653	0.4774

CKBUFM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0414 pF		0.0790 pF		0.1317 pF		0.2012 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0830	0.0931	0.1159	0.1217	0.1753	0.1682	0.2672	0.2374	0.3959	0.3339	0.5655	0.4611

CKBUFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1051 pF		0.1755 pF		0.2681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0803	0.0882	0.1134	0.1165	0.1729	0.1622	0.2651	0.2307	0.3941	0.3265	0.5639	0.4523

CKBUFM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0814 pF		0.1563 pF		0.2614 pF		0.3997 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0755	0.0862	0.1084	0.1144	0.1680	0.1599	0.2603	0.2279	0.3896	0.3230	0.5597	0.4480

CKBUFM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0106 pF		0.0441 pF		0.1082 pF		0.2080 pF		0.3481 pF		0.5325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0758	0.0850	0.1088	0.1135	0.1684	0.1596	0.2605	0.2287	0.3898	0.3255	0.5598	0.4527

CKBUFM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0547 pF		0.1345 pF		0.2589 pF		0.4334 pF		0.6630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0750	0.0855	0.1081	0.1140	0.1676	0.1599	0.2599	0.2286	0.3891	0.3246	0.5592	0.4507

CKBUFM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0153 pF		0.0653 pF		0.1609 pF		0.3099 pF		0.5189 pF		0.7939 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0739	0.0852	0.1069	0.1136	0.1665	0.1592	0.2588	0.2275	0.3881	0.3229	0.5582	0.4484

CKBUFM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0200 pF		0.0866 pF		0.2139 pF		0.4122 pF		0.6905 pF		1.0566 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0737	0.0849	0.1069	0.1135	0.1665	0.1593	0.2589	0.2278	0.3882	0.3236	0.5584	0.4494

CKBUFM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0247 pF		0.1078 pF		0.2664 pF		0.5136 pF		0.8604 pF		1.3168 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0731	0.0841	0.1063	0.1125	0.1659	0.1579	0.2582	0.2259	0.3875	0.3209	0.5576	0.4458

CKBUFM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0293 pF		0.1288 pF		0.3188 pF		0.6147 pF		1.0300 pF		1.5764 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0735	0.0842	0.1067	0.1128	0.1663	0.1583	0.2586	0.2265	0.3879	0.3218	0.5580	0.4471

Combinational Cell

CKINV

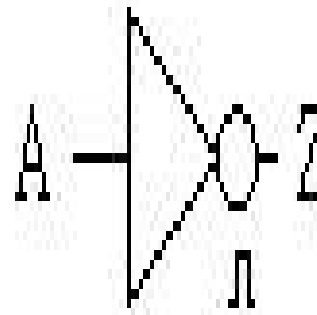
Cell Description

The CKINV cell provides the logical inversion of a single input A, with balanced delays for clock signals.

Truth Table

A	Z
0	1
1	0

Symbol



Cell List

CKINVM1HM, CKINVM2HM, CKINVM3HM
 , CKINVM4HM, CKINVM6HM
 , CKINVM8HM, CKINVM12HM
 , CKINVM16HM, CKINVM20HM
 , CKINVM24HM, CKINVM32HM
 , CKINVM40HM, CKINVM48HM

CKINV Pin direction and Cap

Pin	in/out	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00114	0.00138	0.00211	0.00275	0.00410	0.00536
Z	output						
M12HM	M16HM	M20HM	M24HM	M32HM	M40HM	M48HM	
0.00798	0.01061	0.01288	0.01548	0.02032	0.02548	0.03020	

Power Dissipation (uW/MHz)

CKINVM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0028	0.0001	0.0029	0.0001	0.0029	0.0001	0.0029	0.0002	0.0029	0.0002	0.0029	0.0002

CKINVM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0035	0.0001	0.0036	0.0001	0.0037	0.0002	0.0037	0.0002	0.0037	0.0002	0.0037	0.0002

CKINVM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0091 pF		0.0210 pF		0.0397 pF		0.0659 pF		0.1004 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	-0.0004	0.0051	-0.0002	0.0052	-0.0002	0.0052	-0.0001	0.0052	-0.0001	0.0052	-0.0001

CKINVM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0865 pF		0.1319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0064	-0.0005	0.0065	-0.0003	0.0067	-0.0002	0.0067	-0.0002	0.0067	-0.0002	0.0068	-0.0002

CKINVM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0168 pF		0.0403 pF		0.0769 pF		0.1282 pF		0.1957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0098	-0.0005	0.0100	-0.0002	0.0102	-0.0001	0.0103	0.0000	0.0103	0.0000	0.0104	0.0000

CKINVM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0534 pF		0.1021 pF		0.1705 pF		0.2606 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0125	-0.0010	0.0128	-0.0006	0.0131	-0.0005	0.0132	-0.0004	0.0132	-0.0003	0.0132	-0.0003

CKINVM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0324 pF		0.0792 pF		0.1519 pF		0.2541 pF		0.3885 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0183	-0.0016	0.0189	-0.0010	0.0193	-0.0007	0.0195	-0.0006	0.0195	-0.0005	0.0196	-0.0005

CKINVM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0428 pF		0.1049 pF		0.2017 pF		0.3374 pF		0.5161 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0246	-0.0021	0.0253	-0.0013	0.0259	-0.0009	0.0260	-0.0008	0.0261	-0.0007	0.0262	-0.0007

CKINVM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0126 pF		0.0532 pF		0.1307 pF		0.2515 pF		0.4211 pF		0.6441 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0303	-0.0024	0.0311	-0.0013	0.0319	-0.0009	0.0321	-0.0007	0.0322	-0.0006	0.0323	-0.0005

CKINVM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0148 pF		0.0634 pF		0.1562 pF		0.3008 pF		0.5036 pF		0.7705 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0363	-0.0029	0.0374	-0.0017	0.0383	-0.0011	0.0386	-0.0009	0.0387	-0.0008	0.0388	-0.0007

CKINVM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0194 pF		0.0841 pF		0.2077 pF		0.4002 pF		0.6703 pF		1.0256 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0475	-0.0043	0.0489	-0.0026	0.0500	-0.0018	0.0504	-0.0015	0.0506	-0.0014	0.0507	-0.0013

CKINVM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0240 pF		0.1046 pF		0.2587 pF		0.4987 pF		0.8354 pF		1.2785 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0596	-0.0054	0.0613	-0.0033	0.0628	-0.0024	0.0633	-0.0020	0.0635	-0.0018	0.0636	-0.0017

CKINVM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0285 pF		0.1251 pF		0.3096 pF		0.5971 pF		1.0004 pF		1.5312 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0712	-0.0063	0.0734	-0.0037	0.0751	-0.0026	0.0756	-0.0021	0.0759	-0.0019	0.0761	-0.0018

Propagation Delays (ns)
CKINVM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0436	0.0356	0.0741	0.0588	0.1296	0.1005	0.2170	0.1664	0.3396	0.2586	0.5003	0.3796

CKINVM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0393	0.0342	0.0690	0.0585	0.1254	0.1042	0.2130	0.1752	0.3361	0.2750	0.4983	0.4065

CKINVM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0091 pF		0.0210 pF		0.0397 pF		0.0659 pF		0.1004 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0352	0.0314	0.0658	0.0571	0.1225	0.1042	0.2113	0.1781	0.3357	0.2814	0.4995	0.4174

CKINVM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0865 pF		0.1319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0338	0.0285	0.0642	0.0524	0.1214	0.0965	0.2102	0.1650	0.3346	0.2610	0.4982	0.3874

CKINVM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0168 pF		0.0403 pF		0.0769 pF		0.1282 pF		0.1957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0330	0.0276	0.0637	0.0514	0.1210	0.0950	0.2098	0.1627	0.3341	0.2575	0.4978	0.3821

CKINVM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0534 pF		0.1021 pF		0.1705 pF		0.2606 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0317	0.0263	0.0626	0.0502	0.1200	0.0936	0.2089	0.1607	0.3338	0.2550	0.4981	0.3792

CKINVM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0324 pF		0.0792 pF		0.1519 pF		0.2541 pF		0.3885 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0310	0.0255	0.0619	0.0490	0.1195	0.0918	0.2085	0.1580	0.3335	0.2511	0.4980	0.3733

CKINVM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0428 pF		0.1049 pF		0.2017 pF		0.3374 pF		0.5161 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0307	0.0252	0.0618	0.0487	0.1193	0.0913	0.2085	0.1573	0.3335	0.2497	0.4981	0.3714

CKINVM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0126 pF		0.0532 pF		0.1307 pF		0.2515 pF		0.4211 pF		0.6441 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0304	0.0252	0.0615	0.0490	0.1189	0.0921	0.2081	0.1588	0.3331	0.2525	0.4975	0.3757

CKINVM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0148 pF		0.0634 pF		0.1562 pF		0.3008 pF		0.5036 pF		0.7705 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0303	0.0250	0.0614	0.0486	0.1189	0.0913	0.2080	0.1575	0.3329	0.2502	0.4973	0.3723

CKINVM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0194 pF		0.0841 pF		0.2077 pF		0.4002 pF		0.6703 pF		1.0256 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0300	0.0248	0.0611	0.0485	0.1186	0.0914	0.2078	0.1578	0.3328	0.2509	0.4972	0.3734

CKINVM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0240 pF		0.1046 pF		0.2587 pF		0.4987 pF		0.8354 pF		1.2785 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0301	0.0247	0.0612	0.0483	0.1188	0.0908	0.2080	0.1566	0.3330	0.2489	0.4976	0.3703

CKINVM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0285 pF		0.1251 pF		0.3096 pF		0.5971 pF		1.0004 pF		1.5312 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0301	0.0248	0.0613	0.0484	0.1188	0.0910	0.2080	0.1570	0.3330	0.2495	0.4976	0.3713

Combinational Cell

CKMUX2

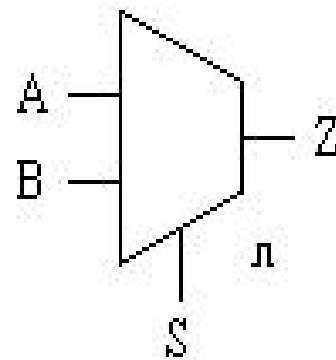
Cell Description

The CKMUX2 cell is a non-inverting 2 to 1 multiplexer with balanced delays for clock signals. The state of the select input (S) determines which data input (A, B) is presented to the output (Z).

Truth Table

S	A	B	Z
0	0	X	0
0	1	X	1
1	X	0	0
1	X	1	1

Symbol



Cell List

CKMUX2M2HM, CKMUX2M3HM, CKMUX2M4HM
, CKMUX2M6HM, CKMUX2M8HM
, CKMUX2M12HM

CKMUX2 Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM
A	input	0.00129	0.00156	0.00155	0.00154	0.00153	0.00151
B	input	0.00125	0.00156	0.00156	0.00155	0.00155	0.00145
S	input	0.00278	0.00289	0.00289	0.00289	0.00289	0.00260
Z	output						

Power Dissipation (uW/MHz)

CKMUX2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0063	0.0107	0.0064	0.0107	0.0064	0.0108	0.0065	0.0108	0.0065	0.0108	0.0065	0.0109
B->Z	0.0057	0.0114	0.0058	0.0115	0.0059	0.0115	0.0059	0.0116	0.0059	0.0116	0.0059	0.0116
S->Z	0.0087	0.0109	0.0088	0.0109	0.0089	0.0110	0.0089	0.0111	0.0090	0.0111	0.0090	0.0111

CKMUX2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0092 pF		0.0215 pF		0.0406 pF		0.0673 pF		0.1026 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0080	0.0129	0.0082	0.0130	0.0083	0.0131	0.0083	0.0131	0.0084	0.0132	0.0084	0.0132
B->Z	0.0074	0.0137	0.0075	0.0138	0.0076	0.0139	0.0077	0.0139	0.0077	0.0140	0.0078	0.0140
S->Z	0.0106	0.0127	0.0107	0.0128	0.0108	0.0129	0.0109	0.0129	0.0109	0.0129	0.0109	0.0129

CKMUX2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0093	0.0144	0.0095	0.0144	0.0096	0.0146	0.0097	0.0146	0.0098	0.0147	0.0098	0.0147
B->Z	0.0086	0.0152	0.0088	0.0152	0.0090	0.0154	0.0091	0.0154	0.0091	0.0155	0.0092	0.0155
S->Z	0.0118	0.0141	0.0119	0.0142	0.0121	0.0143	0.0123	0.0144	0.0123	0.0144	0.0123	0.0145

CKMUX2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0121	0.0174	0.0123	0.0173	0.0125	0.0175	0.0126	0.0176	0.0127	0.0176	0.0127	0.0177
B->Z	0.0114	0.0182	0.0116	0.0182	0.0118	0.0183	0.0120	0.0184	0.0121	0.0185	0.0121	0.0185
S->Z	0.0145	0.0171	0.0147	0.0171	0.0149	0.0171	0.0151	0.0173	0.0152	0.0174	0.0152	0.0174

CKMUX2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1744 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0153	0.0206	0.0154	0.0203	0.0157	0.0204	0.0159	0.0205	0.0160	0.0205	0.0160	0.0206
B->Z	0.0146	0.0215	0.0148	0.0211	0.0151	0.0212	0.0153	0.0213	0.0154	0.0214	0.0155	0.0214
S->Z	0.0177	0.0202	0.0179	0.0200	0.0181	0.0200	0.0183	0.0202	0.0185	0.0202	0.0186	0.0202

CKMUX2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0331 pF		0.0809 pF		0.1553 pF		0.2597 pF		0.3971 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0206	0.0271	0.0205	0.0257	0.0208	0.0256	0.0210	0.0257	0.0211	0.0257	0.0212	0.0258
B->Z	0.0197	0.0279	0.0196	0.0265	0.0199	0.0264	0.0201	0.0264	0.0203	0.0265	0.0204	0.0266
S->Z	0.0231	0.0267	0.0229	0.0254	0.0231	0.0252	0.0233	0.0253	0.0234	0.0253	0.0236	0.0254

Hidden Power (uW/MHz)

CKMUX2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM
A	R	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
A	F	0.0038	0.0045	0.0045	0.0045	0.0045	0.0044
B	R	0.0008	0.0009	0.0009	0.0009	0.0009	0.0007
B	F	0.0035	0.0041	0.0041	0.0041	0.0041	0.0039
S	R	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
S	F	0.0064	0.0066	0.0066	0.0066	0.0066	0.0062

Propagation Delays (ns)

CKMUX2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1247	0.1512	0.1589	0.1835	0.2187	0.2328	0.3099	0.3004	0.4370	0.3903	0.6044	0.5073
B->Z	0.1253	0.1539	0.1597	0.1862	0.2195	0.2357	0.3108	0.3033	0.4379	0.3932	0.6054	0.5102
S->Z	0.1398	0.1381	0.1740	0.1703	0.2338	0.2198	0.3250	0.2874	0.4522	0.3773	0.6197	0.4943

CKMUX2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0092 pF		0.0215 pF		0.0406 pF		0.0673 pF		0.1026 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1141	0.1362	0.1493	0.1697	0.2097	0.2200	0.3018	0.2890	0.4301	0.3816	0.5998	0.5028
B->Z	0.1142	0.1390	0.1495	0.1726	0.2100	0.2229	0.3021	0.2920	0.4305	0.3846	0.6001	0.5059
S->Z	0.1351	0.1313	0.1704	0.1648	0.2307	0.2151	0.3228	0.2842	0.4512	0.3768	0.6209	0.4981

CKMUX2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1185	0.1406	0.1549	0.1746	0.2158	0.2242	0.3078	0.2903	0.4364	0.3780	0.6057	0.4918
B->Z	0.1188	0.1431	0.1554	0.1771	0.2164	0.2267	0.3084	0.2928	0.4371	0.3806	0.6065	0.4943
S->Z	0.1390	0.1348	0.1754	0.1688	0.2363	0.2183	0.3282	0.2844	0.4569	0.3721	0.6263	0.4859

CKMUX2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1278	0.1577	0.1667	0.1954	0.2281	0.2484	0.3204	0.3187	0.4492	0.4108	0.6185	0.5295
B->Z	0.1284	0.1603	0.1675	0.1979	0.2291	0.2509	0.3214	0.3212	0.4503	0.4133	0.6196	0.5320
S->Z	0.1473	0.1550	0.1862	0.1926	0.2476	0.2456	0.3399	0.3159	0.4688	0.4081	0.6381	0.5267

CKMUX2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1744 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1394	0.1744	0.1805	0.2143	0.2435	0.2696	0.3361	0.3410	0.4650	0.4329	0.6342	0.5500
B->Z	0.1404	0.1768	0.1816	0.2168	0.2448	0.2720	0.3375	0.3434	0.4665	0.4353	0.6357	0.5523
S->Z	0.1579	0.1733	0.1989	0.2134	0.2619	0.2687	0.3545	0.3401	0.4834	0.4320	0.6526	0.5490

CKMUX2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0331 pF		0.0809 pF		0.1553 pF		0.2597 pF		0.3971 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1600	0.2075	0.2054	0.2545	0.2714	0.3184	0.3648	0.3994	0.4936	0.5023	0.6628	0.6324
B->Z	0.1586	0.2142	0.2042	0.2614	0.2702	0.3255	0.3637	0.4067	0.4926	0.5097	0.6618	0.6399
S->Z	0.1921	0.2166	0.2376	0.2637	0.3034	0.3276	0.3968	0.4086	0.5257	0.5114	0.6949	0.6416

Combinational Cell

CKND2

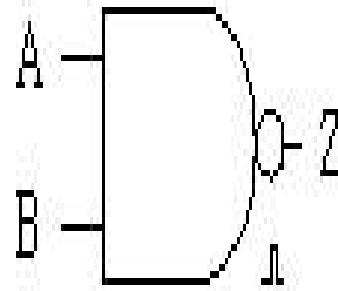
Cell Description

The CKND2 cell provides a NAND gate with two inputs (A, B) and balanced delays for clock signals.

Truth Table

A	B	Z
0	X	1
X	0	1
1	1	0

Symbol



Cell List

CKND2M2HM, CKND2M4HM, CKND2M6HM
, CKND2M8HM, CKND2M12HM
, CKND2M16HM

CKND2 Pin direction and Cap

Pin	in/out	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00168	0.00335	0.00498	0.00680	0.00956	0.01365
B	input	0.00165	0.00362	0.00523	0.00701	0.00979	0.01400
Z	output						

Power Dissipation (uW/MHz)

CKND2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0139 pF		0.0259 pF		0.0428 pF		0.0650 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0046	0.0005	0.0047	0.0006	0.0047	0.0006	0.0048	0.0006	0.0048	0.0006	0.0048	0.0007
B->Z	0.0059	0.0005	0.0060	0.0006	0.0060	0.0006	0.0060	0.0006	0.0060	0.0007	0.0060	0.0007

CKND2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0112 pF		0.0265 pF		0.0502 pF		0.0834 pF		0.1272 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0095	0.0010	0.0097	0.0012	0.0099	0.0012	0.0100	0.0013	0.0100	0.0013	0.0100	0.0013
B->Z	0.0123	0.0011	0.0124	0.0012	0.0125	0.0013	0.0126	0.0013	0.0126	0.0013	0.0126	0.0013

CKND2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0165 pF		0.0394 pF		0.0752 pF		0.1254 pF		0.1915 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0132	0.0015	0.0135	0.0017	0.0138	0.0019	0.0139	0.0019	0.0140	0.0019	0.0140	0.0020
B->Z	0.0174	0.0016	0.0176	0.0018	0.0177	0.0019	0.0178	0.0019	0.0178	0.0020	0.0178	0.0020

CKND2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0523 pF		0.1000 pF		0.1670 pF		0.2552 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0167	0.0020	0.0172	0.0023	0.0176	0.0025	0.0177	0.0026	0.0178	0.0026	0.0179	0.0026
B->Z	0.0224	0.0021	0.0226	0.0024	0.0228	0.0025	0.0229	0.0026	0.0229	0.0026	0.0229	0.0026

CKND2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0078 pF		0.0318 pF		0.0776 pF		0.1490 pF		0.2492 pF		0.3810 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0239	0.0030	0.0246	0.0035	0.0251	0.0037	0.0253	0.0038	0.0254	0.0039	0.0254	0.0039
B->Z	0.0311	0.0031	0.0314	0.0035	0.0317	0.0038	0.0317	0.0039	0.0318	0.0039	0.0318	0.0039

CKND2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0101 pF		0.0419 pF		0.1028 pF		0.1975 pF		0.3305 pF		0.5055 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0344	0.0040	0.0354	0.0046	0.0362	0.0050	0.0365	0.0051	0.0367	0.0052	0.0367	0.0052
B->Z	0.0458	0.0041	0.0463	0.0047	0.0466	0.0050	0.0468	0.0051	0.0468	0.0052	0.0469	0.0052

Hidden Power (uW/MHz)

CKND2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0012	-0.0024	-0.0036	-0.0048	-0.0075	-0.0095
A	F	0.0018	0.0036	0.0054	0.0072	0.0105	0.0143
B	R	-0.0015	-0.0031	-0.0046	-0.0061	-0.0092	-0.0123
B	F	0.0015	0.0031	0.0046	0.0062	0.0092	0.0123

Propagation Delays (ns)

CKND2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0139 pF		0.0259 pF		0.0428 pF		0.0650 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0449	0.0369	0.0744	0.0600	0.1303	0.1039	0.2170	0.1720	0.3390	0.2678	0.4992	0.3937
B->Z	0.0510	0.0402	0.0803	0.0633	0.1361	0.1072	0.2228	0.1752	0.3446	0.2711	0.5046	0.3969

CKND2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0112 pF		0.0265 pF		0.0502 pF		0.0834 pF		0.1272 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0421	0.0332	0.0719	0.0556	0.1286	0.0978	0.2159	0.1629	0.3380	0.2540	0.4991	0.3742
B->Z	0.0479	0.0367	0.0771	0.0589	0.1329	0.1011	0.2190	0.1662	0.3393	0.2573	0.4981	0.3775

CKND2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0165 pF		0.0394 pF		0.0752 pF		0.1254 pF		0.1915 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0393	0.0313	0.0699	0.0543	0.1263	0.0965	0.2141	0.1623	0.3370	0.2543	0.4988	0.3756
B->Z	0.0458	0.0347	0.0761	0.0575	0.1325	0.0997	0.2203	0.1654	0.3433	0.2575	0.5051	0.3788

CKND2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0523 pF		0.1000 pF		0.1670 pF		0.2552 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0381	0.0302	0.0685	0.0529	0.1254	0.0951	0.2133	0.1604	0.3366	0.2520	0.4988	0.3726
B->Z	0.0446	0.0336	0.0747	0.0561	0.1316	0.0983	0.2195	0.1636	0.3428	0.2552	0.5050	0.3758

CKND2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0078 pF		0.0318 pF		0.0776 pF		0.1490 pF		0.2492 pF		0.3810 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0367	0.0329	0.0671	0.0596	0.1239	0.1091	0.2119	0.1861	0.3353	0.2941	0.4976	0.4360
B->Z	0.0422	0.0362	0.0724	0.0628	0.1292	0.1123	0.2173	0.1893	0.3408	0.2972	0.5032	0.4392

CKND2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0101 pF		0.0419 pF		0.1028 pF		0.1975 pF		0.3305 pF		0.5055 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0377	0.0295	0.0682	0.0521	0.1251	0.0936	0.2130	0.1580	0.3363	0.2483	0.4985	0.3671
B->Z	0.0444	0.0330	0.0746	0.0553	0.1314	0.0969	0.2194	0.1612	0.3427	0.2515	0.5048	0.3703

Combinational Cell

CKXOR2

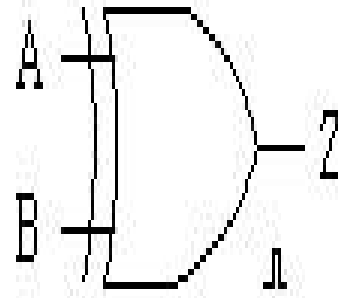
Cell Description

The CKXOR2 cell provides an EXCLUSIVE OR gate with two inputs (A, B) and balanced delays for clock signals.

Truth Table

A	B	Z
0	0	0
0	1	1
1	0	1
1	1	0

Symbol



Cell List

CKXOR2M1HM, CKXOR2M2HM, CKXOR2M4HM
, CKXOR2M8HM, CKXOR2M12HM

CKXOR2 Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM	M12HM
A	input	0.00284	0.00283	0.00306	0.00308	0.00416
B	input	0.00158	0.00161	0.00167	0.00284	0.00409
Z	output					

Power Dissipation (uW/MHz)

CKXOR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0075	0.0104	0.0076	0.0104	0.0077	0.0105	0.0077	0.0105	0.0077	0.0105	0.0077	0.0105
B->Z	0.0103	0.0128	0.0104	0.0128	0.0105	0.0128	0.0105	0.0128	0.0105	0.0128	0.0106	0.0128

CKXOR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0141 pF		0.0263 pF		0.0434 pF		0.0659 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0080	0.0107	0.0081	0.0108	0.0082	0.0108	0.0082	0.0109	0.0083	0.0109	0.0083	0.0110
B->Z	0.0108	0.0133	0.0108	0.0133	0.0110	0.0134	0.0110	0.0134	0.0111	0.0134	0.0111	0.0135

CKXOR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0872 pF		0.1330 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0115	0.0143	0.0117	0.0143	0.0119	0.0144	0.0120	0.0145	0.0120	0.0145	0.0120	0.0146
B->Z	0.0163	0.0187	0.0164	0.0187	0.0166	0.0188	0.0167	0.0190	0.0167	0.0190	0.0168	0.0190

CKXOR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0219 pF		0.0530 pF		0.1015 pF		0.1695 pF		0.2589 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0172	0.0200	0.0174	0.0199	0.0177	0.0200	0.0179	0.0202	0.0180	0.0203	0.0181	0.0203
B->Z	0.0228	0.0254	0.0231	0.0252	0.0234	0.0254	0.0236	0.0255	0.0237	0.0256	0.0238	0.0256

CKXOR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0328 pF		0.0800 pF		0.1535 pF		0.2567 pF		0.3925 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0263	0.0298	0.0266	0.0296	0.0270	0.0298	0.0272	0.0300	0.0274	0.0301	0.0275	0.0302
B->Z	0.0352	0.0380	0.0355	0.0377	0.0358	0.0380	0.0362	0.0382	0.0363	0.0383	0.0364	0.0384

Propagation Delays (ns)

CKXOR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1171	0.1504	0.1494	0.1803	0.2072	0.2239	0.2963	0.2807	0.4220	0.3538	0.5874	0.4462
B->Z	0.1666	0.2100	0.1997	0.2400	0.2578	0.2835	0.3469	0.3404	0.4726	0.4136	0.6381	0.5059

CKXOR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0141 pF		0.0263 pF		0.0434 pF		0.0659 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1182	0.1446	0.1511	0.1782	0.2093	0.2281	0.2993	0.2951	0.4252	0.3831	0.5907	0.4963
B->Z	0.1635	0.1994	0.1971	0.2331	0.2556	0.2830	0.3457	0.3501	0.4716	0.4381	0.6371	0.5513

CKXOR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0872 pF		0.1330 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1273	0.1311	0.1639	0.1653	0.2241	0.2149	0.3148	0.2817	0.4417	0.3700	0.6084	0.4843
B->Z	0.1769	0.1860	0.2130	0.2203	0.2728	0.2699	0.3634	0.3367	0.4903	0.4250	0.6570	0.5393

CKXOR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0219 pF		0.0530 pF		0.1015 pF		0.1695 pF		0.2589 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1309	0.1662	0.1685	0.2082	0.2287	0.2665	0.3195	0.3424	0.4463	0.4406	0.6129	0.5661
B->Z	0.1736	0.2065	0.2140	0.2485	0.2760	0.3068	0.3672	0.3828	0.4941	0.4810	0.6607	0.6065

CKXOR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0328 pF		0.0800 pF		0.1535 pF		0.2567 pF		0.3925 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1302	0.1668	0.1730	0.2099	0.2365	0.2691	0.3281	0.3461	0.4552	0.4457	0.6221	0.5733
B->Z	0.1841	0.2055	0.2267	0.2485	0.2902	0.3079	0.3818	0.3848	0.5089	0.4845	0.6759	0.6120

Combinational Cell

DEL1

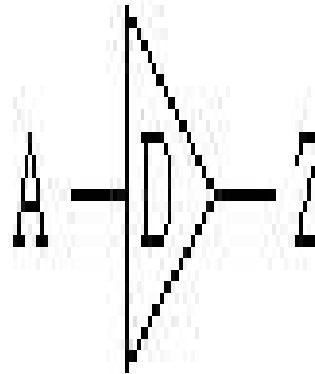
Cell Description

The DEL1 cell provides a delay for a single input (A).

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

DEL1M1HM, DEL1M4HM

DEL1 Pin direction and Cap

Pin	in/out	M1HM	M4HM
A	input	0.00096	0.00134
Z	output		

Power Dissipation (uW/MHz)

DEL1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0074	0.0102	0.0074	0.0103	0.0075	0.0103	0.0075	0.0104	0.0075	0.0104	0.0075	0.0104

DEL1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0123	0.0157	0.0125	0.0159	0.0127	0.0161	0.0128	0.0161	0.0128	0.0162	0.0128	0.0162

Propagation Delays (ns)

DEL1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1748	0.2100	0.2048	0.2362	0.2628	0.2809	0.3531	0.3476	0.4797	0.4407	0.6457	0.5627

DEL1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1340	0.1647	0.1659	0.1943	0.2247	0.2414	0.3164	0.3117	0.4446	0.4097	0.6135	0.5387

Combinational Cell

DEL2

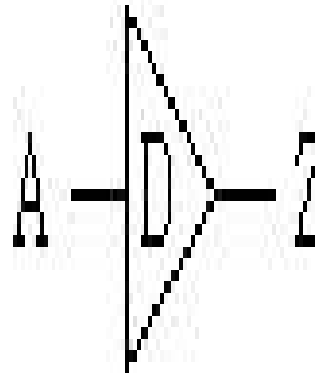
Cell Description

The DEL2 cell provides a delay for a single input (A).

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

DEL2M1HM, DEL2M4HM

DEL2 Pin direction and Cap

Pin	in/out	M1HM	M4HM
A	input	0.00096	0.00134
Z	output		

Power Dissipation (uW/MHz)

DEL2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0080	0.0109	0.0081	0.0110	0.0081	0.0110	0.0081	0.0110	0.0082	0.0111	0.0082	0.0111

DEL2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0879 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0135	0.0171	0.0137	0.0171	0.0139	0.0173	0.0140	0.0174	0.0140	0.0174	0.0140	0.0174

Propagation Delays (ns)

DEL2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2647	0.2989	0.2972	0.3306	0.3555	0.3799	0.4448	0.4483	0.5705	0.5414	0.7355	0.6628

DEL2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0879 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2159	0.2510	0.2494	0.2861	0.3086	0.3383	0.3996	0.4106	0.5268	0.5084	0.6946	0.6367

Combinational Cell

DEL3

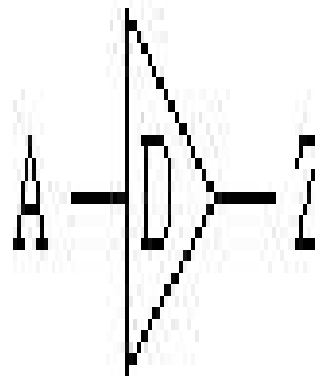
Cell Description

The DEL3 cell provides a delay for a single input (A).

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

DEL3M1HM, DEL3M4HM

DEL3 Pin direction and Cap

Pin	in/out	M1HM	M4HM
A	input	0.00096	0.00134
Z	output		

Power Dissipation (uW/MHz)

DEL3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0087	0.0117	0.0088	0.0117	0.0088	0.0118	0.0089	0.0118	0.0089	0.0118	0.0089	0.0118

DEL3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0874 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0150	0.0187	0.0151	0.0186	0.0152	0.0187	0.0153	0.0188	0.0154	0.0188	0.0154	0.0188

Propagation Delays (ns)

DEL3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3688	0.3912	0.4035	0.4269	0.4618	0.4798	0.5514	0.5517	0.6761	0.6458	0.8401	0.7671

DEL3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0874 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3113	0.3394	0.3474	0.3787	0.4074	0.4356	0.4983	0.5112	0.6249	0.6102	0.7919	0.7385

Combinational Cell

DEL4

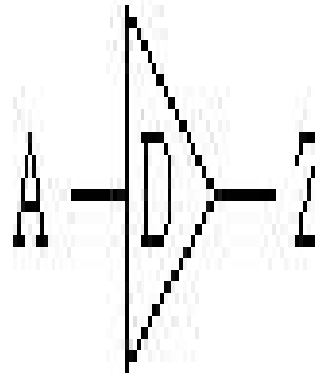
Cell Description

The DEL4 cell provides a delay for a single input (A).

Truth Table

A	Z
0	0
1	1

Symbol



Cell List

DEL4M1HM, DEL4M4HM

DEL4 Pin direction and Cap

Pin	in/out	M1HM	M4HM
A	input	0.00097	0.00134
Z	output		

Power Dissipation (uW/MHz)

DEL4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0313 pF		0.0474 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0095	0.0126	0.0095	0.0126	0.0096	0.0126	0.0096	0.0126	0.0096	0.0126	0.0096	0.0126

DEL4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0870 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0165	0.0204	0.0165	0.0202	0.0166	0.0202	0.0167	0.0202	0.0168	0.0203	0.0168	0.0203

Propagation Delays (ns)

DEL4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0313 pF		0.0474 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.4888	0.4911	0.5261	0.5301	0.5862	0.5872	0.6754	0.6622	0.7993	0.7582	0.9625	0.8801

DEL4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0870 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.4224	0.4347	0.4615	0.4776	0.5228	0.5384	0.6139	0.6178	0.7402	0.7192	0.9059	0.8476

Combinational Cell

INV

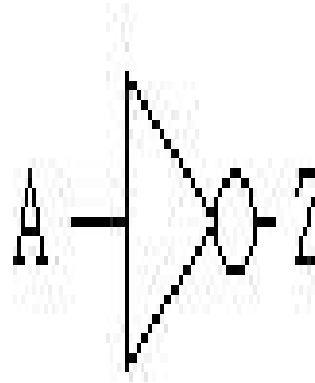
Cell Description

The INV cell provides the logical inversion of a single input (A).

Truth Table

A	Z
0	1
1	0

Symbol



Cell List

INVM0HM, INVM1HM, INVM2HM
 , INVM3HM, INVM4HM
 , INVM5HM, INVM6HM
 , INVM8HM, INVM10HM
 , INVM12HM, INVM14HM
 , INVM16HM, INVM18HM
 , INVM20HM, INVM24HM
 , INVM28HM, INVM32HM
 , INVM36HM, INVM40HM
 , INVM48HM

INV Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M5HM
A	input	0.00113	0.00131	0.00165	0.00266	0.00327	0.00426
Z	output						

M6HM	M8HM	M10HM	M12HM	M14HM	M16HM	M18HM	M20HM	M24HM	M28HM	M32HM
0.00483	0.00635	0.00799	0.00950	0.01110	0.01268	0.01428	0.01594	0.01907	0.02219	0.02530

M36HM	M40HM	M48HM
0.02841	0.02997	0.03601

Power Dissipation (uW/MHz)

INVM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0027	0.0001	0.0027	0.0001	0.0028	0.0001	0.0028	0.0001	0.0028	0.0001	0.0028	0.0001

INVM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0031	0.0001	0.0032	0.0001	0.0032	0.0001	0.0033	0.0002	0.0033	0.0002	0.0033	0.0002

INVM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0437 pF		0.0664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0041	0.0001	0.0042	0.0001	0.0043	0.0002	0.0043	0.0002	0.0044	0.0002	0.0044	0.0002

INVM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0090 pF		0.0208 pF		0.0393 pF		0.0652 pF		0.0992 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0058	-0.0004	0.0060	-0.0002	0.0062	-0.0002	0.0062	-0.0001	0.0063	-0.0001	0.0063	-0.0001

INVM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0519 pF		0.0864 pF		0.1318 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0072	-0.0005	0.0075	-0.0003	0.0077	-0.0002	0.0078	-0.0002	0.0078	-0.0002	0.0079	-0.0002

INVM5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0143 pF		0.0340 pF		0.0647 pF		0.1078 pF		0.1645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0094	-0.0004	0.0097	-0.0001	0.0100	-0.0000	0.0101	0.0000	0.0102	0.0000	0.0102	0.0001

INVM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0168 pF		0.0403 pF		0.0768 pF		0.1281 pF		0.1957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0106	-0.0005	0.0110	-0.0002	0.0113	-0.0001	0.0115	-0.0000	0.0115	0.0000	0.0116	0.0000

INVM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0533 pF		0.1021 pF		0.1704 pF		0.2604 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0135	-0.0011	0.0140	-0.0007	0.0145	-0.0005	0.0146	-0.0004	0.0147	-0.0003	0.0148	-0.0003

INVM10HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0068 pF		0.0272 pF		0.0661 pF		0.1268 pF		0.2119 pF		0.3239 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0178	-0.0010	0.0185	-0.0005	0.0190	-0.0003	0.0193	-0.0002	0.0194	-0.0001	0.0195	-0.0001

INVM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0324 pF		0.0791 pF		0.1518 pF		0.2539 pF		0.3882 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0206	-0.0016	0.0214	-0.0010	0.0221	-0.0007	0.0224	-0.0006	0.0225	-0.0005	0.0226	-0.0005

INVM14HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0091 pF		0.0375 pF		0.0918 pF		0.1764 pF		0.2952 pF		0.4514 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0247	-0.0016	0.0256	-0.0009	0.0264	-0.0005	0.0267	-0.0004	0.0269	-0.0003	0.0270	-0.0003

INVM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0428 pF		0.1048 pF		0.2015 pF		0.3372 pF		0.5157 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0277	-0.0021	0.0289	-0.0013	0.0298	-0.0009	0.0302	-0.0008	0.0304	-0.0007	0.0305	-0.0007

INVM18HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0114 pF		0.0479 pF		0.1176 pF		0.2261 pF		0.3785 pF		0.5789 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0317	-0.0021	0.0329	-0.0012	0.0339	-0.0008	0.0344	-0.0006	0.0346	-0.0005	0.0347	-0.0004

INVM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0126 pF		0.0531 pF		0.1305 pF		0.2512 pF		0.4205 pF		0.6432 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0348	-0.0027	0.0362	-0.0017	0.0373	-0.0012	0.0378	-0.0010	0.0381	-0.0009	0.0382	-0.0008

INVM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0148 pF		0.0634 pF		0.1560 pF		0.3004 pF		0.5030 pF		0.7696 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0417	-0.0032	0.0434	-0.0020	0.0448	-0.0014	0.0453	-0.0012	0.0457	-0.0010	0.0458	-0.0010

INVM28HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0171 pF		0.0736 pF		0.1816 pF		0.3498 pF		0.5858 pF		0.8964 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0486	-0.0038	0.0506	-0.0023	0.0522	-0.0017	0.0529	-0.0014	0.0533	-0.0012	0.0535	-0.0012

INVM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0194 pF		0.0839 pF		0.2072 pF		0.3992 pF		0.6687 pF		1.0232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0558	-0.0044	0.0581	-0.0026	0.0599	-0.0019	0.0607	-0.0016	0.0611	-0.0014	0.0614	-0.0013

INVM36HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0217 pF		0.0942 pF		0.2327 pF		0.4486 pF		0.7514 pF		1.1499 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0628	-0.0048	0.0654	-0.0030	0.0674	-0.0021	0.0683	-0.0018	0.0688	-0.0016	0.0691	-0.0015

INVM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0228 pF		0.0993 pF		0.2453 pF		0.4729 pF		0.7922 pF		1.2124 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0670	-0.0048	0.0697	-0.0029	0.0719	-0.0020	0.0728	-0.0016	0.0733	-0.0014	0.0736	-0.0013

INVM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0273 pF		0.1197 pF		0.2961 pF		0.5710 pF		0.9567 pF		1.4641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0813	-0.0058	0.0845	-0.0035	0.0872	-0.0024	0.0883	-0.0019	0.0889	-0.0017	0.0893	-0.0016

Propagation Delays (ns)

INVM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0499	0.0265	0.0793	0.0395	0.1349	0.0629	0.2230	0.0999	0.3449	0.1512	0.5056	0.2188

INVM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0452	0.0248	0.0749	0.0382	0.1316	0.0626	0.2191	0.1001	0.3418	0.1527	0.5025	0.2216

INVM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0437 pF		0.0664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0416	0.0234	0.0714	0.0371	0.1280	0.0617	0.2157	0.0997	0.3382	0.1527	0.4997	0.2227

INVM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0090 pF		0.0208 pF		0.0393 pF		0.0652 pF		0.0992 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0379	0.0208	0.0686	0.0343	0.1256	0.0580	0.2146	0.0945	0.3389	0.1457	0.5020	0.2128

INVM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0519 pF		0.0864 pF		0.1318 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0356	0.0201	0.0662	0.0338	0.1237	0.0581	0.2122	0.0952	0.3367	0.1474	0.5004	0.2161

INVM5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0143 pF		0.0340 pF		0.0647 pF		0.1078 pF		0.1645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0355	0.0196	0.0667	0.0332	0.1241	0.0569	0.2130	0.0931	0.3377	0.1439	0.5016	0.2108

INVM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0168 pF		0.0403 pF		0.0768 pF		0.1281 pF		0.1957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0343	0.0192	0.0653	0.0330	0.1228	0.0570	0.2115	0.0936	0.3360	0.1450	0.4999	0.2127

INVM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0533 pF		0.1021 pF		0.1704 pF		0.2604 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0329	0.0184	0.0639	0.0322	0.1216	0.0560	0.2109	0.0925	0.3357	0.1434	0.5000	0.2106

INVM10HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0068 pF		0.0272 pF		0.0661 pF		0.1268 pF		0.2119 pF		0.3239 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0335	0.0186	0.0646	0.0323	0.1221	0.0559	0.2113	0.0921	0.3361	0.1428	0.5003	0.2095

INVM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0080 pF		0.0324 pF		0.0791 pF		0.1518 pF		0.2539 pF		0.3882 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0326	0.0182	0.0638	0.0319	0.1215	0.0554	0.2107	0.0914	0.3357	0.1419	0.5001	0.2083

INVM14HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0091 pF		0.0375 pF		0.0918 pF		0.1764 pF		0.2952 pF		0.4514 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0329	0.0183	0.0641	0.0319	0.1217	0.0554	0.2109	0.0912	0.3359	0.1415	0.5001	0.2076

INVM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0103 pF		0.0428 pF		0.1048 pF		0.2015 pF		0.3372 pF		0.5157 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0326	0.0181	0.0638	0.0317	0.1214	0.0551	0.2107	0.0909	0.3358	0.1410	0.5002	0.2070

INVM18HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0114 pF		0.0479 pF		0.1176 pF		0.2261 pF		0.3785 pF		0.5789 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0327	0.0181	0.0640	0.0317	0.1216	0.0551	0.2108	0.0907	0.3359	0.1408	0.5003	0.2065

INVM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0126 pF		0.0531 pF		0.1305 pF		0.2512 pF		0.4205 pF		0.6432 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0324	0.0180	0.0637	0.0316	0.1214	0.0549	0.2108	0.0905	0.3359	0.1405	0.5004	0.2062

INVM24HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0148 pF		0.0634 pF		0.1560 pF		0.3004 pF		0.5030 pF		0.7696 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0323	0.0179	0.0637	0.0315	0.1213	0.0548	0.2106	0.0902	0.3356	0.1400	0.5000	0.2054

INVM28HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0171 pF		0.0736 pF		0.1816 pF		0.3498 pF		0.5858 pF		0.8964 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0324	0.0180	0.0637	0.0315	0.1214	0.0547	0.2107	0.0902	0.3357	0.1398	0.5002	0.2050

INVM32HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0194 pF		0.0839 pF		0.2072 pF		0.3992 pF		0.6687 pF		1.0232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0324	0.0180	0.0637	0.0315	0.1215	0.0547	0.2107	0.0901	0.3358	0.1396	0.5003	0.2048

INVM36HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0217 pF		0.0942 pF		0.2327 pF		0.4486 pF		0.7514 pF		1.1499 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0325	0.0181	0.0638	0.0316	0.1215	0.0547	0.2109	0.0901	0.3360	0.1396	0.5005	0.2047

INVM40HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0228 pF		0.0993 pF		0.2453 pF		0.4729 pF		0.7922 pF		1.2124 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0327	0.0182	0.0640	0.0317	0.1217	0.0548	0.2110	0.0901	0.3360	0.1395	0.5005	0.2046

INVM48HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0273 pF		0.1197 pF		0.2961 pF		0.5710 pF		0.9567 pF		1.4641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0328	0.0183	0.0641	0.0317	0.1218	0.0549	0.2111	0.0901	0.3362	0.1395	0.5007	0.2045

Combinational Cell

MAO222

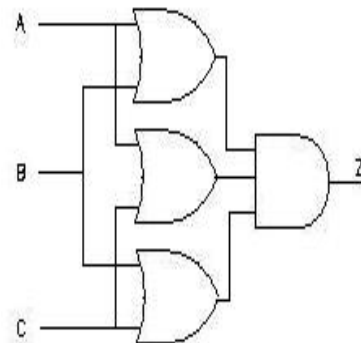
Cell Description

The MAO222 cell provides the logical OR of three AND groups.

Truth Table

A	B	C	Z
1	1	X	1
1	X	1	1
X	1	1	1
0	0	X	0
0	X	0	0
X	0	0	0

Symbol



Cell List

MAO222M0HM, MAO222M1HM, MAO222M2HM
, MAO222M4HM

MAO222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00219	0.00219	0.00218	0.00312
B	input	0.00250	0.00249	0.00249	0.00364
C	input	0.00110	0.00109	0.00109	0.00189
Z	output				

Power Dissipation (uW/MHz)

MAO222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0392 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0029	0.0097	0.0029	0.0097	0.0030	0.0097	0.0030	0.0098	0.0031	0.0099	0.0031	0.0099
B->Z	0.0029	0.0103	0.0029	0.0103	0.0030	0.0104	0.0030	0.0104	0.0030	0.0104	0.0030	0.0104
C->Z	0.0033	0.0078	0.0033	0.0078	0.0034	0.0078	0.0034	0.0078	0.0034	0.0079	0.0034	0.0079

MAO222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0102	0.0034	0.0102	0.0035	0.0102	0.0036	0.0103	0.0036	0.0104	0.0036	0.0104
B->Z	0.0033	0.0108	0.0034	0.0108	0.0035	0.0108	0.0035	0.0108	0.0036	0.0108	0.0036	0.0109
C->Z	0.0037	0.0083	0.0038	0.0083	0.0039	0.0083	0.0039	0.0083	0.0040	0.0083	0.0040	0.0084

MAO222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0043	0.0112	0.0044	0.0112	0.0045	0.0112	0.0046	0.0112	0.0046	0.0112	0.0047	0.0112
B->Z	0.0043	0.0117	0.0044	0.0117	0.0045	0.0117	0.0046	0.0118	0.0046	0.0118	0.0046	0.0118
C->Z	0.0047	0.0092	0.0048	0.0092	0.0049	0.0092	0.0050	0.0092	0.0050	0.0092	0.0050	0.0093

MAO222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0095	0.0213	0.0096	0.0210	0.0099	0.0210	0.0100	0.0210	0.0101	0.0210	0.0101	0.0210
B->Z	0.0094	0.0222	0.0095	0.0220	0.0097	0.0220	0.0100	0.0220	0.0100	0.0221	0.0100	0.0221
C->Z	0.0110	0.0227	0.0112	0.0224	0.0113	0.0224	0.0115	0.0224	0.0116	0.0224	0.0116	0.0224

Hidden Power (uW/MHz)

MAO222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	-0.0013	-0.0013	-0.0013	-0.0010
A	F	0.0017	0.0017	0.0017	0.0032
B	R	-0.0017	-0.0017	-0.0017	-0.0016
B	F	0.0018	0.0018	0.0018	0.0033
C	R	0.0000	0.0000	0.0000	-0.0014
C	F	0.0011	0.0011	0.0011	0.0016

Propagation Delays (ns)

MAO222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0392 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1210	0.1889	0.1530	0.2123	0.2117	0.2478	0.3024	0.2946	0.4291	0.3546	0.5944	0.4301
B->Z	0.1225	0.1914	0.1545	0.2148	0.2129	0.2502	0.3034	0.2970	0.4299	0.3570	0.5951	0.4325
C->Z	0.1123	0.1584	0.1442	0.1814	0.2026	0.2164	0.2931	0.2630	0.4197	0.3228	0.5848	0.3982

MAO222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1200	0.1900	0.1531	0.2139	0.2126	0.2487	0.3032	0.2931	0.4303	0.3495	0.5959	0.4197
B->Z	0.1216	0.1924	0.1546	0.2162	0.2139	0.2510	0.3042	0.2954	0.4311	0.3518	0.5967	0.4220
C->Z	0.1113	0.1594	0.1443	0.1829	0.2036	0.2172	0.2939	0.2614	0.4208	0.3176	0.5864	0.3877

MAO222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1210	0.1993	0.1546	0.2249	0.2137	0.2613	0.3053	0.3080	0.4320	0.3659	0.5997	0.4387
B->Z	0.1225	0.2014	0.1560	0.2270	0.2150	0.2634	0.3064	0.3101	0.4329	0.3680	0.6004	0.4408
C->Z	0.1123	0.1684	0.1457	0.1935	0.2047	0.2294	0.2961	0.2759	0.4227	0.3337	0.5902	0.4063

MAO222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1274	0.2001	0.1663	0.2312	0.2281	0.2733	0.3203	0.3245	0.4484	0.3858	0.6170	0.4599
B->Z	0.1261	0.2155	0.1651	0.2446	0.2269	0.2841	0.3189	0.3327	0.4471	0.3919	0.6156	0.4643
C->Z	0.1223	0.2277	0.1574	0.2569	0.2175	0.2963	0.3096	0.3449	0.4380	0.4041	0.6067	0.4765

Combinational Cell

MAOI2223

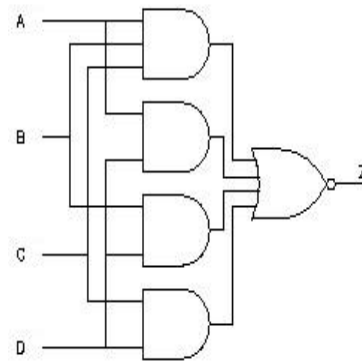
Cell Description

The MAOI2223 cell provides a NOR gate with four inputs, all of which are AND gates' outputs.

Truth Table

A	B	C	D	Z
1	1	1	X	0
1	X	X	1	0
X	1	X	1	0
X	X	1	1	0
0	0	0	X	1
0	X	X	0	1
X	0	X	0	1
X	X	0	0	1

Symbol



Cell List

MAOI2223M0HM, MAOI2223M1HM, MAOI2223M2HM
, MAOI2223M4HM

MAOI2223 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00239	0.00265	0.00319	0.00208
B	input	0.00248	0.00279	0.00331	0.00222
C	input	0.00229	0.00261	0.00318	0.00204
D	input	0.00116	0.00125	0.00153	0.00100
Z	output				

Power Dissipation (uW/MHz)

MAOI2223M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0077	0.0008	0.0077	0.0008	0.0077	0.0008	0.0077	0.0008	0.0077	0.0008	0.0078	0.0008
B->Z	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009
C->Z	0.0091	0.0011	0.0091	0.0011	0.0091	0.0011	0.0091	0.0011	0.0091	0.0011	0.0091	0.0011
D->Z	0.0051	0.0012	0.0052	0.0012	0.0052	0.0012	0.0052	0.0012	0.0052	0.0012	0.0052	0.0012

MAOI2223M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0034 pF		0.0056 pF		0.0088 pF		0.0129 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0083	0.0006	0.0083	0.0007	0.0083	0.0007	0.0083	0.0007	0.0083	0.0007	0.0083	0.0008
B->Z	0.0089	0.0008	0.0089	0.0008	0.0089	0.0008	0.0089	0.0008	0.0089	0.0008	0.0089	0.0008
C->Z	0.0100	0.0010	0.0100	0.0010	0.0100	0.0010	0.0100	0.0010	0.0100	0.0010	0.0100	0.0010
D->Z	0.0056	0.0012	0.0056	0.0012	0.0056	0.0012	0.0056	0.0012	0.0057	0.0012	0.0057	0.0012

MAOI2223M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0046 pF		0.0079 pF		0.0125 pF		0.0187 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0100	0.0008	0.0100	0.0009	0.0101	0.0009	0.0101	0.0009	0.0101	0.0009	0.0102	0.0009
B->Z	0.0109	0.0010	0.0109	0.0010	0.0109	0.0011	0.0109	0.0011	0.0109	0.0011	0.0109	0.0011
C->Z	0.0123	0.0012	0.0123	0.0012	0.0123	0.0012	0.0123	0.0012	0.0123	0.0012	0.0123	0.0012
D->Z	0.0069	0.0015	0.0069	0.0015	0.0069	0.0016	0.0070	0.0016	0.0070	0.0016	0.0070	0.0016

MAOI2223M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0873 pF		0.1332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0175	0.0115	0.0177	0.0117	0.0178	0.0118	0.0180	0.0118	0.0181	0.0118	0.0181	0.0119
B->Z	0.0180	0.0117	0.0181	0.0118	0.0183	0.0118	0.0184	0.0119	0.0185	0.0120	0.0186	0.0120
C->Z	0.0187	0.0118	0.0188	0.0118	0.0190	0.0120	0.0191	0.0120	0.0192	0.0122	0.0193	0.0122
D->Z	0.0151	0.0118	0.0153	0.0119	0.0155	0.0121	0.0156	0.0121	0.0157	0.0122	0.0158	0.0122

Hidden Power (uW/MHz)

MAOI2223 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	-0.0011	-0.0013	-0.0018	-0.0009
A	F	0.0018	0.0022	0.0030	0.0015
B	R	-0.0015	-0.0019	-0.0025	-0.0012
B	F	0.0017	0.0020	0.0027	0.0014
C	R	-0.0016	-0.0020	-0.0028	-0.0013
C	F	0.0018	0.0022	0.0029	0.0014
D	R	0.0005	0.0005	0.0004	0.0005
D	F	0.0011	0.0013	0.0018	0.0010

Propagation Delays (ns)

MAOI2223M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2164	0.0741	0.2364	0.0813	0.2799	0.0967	0.3465	0.1198	0.4357	0.1504	0.5551	0.1910
B->Z	0.2319	0.0752	0.2516	0.0823	0.2947	0.0977	0.3608	0.1207	0.4497	0.1513	0.5690	0.1919
C->Z	0.2412	0.0787	0.2608	0.0858	0.3038	0.1011	0.3697	0.1241	0.4583	0.1547	0.5774	0.1952
D->Z	0.1393	0.0526	0.1544	0.0580	0.1872	0.0698	0.2374	0.0876	0.3049	0.1112	0.3955	0.1424

MAOI2223M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0034 pF		0.0056 pF		0.0088 pF		0.0129 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1810	0.0643	0.2070	0.0736	0.2516	0.0894	0.3209	0.1135	0.4207	0.1476	0.5477	0.1905
B->Z	0.1965	0.0653	0.2220	0.0746	0.2661	0.0903	0.3349	0.1142	0.4344	0.1483	0.5611	0.1912
C->Z	0.2057	0.0687	0.2311	0.0780	0.2750	0.0936	0.3436	0.1175	0.4428	0.1515	0.5694	0.1944
D->Z	0.1201	0.0477	0.1395	0.0552	0.1730	0.0678	0.2251	0.0871	0.3003	0.1145	0.3962	0.1490

MAOI2223M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0046 pF		0.0079 pF		0.0125 pF		0.0187 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1531	0.0589	0.1787	0.0685	0.2291	0.0869	0.3034	0.1135	0.4060	0.1497	0.5434	0.1978
B->Z	0.1688	0.0598	0.1939	0.0692	0.2436	0.0875	0.3174	0.1140	0.4196	0.1501	0.5568	0.1981
C->Z	0.1779	0.0630	0.2030	0.0724	0.2524	0.0907	0.3260	0.1171	0.4280	0.1532	0.5649	0.2011
D->Z	0.1044	0.0439	0.1235	0.0515	0.1611	0.0662	0.2168	0.0876	0.2937	0.1166	0.3970	0.1550

MAOI2223M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0873 pF		0.1332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3968	0.2141	0.4290	0.2342	0.4872	0.2636	0.5773	0.3032	0.7036	0.3560	0.8701	0.4251
B->Z	0.4131	0.2154	0.4454	0.2355	0.5035	0.2648	0.5936	0.3044	0.7200	0.3573	0.8865	0.4263
C->Z	0.4224	0.2190	0.4546	0.2391	0.5128	0.2685	0.6029	0.3081	0.7292	0.3609	0.8958	0.4300
D->Z	0.2859	0.1882	0.3176	0.2081	0.3759	0.2374	0.4661	0.2769	0.5925	0.3298	0.7590	0.3988

Combinational Cell

MAOI222

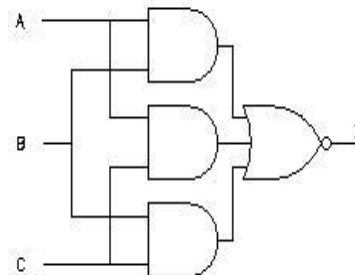
Cell Description

The MAOI222 cell provides a NOR gate with three inputs, all of which are AND gates' outputs.

Truth Table

A	B	C	Z
0	0	X	1
0	X	0	1
X	0	0	1
1	1	X	0
1	X	1	0
X	1	1	0

Symbol



Cell List

MAOI222M0HM, MAOI222M1HM, MAOI222M2HM
, MAOI222M4HM

MAOI222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00267	0.00270	0.00328	0.00224
B	input	0.00259	0.00300	0.00360	0.00229
C	input	0.00133	0.00128	0.00161	0.00123
Z	output				

Power Dissipation (uW/MHz)

MAOI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0035 pF		0.0058 pF		0.0091 pF		0.0134 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0098	0.0017	0.0098	0.0017	0.0099	0.0018	0.0099	0.0018	0.0100	0.0019	0.0100	0.0019
B->Z	0.0104	0.0017	0.0104	0.0017	0.0105	0.0017	0.0105	0.0017	0.0105	0.0017	0.0105	0.0017
C->Z	0.0110	0.0027	0.0110	0.0027	0.0110	0.0027	0.0110	0.0027	0.0110	0.0027	0.0110	0.0027

MAOI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0075 pF		0.0119 pF		0.0177 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0105	0.0019	0.0105	0.0019	0.0106	0.0020	0.0106	0.0021	0.0106	0.0021	0.0107	0.0021
B->Z	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020
C->Z	0.0118	0.0032	0.0118	0.0032	0.0118	0.0032	0.0118	0.0032	0.0118	0.0032	0.0118	0.0032

MAOI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0030 pF		0.0060 pF		0.0108 pF		0.0173 pF		0.0260 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0126	0.0024	0.0127	0.0024	0.0129	0.0026	0.0129	0.0026	0.0129	0.0026	0.0130	0.0026
B->Z	0.0137	0.0024	0.0137	0.0024	0.0138	0.0024	0.0138	0.0024	0.0138	0.0024	0.0139	0.0024
C->Z	0.0141	0.0041	0.0142	0.0041	0.0142	0.0041	0.0142	0.0041	0.0142	0.0041	0.0142	0.0041

MAOI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0187	0.0122	0.0188	0.0123	0.0189	0.0124	0.0190	0.0126	0.0192	0.0126	0.0192	0.0126
B->Z	0.0192	0.0122	0.0192	0.0123	0.0194	0.0124	0.0195	0.0125	0.0197	0.0125	0.0198	0.0126
C->Z	0.0198	0.0130	0.0199	0.0132	0.0201	0.0132	0.0202	0.0134	0.0203	0.0134	0.0204	0.0135

Hidden Power (uW/MHz)

MAOI222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	-0.0004	-0.0006	-0.0010	-0.0002
A	F	0.0020	0.0025	0.0032	0.0016
B	R	-0.0009	-0.0010	-0.0016	-0.0004
B	F	0.0021	0.0026	0.0034	0.0017
C	R	-0.0009	-0.0011	-0.0014	-0.0007
C	F	0.0009	0.0011	0.0016	0.0008

Propagation Delays (ns)

MAOI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0035 pF		0.0058 pF		0.0091 pF		0.0134 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1722	0.0720	0.1931	0.0800	0.2321	0.0948	0.2913	0.1171	0.3759	0.1486	0.4856	0.1893
B->Z	0.1920	0.0780	0.2129	0.0859	0.2519	0.1005	0.3113	0.1225	0.3961	0.1537	0.5062	0.1939
C->Z	0.2071	0.0817	0.2279	0.0895	0.2666	0.1041	0.3257	0.1261	0.4102	0.1572	0.5200	0.1974

MAOI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0075 pF		0.0119 pF		0.0177 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1454	0.0645	0.1685	0.0736	0.2098	0.0898	0.2733	0.1144	0.3629	0.1487	0.4805	0.1935
B->Z	0.1642	0.0708	0.1872	0.0798	0.2285	0.0959	0.2922	0.1202	0.3819	0.1542	0.4997	0.1984
C->Z	0.1820	0.0742	0.2047	0.0832	0.2457	0.0992	0.3090	0.1235	0.3984	0.1574	0.5160	0.2016

MAOI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0030 pF		0.0060 pF		0.0108 pF		0.0173 pF		0.0260 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1258	0.0580	0.1497	0.0677	0.1942	0.0853	0.2644	0.1128	0.3589	0.1495	0.4849	0.1982
B->Z	0.1433	0.0641	0.1673	0.0736	0.2116	0.0911	0.2819	0.1183	0.3765	0.1546	0.5027	0.2028
C->Z	0.1565	0.0664	0.1801	0.0759	0.2241	0.0933	0.2940	0.1205	0.3883	0.1567	0.5142	0.2049

MAOI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3286	0.2013	0.3606	0.2213	0.4184	0.2504	0.5085	0.2900	0.6345	0.3427	0.8002	0.4114
B->Z	0.3477	0.2033	0.3794	0.2232	0.4373	0.2522	0.5275	0.2916	0.6535	0.3443	0.8192	0.4131
C->Z	0.3650	0.2103	0.3968	0.2302	0.4546	0.2592	0.5448	0.2986	0.6708	0.3513	0.8365	0.4200

Combinational Cell

MAOI22

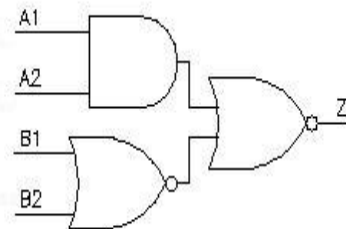
Cell Description

The MAOI22 cell provides a NOR gate with two inputs, one of which is a NOR gate's output, while the other is an AND gate's output.

Truth Table

A1	A2	B1	B2	Z
0	X	1	X	1
0	X	X	1	1
X	0	1	X	1
X	0	X	1	1
1	1	X	X	0
X	X	0	0	0

Symbol



Cell List

MAOI22M0HM, MAOI22M1HM, MAOI22M2HM
, MAOI22M4HM

MAOI22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A1	input	0.00122	0.00135	0.00168	0.00095
A2	input	0.00120	0.00136	0.00171	0.00102
B1	input	0.00108	0.00108	0.00111	0.00184
B2	input	0.00116	0.00116	0.00115	0.00182
Z	output				

Power Dissipation (uW/MHz)

MAOI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0117 pF		0.0174 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0041	0.0007	0.0041	0.0007	0.0041	0.0008	0.0041	0.0008	0.0041	0.0008	0.0042	0.0008
A2->Z	0.0050	0.0007	0.0050	0.0007	0.0050	0.0008	0.0051	0.0008	0.0051	0.0008	0.0051	0.0008
B1->Z	0.0062	0.0076	0.0062	0.0076	0.0062	0.0076	0.0062	0.0076	0.0062	0.0076	0.0063	0.0076
B2->Z	0.0066	0.0083	0.0066	0.0083	0.0067	0.0084	0.0067	0.0084	0.0067	0.0084	0.0067	0.0084

MAOI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0092 pF		0.0147 pF		0.0220 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0007	0.0045	0.0008	0.0045	0.0008	0.0045	0.0008	0.0046	0.0008	0.0046	0.0008
A2->Z	0.0056	0.0008	0.0056	0.0008	0.0056	0.0008	0.0056	0.0008	0.0056	0.0008	0.0056	0.0008
B1->Z	0.0068	0.0082	0.0069	0.0082	0.0069	0.0082	0.0069	0.0082	0.0069	0.0082	0.0069	0.0082
B2->Z	0.0073	0.0089	0.0073	0.0089	0.0073	0.0089	0.0073	0.0089	0.0073	0.0089	0.0074	0.0089

MAOI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0209 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0052	0.0006	0.0053	0.0007	0.0053	0.0007	0.0054	0.0007	0.0054	0.0008	0.0054	0.0008
A2->Z	0.0066	0.0006	0.0067	0.0007	0.0067	0.0007	0.0067	0.0007	0.0067	0.0008	0.0067	0.0008
B1->Z	0.0081	0.0093	0.0081	0.0093	0.0081	0.0094	0.0082	0.0094	0.0082	0.0094	0.0082	0.0094
B2->Z	0.0085	0.0100	0.0085	0.0100	0.0085	0.0101	0.0086	0.0101	0.0086	0.0101	0.0086	0.0101

MAOI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0140	0.0160	0.0142	0.0161	0.0145	0.0162	0.0146	0.0163	0.0147	0.0163	0.0148	0.0163
A2->Z	0.0147	0.0160	0.0149	0.0161	0.0151	0.0162	0.0153	0.0163	0.0154	0.0163	0.0154	0.0163
B1->Z	0.0075	0.0127	0.0078	0.0127	0.0081	0.0129	0.0082	0.0129	0.0083	0.0130	0.0083	0.0130
B2->Z	0.0083	0.0140	0.0085	0.0140	0.0088	0.0141	0.0089	0.0142	0.0090	0.0142	0.0091	0.0142

Hidden Power (uW/MHz)

MAOI22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A1	R	-0.0005	-0.0006	-0.0009	-0.0000
A1	F	0.0010	0.0011	0.0016	0.0015
A2	R	-0.0006	-0.0008	-0.0011	-0.0002
A2	F	0.0008	0.0010	0.0014	0.0016
B1	R	0.0001	0.0001	0.0002	-0.0006
B1	F	0.0014	0.0014	0.0015	0.0013
B2	R	-0.0003	-0.0003	-0.0002	-0.0012
B2	F	0.0018	0.0018	0.0019	0.0017

Propagation Delays (ns)

MAOI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0117 pF		0.0174 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0963	0.0426	0.1223	0.0518	0.1739	0.0701	0.2533	0.0984	0.3630	0.1375	0.5082	0.1893
A2->Z	0.1115	0.0465	0.1372	0.0557	0.1884	0.0740	0.2673	0.1023	0.3766	0.1413	0.5212	0.1931
B1->Z	0.1785	0.1594	0.2042	0.1691	0.2555	0.1872	0.3345	0.2128	0.4438	0.2462	0.5885	0.2888
B2->Z	0.1827	0.1720	0.2085	0.1818	0.2597	0.1998	0.3387	0.2254	0.4480	0.2587	0.5927	0.3013

MAOI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0092 pF		0.0147 pF		0.0220 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0848	0.0393	0.1120	0.0493	0.1637	0.0682	0.2459	0.0984	0.3584	0.1397	0.5075	0.1946
A2->Z	0.0992	0.0431	0.1261	0.0531	0.1774	0.0720	0.2592	0.1021	0.3713	0.1435	0.5199	0.1983
B1->Z	0.1651	0.1614	0.1920	0.1724	0.2435	0.1916	0.3253	0.2195	0.4375	0.2554	0.5861	0.3012
B2->Z	0.1694	0.1740	0.1963	0.1850	0.2477	0.2041	0.3295	0.2321	0.4417	0.2679	0.5904	0.3138

MAOI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0209 pF		0.0314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0689	0.0340	0.0989	0.0455	0.1520	0.0655	0.2354	0.0969	0.3533	0.1415	0.5060	0.1992
A2->Z	0.0819	0.0374	0.1116	0.0487	0.1643	0.0687	0.2473	0.1002	0.3649	0.1447	0.5171	0.2025
B1->Z	0.1488	0.1646	0.1785	0.1771	0.2314	0.1971	0.3145	0.2250	0.4322	0.2615	0.5845	0.3063
B2->Z	0.1530	0.1768	0.1826	0.1894	0.2355	0.2093	0.3186	0.2373	0.4363	0.2737	0.5887	0.3185

MAOI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.2104	0.2030	0.2440	0.2256	0.3031	0.2574	0.3939	0.2988	0.5213	0.3531	0.6884	0.4228
A2->Z	0.2252	0.2071	0.2588	0.2297	0.3179	0.2613	0.4087	0.3028	0.5361	0.3571	0.7032	0.4268
B1->Z	0.0850	0.1327	0.1180	0.1572	0.1770	0.1914	0.2676	0.2352	0.3949	0.2910	0.5619	0.3613
B2->Z	0.0926	0.1440	0.1259	0.1685	0.1851	0.2027	0.2759	0.2464	0.4032	0.3022	0.5703	0.3726

Combinational Cell

MOAI22

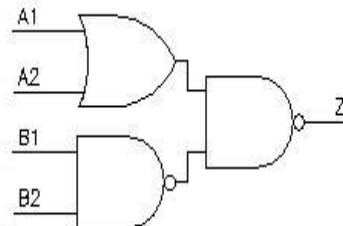
Cell Description

The MOAI22 cell provides a NAND gate with two inputs, one of which is a NAND gate's output, while the other is an OR gate's output.

Truth Table

A1	A2	B1	B2	Z
0	0	X	X	1
X	X	1	1	1
1	X	0	X	0
1	X	X	0	0
X	1	0	X	0
X	1	X	0	0

Symbol



Cell List

MOAI22M0HM, MOAI22M1HM, MOAI22M2HM
, MOAI22M4HM

MOAI22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A1	input	0.00124	0.00139	0.00169	0.00103
A2	input	0.00124	0.00145	0.00174	0.00111
B1	input	0.00100	0.00100	0.00098	0.00173
B2	input	0.00101	0.00101	0.00099	0.00170
Z	output				

Power Dissipation (uW/MHz)

MOAI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0179 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0038	0.0006	0.0038	0.0006	0.0039	0.0006	0.0039	0.0006	0.0039	0.0006	0.0039	0.0006
A2->Z	0.0046	0.0011	0.0046	0.0011	0.0046	0.0011	0.0046	0.0011	0.0047	0.0011	0.0047	0.0011
B1->Z	0.0067	0.0060	0.0067	0.0060	0.0067	0.0060	0.0067	0.0060	0.0067	0.0060	0.0067	0.0060
B2->Z	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067

MOAI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0094 pF		0.0151 pF		0.0226 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0043	0.0005	0.0044	0.0006	0.0044	0.0006	0.0045	0.0006	0.0045	0.0006	0.0045	0.0006
A2->Z	0.0053	0.0011	0.0053	0.0011	0.0053	0.0011	0.0054	0.0011	0.0054	0.0012	0.0054	0.0012
B1->Z	0.0073	0.0063	0.0073	0.0063	0.0074	0.0063	0.0074	0.0063	0.0074	0.0064	0.0074	0.0064
B2->Z	0.0073	0.0070	0.0073	0.0070	0.0074	0.0070	0.0074	0.0070	0.0074	0.0070	0.0074	0.0071

MOAI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0073 pF		0.0131 pF		0.0212 pF		0.0320 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0050	0.0007	0.0051	0.0007	0.0052	0.0008	0.0052	0.0008	0.0052	0.0008	0.0053	0.0008
A2->Z	0.0063	0.0015	0.0063	0.0015	0.0064	0.0015	0.0064	0.0015	0.0064	0.0015	0.0065	0.0015
B1->Z	0.0084	0.0071	0.0085	0.0071	0.0085	0.0071	0.0085	0.0072	0.0086	0.0072	0.0086	0.0072
B2->Z	0.0085	0.0077	0.0085	0.0078	0.0085	0.0078	0.0086	0.0079	0.0086	0.0079	0.0086	0.0079

MOAI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0162	0.0158	0.0163	0.0158	0.0165	0.0159	0.0167	0.0160	0.0168	0.0160	0.0168	0.0160
A2->Z	0.0169	0.0162	0.0170	0.0163	0.0172	0.0163	0.0174	0.0164	0.0175	0.0165	0.0175	0.0165
B1->Z	0.0075	0.0130	0.0078	0.0130	0.0080	0.0131	0.0082	0.0132	0.0083	0.0132	0.0083	0.0132
B2->Z	0.0075	0.0144	0.0078	0.0144	0.0081	0.0145	0.0082	0.0146	0.0083	0.0146	0.0083	0.0146

Hidden Power (uW/MHz)

MOAI22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A1	R	-0.0003	-0.0004	-0.0006	0.0002
A1	F	0.0008	0.0010	0.0013	0.0015
A2	R	-0.0006	-0.0008	-0.0012	-0.0002
A2	F	0.0010	0.0012	0.0016	0.0019
B1	R	-0.0001	-0.0001	-0.0000	-0.0009
B1	F	0.0014	0.0015	0.0015	0.0015
B2	R	-0.0002	-0.0002	-0.0002	-0.0011
B2	F	0.0015	0.0015	0.0016	0.0014

Propagation Delays (ns)

MOAI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0179 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0944	0.0398	0.1226	0.0499	0.1734	0.0680	0.2541	0.0969	0.3673	0.1374	0.5129	0.1895
A2->Z	0.1064	0.0458	0.1345	0.0562	0.1851	0.0749	0.2657	0.1045	0.3787	0.1458	0.5243	0.1989
B1->Z	0.1657	0.1516	0.1878	0.1630	0.2274	0.1829	0.2903	0.2133	0.3781	0.2550	0.4911	0.3083
B2->Z	0.1697	0.1654	0.1917	0.1770	0.2314	0.1971	0.2942	0.2277	0.3821	0.2695	0.4950	0.3229

MOAI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0094 pF		0.0151 pF		0.0226 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0843	0.0373	0.1131	0.0480	0.1659	0.0675	0.2467	0.0974	0.3614	0.1399	0.5120	0.1958
A2->Z	0.0959	0.0433	0.1245	0.0543	0.1771	0.0744	0.2578	0.1050	0.3724	0.1484	0.5230	0.2052
B1->Z	0.1586	0.1513	0.1817	0.1636	0.2241	0.1852	0.2887	0.2169	0.3802	0.2607	0.5004	0.3178
B2->Z	0.1625	0.1651	0.1857	0.1776	0.2280	0.1994	0.2926	0.2312	0.3842	0.2752	0.5043	0.3323

MOAI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0073 pF		0.0131 pF		0.0212 pF		0.0320 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0715	0.0332	0.0996	0.0440	0.1549	0.0648	0.2386	0.0964	0.3550	0.1405	0.5100	0.1992
A2->Z	0.0827	0.0391	0.1106	0.0501	0.1657	0.0716	0.2492	0.1040	0.3655	0.1489	0.5205	0.2086
B1->Z	0.1477	0.1522	0.1698	0.1650	0.2131	0.1886	0.2785	0.2224	0.3693	0.2679	0.4900	0.3279
B2->Z	0.1517	0.1662	0.1738	0.1792	0.2171	0.2030	0.2825	0.2370	0.3732	0.2827	0.4939	0.3427

MOAI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.2170	0.2119	0.2489	0.2371	0.3081	0.2725	0.3992	0.3172	0.5266	0.3734	0.6942	0.4440
A2->Z	0.2293	0.2155	0.2612	0.2408	0.3204	0.2761	0.4115	0.3208	0.5388	0.3770	0.7065	0.4476
B1->Z	0.0848	0.1309	0.1176	0.1558	0.1769	0.1907	0.2679	0.2350	0.3951	0.2909	0.5626	0.3613
B2->Z	0.0878	0.1448	0.1207	0.1700	0.1800	0.2054	0.2710	0.2501	0.3982	0.3063	0.5657	0.3769

Combinational Cell

MUX2

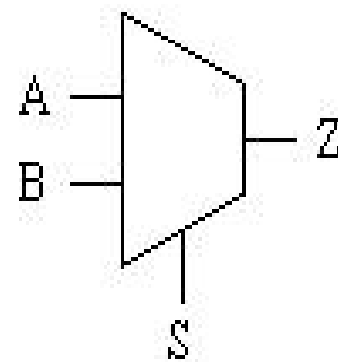
Cell Description

The MUX2 cell is a 2-to-1 multiplexer. The state of the select input (S) determines which data input (A, B) is presented to the output (Z).

Truth Table

S	A	B	Z
0	0	X	0
0	1	X	1
1	X	0	0
1	X	1	1

Symbol



Cell List

MUX2M0HM, MUX2M1HM, MUX2M2HM
, MUX2M3HM, MUX2M4HM
, MUX2M6HM, MUX2M8HM

MUX2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00112	0.00122	0.00121	0.00142	0.00163	0.00164	0.00180
B	input	0.00114	0.00118	0.00118	0.00138	0.00163	0.00179	0.00189
S	input	0.00244	0.00242	0.00242	0.00277	0.00284	0.00283	0.00298
Z	output							

Power Dissipation (uW/MHz)

MUX2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0086 pF		0.0157 pF		0.0257 pF		0.0387 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	0.0091	0.0051	0.0091	0.0051	0.0091	0.0052	0.0091	0.0052	0.0091	0.0052	0.0091
B->Z	0.0043	0.0100	0.0044	0.0100	0.0044	0.0100	0.0045	0.0100	0.0045	0.0100	0.0045	0.0100
S->Z	0.0069	0.0095	0.0070	0.0095	0.0070	0.0095	0.0071	0.0095	0.0071	0.0095	0.0072	0.0095

MUX2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0050	0.0084	0.0051	0.0084	0.0052	0.0084	0.0052	0.0084	0.0053	0.0084	0.0053	0.0085
B->Z	0.0042	0.0092	0.0043	0.0092	0.0044	0.0092	0.0044	0.0092	0.0044	0.0092	0.0045	0.0092
S->Z	0.0074	0.0100	0.0075	0.0100	0.0076	0.0100	0.0076	0.0100	0.0077	0.0100	0.0077	0.0100

MUX2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0447 pF		0.0678 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0059	0.0094	0.0060	0.0094	0.0061	0.0094	0.0062	0.0094	0.0062	0.0094	0.0063	0.0094
B->Z	0.0051	0.0102	0.0052	0.0101	0.0053	0.0101	0.0054	0.0101	0.0054	0.0101	0.0054	0.0101
S->Z	0.0083	0.0110	0.0084	0.0108	0.0085	0.0108	0.0086	0.0110	0.0086	0.0110	0.0086	0.0110

MUX2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0091 pF		0.0212 pF		0.0401 pF		0.0666 pF		0.1014 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0081	0.0120	0.0082	0.0118	0.0084	0.0118	0.0085	0.0118	0.0086	0.0118	0.0086	0.0118
B->Z	0.0070	0.0131	0.0072	0.0129	0.0074	0.0129	0.0075	0.0129	0.0075	0.0129	0.0076	0.0129
S->Z	0.0107	0.0135	0.0109	0.0134	0.0111	0.0134	0.0112	0.0134	0.0112	0.0135	0.0112	0.0135

MUX2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1351 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0099	0.0142	0.0101	0.0140	0.0104	0.0141	0.0105	0.0141	0.0106	0.0141	0.0107	0.0141
B->Z	0.0086	0.0153	0.0088	0.0152	0.0091	0.0152	0.0092	0.0152	0.0093	0.0153	0.0093	0.0153
S->Z	0.0126	0.0155	0.0129	0.0153	0.0131	0.0153	0.0132	0.0155	0.0133	0.0155	0.0134	0.0155

MUX2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1312 pF		0.2004 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0140	0.0192	0.0142	0.0185	0.0146	0.0183	0.0148	0.0183	0.0150	0.0183	0.0151	0.0183
B->Z	0.0127	0.0202	0.0129	0.0198	0.0132	0.0198	0.0134	0.0199	0.0136	0.0199	0.0137	0.0199
S->Z	0.0169	0.0203	0.0171	0.0197	0.0174	0.0197	0.0176	0.0197	0.0178	0.0197	0.0179	0.0197

MUX2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1743 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0173	0.0253	0.0175	0.0243	0.0180	0.0241	0.0183	0.0240	0.0185	0.0240	0.0186	0.0240
B->Z	0.0159	0.0267	0.0162	0.0257	0.0167	0.0255	0.0170	0.0255	0.0172	0.0255	0.0173	0.0255
S->Z	0.0192	0.0248	0.0195	0.0238	0.0198	0.0236	0.0202	0.0236	0.0204	0.0236	0.0205	0.0236

Hidden Power (uW/MHz)

MUX2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	R	0.0006	-0.0007	-0.0007	-0.0009	-0.0011	-0.0011	0.0010
A	F	0.0031	0.0008	0.0008	0.0010	0.0012	0.0012	0.0049
B	R	0.0008	-0.0007	-0.0007	-0.0009	-0.0012	-0.0014	0.0011
B	F	0.0030	0.0008	0.0008	0.0010	0.0013	0.0015	0.0049
S	R	0.0001	0.0004	0.0004	0.0006	0.0008	0.0009	0.0001
S	F	0.0056	0.0054	0.0054	0.0059	0.0062	0.0063	0.0069

Propagation Delays (ns)

MUX2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0086 pF		0.0157 pF		0.0257 pF		0.0387 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1252	0.1789	0.1573	0.2034	0.2149	0.2389	0.3050	0.2851	0.4316	0.3426	0.5960	0.4128
B->Z	0.1241	0.1837	0.1562	0.2082	0.2138	0.2438	0.3040	0.2902	0.4306	0.3478	0.5950	0.4181
S->Z	0.1667	0.1605	0.1987	0.1842	0.2562	0.2192	0.3463	0.2650	0.4730	0.3224	0.6375	0.3925

MUX2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1088	0.2149	0.1412	0.2409	0.2002	0.2783	0.2905	0.3251	0.4173	0.3834	0.5837	0.4552
B->Z	0.1058	0.2150	0.1381	0.2410	0.1970	0.2783	0.2872	0.3251	0.4140	0.3834	0.5804	0.4551
S->Z	0.1672	0.2158	0.1995	0.2417	0.2585	0.2790	0.3487	0.3259	0.4755	0.3841	0.6420	0.4559

MUX2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0447 pF		0.0678 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1090	0.2264	0.1417	0.2545	0.2010	0.2944	0.2916	0.3437	0.4195	0.4046	0.5861	0.4786
B->Z	0.1058	0.2264	0.1384	0.2545	0.1977	0.2943	0.2882	0.3435	0.4160	0.4044	0.5826	0.4784
S->Z	0.1674	0.2268	0.2001	0.2549	0.2594	0.2947	0.3499	0.3439	0.4777	0.4048	0.6444	0.4787

MUX2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0091 pF		0.0212 pF		0.0401 pF		0.0666 pF		0.1014 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1022	0.2066	0.1357	0.2347	0.1955	0.2732	0.2877	0.3208	0.4166	0.3788	0.5856	0.4495
B->Z	0.1015	0.2021	0.1350	0.2298	0.1948	0.2679	0.2870	0.3150	0.4158	0.3726	0.5848	0.4432
S->Z	0.1572	0.2079	0.1906	0.2355	0.2503	0.2736	0.3425	0.3208	0.4714	0.3784	0.6404	0.4489

MUX2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1351 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0980	0.1931	0.1318	0.2214	0.1914	0.2596	0.2835	0.3070	0.4125	0.3656	0.5816	0.4377
B->Z	0.1029	0.1832	0.1373	0.2108	0.1969	0.2481	0.2890	0.2948	0.4180	0.3528	0.5871	0.4246
S->Z	0.1563	0.1929	0.1902	0.2205	0.2496	0.2578	0.3417	0.3045	0.4706	0.3625	0.6398	0.4343

MUX2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1312 pF		0.2004 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1082	0.2265	0.1430	0.2575	0.2029	0.2988	0.2951	0.3490	0.4237	0.4093	0.5929	0.4825
B->Z	0.1154	0.1872	0.1509	0.2151	0.2111	0.2529	0.3033	0.2998	0.4319	0.3575	0.6011	0.4289
S->Z	0.1701	0.1979	0.2049	0.2258	0.2647	0.2636	0.3569	0.3106	0.4854	0.3683	0.6546	0.4396

MUX2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1743 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1142	0.1697	0.1504	0.2013	0.2110	0.2429	0.3033	0.2930	0.4320	0.3532	0.6015	0.4260
B->Z	0.1125	0.1707	0.1487	0.2019	0.2093	0.2431	0.3016	0.2929	0.4305	0.3528	0.5999	0.4254
S->Z	0.1536	0.1729	0.1897	0.2043	0.2501	0.2458	0.3423	0.2959	0.4712	0.3560	0.6407	0.4288

Combinational Cell

MUX3

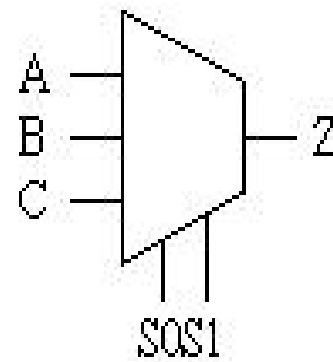
Cell Description

The MUX3 cell is a 3-to-1 multiplexer. The state of the select inputs (S0, S1) determines which data input (A, B, C) is presented to the output (Z).

Truth Table

S1	S0	A	B	C	Z
0	0	0	X	X	0
0	0	1	X	X	1
0	1	X	0	X	0
0	1	X	1	X	1
1	X	X	X	0	0
1	X	X	X	1	1

Symbol



Cell List

MUX3M0HM, MUX3M1HM, MUX3M2HM
, MUX3M4HM

MUX3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00140	0.00140	0.00140	0.00140
B	input	0.00138	0.00138	0.00138	0.00137
C	input	0.00128	0.00127	0.00127	0.00146
S0	input	0.00245	0.00250	0.00250	0.00252
S1	input	0.00233	0.00238	0.00238	0.00252
Z	output				

Power Dissipation (uW/MHz)

MUX3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0068	0.0120	0.0068	0.0120	0.0068	0.0120	0.0069	0.0120	0.0069	0.0120	0.0069	0.0120
B->Z	0.0060	0.0128	0.0060	0.0128	0.0061	0.0128	0.0061	0.0128	0.0062	0.0128	0.0062	0.0128
C->Z	0.0038	0.0086	0.0039	0.0086	0.0039	0.0086	0.0040	0.0087	0.0040	0.0087	0.0040	0.0087
S0->Z	0.0094	0.0135	0.0095	0.0133	0.0095	0.0133	0.0096	0.0133	0.0096	0.0133	0.0096	0.0133
S1->Z	0.0078	0.0107	0.0079	0.0107	0.0079	0.0107	0.0080	0.0107	0.0080	0.0107	0.0080	0.0107

MUX3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0070	0.0125	0.0071	0.0124	0.0072	0.0123	0.0072	0.0123	0.0073	0.0123	0.0073	0.0123
B->Z	0.0063	0.0133	0.0063	0.0132	0.0064	0.0131	0.0064	0.0131	0.0065	0.0131	0.0065	0.0131
C->Z	0.0041	0.0090	0.0042	0.0090	0.0042	0.0090	0.0043	0.0090	0.0043	0.0090	0.0043	0.0090
S0->Z	0.0097	0.0139	0.0099	0.0138	0.0099	0.0138	0.0100	0.0138	0.0100	0.0138	0.0100	0.0138
S1->Z	0.0082	0.0112	0.0082	0.0111	0.0083	0.0111	0.0083	0.0111	0.0083	0.0111	0.0084	0.0111

MUX3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0078	0.0135	0.0079	0.0133	0.0080	0.0132	0.0080	0.0132	0.0081	0.0132	0.0081	0.0132
B->Z	0.0070	0.0143	0.0071	0.0141	0.0072	0.0140	0.0073	0.0140	0.0073	0.0140	0.0074	0.0140
C->Z	0.0048	0.0099	0.0049	0.0098	0.0050	0.0099	0.0051	0.0099	0.0051	0.0099	0.0052	0.0099
S0->Z	0.0106	0.0150	0.0106	0.0148	0.0106	0.0147	0.0107	0.0147	0.0108	0.0147	0.0109	0.0147
S1->Z	0.0089	0.0121	0.0090	0.0120	0.0091	0.0120	0.0092	0.0120	0.0092	0.0120	0.0092	0.0120

MUX3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1349 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0113	0.0190	0.0113	0.0181	0.0114	0.0176	0.0116	0.0174	0.0117	0.0173	0.0118	0.0172
B->Z	0.0106	0.0198	0.0106	0.0188	0.0107	0.0183	0.0108	0.0182	0.0109	0.0181	0.0110	0.0180
C->Z	0.0079	0.0147	0.0081	0.0144	0.0083	0.0143	0.0085	0.0143	0.0086	0.0143	0.0086	0.0143
S0->Z	0.0140	0.0204	0.0140	0.0194	0.0141	0.0190	0.0143	0.0188	0.0144	0.0187	0.0145	0.0186
S1->Z	0.0123	0.0172	0.0125	0.0165	0.0126	0.0163	0.0128	0.0161	0.0129	0.0161	0.0129	0.0162

Hidden Power (uW/MHz)

MUX3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	-0.0009	-0.0009	-0.0009	-0.0009
A	F	0.0010	0.0010	0.0010	0.0010
B	R	-0.0009	-0.0009	-0.0009	-0.0009
B	F	0.0010	0.0010	0.0010	0.0010
C	R	-0.0008	-0.0008	-0.0008	-0.0009
C	F	0.0008	0.0008	0.0008	0.0010
S0	R	0.0001	0.0001	0.0001	0.0001
S0	F	0.0057	0.0058	0.0058	0.0058
S1	R	0.0006	0.0006	0.0006	0.0006
S1	F	0.0072	0.0074	0.0074	0.0077

Propagation Delays (ns)

MUX3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1605	0.3340	0.1941	0.3608	0.2542	0.4011	0.3462	0.4524	0.4719	0.5135	0.6381	0.5874
B->Z	0.1585	0.3362	0.1921	0.3630	0.2522	0.4033	0.3442	0.4546	0.4700	0.5157	0.6362	0.5897
C->Z	0.1077	0.1875	0.1381	0.2092	0.1962	0.2427	0.2871	0.2867	0.4121	0.3413	0.5778	0.4101
S0->Z	0.2219	0.3356	0.2554	0.3623	0.3155	0.4026	0.4074	0.4540	0.5332	0.5151	0.6994	0.5890
S1->Z	0.1938	0.2253	0.2272	0.2521	0.2872	0.2925	0.3791	0.3438	0.5049	0.4049	0.6711	0.4789

MUX3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1565	0.3381	0.1910	0.3668	0.2518	0.4094	0.3436	0.4625	0.4712	0.5265	0.6380	0.6032
B->Z	0.1549	0.3399	0.1893	0.3686	0.2501	0.4111	0.3419	0.4642	0.4695	0.5283	0.6363	0.6050
C->Z	0.1047	0.1903	0.1356	0.2137	0.1941	0.2491	0.2847	0.2946	0.4116	0.3519	0.5779	0.4234
S0->Z	0.2085	0.3399	0.2429	0.3686	0.3036	0.4111	0.3954	0.4642	0.5230	0.5283	0.6898	0.6049
S1->Z	0.1805	0.2291	0.2149	0.2579	0.2756	0.3005	0.3674	0.3535	0.4950	0.4176	0.6618	0.4943

MUX3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1550	0.3486	0.1923	0.3814	0.2537	0.4264	0.3454	0.4816	0.4736	0.5482	0.6415	0.6276
B->Z	0.1533	0.3503	0.1905	0.3831	0.2520	0.4281	0.3437	0.4833	0.4719	0.5499	0.6398	0.6294
C->Z	0.1031	0.1984	0.1361	0.2253	0.1948	0.2629	0.2853	0.3103	0.4128	0.3699	0.5802	0.4439
S0->Z	0.2069	0.3502	0.2441	0.3829	0.3055	0.4279	0.3972	0.4831	0.5254	0.5497	0.6933	0.6291
S1->Z	0.1789	0.2398	0.2161	0.2726	0.2775	0.3177	0.3691	0.3729	0.4973	0.4395	0.6652	0.5189

MUX3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1349 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1730	0.3963	0.2141	0.4348	0.2779	0.4854	0.3713	0.5458	0.5003	0.6157	0.6692	0.6971
B->Z	0.1710	0.3977	0.2121	0.4363	0.2758	0.4869	0.3693	0.5472	0.4983	0.6172	0.6671	0.6986
C->Z	0.0969	0.2155	0.1310	0.2458	0.1904	0.2860	0.2822	0.3354	0.4105	0.3954	0.5788	0.4685
S0->Z	0.2250	0.3970	0.2661	0.4355	0.3299	0.4861	0.4233	0.5464	0.5523	0.6164	0.7211	0.6978
S1->Z	0.1973	0.2832	0.2384	0.3218	0.3022	0.3725	0.3956	0.4328	0.5245	0.5028	0.6934	0.5842

Combinational Cell

MUX4

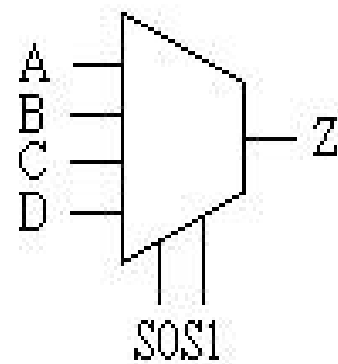
Cell Description

The MUX4 cell is a 4-to-1 multiplexer. The state of the select inputs (S0, S1) determines which data input (A, B, C, D) is presented to the output (Z).

Truth Table

S1	S0	A	B	C	D	Z
0	0	0	X	X	X	0
0	0	1	X	X	X	1
0	1	X	0	X	X	0
0	1	X	1	X	X	1
1	0	X	X	0	X	0
1	0	X	X	1	X	1
1	1	X	X	X	0	0
1	1	X	X	X	1	1

Symbol



Cell List

MUX4M0HM, MUX4M1HM, MUX4M2HM
, MUX4M4HM

MUX4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00119	0.00119	0.00136	0.00175
B	input	0.00138	0.00138	0.00155	0.00194
C	input	0.00142	0.00142	0.00159	0.00197
D	input	0.00133	0.00133	0.00149	0.00187
S0	input	0.00484	0.00484	0.00492	0.00511
S1	input	0.00268	0.00270	0.00272	0.00276
Z	output				

Power Dissipation (uW/MHz)

MUX4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0386 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0073	0.0189	0.0074	0.0188	0.0074	0.0187	0.0074	0.0186	0.0075	0.0186	0.0075	0.0185
B->Z	0.0072	0.0208	0.0072	0.0206	0.0072	0.0205	0.0073	0.0205	0.0073	0.0204	0.0073	0.0204
C->Z	0.0077	0.0170	0.0077	0.0169	0.0077	0.0168	0.0078	0.0167	0.0078	0.0167	0.0078	0.0167
D->Z	0.0067	0.0179	0.0067	0.0178	0.0068	0.0177	0.0068	0.0176	0.0068	0.0176	0.0069	0.0176
S0->Z	0.0140	0.0226	0.0140	0.0225	0.0140	0.0224	0.0141	0.0223	0.0141	0.0223	0.0141	0.0222
S1->Z	0.0074	0.0103	0.0074	0.0103	0.0074	0.0103	0.0075	0.0103	0.0075	0.0103	0.0075	0.0103

MUX4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0078	0.0195	0.0078	0.0193	0.0078	0.0192	0.0079	0.0191	0.0079	0.0191	0.0080	0.0190
B->Z	0.0076	0.0214	0.0076	0.0212	0.0077	0.0211	0.0077	0.0210	0.0077	0.0209	0.0078	0.0209
C->Z	0.0081	0.0177	0.0081	0.0175	0.0082	0.0174	0.0082	0.0173	0.0083	0.0173	0.0083	0.0172
D->Z	0.0071	0.0186	0.0072	0.0184	0.0072	0.0182	0.0073	0.0182	0.0073	0.0181	0.0073	0.0181
S0->Z	0.0144	0.0232	0.0144	0.0230	0.0145	0.0229	0.0145	0.0228	0.0146	0.0228	0.0146	0.0228
S1->Z	0.0077	0.0109	0.0078	0.0108	0.0079	0.0108	0.0079	0.0108	0.0079	0.0108	0.0080	0.0108

MUX4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0097	0.0217	0.0098	0.0214	0.0099	0.0213	0.0099	0.0212	0.0100	0.0212	0.0100	0.0211
B->Z	0.0094	0.0238	0.0095	0.0235	0.0095	0.0233	0.0096	0.0232	0.0097	0.0232	0.0097	0.0232
C->Z	0.0099	0.0200	0.0100	0.0198	0.0100	0.0197	0.0101	0.0196	0.0102	0.0196	0.0102	0.0196
D->Z	0.0087	0.0211	0.0088	0.0208	0.0089	0.0207	0.0089	0.0206	0.0090	0.0206	0.0090	0.0206
S0->Z	0.0169	0.0259	0.0170	0.0256	0.0170	0.0255	0.0171	0.0254	0.0171	0.0254	0.0172	0.0254
S1->Z	0.0092	0.0124	0.0093	0.0123	0.0094	0.0123	0.0095	0.0123	0.0095	0.0123	0.0095	0.0123

MUX4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0533 pF		0.0887 pF		0.1352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0132	0.0276	0.0133	0.0267	0.0134	0.0263	0.0135	0.0262	0.0136	0.0261	0.0137	0.0260
B->Z	0.0127	0.0298	0.0128	0.0290	0.0129	0.0286	0.0130	0.0284	0.0132	0.0283	0.0132	0.0283
C->Z	0.0139	0.0257	0.0140	0.0250	0.0142	0.0247	0.0143	0.0245	0.0144	0.0245	0.0145	0.0245
D->Z	0.0119	0.0268	0.0120	0.0261	0.0122	0.0258	0.0124	0.0257	0.0125	0.0257	0.0125	0.0256
S0->Z	0.0214	0.0318	0.0214	0.0310	0.0215	0.0306	0.0216	0.0305	0.0217	0.0304	0.0218	0.0304
S1->Z	0.0124	0.0164	0.0125	0.0160	0.0126	0.0159	0.0128	0.0159	0.0129	0.0159	0.0129	0.0159

Hidden Power (uW/MHz)

MUX4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	0.0011	0.0011	0.0014	0.0015
A	F	0.0063	0.0063	0.0069	0.0079
B	R	0.0017	0.0017	0.0019	0.0020
B	F	0.0075	0.0075	0.0081	0.0092
C	R	0.0021	0.0021	0.0023	0.0028
C	F	0.0057	0.0057	0.0063	0.0073
D	R	0.0018	0.0018	0.0020	0.0018
D	F	0.0058	0.0059	0.0065	0.0075
S0	R	0.0029	0.0029	0.0033	0.0038
S0	F	0.0120	0.0120	0.0125	0.0134
S1	R	0.0001	0.0001	0.0002	0.0001
S1	F	0.0062	0.0062	0.0062	0.0062

Propagation Delays (ns)

MUX4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0386 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1955	0.2991	0.2302	0.3323	0.2922	0.3808	0.3824	0.4382	0.5089	0.5065	0.6759	0.5868
B->Z	0.2007	0.3177	0.2356	0.3512	0.2976	0.4001	0.3879	0.4579	0.5144	0.5267	0.6814	0.6074
C->Z	0.1854	0.2863	0.2195	0.3175	0.2809	0.3637	0.3709	0.4190	0.4973	0.4853	0.6643	0.5638
D->Z	0.1809	0.2863	0.2149	0.3175	0.2761	0.3636	0.3661	0.4188	0.4925	0.4850	0.6595	0.5634
S0->Z	0.2582	0.3181	0.2930	0.3512	0.3550	0.3996	0.4451	0.4570	0.5715	0.5252	0.7386	0.6055
S1->Z	0.1609	0.1466	0.1952	0.1758	0.2570	0.2203	0.3472	0.2744	0.4736	0.3399	0.6407	0.4180

MUX4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1923	0.3020	0.2295	0.3388	0.2912	0.3885	0.3829	0.4485	0.5103	0.5191	0.6763	0.6010
B->Z	0.1974	0.3206	0.2348	0.3577	0.2967	0.4078	0.3884	0.4683	0.5159	0.5394	0.6818	0.6216
C->Z	0.1827	0.2897	0.2192	0.3244	0.2803	0.3719	0.3717	0.4298	0.4992	0.4985	0.6651	0.5787
D->Z	0.1782	0.2897	0.2145	0.3242	0.2755	0.3717	0.3669	0.4296	0.4943	0.4982	0.6602	0.5782
S0->Z	0.2549	0.3212	0.2922	0.3578	0.3539	0.4074	0.4455	0.4674	0.5729	0.5380	0.7389	0.6198
S1->Z	0.1576	0.1487	0.1941	0.1815	0.2556	0.2275	0.3473	0.2844	0.4748	0.3525	0.6408	0.4322

MUX4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1781	0.2718	0.2148	0.3071	0.2764	0.3554	0.3680	0.4138	0.4956	0.4830	0.6632	0.5646
B->Z	0.1824	0.2883	0.2192	0.3239	0.2811	0.3725	0.3727	0.4313	0.5002	0.5009	0.6678	0.5828
C->Z	0.1690	0.2631	0.2051	0.2966	0.2662	0.3431	0.3576	0.3998	0.4852	0.4675	0.6528	0.5478
D->Z	0.1643	0.2641	0.2002	0.2975	0.2612	0.3440	0.3526	0.4006	0.4801	0.4682	0.6477	0.5485
S0->Z	0.2698	0.3006	0.3069	0.3356	0.3686	0.3837	0.4600	0.4419	0.5875	0.5111	0.7552	0.5927
S1->Z	0.1690	0.1511	0.2050	0.1835	0.2665	0.2290	0.3581	0.2851	0.4856	0.3524	0.6533	0.4325

MUX4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0533 pF		0.0887 pF		0.1352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1659	0.2492	0.2048	0.2871	0.2673	0.3363	0.3598	0.3948	0.4886	0.4638	0.6576	0.5446
B->Z	0.1680	0.2597	0.2071	0.2971	0.2697	0.3457	0.3623	0.4037	0.4911	0.4722	0.6601	0.5526
C->Z	0.1592	0.2407	0.1978	0.2761	0.2600	0.3227	0.3524	0.3788	0.4812	0.4455	0.6502	0.5243
D->Z	0.1527	0.2405	0.1912	0.2758	0.2533	0.3223	0.3456	0.3783	0.4745	0.4449	0.6434	0.5237
S0->Z	0.2719	0.2938	0.3112	0.3314	0.3737	0.3804	0.4661	0.4389	0.5949	0.5078	0.7638	0.5886
S1->Z	0.1714	0.1558	0.2100	0.1895	0.2724	0.2359	0.3648	0.2928	0.4937	0.3607	0.6626	0.4409

Combinational Cell

MXB2

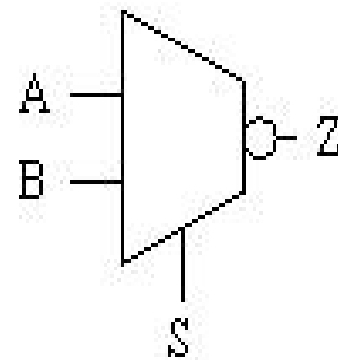
Cell Description

The MXB2 cell is a 2-to-1 multiplexer with inverted output. The state of the select input (S) determines which data input (A, B) is presented to the output (Z).

Truth Table

S	A	B	Z
0	0	X	1
0	1	X	0
1	X	0	1
1	X	1	0

Symbol



Cell List

MXB2M0HM, MXB2M1HM, MXB2M2HM
, MXB2M3HM, MXB2M4HM
, MXB2M6HM, MXB2M8HM

MXB2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00130	0.00139	0.00166	0.00155	0.00155	0.00199	0.00199
B	input	0.00120	0.00131	0.00168	0.00145	0.00145	0.00176	0.00175
S	input	0.00266	0.00279	0.00282	0.00288	0.00288	0.00309	0.00309
Z	output							

Power Dissipation (uW/MHz)

MXB2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0118 pF		0.0175 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0047	0.0022	0.0047	0.0022	0.0047	0.0022	0.0047	0.0022	0.0047	0.0022	0.0047	0.0022
B->Z	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013
S->Z	0.0062	0.0048	0.0062	0.0048	0.0061	0.0048	0.0061	0.0047	0.0061	0.0047	0.0060	0.0047

MXB2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0075 pF		0.0120 pF		0.0178 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0049	0.0025	0.0049	0.0025	0.0049	0.0025	0.0049	0.0025	0.0049	0.0025	0.0049	0.0025
B->Z	0.0063	0.0015	0.0064	0.0015	0.0064	0.0015	0.0064	0.0015	0.0064	0.0015	0.0064	0.0015
S->Z	0.0066	0.0053	0.0066	0.0053	0.0066	0.0052	0.0065	0.0052	0.0065	0.0051	0.0065	0.0051

MXB2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0056 pF		0.0098 pF		0.0158 pF		0.0237 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0058	0.0032	0.0058	0.0032	0.0058	0.0032	0.0058	0.0032	0.0059	0.0032	0.0059	0.0032
B->Z	0.0076	0.0018	0.0076	0.0018	0.0076	0.0019	0.0076	0.0019	0.0077	0.0019	0.0077	0.0019
S->Z	0.0074	0.0062	0.0073	0.0062	0.0074	0.0062	0.0073	0.0061	0.0073	0.0060	0.0073	0.0060

MXB2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0215 pF		0.0407 pF		0.0675 pF		0.1029 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0181	0.0135	0.0182	0.0136	0.0184	0.0138	0.0185	0.0138	0.0186	0.0138	0.0186	0.0139
B->Z	0.0192	0.0124	0.0194	0.0126	0.0196	0.0127	0.0197	0.0128	0.0197	0.0128	0.0198	0.0128
S->Z	0.0178	0.0155	0.0180	0.0157	0.0182	0.0158	0.0183	0.0159	0.0183	0.0159	0.0184	0.0159

MXB2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0192	0.0147	0.0194	0.0149	0.0196	0.0151	0.0198	0.0152	0.0199	0.0152	0.0199	0.0152
B->Z	0.0204	0.0137	0.0206	0.0139	0.0208	0.0141	0.0209	0.0141	0.0210	0.0142	0.0211	0.0142
S->Z	0.0190	0.0168	0.0192	0.0170	0.0194	0.0171	0.0196	0.0172	0.0197	0.0173	0.0197	0.0173

MXB2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0409 pF		0.0781 pF		0.1303 pF		0.1990 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0254	0.0202	0.0257	0.0205	0.0260	0.0207	0.0262	0.0208	0.0264	0.0209	0.0265	0.0209
B->Z	0.0265	0.0188	0.0267	0.0191	0.0271	0.0193	0.0273	0.0194	0.0274	0.0195	0.0275	0.0195
S->Z	0.0247	0.0223	0.0250	0.0226	0.0253	0.0228	0.0256	0.0230	0.0258	0.0230	0.0258	0.0231

MXB2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2643 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0298	0.0247	0.0302	0.0252	0.0306	0.0255	0.0309	0.0256	0.0311	0.0257	0.0312	0.0257
B->Z	0.0310	0.0234	0.0313	0.0238	0.0317	0.0241	0.0320	0.0243	0.0322	0.0243	0.0323	0.0244
S->Z	0.0292	0.0269	0.0295	0.0274	0.0299	0.0277	0.0302	0.0278	0.0305	0.0279	0.0306	0.0279

Hidden Power (uW/MHz)

MXB2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	R	-0.0009	-0.0009	-0.0011	0.0005	0.0005	0.0005	0.0005
A	F	0.0009	0.0010	0.0012	0.0040	0.0040	0.0050	0.0050
B	R	-0.0009	-0.0011	-0.0014	0.0008	0.0008	0.0007	0.0007
B	F	0.0009	0.0011	0.0015	0.0039	0.0040	0.0045	0.0045
S	R	0.0005	0.0008	0.0010	0.0001	0.0001	0.0001	0.0002
S	F	0.0056	0.0057	0.0063	0.0059	0.0059	0.0064	0.0064

Propagation Delays (ns)

MXB2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0074 pF		0.0118 pF		0.0175 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1235	0.0523	0.1490	0.0618	0.1997	0.0803	0.2780	0.1086	0.3889	0.1484	0.5324	0.1997
B->Z	0.1238	0.0507	0.1491	0.0601	0.1995	0.0785	0.2773	0.1069	0.3876	0.1469	0.5303	0.1985
S->Z	0.1351	0.1132	0.1594	0.1230	0.2081	0.1417	0.2842	0.1698	0.3930	0.2091	0.5346	0.2600

MXB2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0075 pF		0.0120 pF		0.0178 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1280	0.0462	0.1554	0.0547	0.2048	0.0698	0.2812	0.0928	0.3917	0.1256	0.5340	0.1677
B->Z	0.1100	0.0467	0.1320	0.0551	0.1717	0.0701	0.2331	0.0931	0.3219	0.1261	0.4362	0.1685
S->Z	0.1172	0.1116	0.1383	0.1206	0.1768	0.1362	0.2367	0.1591	0.3242	0.1918	0.4376	0.2335

MXB2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0056 pF		0.0098 pF		0.0158 pF		0.0237 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1156	0.0417	0.1422	0.0499	0.1950	0.0656	0.2736	0.0885	0.3856	0.1206	0.5329	0.1625
B->Z	0.0946	0.0456	0.1150	0.0547	0.1555	0.0726	0.2158	0.0989	0.3017	0.1363	0.4147	0.1853
S->Z	0.1070	0.1149	0.1269	0.1239	0.1663	0.1404	0.2256	0.1636	0.3105	0.1956	0.4226	0.2372

MXB2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0093 pF		0.0215 pF		0.0407 pF		0.0675 pF		0.1029 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1906	0.1386	0.2221	0.1556	0.2805	0.1817	0.3720	0.2198	0.4994	0.2721	0.6674	0.3410
B->Z	0.1936	0.1355	0.2252	0.1525	0.2837	0.1786	0.3751	0.2166	0.5025	0.2689	0.6705	0.3379
S->Z	0.1797	0.1786	0.2113	0.1956	0.2698	0.2218	0.3613	0.2599	0.4886	0.3122	0.6566	0.3812

MXB2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1929	0.1432	0.2242	0.1610	0.2831	0.1880	0.3742	0.2264	0.5018	0.2792	0.6695	0.3485
B->Z	0.1960	0.1402	0.2272	0.1579	0.2862	0.1849	0.3773	0.2233	0.5048	0.2761	0.6725	0.3453
S->Z	0.1820	0.1833	0.2133	0.2010	0.2723	0.2281	0.3634	0.2665	0.4909	0.3193	0.6586	0.3885

MXB2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0409 pF		0.0781 pF		0.1303 pF		0.1990 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1752	0.1305	0.2065	0.1478	0.2653	0.1742	0.3566	0.2119	0.4844	0.2637	0.6525	0.3318
B->Z	0.1838	0.1283	0.2152	0.1456	0.2739	0.1720	0.3653	0.2097	0.4931	0.2615	0.6611	0.3296
S->Z	0.1703	0.1687	0.2017	0.1860	0.2604	0.2123	0.3517	0.2501	0.4796	0.3019	0.6476	0.3700

MXB2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2643 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1827	0.1335	0.2144	0.1511	0.2733	0.1774	0.3648	0.2149	0.4927	0.2662	0.6609	0.3335
B->Z	0.1913	0.1311	0.2230	0.1487	0.2818	0.1750	0.3733	0.2125	0.5013	0.2638	0.6694	0.3311
S->Z	0.1802	0.1723	0.2119	0.1899	0.2708	0.2162	0.3623	0.2537	0.4902	0.3050	0.6584	0.3724

Combinational Cell

MXB3

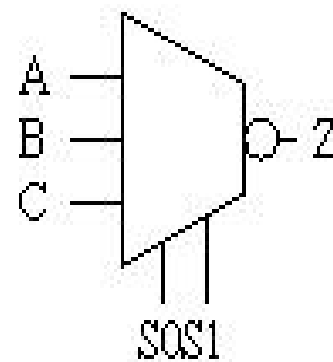
Cell Description

The MXB3 cell is a 3-to-1 multiplexer with inverted output. The state of the select inputs (S0, S1) determines which data input (A, B, C) is presented to the output (Z).

Truth Table

S1	S0	A	B	C	Z
0	0	0	X	X	1
0	0	1	X	X	0
0	1	X	0	X	1
0	1	X	1	X	0
1	X	X	X	0	1
1	X	X	X	1	0

Symbol



Cell List

MXB3M0HM, MXB3M1HM, MXB3M2HM
, MXB3M4HM

MXB3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00143	0.00186	0.00186	0.00178
B	input	0.00138	0.00177	0.00180	0.00172
C	input	0.00139	0.00178	0.00176	0.00178
S0	input	0.00254	0.00258	0.00260	0.00255
S1	input	0.00223	0.00234	0.00233	0.00231
Z	output				

Power Dissipation (uW/MHz)

MXB3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0124	0.0054	0.0124	0.0054	0.0124	0.0054	0.0124	0.0054	0.0124	0.0054	0.0124	0.0054
B->Z	0.0131	0.0046	0.0131	0.0046	0.0131	0.0046	0.0131	0.0046	0.0131	0.0046	0.0131	0.0046
C->Z	0.0077	0.0017	0.0077	0.0017	0.0077	0.0017	0.0077	0.0017	0.0077	0.0017	0.0077	0.0017
S0->Z	0.0123	0.0076	0.0123	0.0076	0.0123	0.0076	0.0123	0.0076	0.0123	0.0076	0.0123	0.0076
S1->Z	0.0066	0.0051	0.0067	0.0051	0.0066	0.0051	0.0066	0.0050	0.0065	0.0050	0.0064	0.0049

MXB3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0036 pF		0.0060 pF		0.0094 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0137	0.0067	0.0137	0.0067	0.0137	0.0067	0.0137	0.0067	0.0137	0.0067	0.0138	0.0066
B->Z	0.0148	0.0055	0.0148	0.0055	0.0148	0.0055	0.0148	0.0055	0.0148	0.0055	0.0148	0.0055
C->Z	0.0092	0.0021	0.0092	0.0021	0.0092	0.0021	0.0092	0.0021	0.0092	0.0021	0.0092	0.0021
S0->Z	0.0131	0.0088	0.0130	0.0088	0.0130	0.0089	0.0131	0.0089	0.0131	0.0089	0.0131	0.0088
S1->Z	0.0073	0.0059	0.0073	0.0058	0.0072	0.0057	0.0071	0.0056	0.0070	0.0056	0.0069	0.0054

MXB3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0226	0.0141	0.0227	0.0142	0.0228	0.0142	0.0228	0.0143	0.0229	0.0143	0.0229	0.0143
B->Z	0.0237	0.0128	0.0238	0.0129	0.0239	0.0130	0.0239	0.0130	0.0240	0.0130	0.0240	0.0130
C->Z	0.0170	0.0093	0.0171	0.0094	0.0172	0.0095	0.0172	0.0095	0.0173	0.0095	0.0173	0.0095
S0->Z	0.0220	0.0163	0.0221	0.0164	0.0222	0.0165	0.0223	0.0165	0.0223	0.0165	0.0224	0.0165
S1->Z	0.0155	0.0129	0.0155	0.0130	0.0156	0.0131	0.0156	0.0131	0.0158	0.0131	0.0158	0.0131

MXB3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0249	0.0168	0.0251	0.0170	0.0252	0.0172	0.0254	0.0172	0.0255	0.0173	0.0255	0.0173
B->Z	0.0260	0.0156	0.0261	0.0158	0.0263	0.0160	0.0264	0.0160	0.0265	0.0161	0.0266	0.0161
C->Z	0.0195	0.0122	0.0197	0.0124	0.0200	0.0126	0.0201	0.0126	0.0202	0.0127	0.0202	0.0127
S0->Z	0.0243	0.0190	0.0244	0.0192	0.0247	0.0194	0.0248	0.0195	0.0249	0.0195	0.0249	0.0195
S1->Z	0.0180	0.0157	0.0181	0.0159	0.0184	0.0160	0.0185	0.0161	0.0186	0.0161	0.0186	0.0162

Hidden Power (uW/MHz)

MXB3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	0.0013	0.0017	0.0018	0.0017
A	F	0.0058	0.0068	0.0068	0.0067
B	R	0.0012	0.0014	0.0013	0.0013
B	F	0.0058	0.0071	0.0071	0.0069
C	R	0.0005	0.0005	0.0005	0.0005
C	F	0.0039	0.0049	0.0045	0.0045
S0	R	0.0017	0.0019	0.0019	0.0019
S0	F	0.0074	0.0078	0.0079	0.0078
S1	R	0.0003	0.0003	0.0002	0.0002
S1	F	0.0060	0.0062	0.0062	0.0060

Propagation Delays (ns)

MXB3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1703	0.1052	0.1813	0.1109	0.2052	0.1233	0.2412	0.1419	0.2891	0.1669	0.3529	0.2003
B->Z	0.1712	0.1010	0.1822	0.1066	0.2060	0.1187	0.2419	0.1371	0.2896	0.1616	0.3532	0.1947
C->Z	0.0868	0.0496	0.0937	0.0532	0.1089	0.0613	0.1320	0.0737	0.1633	0.0905	0.2054	0.1131
S0->Z	0.1872	0.1520	0.1990	0.1577	0.2238	0.1698	0.2605	0.1881	0.3085	0.2125	0.3720	0.2453
S1->Z	0.0923	0.1059	0.1082	0.1105	0.1411	0.1206	0.1834	0.1362	0.2402	0.1575	0.3172	0.1873

MXB3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0036 pF		0.0060 pF		0.0094 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1447	0.0898	0.1584	0.0969	0.1850	0.1106	0.2239	0.1308	0.2783	0.1590	0.3499	0.1962
B->Z	0.1479	0.0854	0.1614	0.0923	0.1879	0.1056	0.2268	0.1254	0.2811	0.1532	0.3525	0.1899
C->Z	0.0760	0.0418	0.0844	0.0461	0.1011	0.0547	0.1258	0.0676	0.1607	0.0858	0.2071	0.1099
S0->Z	0.1612	0.1444	0.1772	0.1515	0.2068	0.1650	0.2479	0.1848	0.3032	0.2124	0.3749	0.2488
S1->Z	0.0797	0.1050	0.0996	0.1109	0.1391	0.1225	0.1878	0.1395	0.2534	0.1639	0.3383	0.1970

MXB3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2567	0.1709	0.2871	0.1867	0.3451	0.2133	0.4359	0.2530	0.5621	0.3079	0.7281	0.3802
B->Z	0.2603	0.1664	0.2907	0.1823	0.3487	0.2088	0.4395	0.2485	0.5657	0.3035	0.7317	0.3757
C->Z	0.1611	0.1123	0.1916	0.1279	0.2498	0.1542	0.3405	0.1938	0.4667	0.2488	0.6326	0.3210
S0->Z	0.2746	0.2278	0.3050	0.2437	0.3630	0.2703	0.4538	0.3100	0.5800	0.3649	0.7460	0.4372
S1->Z	0.1794	0.1841	0.2098	0.2000	0.2680	0.2265	0.3588	0.2662	0.4850	0.3212	0.6509	0.3934

MXB3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2697	0.1910	0.3013	0.2101	0.3597	0.2396	0.4504	0.2819	0.5775	0.3404	0.7447	0.4173
B->Z	0.2732	0.1872	0.3048	0.2063	0.3632	0.2358	0.4538	0.2781	0.5810	0.3366	0.7482	0.4135
C->Z	0.1652	0.1242	0.1965	0.1429	0.2552	0.1721	0.3459	0.2144	0.4730	0.2729	0.6402	0.3498
S0->Z	0.2848	0.2434	0.3164	0.2624	0.3748	0.2919	0.4654	0.3343	0.5926	0.3928	0.7598	0.4697
S1->Z	0.1872	0.1946	0.2186	0.2137	0.2773	0.2432	0.3679	0.2855	0.4951	0.3440	0.6623	0.4209

Combinational Cell

MXB4

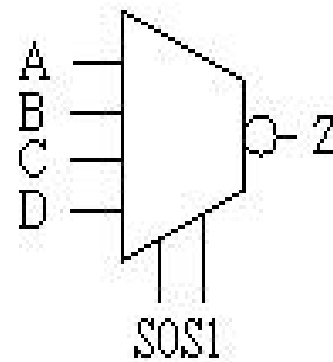
Cell Description

The MXB4 cell is a 4-to-1 multiplexer with inverted output. The state of the select inputs (S0, S1) determines which data input (A, B, C, D) is presented to the output (Z).

Truth Table

S1	S0	A	B	C	D	Z
0	0	0	X	X	X	1
0	0	1	X	X	X	0
0	1	X	0	X	X	1
0	1	X	1	X	X	0
1	0	X	X	0	X	1
1	0	X	X	1	X	0
1	1	X	X	X	0	1
1	1	X	X	X	1	0

Symbol



Cell List

MXB4M0HM, MXB4M1HM, MXB4M2HM
, MXB4M4HM

MXB4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00153	0.00190	0.00190	0.00193
B	input	0.00145	0.00183	0.00178	0.00173
C	input	0.00145	0.00182	0.00228	0.00222
D	input	0.00145	0.00182	0.00174	0.00170
S0	input	0.00445	0.00469	0.00451	0.00450
S1	input	0.00200	0.00212	0.00232	0.00231
Z	output				

Power Dissipation (uW/MHz)

MXB4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0124	0.0060	0.0124	0.0060	0.0124	0.0060	0.0124	0.0060	0.0124	0.0060	0.0124	0.0060
B->Z	0.0123	0.0047	0.0123	0.0047	0.0123	0.0047	0.0123	0.0047	0.0123	0.0047	0.0123	0.0047
C->Z	0.0149	0.0043	0.0149	0.0043	0.0149	0.0043	0.0149	0.0043	0.0149	0.0043	0.0149	0.0043
D->Z	0.0161	0.0039	0.0161	0.0039	0.0161	0.0039	0.0161	0.0039	0.0161	0.0039	0.0161	0.0039
S0->Z	0.0181	0.0120	0.0181	0.0120	0.0181	0.0120	0.0181	0.0120	0.0181	0.0119	0.0181	0.0119
S1->Z	0.0050	0.0037	0.0050	0.0037	0.0050	0.0036	0.0049	0.0036	0.0049	0.0035	0.0048	0.0035

MXB4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0036 pF		0.0060 pF		0.0094 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0141	0.0069	0.0141	0.0069	0.0141	0.0069	0.0141	0.0069	0.0141	0.0069	0.0141	0.0069
B->Z	0.0143	0.0055	0.0143	0.0055	0.0143	0.0055	0.0143	0.0055	0.0143	0.0055	0.0143	0.0055
C->Z	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051	0.0166	0.0051
D->Z	0.0181	0.0046	0.0181	0.0046	0.0181	0.0046	0.0181	0.0046	0.0181	0.0046	0.0181	0.0046
S0->Z	0.0200	0.0137	0.0200	0.0136	0.0200	0.0136	0.0199	0.0136	0.0199	0.0136	0.0198	0.0136
S1->Z	0.0057	0.0042	0.0056	0.0042	0.0055	0.0041	0.0055	0.0041	0.0055	0.0040	0.0053	0.0040

MXB4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0206	0.0178	0.0207	0.0178	0.0208	0.0179	0.0209	0.0179	0.0209	0.0179	0.0210	0.0179
B->Z	0.0214	0.0163	0.0215	0.0163	0.0216	0.0164	0.0216	0.0164	0.0217	0.0164	0.0217	0.0164
C->Z	0.0235	0.0164	0.0236	0.0164	0.0237	0.0164	0.0237	0.0165	0.0238	0.0165	0.0238	0.0165
D->Z	0.0232	0.0150	0.0232	0.0151	0.0233	0.0151	0.0234	0.0152	0.0234	0.0152	0.0235	0.0152
S0->Z	0.0274	0.0257	0.0275	0.0258	0.0276	0.0258	0.0277	0.0259	0.0277	0.0259	0.0277	0.0259
S1->Z	0.0081	0.0108	0.0082	0.0109	0.0084	0.0109	0.0084	0.0110	0.0084	0.0111	0.0085	0.0111

MXB4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0115 pF		0.0272 pF		0.0516 pF		0.0859 pF		0.1310 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0234	0.0210	0.0236	0.0209	0.0237	0.0210	0.0239	0.0211	0.0240	0.0211	0.0240	0.0211
B->Z	0.0241	0.0195	0.0242	0.0195	0.0244	0.0195	0.0245	0.0196	0.0246	0.0196	0.0247	0.0196
C->Z	0.0263	0.0196	0.0265	0.0195	0.0266	0.0195	0.0268	0.0196	0.0269	0.0196	0.0269	0.0196
D->Z	0.0260	0.0182	0.0261	0.0181	0.0263	0.0182	0.0264	0.0182	0.0265	0.0183	0.0266	0.0183
S0->Z	0.0304	0.0290	0.0306	0.0289	0.0307	0.0290	0.0309	0.0290	0.0309	0.0291	0.0310	0.0291
S1->Z	0.0108	0.0139	0.0110	0.0139	0.0112	0.0140	0.0113	0.0141	0.0114	0.0141	0.0115	0.0141

Hidden Power (uW/MHz)

MXB4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
A	R	0.0021	0.0023	0.0044	0.0045
A	F	0.0066	0.0077	0.0084	0.0084
B	R	0.0016	0.0018	0.0037	0.0038
B	F	0.0058	0.0070	0.0083	0.0082
C	R	0.0016	0.0018	0.0030	0.0031
C	F	0.0066	0.0075	0.0103	0.0102
D	R	0.0019	0.0021	0.0025	0.0025
D	F	0.0071	0.0082	0.0091	0.0090
S0	R	0.0030	0.0034	0.0052	0.0052
S0	F	0.0127	0.0136	0.0144	0.0144
S1	R	0.0001	0.0001	0.0001	0.0001
S1	F	0.0043	0.0046	0.0050	0.0050

Propagation Delays (ns)

MXB4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0045 pF		0.0068 pF		0.0099 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1723	0.1040	0.1836	0.1099	0.2080	0.1224	0.2446	0.1412	0.2929	0.1662	0.3572	0.1997
B->Z	0.1647	0.0979	0.1760	0.1036	0.2002	0.1159	0.2365	0.1343	0.2846	0.1590	0.3486	0.1921
C->Z	0.1797	0.1072	0.1914	0.1133	0.2162	0.1260	0.2532	0.1450	0.3020	0.1700	0.3666	0.2034
D->Z	0.1894	0.1059	0.2011	0.1118	0.2261	0.1242	0.2634	0.1427	0.3123	0.1672	0.3771	0.2001
S0->Z	0.2125	0.1996	0.2275	0.2060	0.2590	0.2192	0.3035	0.2386	0.3578	0.2637	0.4252	0.2968
S1->Z	0.0748	0.0840	0.0890	0.0884	0.1160	0.0981	0.1554	0.1134	0.2137	0.1350	0.2916	0.1656

MXB4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0036 pF		0.0060 pF		0.0094 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1475	0.0896	0.1616	0.0970	0.1889	0.1113	0.2286	0.1320	0.2840	0.1611	0.3568	0.1992
B->Z	0.1433	0.0839	0.1574	0.0910	0.1845	0.1046	0.2240	0.1246	0.2791	0.1527	0.3514	0.1899
C->Z	0.1530	0.0895	0.1673	0.0968	0.1949	0.1109	0.2349	0.1311	0.2903	0.1593	0.3629	0.1964
D->Z	0.1630	0.0883	0.1775	0.0954	0.2053	0.1091	0.2456	0.1290	0.3013	0.1567	0.3743	0.1934
S0->Z	0.1800	0.1946	0.1984	0.2026	0.2337	0.2175	0.2842	0.2386	0.3501	0.2671	0.4290	0.3037
S1->Z	0.0655	0.0846	0.0840	0.0904	0.1178	0.1016	0.1632	0.1187	0.2303	0.1439	0.3160	0.1788

MXB4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2278	0.1937	0.2601	0.2159	0.3179	0.2478	0.4080	0.2901	0.5343	0.3448	0.7002	0.4145
B->Z	0.2302	0.1840	0.2625	0.2060	0.3203	0.2380	0.4105	0.2803	0.5367	0.3349	0.7026	0.4046
C->Z	0.2356	0.2074	0.2676	0.2296	0.3253	0.2615	0.4154	0.3038	0.5415	0.3584	0.7074	0.4281
D->Z	0.2276	0.1901	0.2596	0.2122	0.3173	0.2441	0.4074	0.2864	0.5335	0.3410	0.6994	0.4107
S0->Z	0.2357	0.2949	0.2676	0.3170	0.3253	0.3490	0.4154	0.3913	0.5416	0.4460	0.7074	0.5157
S1->Z	0.1391	0.1098	0.1711	0.1313	0.2288	0.1627	0.3189	0.2048	0.4451	0.2593	0.6111	0.3290

MXB4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0115 pF		0.0272 pF		0.0516 pF		0.0859 pF		0.1310 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2331	0.2070	0.2675	0.2342	0.3268	0.2716	0.4175	0.3191	0.5447	0.3794	0.7118	0.4554
B->Z	0.2372	0.2003	0.2717	0.2275	0.3309	0.2649	0.4216	0.3124	0.5488	0.3728	0.7159	0.4487
C->Z	0.2459	0.2294	0.2802	0.2571	0.3393	0.2951	0.4300	0.3431	0.5571	0.4038	0.7242	0.4801
D->Z	0.2392	0.2139	0.2735	0.2415	0.3326	0.2795	0.4233	0.3275	0.5504	0.3882	0.7175	0.4644
S0->Z	0.2449	0.3149	0.2791	0.3426	0.3382	0.3806	0.4289	0.4286	0.5561	0.4893	0.7231	0.5656
S1->Z	0.1441	0.1311	0.1782	0.1579	0.2373	0.1952	0.3279	0.2426	0.4551	0.3029	0.6222	0.3788

Combinational Cell

ND2B1

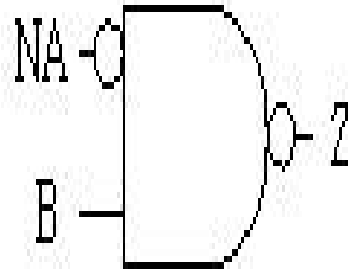
Cell Description

The ND2B1 cell provides a NAND gate with two inputs, one of which is inverted (NA).

Truth Table

NA	B	Z
1	X	1
X	0	1
0	1	0

Symbol



Cell List

ND2B1M0HM, ND2B1M1HM, ND2B1M2HM
, ND2B1M4HM, ND2B1M8HM
, ND2B1M12HM

ND2B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM	M12HM
B	input	0.00116	0.00128	0.00149	0.00291	0.00594	0.00906
NA	input	0.00099	0.00098	0.00098	0.00129	0.00181	0.00297
Z	output						

Power Dissipation (uW/MHz)

ND2B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0185 pF		0.0277 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0028	0.0005	0.0028	0.0005	0.0029	0.0005	0.0029	0.0005	0.0029	0.0005	0.0029	0.0005
NA->Z	0.0040	0.0054	0.0041	0.0054	0.0041	0.0054	0.0041	0.0055	0.0041	0.0055	0.0041	0.0055

ND2B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0135 pF		0.0219 pF		0.0331 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0030	0.0005	0.0031	0.0005	0.0032	0.0006	0.0032	0.0006	0.0032	0.0006	0.0032	0.0006
NA->Z	0.0045	0.0057	0.0045	0.0058	0.0046	0.0058	0.0046	0.0058	0.0046	0.0058	0.0046	0.0058

ND2B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0042 pF		0.0089 pF		0.0163 pF		0.0266 pF		0.0403 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0036	0.0006	0.0037	0.0006	0.0038	0.0006	0.0038	0.0006	0.0038	0.0007	0.0039	0.0007
NA->Z	0.0054	0.0063	0.0055	0.0064	0.0055	0.0064	0.0055	0.0065	0.0056	0.0065	0.0056	0.0065

ND2B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0361 pF		0.0599 pF		0.0912 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0072	0.0012	0.0074	0.0013	0.0076	0.0014	0.0077	0.0014	0.0078	0.0015	0.0078	0.0015
NA->Z	0.0111	0.0116	0.0112	0.0118	0.0113	0.0119	0.0114	0.0119	0.0114	0.0120	0.0114	0.0120

ND2B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0043 pF		0.0157 pF		0.0374 pF		0.0714 pF		0.1190 pF		0.1817 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0135	0.0023	0.0140	0.0025	0.0144	0.0026	0.0147	0.0027	0.0148	0.0027	0.0148	0.0027
NA->Z	0.0208	0.0208	0.0211	0.0211	0.0213	0.0213	0.0215	0.0214	0.0215	0.0215	0.0216	0.0215

ND2B1M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0229 pF		0.0554 pF		0.1060 pF		0.1771 pF		0.2706 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0205	0.0035	0.0213	0.0038	0.0220	0.0040	0.0223	0.0041	0.0225	0.0042	0.0226	0.0042
NA->Z	0.0312	0.0312	0.0316	0.0316	0.0319	0.0319	0.0321	0.0321	0.0322	0.0322	0.0322	0.0322

Hidden Power (uW/MHz)

ND2B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM	M12HM
B	R	-0.0005	-0.0006	-0.0006	-0.0013	-0.0028	-0.0042
B	F	0.0009	0.0011	0.0013	0.0029	0.0056	0.0084
NA	R	0.0009	0.0010	0.0011	0.0024	0.0045	0.0064
NA	F	0.0041	0.0042	0.0046	0.0078	0.0134	0.0200

Propagation Delays (ns)

ND2B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0185 pF		0.0277 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0635	0.0361	0.0930	0.0509	0.1476	0.0784	0.2324	0.1213	0.3526	0.1820	0.5082	0.2607
NA->Z	0.1079	0.1133	0.1373	0.1297	0.1921	0.1585	0.2773	0.2019	0.3979	0.2627	0.5540	0.3414

ND2B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0135 pF		0.0219 pF		0.0331 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0589	0.0331	0.0881	0.0475	0.1441	0.0750	0.2297	0.1171	0.3492	0.1760	0.5083	0.2544
NA->Z	0.1049	0.1133	0.1339	0.1297	0.1899	0.1588	0.2755	0.2016	0.3951	0.2606	0.5543	0.3391

ND2B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0042 pF		0.0089 pF		0.0163 pF		0.0266 pF		0.0403 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0552	0.0282	0.0853	0.0414	0.1408	0.0651	0.2275	0.1023	0.3477	0.1540	0.5075	0.2227
NA->Z	0.1034	0.1139	0.1332	0.1296	0.1884	0.1557	0.2747	0.1941	0.3945	0.2462	0.5536	0.3150

ND2B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0361 pF		0.0599 pF		0.0912 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0461	0.0258	0.0765	0.0406	0.1332	0.0675	0.2205	0.1089	0.3430	0.1672	0.5040	0.2438
NA->Z	0.0945	0.1160	0.1244	0.1343	0.1807	0.1642	0.2671	0.2071	0.3885	0.2659	0.5479	0.3425

ND2B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0043 pF		0.0157 pF		0.0374 pF		0.0714 pF		0.1190 pF		0.1817 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0423	0.0237	0.0729	0.0385	0.1296	0.0650	0.2176	0.1062	0.3403	0.1638	0.5019	0.2396
NA->Z	0.0925	0.1126	0.1230	0.1315	0.1800	0.1614	0.2684	0.2044	0.3919	0.2625	0.5543	0.3384

ND2B1M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0229 pF		0.0554 pF		0.1060 pF		0.1771 pF		0.2706 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0417	0.0232	0.0726	0.0381	0.1297	0.0644	0.2177	0.1052	0.3410	0.1624	0.5029	0.2376
NA->Z	0.0859	0.1028	0.1164	0.1209	0.1733	0.1501	0.2610	0.1921	0.3839	0.2496	0.5453	0.3248

Combinational Cell

ND2

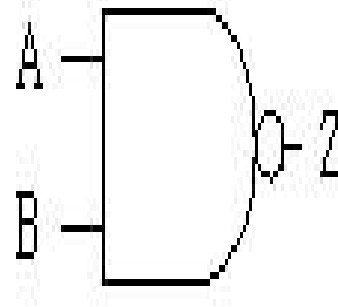
Cell Description

The ND2 cell provides a NAND gate with two inputs (A, B).

Truth Table

A	B	Z
0	X	1
X	0	1
1	1	0

Symbol



Cell List

ND2M0HM, ND2M1HM, ND2M2HM
 , ND2M3HM, ND2M4HM
 , ND2M5HM, ND2M6HM
 , ND2M8HM, ND2M12HM
 , ND2M16HM

ND2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M5HM
A	input	0.00118	0.00129	0.00157	0.00225	0.00302	0.00410
B	input	0.00113	0.00124	0.00153	0.00255	0.00334	0.00426
Z	output						
M6HM	M8HM	M12HM	M16HM				
0.00468	0.00595	0.00898	0.01181				
0.00490	0.00636	0.00955	0.01256				

Power Dissipation (uW/MHz)

ND2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0115 pF		0.0185 pF		0.0279 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0031	0.0003	0.0031	0.0003	0.0032	0.0003	0.0032	0.0003	0.0032	0.0003	0.0032	0.0003
B->Z	0.0041	0.0003	0.0041	0.0003	0.0041	0.0003	0.0041	0.0003	0.0041	0.0003	0.0041	0.0004

ND2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0136 pF		0.0220 pF		0.0332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0003	0.0034	0.0004	0.0035	0.0004	0.0035	0.0004	0.0035	0.0004	0.0035	0.0004
B->Z	0.0045	0.0003	0.0045	0.0004	0.0046	0.0004	0.0046	0.0004	0.0046	0.0004	0.0046	0.0004

ND2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0189 pF		0.0310 pF		0.0470 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0041	0.0004	0.0042	0.0005	0.0043	0.0005	0.0043	0.0005	0.0043	0.0005	0.0044	0.0005
B->Z	0.0056	0.0004	0.0057	0.0005	0.0057	0.0005	0.0057	0.0005	0.0058	0.0005	0.0058	0.0005

ND2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0439 pF		0.0667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0056	0.0005	0.0058	0.0006	0.0059	0.0006	0.0060	0.0007	0.0060	0.0007	0.0061	0.0007
B->Z	0.0081	0.0006	0.0082	0.0006	0.0082	0.0006	0.0083	0.0007	0.0083	0.0007	0.0083	0.0007

ND2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0361 pF		0.0599 pF		0.0911 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0081	0.0008	0.0084	0.0009	0.0085	0.0010	0.0086	0.0010	0.0087	0.0010	0.0087	0.0010
B->Z	0.0114	0.0008	0.0115	0.0009	0.0116	0.0010	0.0116	0.0010	0.0116	0.0010	0.0116	0.0010

ND2M5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0450 pF		0.0747 pF		0.1139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0100	0.0009	0.0103	0.0011	0.0106	0.0011	0.0107	0.0012	0.0108	0.0012	0.0108	0.0012
B->Z	0.0142	0.0010	0.0143	0.0011	0.0144	0.0012	0.0144	0.0012	0.0145	0.0012	0.0145	0.0012

ND2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0285 pF		0.0541 pF		0.0901 pF		0.1374 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0122	0.0012	0.0126	0.0013	0.0129	0.0014	0.0130	0.0015	0.0131	0.0015	0.0132	0.0015
B->Z	0.0172	0.0013	0.0173	0.0014	0.0175	0.0015	0.0175	0.0015	0.0175	0.0015	0.0176	0.0015

ND2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0042 pF		0.0156 pF		0.0374 pF		0.0713 pF		0.1189 pF		0.1815 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0145	0.0017	0.0150	0.0019	0.0154	0.0020	0.0156	0.0021	0.0157	0.0021	0.0158	0.0021
B->Z	0.0212	0.0018	0.0214	0.0020	0.0216	0.0021	0.0216	0.0021	0.0217	0.0021	0.0217	0.0021

ND2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0229 pF		0.0554 pF		0.1061 pF		0.1773 pF		0.2709 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0218	0.0024	0.0226	0.0027	0.0232	0.0029	0.0236	0.0030	0.0237	0.0030	0.0238	0.0031
B->Z	0.0316	0.0025	0.0320	0.0028	0.0322	0.0029	0.0323	0.0030	0.0324	0.0031	0.0324	0.0031

ND2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0074 pF		0.0299 pF		0.0728 pF		0.1397 pF		0.2335 pF		0.3570 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0282	0.0030	0.0293	0.0034	0.0301	0.0037	0.0306	0.0038	0.0308	0.0038	0.0310	0.0039
B->Z	0.0412	0.0031	0.0417	0.0035	0.0420	0.0037	0.0422	0.0038	0.0423	0.0039	0.0423	0.0039

Hidden Power (uW/MHz)

ND2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M5HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0005	-0.0006	-0.0008	-0.0010	-0.0015	-0.0018	-0.0021	-0.0027	-0.0043	-0.0056
A	F	0.0009	0.0011	0.0014	0.0020	0.0029	0.0036	0.0043	0.0056	0.0084	0.0110
B	R	-0.0008	-0.0009	-0.0011	-0.0016	-0.0023	-0.0028	-0.0034	-0.0044	-0.0067	-0.0087
B	F	0.0008	0.0009	0.0012	0.0016	0.0023	0.0028	0.0034	0.0044	0.0067	0.0088

Propagation Delays (ns)

ND2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0115 pF		0.0185 pF		0.0279 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0645	0.0366	0.0937	0.0514	0.1479	0.0787	0.2339	0.1221	0.3516	0.1817	0.5095	0.2616
B->Z	0.0748	0.0402	0.1038	0.0549	0.1579	0.0822	0.2438	0.1256	0.3615	0.1852	0.5194	0.2651

ND2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0136 pF		0.0220 pF		0.0332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0595	0.0334	0.0884	0.0478	0.1440	0.0750	0.2304	0.1176	0.3490	0.1760	0.5071	0.2540
B->Z	0.0697	0.0369	0.0985	0.0511	0.1539	0.0784	0.2403	0.1209	0.3589	0.1794	0.5169	0.2573

ND2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0189 pF		0.0310 pF		0.0470 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0514	0.0298	0.0811	0.0450	0.1376	0.0732	0.2237	0.1164	0.3445	0.1771	0.5041	0.2574
B->Z	0.0612	0.0332	0.0907	0.0482	0.1470	0.0765	0.2331	0.1197	0.3539	0.1804	0.5135	0.2606

ND2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0439 pF		0.0667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0480	0.0261	0.0778	0.0402	0.1346	0.0662	0.2213	0.1059	0.3428	0.1618	0.5027	0.2354
B->Z	0.0591	0.0298	0.0886	0.0436	0.1453	0.0696	0.2319	0.1093	0.3535	0.1651	0.5137	0.2387

ND2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0361 pF		0.0599 pF		0.0911 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0472	0.0265	0.0774	0.0413	0.1341	0.0683	0.2212	0.1098	0.3435	0.1682	0.5037	0.2448
B->Z	0.0570	0.0302	0.0866	0.0447	0.1423	0.0717	0.2282	0.1132	0.3488	0.1716	0.5068	0.2482

ND2M5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0450 pF		0.0747 pF		0.1139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0456	0.0253	0.0762	0.0400	0.1327	0.0662	0.2200	0.1068	0.3419	0.1636	0.5026	0.2386
B->Z	0.0556	0.0288	0.0855	0.0432	0.1411	0.0694	0.2271	0.1100	0.3474	0.1668	0.5059	0.2418

ND2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0285 pF		0.0541 pF		0.0901 pF		0.1374 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0456	0.0259	0.0760	0.0409	0.1325	0.0680	0.2201	0.1099	0.3429	0.1689	0.5040	0.2464
B->Z	0.0562	0.0295	0.0862	0.0442	0.1426	0.0713	0.2301	0.1132	0.3528	0.1722	0.5139	0.2497

ND2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0042 pF		0.0156 pF		0.0374 pF		0.0713 pF		0.1189 pF		0.1815 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0425	0.0240	0.0731	0.0389	0.1300	0.0656	0.2177	0.1069	0.3404	0.1647	0.5016	0.2408
B->Z	0.0533	0.0277	0.0835	0.0423	0.1403	0.0690	0.2279	0.1102	0.3506	0.1681	0.5119	0.2441

ND2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0229 pF		0.0554 pF		0.1061 pF		0.1773 pF		0.2709 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0420	0.0236	0.0726	0.0384	0.1296	0.0649	0.2176	0.1060	0.3409	0.1635	0.5027	0.2392
B->Z	0.0524	0.0272	0.0824	0.0417	0.1389	0.0681	0.2262	0.1092	0.3486	0.1667	0.5094	0.2424

ND2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0074 pF		0.0299 pF		0.0728 pF		0.1397 pF		0.2335 pF		0.3570 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0411	0.0228	0.0719	0.0375	0.1289	0.0637	0.2169	0.1041	0.3400	0.1607	0.5018	0.2351
B->Z	0.0518	0.0264	0.0821	0.0407	0.1388	0.0668	0.2267	0.1072	0.3496	0.1638	0.5113	0.2383

Combinational Cell

ND3B1

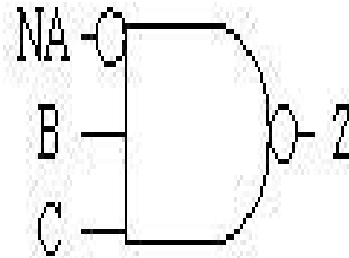
Cell Description

The ND3B1 cell provides a NAND gate with one inverted input (NA) and two non-inverted inputs (B, C).

Truth Table

NA	B	C	Z
1	X	X	1
X	0	X	1
X	X	0	1
0	1	1	0

Symbol



Cell List

ND3B1M0HM, ND3B1M1HM, ND3B1M2HM
, ND3B1M4HM, ND3B1M8HM

ND3B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00112	0.00127	0.00154	0.00330	0.00471
C	input	0.00110	0.00124	0.00151	0.00292	0.00514
NA	input	0.00104	0.00108	0.00108	0.00137	0.00176
Z	output					

Power Dissipation (uW/MHz)

ND3B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0096 pF		0.0154 pF		0.0230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0041	0.0010	0.0042	0.0011	0.0042	0.0011	0.0042	0.0011	0.0042	0.0011	0.0042	0.0011
C->Z	0.0031	0.0010	0.0031	0.0010	0.0032	0.0011	0.0032	0.0011	0.0032	0.0011	0.0032	0.0011
NA->Z	0.0055	0.0061	0.0055	0.0061	0.0055	0.0061	0.0055	0.0061	0.0055	0.0061	0.0055	0.0061

ND3B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0066 pF		0.0119 pF		0.0192 pF		0.0289 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0049	0.0011	0.0049	0.0011	0.0049	0.0011	0.0050	0.0011	0.0050	0.0011	0.0050	0.0011
C->Z	0.0037	0.0010	0.0037	0.0011	0.0038	0.0011	0.0038	0.0011	0.0038	0.0011	0.0038	0.0011
NA->Z	0.0063	0.0065	0.0063	0.0065	0.0063	0.0065	0.0063	0.0065	0.0063	0.0065	0.0063	0.0065

ND3B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0042 pF		0.0089 pF		0.0163 pF		0.0267 pF		0.0403 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0060	0.0013	0.0060	0.0014	0.0061	0.0014	0.0061	0.0014	0.0061	0.0014	0.0061	0.0014
C->Z	0.0043	0.0013	0.0044	0.0014	0.0045	0.0014	0.0045	0.0014	0.0046	0.0014	0.0046	0.0014
NA->Z	0.0078	0.0073	0.0078	0.0074	0.0078	0.0074	0.0079	0.0074	0.0079	0.0075	0.0079	0.0075

ND3B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0074 pF		0.0168 pF		0.0315 pF		0.0522 pF		0.0794 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0119	0.0022	0.0120	0.0023	0.0121	0.0023	0.0121	0.0024	0.0122	0.0024	0.0122	0.0024
C->Z	0.0085	0.0022	0.0087	0.0023	0.0089	0.0023	0.0090	0.0023	0.0091	0.0024	0.0091	0.0024
NA->Z	0.0154	0.0132	0.0154	0.0133	0.0155	0.0134	0.0155	0.0134	0.0155	0.0135	0.0155	0.0135

ND3B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0038 pF		0.0137 pF		0.0325 pF		0.0618 pF		0.1030 pF		0.1572 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0221	0.0044	0.0223	0.0046	0.0225	0.0047	0.0225	0.0047	0.0226	0.0047	0.0226	0.0047
C->Z	0.0143	0.0043	0.0148	0.0045	0.0152	0.0046	0.0154	0.0047	0.0155	0.0047	0.0155	0.0047
NA->Z	0.0290	0.0192	0.0292	0.0195	0.0292	0.0197	0.0293	0.0197	0.0293	0.0198	0.0293	0.0198

Hidden Power (uW/MHz)

ND3B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0007	-0.0008	-0.0011	-0.0020	-0.0038
B	F	0.0008	0.0009	0.0011	0.0023	0.0041
C	R	-0.0001	-0.0001	-0.0001	-0.0002	0.0008
C	F	0.0009	0.0010	0.0013	0.0027	0.0052
NA	R	0.0009	0.0009	0.0012	0.0022	0.0041
NA	F	0.0043	0.0045	0.0048	0.0086	0.0103

Propagation Delays (ns)

ND3B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0054 pF		0.0096 pF		0.0154 pF		0.0230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0902	0.0544	0.1179	0.0708	0.1691	0.1011	0.2512	0.1498	0.3644	0.2170	0.5126	0.3050
C->Z	0.0765	0.0475	0.1041	0.0638	0.1548	0.0941	0.2362	0.1428	0.3482	0.2100	0.4950	0.2981
NA->Z	0.1342	0.1332	0.1622	0.1503	0.2137	0.1812	0.2961	0.2302	0.4094	0.2975	0.5575	0.3856

ND3B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0066 pF		0.0119 pF		0.0192 pF		0.0289 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0822	0.0511	0.1109	0.0685	0.1628	0.1001	0.2458	0.1508	0.3599	0.2205	0.5112	0.3132
C->Z	0.0692	0.0443	0.0977	0.0616	0.1491	0.0933	0.2312	0.1440	0.3440	0.2137	0.4936	0.3064
NA->Z	0.1282	0.1328	0.1572	0.1512	0.2095	0.1837	0.2926	0.2347	0.4067	0.3045	0.5580	0.3972

ND3B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0042 pF		0.0089 pF		0.0163 pF		0.0267 pF		0.0403 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0729	0.0455	0.1017	0.0630	0.1550	0.0955	0.2385	0.1465	0.3555	0.2181	0.5084	0.3116
C->Z	0.0604	0.0389	0.0890	0.0564	0.1418	0.0889	0.2244	0.1399	0.3402	0.2115	0.4915	0.3051
NA->Z	0.1207	0.1340	0.1497	0.1529	0.2034	0.1867	0.2870	0.2381	0.4038	0.3099	0.5564	0.4034

ND3B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0074 pF		0.0168 pF		0.0315 pF		0.0522 pF		0.0794 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0669	0.0407	0.0963	0.0580	0.1506	0.0900	0.2350	0.1399	0.3536	0.2101	0.5092	0.3023
C->Z	0.0547	0.0340	0.0843	0.0514	0.1389	0.0834	0.2236	0.1333	0.3424	0.2034	0.4983	0.2956
NA->Z	0.1163	0.1346	0.1459	0.1539	0.2004	0.1877	0.2845	0.2384	0.4023	0.3088	0.5567	0.4010

ND3B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0038 pF		0.0137 pF		0.0325 pF		0.0618 pF		0.1030 pF		0.1572 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0623	0.0412	0.0917	0.0603	0.1467	0.0960	0.2316	0.1513	0.3507	0.2290	0.5072	0.3312
C->Z	0.0480	0.0317	0.0774	0.0510	0.1320	0.0866	0.2161	0.1420	0.3340	0.2197	0.4890	0.3218
NA->Z	0.1035	0.1169	0.1336	0.1376	0.1891	0.1743	0.2745	0.2300	0.3937	0.3078	0.5503	0.4100

Combinational Cell

ND3

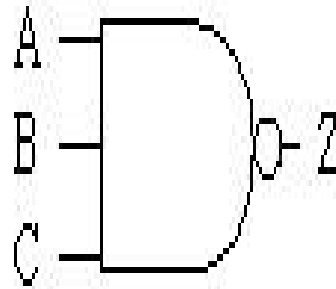
Cell Description

The ND3 cell provides a NAND gate with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	X	X	1
X	0	X	1
X	X	0	1
1	1	1	0

Symbol



Cell List

ND3M0HM, ND3M1HM, ND3M2HM
, ND3M3HM, ND3M4HM
, ND3M6HM, ND3M8HM
, ND3M12HM, ND3M16HM

ND3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM
A	input	0.00106	0.00119	0.00147	0.00247	0.00290	0.00413
B	input	0.00107	0.00124	0.00152	0.00253	0.00340	0.00415
C	input	0.00106	0.00122	0.00149	0.00280	0.00351	0.00418
Z	output						
M8HM	M12HM	M16HM					
0.00522	0.00763	0.00991					
0.00472	0.00775	0.01004					
0.00481	0.00771	0.01017					

Power Dissipation (uW/MHz)

ND3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0056 pF		0.0098 pF		0.0158 pF		0.0237 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0035	0.0009	0.0035	0.0009	0.0036	0.0009	0.0036	0.0009	0.0036	0.0009	0.0036	0.0009
B->Z	0.0046	0.0009	0.0047	0.0009	0.0047	0.0009	0.0047	0.0009	0.0047	0.0009	0.0047	0.0009
C->Z	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009

ND3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0298 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0039	0.0009	0.0039	0.0009	0.0040	0.0009	0.0040	0.0009	0.0040	0.0009	0.0040	0.0009
B->Z	0.0051	0.0009	0.0051	0.0009	0.0052	0.0009	0.0052	0.0009	0.0052	0.0009	0.0052	0.0009
C->Z	0.0062	0.0009	0.0062	0.0009	0.0062	0.0009	0.0063	0.0009	0.0063	0.0009	0.0063	0.0009

ND3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0274 pF		0.0415 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0047	0.0011	0.0048	0.0011	0.0048	0.0012	0.0049	0.0012	0.0049	0.0012	0.0049	0.0012
B->Z	0.0063	0.0011	0.0064	0.0012	0.0064	0.0012	0.0064	0.0012	0.0065	0.0012	0.0065	0.0012
C->Z	0.0078	0.0011	0.0079	0.0012	0.0079	0.0012	0.0079	0.0012	0.0079	0.0012	0.0079	0.0012

ND3M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0629 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0071	0.0018	0.0073	0.0018	0.0074	0.0019	0.0075	0.0019	0.0076	0.0019	0.0076	0.0019
B->Z	0.0097	0.0019	0.0098	0.0020	0.0098	0.0020	0.0099	0.0020	0.0099	0.0020	0.0099	0.0020
C->Z	0.0121	0.0019	0.0122	0.0020	0.0122	0.0020	0.0122	0.0020	0.0122	0.0020	0.0122	0.0020

ND3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0075 pF		0.0171 pF		0.0320 pF		0.0530 pF		0.0807 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0090	0.0018	0.0093	0.0019	0.0094	0.0019	0.0095	0.0019	0.0096	0.0019	0.0096	0.0020
B->Z	0.0125	0.0018	0.0126	0.0019	0.0127	0.0019	0.0128	0.0019	0.0128	0.0020	0.0128	0.0020
C->Z	0.0157	0.0018	0.0158	0.0019	0.0158	0.0019	0.0158	0.0019	0.0158	0.0020	0.0158	0.0020

ND3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0254 pF		0.0482 pF		0.0801 pF		0.1222 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0128	0.0029	0.0132	0.0030	0.0135	0.0031	0.0136	0.0031	0.0137	0.0031	0.0137	0.0031
B->Z	0.0192	0.0029	0.0194	0.0030	0.0195	0.0031	0.0196	0.0031	0.0196	0.0031	0.0196	0.0031
C->Z	0.0249	0.0029	0.0250	0.0030	0.0250	0.0031	0.0250	0.0031	0.0250	0.0031	0.0250	0.0031

ND3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0141 pF		0.0335 pF		0.0638 pF		0.1063 pF		0.1622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0154	0.0036	0.0159	0.0037	0.0163	0.0038	0.0165	0.0039	0.0166	0.0039	0.0166	0.0039
B->Z	0.0232	0.0037	0.0234	0.0038	0.0235	0.0039	0.0236	0.0039	0.0237	0.0039	0.0237	0.0039
C->Z	0.0293	0.0037	0.0294	0.0038	0.0294	0.0039	0.0294	0.0039	0.0294	0.0039	0.0294	0.0039

ND3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0053 pF		0.0205 pF		0.0496 pF		0.0949 pF		0.1584 pF		0.2420 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0233	0.0053	0.0241	0.0056	0.0246	0.0057	0.0249	0.0058	0.0251	0.0058	0.0252	0.0059
B->Z	0.0353	0.0054	0.0357	0.0056	0.0359	0.0058	0.0361	0.0058	0.0361	0.0059	0.0362	0.0059
C->Z	0.0462	0.0054	0.0464	0.0056	0.0464	0.0058	0.0465	0.0058	0.0465	0.0058	0.0465	0.0059

ND3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0068 pF		0.0272 pF		0.0662 pF		0.1268 pF		0.2120 pF		0.3240 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0289	0.0068	0.0299	0.0072	0.0307	0.0074	0.0311	0.0075	0.0313	0.0076	0.0314	0.0076
B->Z	0.0451	0.0071	0.0455	0.0074	0.0459	0.0076	0.0461	0.0076	0.0462	0.0077	0.0462	0.0077
C->Z	0.0593	0.0071	0.0596	0.0074	0.0597	0.0076	0.0597	0.0076	0.0597	0.0077	0.0597	0.0077

Hidden Power (uW/MHz)

ND3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	0.0000	-0.0001	-0.0001	-0.0002	-0.0001	0.0012	0.0008	0.0018	0.0026
A	F	0.0009	0.0010	0.0013	0.0022	0.0027	0.0040	0.0052	0.0078	0.0104
B	R	-0.0007	-0.0008	-0.0011	-0.0014	-0.0020	-0.0028	-0.0038	-0.0055	-0.0073
B	F	0.0007	0.0009	0.0011	0.0017	0.0023	0.0032	0.0041	0.0062	0.0083
C	R	-0.0007	-0.0008	-0.0011	-0.0015	-0.0021	-0.0031	-0.0040	-0.0061	-0.0080
C	F	0.0007	0.0008	0.0011	0.0015	0.0021	0.0031	0.0040	0.0061	0.0080

Propagation Delays (ns)

ND3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0056 pF		0.0098 pF		0.0158 pF		0.0237 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0787	0.0488	0.1063	0.0651	0.1607	0.0978	0.2419	0.1466	0.3575	0.2162	0.5097	0.3079
B->Z	0.0934	0.0565	0.1211	0.0729	0.1760	0.1055	0.2579	0.1543	0.3746	0.2239	0.5282	0.3156
C->Z	0.1041	0.0606	0.1318	0.0770	0.1866	0.1096	0.2681	0.1584	0.3841	0.2280	0.5365	0.3197

ND3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0298 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0695	0.0445	0.0978	0.0619	0.1523	0.0955	0.2358	0.1472	0.3530	0.2199	0.5071	0.3156
B->Z	0.0823	0.0514	0.1109	0.0688	0.1658	0.1024	0.2501	0.1541	0.3685	0.2268	0.5241	0.3224
C->Z	0.0915	0.0549	0.1201	0.0723	0.1749	0.1059	0.2587	0.1575	0.3761	0.2302	0.5304	0.3259

ND3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0274 pF		0.0415 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0611	0.0395	0.0908	0.0578	0.1458	0.0918	0.2305	0.1444	0.3484	0.2177	0.5050	0.3152
B->Z	0.0735	0.0462	0.1033	0.0644	0.1588	0.0985	0.2443	0.1510	0.3633	0.2243	0.5215	0.3218
C->Z	0.0823	0.0496	0.1122	0.0678	0.1675	0.1018	0.2526	0.1543	0.3707	0.2276	0.5276	0.3251

ND3M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0629 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0585	0.0362	0.0880	0.0536	0.1439	0.0864	0.2295	0.1369	0.3502	0.2083	0.5074	0.3015
B->Z	0.0718	0.0429	0.1017	0.0601	0.1585	0.0929	0.2458	0.1435	0.3689	0.2148	0.5294	0.3080
C->Z	0.0817	0.0464	0.1119	0.0636	0.1688	0.0964	0.2560	0.1469	0.3788	0.2183	0.5386	0.3114

ND3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0075 pF		0.0171 pF		0.0320 pF		0.0530 pF		0.0807 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0550	0.0340	0.0851	0.0517	0.1408	0.0843	0.2265	0.1347	0.3469	0.2056	0.5055	0.2992
B->Z	0.0674	0.0410	0.0973	0.0586	0.1527	0.0912	0.2381	0.1415	0.3582	0.2125	0.5163	0.3061
C->Z	0.0768	0.0446	0.1067	0.0621	0.1619	0.0947	0.2467	0.1451	0.3656	0.2161	0.5221	0.3096

ND3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0254 pF		0.0482 pF		0.0801 pF		0.1222 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0521	0.0328	0.0819	0.0507	0.1380	0.0845	0.2247	0.1371	0.3456	0.2105	0.5051	0.3074
B->Z	0.0677	0.0419	0.0976	0.0597	0.1541	0.0935	0.2416	0.1460	0.3636	0.2195	0.5245	0.3164
C->Z	0.0787	0.0465	0.1090	0.0643	0.1657	0.0980	0.2530	0.1505	0.3745	0.2240	0.5343	0.3209

ND3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0141 pF		0.0335 pF		0.0638 pF		0.1063 pF		0.1622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0488	0.0326	0.0791	0.0527	0.1353	0.0900	0.2222	0.1481	0.3438	0.2295	0.5035	0.3365
B->Z	0.0629	0.0423	0.0932	0.0623	0.1497	0.0996	0.2374	0.1577	0.3600	0.2391	0.5210	0.3461
C->Z	0.0717	0.0465	0.1023	0.0664	0.1590	0.1037	0.2463	0.1618	0.3683	0.2432	0.5283	0.3502

ND3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0053 pF		0.0205 pF		0.0496 pF		0.0949 pF		0.1584 pF		0.2420 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0480	0.0302	0.0782	0.0485	0.1347	0.0824	0.2219	0.1350	0.3436	0.2087	0.5036	0.3056
B->Z	0.0626	0.0387	0.0929	0.0568	0.1498	0.0907	0.2375	0.1433	0.3602	0.2169	0.5214	0.3139
C->Z	0.0734	0.0432	0.1041	0.0612	0.1613	0.0951	0.2490	0.1476	0.3712	0.2213	0.5317	0.3182

ND3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0068 pF		0.0272 pF		0.0662 pF		0.1268 pF		0.2120 pF		0.3240 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0459	0.0292	0.0764	0.0478	0.1332	0.0822	0.2206	0.1354	0.3431	0.2101	0.5039	0.3082
B->Z	0.0607	0.0377	0.0913	0.0562	0.1485	0.0905	0.2366	0.1437	0.3600	0.2184	0.5221	0.3165
C->Z	0.0713	0.0420	0.1024	0.0603	0.1600	0.0947	0.2481	0.1478	0.3713	0.2225	0.5328	0.3207

Combinational Cell

ND4B1

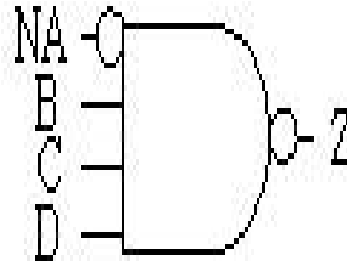
Cell Description

The ND4B1 cell provides a NAND gate with one inverted input (NA) and three non-inverted inputs (B, C, D).

Truth Table

NA	B	C	D	Z
1	X	X	X	1
X	0	X	X	1
X	X	0	X	1
X	X	X	0	1
0	1	1	1	0

Symbol



Cell List

ND4B1M0HM, ND4B1M1HM, ND4B1M2HM
, ND4B1M4HM, ND4B1M8HM

ND4B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00111	0.00122	0.00149	0.00280	0.00471
C	input	0.00108	0.00119	0.00147	0.00261	0.00466
D	input	0.00105	0.00115	0.00143	0.00259	0.00461
NA	input	0.00102	0.00102	0.00105	0.00128	0.00173
Z	output					

Power Dissipation (uW/MHz)

ND4B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0048 pF		0.0083 pF		0.0132 pF		0.0197 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0056	0.0015	0.0056	0.0015	0.0056	0.0015	0.0056	0.0015	0.0056	0.0015	0.0056	0.0015
C->Z	0.0046	0.0015	0.0046	0.0015	0.0046	0.0015	0.0046	0.0015	0.0046	0.0015	0.0046	0.0015
D->Z	0.0035	0.0015	0.0035	0.0015	0.0036	0.0015	0.0036	0.0015	0.0036	0.0015	0.0036	0.0015
NA->Z	0.0067	0.0064	0.0067	0.0064	0.0067	0.0064	0.0067	0.0064	0.0068	0.0064	0.0068	0.0064

ND4B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0101 pF		0.0163 pF		0.0245 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0062	0.0015	0.0062	0.0016	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016
C->Z	0.0051	0.0015	0.0051	0.0016	0.0051	0.0016	0.0051	0.0016	0.0051	0.0016	0.0051	0.0016
D->Z	0.0038	0.0015	0.0038	0.0015	0.0039	0.0016	0.0039	0.0016	0.0039	0.0016	0.0039	0.0016
NA->Z	0.0076	0.0067	0.0076	0.0067	0.0076	0.0067	0.0076	0.0067	0.0076	0.0067	0.0076	0.0067

ND4B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0037 pF		0.0078 pF		0.0141 pF		0.0230 pF		0.0347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0080	0.0015	0.0080	0.0015	0.0080	0.0016	0.0080	0.0016	0.0080	0.0016	0.0080	0.0016
C->Z	0.0064	0.0015	0.0064	0.0015	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016
D->Z	0.0047	0.0015	0.0048	0.0015	0.0048	0.0015	0.0049	0.0016	0.0049	0.0016	0.0049	0.0016
NA->Z	0.0097	0.0073	0.0097	0.0074	0.0097	0.0074	0.0097	0.0074	0.0097	0.0074	0.0097	0.0074

ND4B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0452 pF		0.0686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0168	0.0030	0.0168	0.0031	0.0169	0.0031	0.0169	0.0031	0.0169	0.0031	0.0169	0.0031
C->Z	0.0128	0.0030	0.0129	0.0031	0.0129	0.0031	0.0130	0.0031	0.0130	0.0031	0.0130	0.0031
D->Z	0.0080	0.0030	0.0082	0.0030	0.0084	0.0031	0.0085	0.0031	0.0085	0.0031	0.0086	0.0031
NA->Z	0.0199	0.0132	0.0200	0.0133	0.0200	0.0133	0.0200	0.0134	0.0200	0.0134	0.0200	0.0134

ND4B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1349 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0301	0.0056	0.0302	0.0057	0.0302	0.0058	0.0303	0.0058	0.0303	0.0058	0.0303	0.0058
C->Z	0.0230	0.0056	0.0232	0.0057	0.0234	0.0058	0.0235	0.0058	0.0235	0.0058	0.0235	0.0058
D->Z	0.0154	0.0055	0.0158	0.0056	0.0161	0.0057	0.0163	0.0058	0.0164	0.0058	0.0164	0.0058
NA->Z	0.0372	0.0206	0.0373	0.0208	0.0373	0.0210	0.0373	0.0210	0.0373	0.0211	0.0373	0.0211

Hidden Power (uW/MHz)

ND4B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0006	-0.0007	-0.0010	-0.0019	-0.0036
B	F	0.0006	0.0007	0.0010	0.0019	0.0036
C	R	-0.0005	-0.0005	-0.0007	-0.0012	-0.0023
C	F	0.0007	0.0008	0.0010	0.0019	0.0037
D	R	0.0002	0.0003	0.0004	0.0022	0.0028
D	F	0.0008	0.0010	0.0013	0.0025	0.0047
NA	R	0.0008	0.0009	0.0011	0.0020	0.0037
NA	F	0.0041	0.0042	0.0047	0.0080	0.0109

Propagation Delays (ns)

ND4B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0048 pF		0.0083 pF		0.0132 pF		0.0197 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1184	0.0771	0.1451	0.0950	0.1958	0.1290	0.2724	0.1807	0.3791	0.2530	0.5204	0.3488
C->Z	0.1053	0.0704	0.1317	0.0882	0.1820	0.1222	0.2581	0.1739	0.3644	0.2462	0.5052	0.3420
D->Z	0.0893	0.0598	0.1154	0.0777	0.1651	0.1117	0.2402	0.1634	0.3452	0.2357	0.4842	0.3316
NA->Z	0.1602	0.1519	0.1874	0.1700	0.2385	0.2043	0.3154	0.2561	0.4224	0.3284	0.5637	0.4243

ND4B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0057 pF		0.0101 pF		0.0163 pF		0.0245 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1077	0.0703	0.1351	0.0886	0.1855	0.1227	0.2642	0.1760	0.3746	0.2511	0.5203	0.3503
C->Z	0.0952	0.0638	0.1222	0.0821	0.1723	0.1161	0.2506	0.1694	0.3606	0.2445	0.5058	0.3438
D->Z	0.0798	0.0536	0.1066	0.0719	0.1561	0.1060	0.2334	0.1593	0.3420	0.2344	0.4854	0.3336
NA->Z	0.1501	0.1479	0.1779	0.1667	0.2287	0.2011	0.3075	0.2546	0.4178	0.3297	0.5630	0.4290

ND4B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0037 pF		0.0078 pF		0.0141 pF		0.0230 pF		0.0347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0947	0.0625	0.1222	0.0811	0.1750	0.1173	0.2555	0.1726	0.3686	0.2507	0.5170	0.3534
C->Z	0.0829	0.0561	0.1100	0.0748	0.1624	0.1109	0.2424	0.1663	0.3551	0.2444	0.5031	0.3471
D->Z	0.0682	0.0462	0.0952	0.0648	0.1470	0.1010	0.2261	0.1564	0.3374	0.2345	0.4836	0.3372
NA->Z	0.1408	0.1484	0.1688	0.1679	0.2220	0.2047	0.3026	0.2603	0.4156	0.3385	0.5634	0.4412

ND4B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0452 pF		0.0686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0920	0.0613	0.1210	0.0807	0.1742	0.1168	0.2563	0.1732	0.3712	0.2526	0.5210	0.3563
C->Z	0.0777	0.0527	0.1060	0.0721	0.1585	0.1082	0.2399	0.1646	0.3542	0.2440	0.5034	0.3477
D->Z	0.0583	0.0380	0.0864	0.0572	0.1381	0.0934	0.2186	0.1498	0.3316	0.2291	0.4791	0.3329
NA->Z	0.1378	0.1493	0.1673	0.1696	0.2211	0.2066	0.3036	0.2633	0.4188	0.3428	0.5685	0.4466

ND4B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1349 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0834	0.0565	0.1125	0.0766	0.1663	0.1141	0.2493	0.1726	0.3648	0.2544	0.5162	0.3618
C->Z	0.0705	0.0486	0.0990	0.0687	0.1521	0.1062	0.2345	0.1647	0.3496	0.2465	0.5006	0.3540
D->Z	0.0543	0.0366	0.0827	0.0566	0.1354	0.0941	0.2170	0.1526	0.3309	0.2344	0.4804	0.3419
NA->Z	0.1254	0.1321	0.1553	0.1530	0.2100	0.1912	0.2936	0.2499	0.4095	0.3318	0.5611	0.4393

Combinational Cell

ND4B2

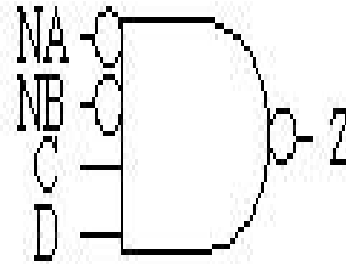
Cell Description

The ND4B2 cell provides a NAND gate with two inverted inputs (NA,NB) and two non-inverted inputs (C, D).

Truth Table

NA	NB	C	D	Z
1	X	X	X	1
X	1	X	X	1
X	X	0	X	1
X	X	X	0	1
0	0	1	1	0

Symbol



Cell List

ND4B2M0HM, ND4B2M1HM, ND4B2M2HM
, ND4B2M4HM, ND4B2M8HM

ND4B2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
C	input	0.00117	0.00128	0.00146	0.00325	0.00470
D	input	0.00117	0.00127	0.00147	0.00280	0.00473
NA	input	0.00099	0.00099	0.00099	0.00127	0.00177
NB	input	0.00101	0.00102	0.00103	0.00133	0.00177
Z	output					

Power Dissipation (uW/MHz)

ND4B2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0026 pF		0.0049 pF		0.0085 pF		0.0136 pF		0.0202 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0038	0.0022	0.0038	0.0022	0.0038	0.0022	0.0039	0.0022	0.0039	0.0022	0.0039	0.0022
D->Z	0.0048	0.0022	0.0048	0.0022	0.0048	0.0022	0.0048	0.0022	0.0048	0.0022	0.0048	0.0022
NA->Z	0.0060	0.0073	0.0060	0.0073	0.0060	0.0073	0.0060	0.0073	0.0060	0.0073	0.0060	0.0073
NB->Z	0.0036	0.0067	0.0037	0.0067	0.0037	0.0067	0.0037	0.0067	0.0038	0.0067	0.0038	0.0067

ND4B2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0058 pF		0.0103 pF		0.0166 pF		0.0249 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0043	0.0024	0.0043	0.0024	0.0043	0.0024	0.0043	0.0024	0.0043	0.0024	0.0043	0.0024
D->Z	0.0055	0.0024	0.0055	0.0024	0.0055	0.0024	0.0055	0.0024	0.0055	0.0024	0.0055	0.0024
NA->Z	0.0068	0.0077	0.0068	0.0077	0.0068	0.0077	0.0068	0.0077	0.0068	0.0077	0.0068	0.0077
NB->Z	0.0040	0.0070	0.0041	0.0071	0.0041	0.0071	0.0042	0.0071	0.0042	0.0071	0.0042	0.0071

ND4B2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0038 pF		0.0079 pF		0.0143 pF		0.0233 pF		0.0352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0052	0.0028	0.0053	0.0028	0.0053	0.0028	0.0053	0.0028	0.0053	0.0028	0.0053	0.0028
D->Z	0.0068	0.0028	0.0068	0.0028	0.0068	0.0028	0.0068	0.0028	0.0068	0.0028	0.0068	0.0028
NA->Z	0.0085	0.0086	0.0085	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0087	0.0086	0.0087
NB->Z	0.0048	0.0079	0.0049	0.0079	0.0050	0.0079	0.0051	0.0079	0.0051	0.0079	0.0051	0.0080

ND4B2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0066 pF		0.0150 pF		0.0280 pF		0.0463 pF		0.0704 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0095	0.0056	0.0096	0.0056	0.0097	0.0057	0.0098	0.0057	0.0098	0.0057	0.0098	0.0057
D->Z	0.0143	0.0056	0.0143	0.0056	0.0144	0.0057	0.0144	0.0057	0.0144	0.0057	0.0144	0.0057
NA->Z	0.0174	0.0158	0.0175	0.0159	0.0175	0.0160	0.0175	0.0160	0.0175	0.0160	0.0175	0.0161
NB->Z	0.0087	0.0135	0.0089	0.0136	0.0091	0.0136	0.0092	0.0137	0.0093	0.0137	0.0094	0.0137

ND4B2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0285 pF		0.0542 pF		0.0902 pF		0.1375 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0180	0.0103	0.0182	0.0104	0.0184	0.0105	0.0185	0.0105	0.0185	0.0105	0.0186	0.0105
D->Z	0.0251	0.0103	0.0251	0.0104	0.0252	0.0105	0.0253	0.0105	0.0253	0.0105	0.0253	0.0105
NA->Z	0.0320	0.0252	0.0321	0.0254	0.0321	0.0255	0.0321	0.0256	0.0321	0.0256	0.0321	0.0256
NB->Z	0.0148	0.0212	0.0153	0.0214	0.0157	0.0215	0.0159	0.0216	0.0160	0.0217	0.0161	0.0217

Hidden Power (uW/MHz)

ND4B2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
C	R	-0.0004	-0.0005	-0.0007	-0.0007	-0.0022
C	F	0.0007	0.0009	0.0011	0.0021	0.0038
D	R	-0.0006	-0.0007	-0.0010	-0.0019	-0.0036
D	F	0.0006	0.0007	0.0010	0.0019	0.0036
NA	R	0.0008	0.0009	0.0011	0.0020	0.0037
NA	F	0.0043	0.0044	0.0047	0.0080	0.0107
NB	R	0.0010	0.0011	0.0014	0.0026	0.0048
NB	F	0.0048	0.0050	0.0056	0.0094	0.0144

Propagation Delays (ns)

ND4B2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0026 pF		0.0049 pF		0.0085 pF		0.0136 pF		0.0202 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1037	0.0717	0.1323	0.0913	0.1826	0.1256	0.2608	0.1792	0.3713	0.2549	0.5142	0.3528
D->Z	0.1169	0.0786	0.1457	0.0982	0.1962	0.1325	0.2747	0.1860	0.3854	0.2617	0.5283	0.3596
NA->Z	0.1606	0.1552	0.1895	0.1752	0.2401	0.2098	0.3183	0.2634	0.4283	0.3392	0.5702	0.4372
NB->Z	0.1234	0.1350	0.1520	0.1551	0.2020	0.1897	0.2797	0.2433	0.3894	0.3190	0.5310	0.4169

ND4B2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0029 pF		0.0058 pF		0.0103 pF		0.0166 pF		0.0249 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0948	0.0662	0.1219	0.0848	0.1738	0.1204	0.2538	0.1753	0.3655	0.2520	0.5125	0.3530
D->Z	0.1076	0.0728	0.1349	0.0914	0.1871	0.1270	0.2673	0.1819	0.3792	0.2586	0.5264	0.3596
NA->Z	0.1523	0.1518	0.1798	0.1708	0.2320	0.2068	0.3121	0.2619	0.4235	0.3387	0.5696	0.4397
NB->Z	0.1167	0.1322	0.1437	0.1515	0.1954	0.1875	0.2748	0.2424	0.3855	0.3191	0.5311	0.4201

ND4B2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0038 pF		0.0079 pF		0.0143 pF		0.0233 pF		0.0352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0827	0.0590	0.1114	0.0790	0.1641	0.1155	0.2457	0.1720	0.3600	0.2512	0.5110	0.3558
D->Z	0.0951	0.0655	0.1239	0.0854	0.1767	0.1219	0.2585	0.1784	0.3730	0.2576	0.5241	0.3622
NA->Z	0.1412	0.1506	0.1703	0.1712	0.2234	0.2083	0.3052	0.2650	0.4194	0.3443	0.5697	0.4490
NB->Z	0.1097	0.1333	0.1385	0.1546	0.1911	0.1918	0.2726	0.2484	0.3866	0.3275	0.5370	0.4321

ND4B2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0066 pF		0.0150 pF		0.0280 pF		0.0463 pF		0.0704 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0734	0.0533	0.1023	0.0736	0.1566	0.1114	0.2398	0.1691	0.3565	0.2501	0.5099	0.3566
D->Z	0.0919	0.0639	0.1213	0.0842	0.1762	0.1219	0.2601	0.1796	0.3775	0.2606	0.5317	0.3672
NA->Z	0.1382	0.1520	0.1680	0.1732	0.2234	0.2117	0.3076	0.2698	0.4252	0.3509	0.5792	0.4575
NB->Z	0.0985	0.1227	0.1278	0.1444	0.1824	0.1828	0.2660	0.2405	0.3831	0.3214	0.5370	0.4279

ND4B2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0285 pF		0.0542 pF		0.0902 pF		0.1375 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0693	0.0530	0.0984	0.0741	0.1528	0.1132	0.2370	0.1737	0.3545	0.2583	0.5087	0.3694
D->Z	0.0832	0.0611	0.1125	0.0821	0.1672	0.1212	0.2517	0.1817	0.3695	0.2663	0.5239	0.3774
NA->Z	0.1252	0.1361	0.1551	0.1579	0.2104	0.1975	0.2955	0.2583	0.4136	0.3430	0.5681	0.4542
NB->Z	0.0867	0.1060	0.1158	0.1279	0.1702	0.1672	0.2542	0.2277	0.3715	0.3123	0.5252	0.4233

Combinational Cell

ND4

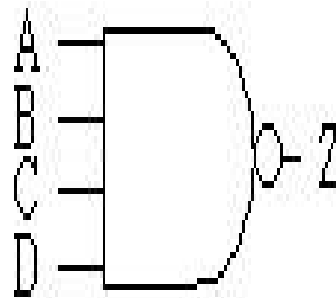
Cell Description

The ND4 cell provides a NAND gate with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	X	X	X	1
X	0	X	X	1
X	X	0	X	1
X	X	X	0	1
1	1	1	1	0

Symbol



Cell List

ND4M0HM, ND4M1HM, ND4M2HM
, ND4M4HM, ND4M6HM
, ND4M8HM, ND4M12HM
, ND4M16HM

ND4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00104	0.00114	0.00144	0.00257	0.00130	0.00456	0.00713	0.00894
B	input	0.00107	0.00116	0.00144	0.00263	0.00114	0.00466	0.00747	0.00927
C	input	0.00111	0.00120	0.00146	0.00267	0.00136	0.00471	0.00735	0.00932
D	input	0.00103	0.00112	0.00141	0.00269	0.00131	0.00476	0.00751	0.00936
Z	output								

Power Dissipation (uW/MHz)

ND4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0088 pF		0.0141 pF		0.0210 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0037	0.0011	0.0038	0.0011	0.0038	0.0011	0.0038	0.0011	0.0038	0.0011	0.0038	0.0011
B->Z	0.0048	0.0011	0.0049	0.0011	0.0049	0.0011	0.0049	0.0011	0.0049	0.0011	0.0049	0.0011
C->Z	0.0059	0.0011	0.0059	0.0011	0.0059	0.0011	0.0059	0.0011	0.0059	0.0011	0.0059	0.0011
D->Z	0.0068	0.0011	0.0068	0.0011	0.0069	0.0011	0.0069	0.0011	0.0069	0.0011	0.0069	0.0011

ND4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0030 pF		0.0060 pF		0.0107 pF		0.0173 pF		0.0260 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0039	0.0012	0.0039	0.0012	0.0040	0.0012	0.0040	0.0012	0.0040	0.0012	0.0040	0.0012
B->Z	0.0052	0.0012	0.0052	0.0012	0.0053	0.0012	0.0053	0.0012	0.0053	0.0012	0.0053	0.0012
C->Z	0.0064	0.0012	0.0064	0.0012	0.0065	0.0012	0.0065	0.0012	0.0065	0.0012	0.0065	0.0012
D->Z	0.0076	0.0012	0.0076	0.0012	0.0076	0.0012	0.0076	0.0012	0.0076	0.0012	0.0076	0.0012

ND4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0039 pF		0.0081 pF		0.0148 pF		0.0242 pF		0.0364 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0051	0.0013	0.0052	0.0013	0.0053	0.0014	0.0053	0.0014	0.0053	0.0014	0.0054	0.0014
B->Z	0.0069	0.0013	0.0069	0.0014	0.0070	0.0014	0.0070	0.0014	0.0070	0.0014	0.0070	0.0014
C->Z	0.0085	0.0013	0.0085	0.0014	0.0085	0.0014	0.0086	0.0014	0.0086	0.0014	0.0086	0.0014
D->Z	0.0100	0.0013	0.0100	0.0014	0.0100	0.0014	0.0100	0.0014	0.0100	0.0014	0.0100	0.0014

ND4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0023 pF		0.0068 pF		0.0155 pF		0.0289 pF		0.0478 pF		0.0727 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0090	0.0026	0.0092	0.0027	0.0094	0.0027	0.0095	0.0027	0.0095	0.0028	0.0096	0.0028
B->Z	0.0139	0.0027	0.0139	0.0027	0.0140	0.0027	0.0140	0.0027	0.0141	0.0028	0.0141	0.0028
C->Z	0.0178	0.0027	0.0178	0.0027	0.0178	0.0027	0.0178	0.0028	0.0178	0.0028	0.0178	0.0028
D->Z	0.0216	0.0027	0.0216	0.0027	0.0216	0.0027	0.0216	0.0028	0.0216	0.0028	0.0216	0.0028

ND4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0410 pF		0.0783 pF		0.1307 pF		0.1995 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0191	0.0166	0.0194	0.0164	0.0197	0.0165	0.0199	0.0166	0.0201	0.0166	0.0202	0.0167
B->Z	0.0201	0.0166	0.0203	0.0164	0.0207	0.0165	0.0209	0.0166	0.0211	0.0166	0.0212	0.0167
C->Z	0.0190	0.0180	0.0192	0.0178	0.0195	0.0179	0.0198	0.0180	0.0199	0.0180	0.0201	0.0180
D->Z	0.0200	0.0180	0.0202	0.0178	0.0205	0.0179	0.0208	0.0180	0.0209	0.0180	0.0210	0.0180

ND4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0125 pF		0.0295 pF		0.0561 pF		0.0934 pF		0.1425 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0155	0.0049	0.0159	0.0050	0.0162	0.0051	0.0164	0.0051	0.0165	0.0052	0.0165	0.0052
B->Z	0.0230	0.0050	0.0232	0.0051	0.0233	0.0051	0.0234	0.0052	0.0235	0.0052	0.0235	0.0052
C->Z	0.0298	0.0050	0.0299	0.0051	0.0299	0.0051	0.0299	0.0052	0.0300	0.0052	0.0300	0.0052
D->Z	0.0361	0.0050	0.0362	0.0051	0.0362	0.0051	0.0362	0.0052	0.0362	0.0052	0.0362	0.0052

ND4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0048 pF		0.0182 pF		0.0439 pF		0.0838 pF		0.1398 pF		0.2135 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0246	0.0074	0.0253	0.0076	0.0258	0.0077	0.0261	0.0078	0.0262	0.0078	0.0263	0.0079
B->Z	0.0370	0.0075	0.0373	0.0077	0.0375	0.0078	0.0376	0.0078	0.0377	0.0079	0.0377	0.0079
C->Z	0.0480	0.0075	0.0481	0.0077	0.0482	0.0078	0.0483	0.0078	0.0483	0.0079	0.0483	0.0079
D->Z	0.0581	0.0075	0.0581	0.0077	0.0582	0.0078	0.0582	0.0078	0.0582	0.0079	0.0582	0.0079

ND4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0061 pF		0.0240 pF		0.0581 pF		0.1113 pF		0.1859 pF		0.2841 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0306	0.0097	0.0315	0.0099	0.0321	0.0101	0.0325	0.0102	0.0327	0.0102	0.0328	0.0102
B->Z	0.0466	0.0098	0.0471	0.0100	0.0473	0.0101	0.0475	0.0102	0.0476	0.0102	0.0476	0.0102
C->Z	0.0606	0.0098	0.0608	0.0100	0.0609	0.0101	0.0610	0.0102	0.0610	0.0102	0.0611	0.0102
D->Z	0.0739	0.0098	0.0739	0.0100	0.0740	0.0101	0.0740	0.0102	0.0740	0.0102	0.0740	0.0102

Hidden Power (uW/MHz)

ND4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	0.0003	0.0003	0.0004	0.0024	0.0004	0.0027	0.0049	0.0065
A	F	0.0008	0.0010	0.0013	0.0025	0.0033	0.0047	0.0072	0.0093
B	R	-0.0004	-0.0005	-0.0007	-0.0011	0.0003	-0.0023	-0.0034	-0.0045
B	F	0.0007	0.0008	0.0010	0.0019	0.0036	0.0037	0.0057	0.0074
C	R	-0.0006	-0.0007	-0.0010	-0.0019	0.0006	-0.0036	-0.0055	-0.0072
C	F	0.0006	0.0007	0.0010	0.0019	0.0028	0.0036	0.0055	0.0072
D	R	-0.0006	-0.0007	-0.0010	-0.0019	0.0004	-0.0036	-0.0055	-0.0072
D	F	0.0006	0.0007	0.0010	0.0019	0.0032	0.0036	0.0055	0.0072

Propagation Delays (ns)

ND4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0088 pF		0.0141 pF		0.0210 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0900	0.0604	0.1161	0.0783	0.1678	0.1140	0.2492	0.1704	0.3625	0.2490	0.5098	0.3512
B->Z	0.1066	0.0715	0.1330	0.0894	0.1853	0.1250	0.2678	0.1814	0.3825	0.2600	0.5317	0.3623
C->Z	0.1199	0.0786	0.1466	0.0965	0.1993	0.1322	0.2821	0.1886	0.3971	0.2672	0.5466	0.3695
D->Z	0.1295	0.0826	0.1563	0.1006	0.2089	0.1362	0.2913	0.1926	0.4053	0.2712	0.5532	0.3735

ND4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0030 pF		0.0060 pF		0.0107 pF		0.0173 pF		0.0260 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0777	0.0521	0.1063	0.0718	0.1592	0.1084	0.2416	0.1656	0.3570	0.2458	0.5089	0.3516
B->Z	0.0936	0.0629	0.1225	0.0825	0.1760	0.1191	0.2595	0.1762	0.3764	0.2565	0.5303	0.3622
C->Z	0.1063	0.0698	0.1355	0.0894	0.1894	0.1260	0.2733	0.1831	0.3905	0.2634	0.5446	0.3691
D->Z	0.1154	0.0736	0.1448	0.0932	0.1987	0.1298	0.2820	0.1869	0.3982	0.2672	0.5508	0.3729

ND4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0039 pF		0.0081 pF		0.0148 pF		0.0242 pF		0.0364 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0696	0.0472	0.0991	0.0676	0.1520	0.1047	0.2360	0.1638	0.3535	0.2465	0.5058	0.3539
B->Z	0.0846	0.0575	0.1143	0.0780	0.1679	0.1151	0.2528	0.1741	0.3717	0.2568	0.5258	0.3642
C->Z	0.0966	0.0642	0.1267	0.0846	0.1807	0.1217	0.2660	0.1807	0.3852	0.2635	0.5395	0.3709
D->Z	0.1053	0.0679	0.1356	0.0883	0.1897	0.1254	0.2746	0.1844	0.3929	0.2671	0.5458	0.3745

ND4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0023 pF		0.0068 pF		0.0155 pF		0.0289 pF		0.0478 pF		0.0727 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0607	0.0396	0.0900	0.0598	0.1455	0.0987	0.2302	0.1585	0.3494	0.2427	0.5062	0.3535
B->Z	0.0804	0.0548	0.1099	0.0751	0.1661	0.1140	0.2518	0.1737	0.3723	0.2579	0.5308	0.3687
C->Z	0.0943	0.0634	0.1244	0.0837	0.1812	0.1226	0.2675	0.1823	0.3884	0.2665	0.5472	0.3773
D->Z	0.1053	0.0684	0.1359	0.0887	0.1932	0.1276	0.2795	0.1873	0.3998	0.2715	0.5575	0.3823

ND4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0171 pF		0.0410 pF		0.0783 pF		0.1307 pF		0.1995 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1822	0.1952	0.2143	0.2213	0.2728	0.2572	0.3637	0.3022	0.4910	0.3585	0.6579	0.4286
B->Z	0.1926	0.1988	0.2247	0.2249	0.2832	0.2607	0.3740	0.3058	0.5013	0.3621	0.6683	0.4321
C->Z	0.1808	0.2045	0.2130	0.2306	0.2716	0.2664	0.3625	0.3114	0.4899	0.3678	0.6569	0.4378
D->Z	0.1941	0.2080	0.2264	0.2340	0.2849	0.2698	0.3758	0.3149	0.5032	0.3712	0.6702	0.4413

ND4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0125 pF		0.0295 pF		0.0561 pF		0.0934 pF		0.1425 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0538	0.0373	0.0838	0.0590	0.1393	0.0997	0.2253	0.1631	0.3455	0.2520	0.5036	0.3690
B->Z	0.0695	0.0494	0.0996	0.0712	0.1555	0.1119	0.2423	0.1753	0.3636	0.2642	0.5230	0.3812
C->Z	0.0818	0.0573	0.1125	0.0790	0.1690	0.1197	0.2562	0.1831	0.3779	0.2720	0.5376	0.3890
D->Z	0.0910	0.0616	0.1223	0.0833	0.1793	0.1240	0.2667	0.1875	0.3879	0.2764	0.5468	0.3933

ND4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0048 pF		0.0182 pF		0.0439 pF		0.0838 pF		0.1398 pF		0.2135 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0544	0.0354	0.0842	0.0556	0.1401	0.0941	0.2262	0.1535	0.3464	0.2368	0.5045	0.3464
B->Z	0.0715	0.0478	0.1014	0.0681	0.1577	0.1066	0.2443	0.1660	0.3655	0.2493	0.5248	0.3589
C->Z	0.0849	0.0559	0.1154	0.0761	0.1724	0.1146	0.2595	0.1740	0.3812	0.2573	0.5407	0.3669
D->Z	0.0949	0.0601	0.1260	0.0803	0.1836	0.1187	0.2710	0.1782	0.3924	0.2615	0.5514	0.3711

ND4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0061 pF		0.0240 pF		0.0581 pF		0.1113 pF		0.1859 pF		0.2841 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0520	0.0359	0.0820	0.0578	0.1378	0.0991	0.2241	0.1632	0.3447	0.2532	0.5033	0.3715
B->Z	0.0687	0.0492	0.0988	0.0711	0.1551	0.1124	0.2420	0.1766	0.3635	0.2665	0.5233	0.3848
C->Z	0.0813	0.0575	0.1120	0.0794	0.1690	0.1207	0.2565	0.1848	0.3785	0.2747	0.5386	0.3930
D->Z	0.0907	0.0621	0.1223	0.0840	0.1799	0.1253	0.2677	0.1894	0.3895	0.2793	0.5491	0.3976

Combinational Cell

NR2B1

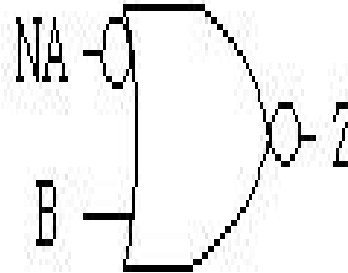
Cell Description

The NR2B1 cell provides a NOR gate with one inverted input (NA) and one non-inverted input (B).

Truth Table

NA	B	Z
1	0	1
X	1	0
0	X	0

Symbol



Cell List

NR2B1M0HM, NR2B1M1HM, NR2B1M2HM
, NR2B1M4HM, NR2B1M8HM
, NR2B1M12HM

NR2B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM	M12HM
B	input	0.00122	0.00137	0.00148	0.00287	0.00591	0.00871
NA	input	0.00100	0.00100	0.00100	0.00127	0.00176	0.00303
Z	output						

Power Dissipation (uW/MHz)

NR2B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0124 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0033	0.0002	0.0033	0.0002	0.0033	0.0002	0.0034	0.0003	0.0034	0.0003	0.0034	0.0003
NA->Z	0.0042	0.0060	0.0042	0.0060	0.0042	0.0061	0.0042	0.0061	0.0043	0.0061	0.0043	0.0061

NR2B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0063 pF		0.0112 pF		0.0182 pF		0.0273 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0037	0.0002	0.0038	0.0003	0.0038	0.0003	0.0038	0.0003	0.0039	0.0004	0.0039	0.0004
NA->Z	0.0049	0.0067	0.0050	0.0067	0.0050	0.0067	0.0050	0.0067	0.0050	0.0067	0.0050	0.0067

NR2B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0074 pF		0.0133 pF		0.0216 pF		0.0326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0040	0.0003	0.0040	0.0003	0.0041	0.0004	0.0041	0.0004	0.0041	0.0004	0.0041	0.0004
NA->Z	0.0054	0.0071	0.0054	0.0071	0.0054	0.0071	0.0055	0.0071	0.0055	0.0071	0.0055	0.0071

NR2B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0062 pF		0.0138 pF		0.0257 pF		0.0425 pF		0.0645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0085	-0.0002	0.0086	-0.0001	0.0087	0.0000	0.0088	0.0001	0.0089	0.0001	0.0089	0.0001
NA->Z	0.0111	0.0124	0.0112	0.0124	0.0113	0.0125	0.0113	0.0125	0.0114	0.0125	0.0114	0.0125

NR2B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0266 pF		0.0504 pF		0.0838 pF		0.1277 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0160	-0.0005	0.0163	-0.0002	0.0166	0.0000	0.0167	0.0001	0.0168	0.0002	0.0169	0.0002
NA->Z	0.0211	0.0219	0.0214	0.0220	0.0216	0.0221	0.0217	0.0222	0.0218	0.0222	0.0218	0.0222

NR2B1M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0164 pF		0.0394 pF		0.0751 pF		0.1253 pF		0.1913 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0231	-0.0008	0.0236	-0.0003	0.0239	0.0000	0.0242	0.0002	0.0243	0.0003	0.0244	0.0003
NA->Z	0.0304	0.0322	0.0307	0.0324	0.0310	0.0326	0.0312	0.0327	0.0313	0.0327	0.0313	0.0327

Hidden Power (uW/MHz)

NR2B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM	M12HM
B	R	-0.0003	-0.0004	-0.0005	-0.0010	-0.0020	-0.0030
B	F	0.0007	0.0010	0.0012	0.0026	0.0050	0.0073
NA	R	0.0011	0.0015	0.0017	0.0032	0.0063	0.0090
NA	F	0.0042	0.0042	0.0042	0.0072	0.0116	0.0171

Propagation Delays (ns)

NR2B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0124 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0834	0.0266	0.1115	0.0331	0.1643	0.0448	0.2469	0.0628	0.3616	0.0879	0.5135	0.1210
NA->Z	0.1285	0.1062	0.1564	0.1144	0.2091	0.1284	0.2916	0.1482	0.4062	0.1739	0.5580	0.2069

NR2B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0063 pF		0.0112 pF		0.0182 pF		0.0273 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0671	0.0295	0.0950	0.0388	0.1501	0.0564	0.2339	0.0831	0.3533	0.1212	0.5083	0.1706
NA->Z	0.1138	0.1182	0.1415	0.1297	0.1964	0.1500	0.2801	0.1781	0.3995	0.2161	0.5544	0.2648

NR2B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0074 pF		0.0133 pF		0.0216 pF		0.0326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0612	0.0311	0.0904	0.0426	0.1453	0.0635	0.2300	0.0956	0.3490	0.1407	0.5065	0.2005
NA->Z	0.1090	0.1249	0.1381	0.1390	0.1928	0.1625	0.2775	0.1957	0.3964	0.2405	0.5538	0.2992

NR2B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0062 pF		0.0138 pF		0.0257 pF		0.0425 pF		0.0645 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0532	0.0234	0.0838	0.0333	0.1396	0.0501	0.2261	0.0759	0.3480	0.1122	0.5073	0.1597
NA->Z	0.1024	0.1184	0.1328	0.1319	0.1884	0.1530	0.2749	0.1820	0.3967	0.2201	0.5560	0.2686

NR2B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0266 pF		0.0504 pF		0.0838 pF		0.1277 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0486	0.0222	0.0789	0.0321	0.1357	0.0496	0.2233	0.0761	0.3459	0.1130	0.5068	0.1616
NA->Z	0.0986	0.1157	0.1287	0.1295	0.1854	0.1514	0.2730	0.1812	0.3955	0.2200	0.5564	0.2695

NR2B1M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0164 pF		0.0394 pF		0.0751 pF		0.1253 pF		0.1913 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0463	0.0219	0.0767	0.0324	0.1337	0.0506	0.2215	0.0782	0.3446	0.1169	0.5062	0.1676
NA->Z	0.0899	0.1038	0.1200	0.1174	0.1769	0.1392	0.2646	0.1692	0.3876	0.2090	0.5492	0.2605

Combinational Cell

NR2

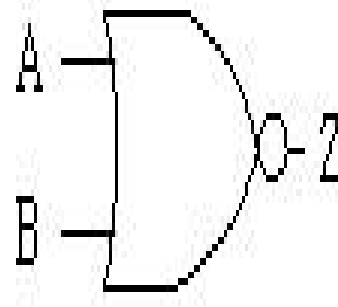
Cell Description

The NR2 cell provides a NOR gate with two inputs (A, B).

Truth Table

A	B	Z
0	0	1
X	1	0
1	X	0

Symbol



Cell List

NR2M0HM, NR2M1HM, NR2M2HM
 , NR2M3HM, NR2M4HM
 , NR2M5HM, NR2M6HM
 , NR2M8HM, NR2M12HM
 , NR2M16HM

NR2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M5HM
A	input	0.00116	0.00129	0.00158	0.00230	0.00274	0.00406
B	input	0.00111	0.00124	0.00154	0.00269	0.00296	0.00408
Z	output						
M6HM	M8HM	M12HM	M16HM				
0.00451	0.00575	0.00885	0.01192				
0.00442	0.00643	0.00941	0.01256				

Power Dissipation (uW/MHz)

NR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0125 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0032	0.0002	0.0032	0.0002	0.0032	0.0002	0.0033	0.0002	0.0033	0.0003	0.0033	0.0003
B->Z	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007	0.0040	0.0007

NR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0055 pF		0.0096 pF		0.0155 pF		0.0232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0035	0.0002	0.0035	0.0002	0.0036	0.0003	0.0036	0.0003	0.0036	0.0003	0.0036	0.0003
B->Z	0.0044	0.0008	0.0044	0.0008	0.0045	0.0008	0.0045	0.0008	0.0045	0.0008	0.0045	0.0008

NR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0074 pF		0.0133 pF		0.0216 pF		0.0326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0043	0.0003	0.0044	0.0003	0.0044	0.0003	0.0045	0.0004	0.0045	0.0004	0.0045	0.0004
B->Z	0.0056	0.0011	0.0056	0.0011	0.0057	0.0011	0.0057	0.0011	0.0057	0.0011	0.0057	0.0011

NR2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0051 pF		0.0112 pF		0.0207 pF		0.0340 pF		0.0515 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0062	-0.0002	0.0064	-0.0001	0.0064	0.0000	0.0065	0.0001	0.0065	0.0001	0.0065	0.0001
B->Z	0.0083	0.0012	0.0084	0.0012	0.0084	0.0012	0.0085	0.0012	0.0085	0.0012	0.0085	0.0012

NR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0139 pF		0.0260 pF		0.0429 pF		0.0651 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0073	-0.0002	0.0074	-0.0001	0.0075	0.0000	0.0075	0.0001	0.0075	0.0001	0.0076	0.0001
B->Z	0.0098	0.0014	0.0099	0.0015	0.0099	0.0015	0.0099	0.0015	0.0100	0.0015	0.0100	0.0015

NR2M5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0075 pF		0.0173 pF		0.0324 pF		0.0537 pF		0.0817 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0104	-0.0000	0.0106	0.0001	0.0108	0.0003	0.0108	0.0004	0.0109	0.0004	0.0109	0.0004
B->Z	0.0137	0.0021	0.0138	0.0022	0.0139	0.0022	0.0140	0.0022	0.0140	0.0022	0.0141	0.0022

NR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0088 pF		0.0203 pF		0.0383 pF		0.0635 pF		0.0967 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0114	-0.0001	0.0117	0.0001	0.0118	0.0003	0.0119	0.0004	0.0120	0.0004	0.0120	0.0005
B->Z	0.0152	0.0024	0.0154	0.0025	0.0155	0.0025	0.0155	0.0025	0.0156	0.0025	0.0156	0.0025

NR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0267 pF		0.0506 pF		0.0841 pF		0.1282 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0162	-0.0005	0.0165	-0.0002	0.0168	0.0001	0.0169	0.0002	0.0170	0.0002	0.0171	0.0003
B->Z	0.0214	0.0029	0.0216	0.0030	0.0217	0.0030	0.0218	0.0030	0.0219	0.0031	0.0219	0.0031

NR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0164 pF		0.0394 pF		0.0752 pF		0.1253 pF		0.1913 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0240	-0.0008	0.0245	-0.0003	0.0249	0.0000	0.0251	0.0002	0.0252	0.0003	0.0253	0.0003
B->Z	0.0317	0.0044	0.0321	0.0045	0.0323	0.0045	0.0325	0.0046	0.0325	0.0046	0.0326	0.0046

NR2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0522 pF		0.0999 pF		0.1668 pF		0.2548 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0314	-0.0009	0.0321	-0.0002	0.0326	0.0002	0.0329	0.0005	0.0330	0.0006	0.0331	0.0007
B->Z	0.0417	0.0059	0.0422	0.0061	0.0425	0.0061	0.0427	0.0062	0.0428	0.0062	0.0429	0.0062

Hidden Power (uW/MHz)

NR2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M5HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0003	-0.0004	-0.0007	-0.0009	-0.0011	-0.0013	-0.0018	-0.0026	-0.0035
A	F	0.0006	0.0008	0.0010	0.0017	0.0020	0.0026	0.0030	0.0041	0.0062	0.0081
B	R	-0.0008	-0.0010	-0.0014	-0.0022	-0.0027	-0.0035	-0.0041	-0.0055	-0.0082	-0.0109
B	F	0.0009	0.0011	0.0015	0.0025	0.0031	0.0040	0.0047	0.0062	0.0093	0.0124

Propagation Delays (ns)

NR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0125 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0819	0.0330	0.1097	0.0417	0.1623	0.0577	0.2446	0.0827	0.3616	0.1182	0.5107	0.1633
B->Z	0.0937	0.0367	0.1214	0.0454	0.1738	0.0614	0.2560	0.0862	0.3729	0.1213	0.5219	0.1658

NR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0028 pF		0.0055 pF		0.0096 pF		0.0155 pF		0.0232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0727	0.0303	0.1013	0.0394	0.1557	0.0561	0.2380	0.0812	0.3560	0.1172	0.5099	0.1642
B->Z	0.0842	0.0339	0.1126	0.0430	0.1668	0.0596	0.2489	0.0845	0.3669	0.1200	0.5207	0.1662

NR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0074 pF		0.0133 pF		0.0216 pF		0.0326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0635	0.0277	0.0927	0.0373	0.1475	0.0544	0.2321	0.0806	0.3507	0.1174	0.5078	0.1661
B->Z	0.0746	0.0318	0.1036	0.0414	0.1582	0.0588	0.2426	0.0853	0.3612	0.1223	0.5182	0.1711

NR2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0051 pF		0.0112 pF		0.0207 pF		0.0340 pF		0.0515 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0534	0.0255	0.0833	0.0361	0.1395	0.0550	0.2263	0.0838	0.3477	0.1241	0.5071	0.1770
B->Z	0.0651	0.0300	0.0948	0.0408	0.1507	0.0599	0.2374	0.0891	0.3586	0.1296	0.5180	0.1827

NR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0139 pF		0.0260 pF		0.0429 pF		0.0651 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0495	0.0282	0.0791	0.0412	0.1352	0.0648	0.2228	0.1014	0.3448	0.1524	0.5051	0.2193
B->Z	0.0607	0.0340	0.0901	0.0472	0.1459	0.0712	0.2333	0.1082	0.3554	0.1596	0.5156	0.2269

NR2M5HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0075 pF		0.0173 pF		0.0324 pF		0.0537 pF		0.0817 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0522	0.0238	0.0817	0.0336	0.1384	0.0514	0.2251	0.0781	0.3471	0.1157	0.5073	0.1651
B->Z	0.0639	0.0275	0.0931	0.0374	0.1496	0.0553	0.2362	0.0820	0.3580	0.1194	0.5181	0.1684

NR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0088 pF		0.0203 pF		0.0383 pF		0.0635 pF		0.0967 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0489	0.0230	0.0794	0.0333	0.1358	0.0513	0.2233	0.0787	0.3456	0.1170	0.5064	0.1674
B->Z	0.0602	0.0285	0.0904	0.0398	0.1464	0.0595	0.2338	0.0896	0.3559	0.1314	0.5167	0.1862

NR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0267 pF		0.0506 pF		0.0841 pF		0.1282 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0492	0.0224	0.0793	0.0324	0.1361	0.0501	0.2237	0.0767	0.3461	0.1140	0.5070	0.1630
B->Z	0.0607	0.0264	0.0905	0.0365	0.1472	0.0544	0.2345	0.0814	0.3568	0.1188	0.5176	0.1680

NR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0164 pF		0.0394 pF		0.0752 pF		0.1253 pF		0.1913 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0475	0.0218	0.0778	0.0319	0.1347	0.0495	0.2225	0.0761	0.3451	0.1132	0.5064	0.1621
B->Z	0.0593	0.0257	0.0892	0.0359	0.1459	0.0538	0.2336	0.0807	0.3560	0.1181	0.5173	0.1671

NR2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0522 pF		0.0999 pF		0.1668 pF		0.2548 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0467	0.0219	0.0771	0.0323	0.1340	0.0503	0.2219	0.0777	0.3450	0.1160	0.5066	0.1664
B->Z	0.0584	0.0259	0.0885	0.0364	0.1451	0.0547	0.2329	0.0824	0.3558	0.1209	0.5174	0.1713

Combinational Cell

NR3B1

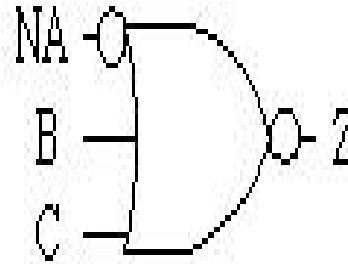
Cell Description

The NR3B1 cell provides a NOR gate with one inverted input (NA) and two non-inverted inputs (B, C).

Truth Table

NA	B	C	Z
1	0	0	1
X	X	1	0
X	1	X	0
0	X	X	0

Symbol



Cell List

NR3B1M0HM, NR3B1M1HM, NR3B1M2HM
, NR3B1M4HM, NR3B1M8HM

NR3B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00113	0.00124	0.00151	0.00301	0.00600
C	input	0.00110	0.00120	0.00147	0.00265	0.00540
NA	input	0.00109	0.00108	0.00107	0.00127	0.00173
Z	output					

Power Dissipation (uW/MHz)

NR3B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0019 pF		0.0031 pF		0.0051 pF		0.0079 pF		0.0116 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0047	0.0008	0.0047	0.0008	0.0047	0.0008	0.0047	0.0008	0.0047	0.0008	0.0047	0.0008
C->Z	0.0040	0.0002	0.0040	0.0002	0.0040	0.0002	0.0040	0.0003	0.0040	0.0003	0.0040	0.0003
NA->Z	0.0055	0.0064	0.0055	0.0064	0.0055	0.0064	0.0055	0.0064	0.0056	0.0064	0.0056	0.0064

NR3B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0052	0.0010	0.0052	0.0010	0.0052	0.0010	0.0052	0.0010	0.0052	0.0010	0.0052	0.0010
C->Z	0.0042	0.0002	0.0043	0.0003	0.0043	0.0003	0.0043	0.0003	0.0043	0.0003	0.0043	0.0003
NA->Z	0.0061	0.0068	0.0061	0.0068	0.0062	0.0069	0.0062	0.0069	0.0062	0.0069	0.0062	0.0069

NR3B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0207 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0065	0.0013	0.0066	0.0013
C->Z	0.0052	0.0003	0.0052	0.0003	0.0053	0.0004	0.0053	0.0004	0.0053	0.0004	0.0053	0.0004
NA->Z	0.0079	0.0081	0.0079	0.0081	0.0079	0.0082	0.0079	0.0082	0.0080	0.0082	0.0080	0.0082

NR3B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0093 pF		0.0170 pF		0.0278 pF		0.0420 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0111	0.0019	0.0112	0.0019	0.0112	0.0019	0.0113	0.0019	0.0113	0.0019	0.0113	0.0019
C->Z	0.0086	-0.0002	0.0087	-0.0001	0.0087	0.0000	0.0088	0.0001	0.0088	0.0001	0.0089	0.0001
NA->Z	0.0135	0.0136	0.0135	0.0136	0.0136	0.0137	0.0136	0.0137	0.0137	0.0137	0.0137	0.0137

NR3B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0174 pF		0.0327 pF		0.0542 pF		0.0824 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0259	0.0045	0.0260	0.0046	0.0261	0.0046	0.0262	0.0046	0.0263	0.0047	0.0263	0.0047
C->Z	0.0184	-0.0005	0.0186	-0.0002	0.0188	-0.0000	0.0190	0.0001	0.0191	0.0002	0.0191	0.0002
NA->Z	0.0305	0.0256	0.0307	0.0257	0.0308	0.0257	0.0309	0.0258	0.0310	0.0258	0.0310	0.0258

Hidden Power (uW/MHz)

NR3B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0006	-0.0008	-0.0010	-0.0020	-0.0039
B	F	0.0007	0.0009	0.0012	0.0024	0.0046
C	R	-0.0003	-0.0003	-0.0004	-0.0009	-0.0016
C	F	0.0009	0.0010	0.0014	0.0028	0.0062
NA	R	0.0011	0.0013	0.0019	0.0033	0.0066
NA	F	0.0039	0.0039	0.0042	0.0067	0.0110

Propagation Delays (ns)

NR3B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0019 pF		0.0031 pF		0.0051 pF		0.0079 pF		0.0116 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1496	0.0439	0.1762	0.0502	0.2217	0.0608	0.2972	0.0783	0.4028	0.1026	0.5420	0.1346
C->Z	0.1216	0.0389	0.1483	0.0452	0.1940	0.0558	0.2697	0.0734	0.3754	0.0980	0.5147	0.1304
NA->Z	0.1921	0.1243	0.2188	0.1318	0.2643	0.1439	0.3399	0.1628	0.4455	0.1882	0.5847	0.2210

NR3B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1302	0.0390	0.1578	0.0456	0.2066	0.0569	0.2857	0.0751	0.3950	0.0999	0.5374	0.1322
C->Z	0.1029	0.0339	0.1307	0.0404	0.1797	0.0516	0.2590	0.0695	0.3684	0.0943	0.5109	0.1266
NA->Z	0.1736	0.1214	0.2012	0.1294	0.2501	0.1425	0.3292	0.1623	0.4385	0.1883	0.5809	0.2212

NR3B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0207 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1157	0.0366	0.1421	0.0432	0.1945	0.0558	0.2751	0.0749	0.3881	0.1014	0.5356	0.1360
C->Z	0.0892	0.0317	0.1158	0.0383	0.1685	0.0509	0.2492	0.0700	0.3623	0.0968	0.5100	0.1317
NA->Z	0.1636	0.1315	0.1900	0.1399	0.2425	0.1553	0.3232	0.1769	0.4362	0.2052	0.5838	0.2410

NR3B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0093 pF		0.0170 pF		0.0278 pF		0.0420 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0916	0.0344	0.1205	0.0430	0.1757	0.0585	0.2601	0.0818	0.3784	0.1142	0.5337	0.1565
C->Z	0.0648	0.0285	0.0940	0.0370	0.1494	0.0524	0.2341	0.0758	0.3525	0.1083	0.5079	0.1511
NA->Z	0.1385	0.1275	0.1676	0.1385	0.2228	0.1573	0.3075	0.1835	0.4258	0.2179	0.5811	0.2618

NR3B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0174 pF		0.0327 pF		0.0542 pF		0.0824 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0986	0.0311	0.1275	0.0388	0.1822	0.0525	0.2671	0.0731	0.3861	0.1014	0.5420	0.1382
C->Z	0.0606	0.0243	0.0896	0.0315	0.1448	0.0443	0.2300	0.0635	0.3492	0.0904	0.5052	0.1257
NA->Z	0.1462	0.1191	0.1752	0.1290	0.2301	0.1456	0.3152	0.1686	0.4343	0.1986	0.5902	0.2364

Combinational Cell

NR3

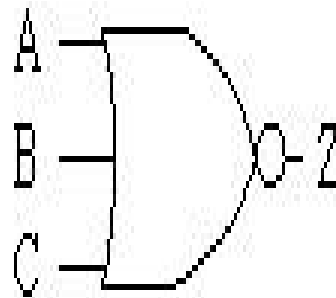
Cell Description

The NR3 cell provides a NOR gate with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	0	0	1
X	X	1	0
X	1	X	0
1	X	X	0

Symbol



Cell List

NR3M0HM, NR3M1HM, NR3M2HM
 , NR3M4HM, NR3M6HM
 , NR3M8HM, NR3M12HM
 , NR3M16HM

NR3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00121	0.00129	0.00146	0.00263	0.00398	0.00531	0.00727	0.01018
B	input	0.00122	0.00130	0.00148	0.00300	0.00413	0.00590	0.00747	0.01016
C	input	0.00116	0.00124	0.00144	0.00314	0.00408	0.00586	0.00749	0.01041
Z	output								

Power Dissipation (uW/MHz)

NR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0019 pF		0.0031 pF		0.0051 pF		0.0079 pF		0.0115 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0041	0.0002	0.0041	0.0002	0.0041	0.0002	0.0041	0.0002	0.0042	0.0002	0.0042	0.0002
B->Z	0.0048	0.0008	0.0048	0.0008	0.0049	0.0008	0.0049	0.0008	0.0049	0.0008	0.0049	0.0008
C->Z	0.0055	0.0013	0.0055	0.0013	0.0056	0.0013	0.0056	0.0013	0.0056	0.0013	0.0056	0.0013

NR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0043	0.0002	0.0043	0.0002	0.0043	0.0002	0.0044	0.0003	0.0044	0.0003	0.0044	0.0003
B->Z	0.0052	0.0009	0.0052	0.0009	0.0052	0.0009	0.0053	0.0009	0.0053	0.0009	0.0053	0.0009
C->Z	0.0061	0.0015	0.0061	0.0015	0.0061	0.0016	0.0061	0.0016	0.0061	0.0016	0.0061	0.0016

NR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0207 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0049	0.0002	0.0049	0.0003	0.0049	0.0003	0.0049	0.0003	0.0050	0.0004	0.0050	0.0004
B->Z	0.0061	0.0012	0.0061	0.0012	0.0061	0.0012	0.0062	0.0012	0.0062	0.0013	0.0062	0.0013
C->Z	0.0073	0.0021	0.0073	0.0021	0.0073	0.0021	0.0073	0.0021	0.0073	0.0021	0.0073	0.0021

NR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0275 pF		0.0415 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0086	-0.0002	0.0087	-0.0001	0.0088	0.0000	0.0088	0.0001	0.0089	0.0001	0.0089	0.0001
B->Z	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0113	0.0021	0.0113	0.0021	0.0113	0.0021
C->Z	0.0135	0.0035	0.0135	0.0035	0.0136	0.0036	0.0136	0.0036	0.0136	0.0036	0.0136	0.0036

NR3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0130 pF		0.0243 pF		0.0400 pF		0.0607 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0150	0.0000	0.0151	0.0001	0.0153	0.0003	0.0154	0.0004	0.0154	0.0004	0.0155	0.0005
B->Z	0.0199	0.0034	0.0200	0.0034	0.0201	0.0034	0.0201	0.0035	0.0202	0.0035	0.0202	0.0035
C->Z	0.0245	0.0062	0.0246	0.0062	0.0247	0.0062	0.0248	0.0062	0.0248	0.0062	0.0248	0.0062

NR3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0173 pF		0.0326 pF		0.0539 pF		0.0820 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0178	-0.0005	0.0181	-0.0003	0.0182	-0.0001	0.0184	0.0001	0.0185	0.0002	0.0185	0.0002
B->Z	0.0251	0.0045	0.0252	0.0046	0.0253	0.0046	0.0254	0.0046	0.0254	0.0047	0.0255	0.0047
C->Z	0.0297	0.0075	0.0298	0.0076	0.0299	0.0076	0.0300	0.0076	0.0301	0.0076	0.0301	0.0076

NR3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0253 pF		0.0480 pF		0.0798 pF		0.1217 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0266	-0.0004	0.0269	-0.0001	0.0272	0.0002	0.0274	0.0004	0.0275	0.0006	0.0276	0.0006
B->Z	0.0359	0.0063	0.0361	0.0063	0.0363	0.0064	0.0364	0.0065	0.0365	0.0065	0.0366	0.0065
C->Z	0.0442	0.0118	0.0444	0.0118	0.0446	0.0118	0.0447	0.0118	0.0448	0.0118	0.0449	0.0118

NR3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0140 pF		0.0333 pF		0.0633 pF		0.1054 pF		0.1609 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0369	-0.0006	0.0373	-0.0002	0.0377	0.0002	0.0380	0.0005	0.0382	0.0006	0.0383	0.0007
B->Z	0.0497	0.0083	0.0500	0.0084	0.0503	0.0085	0.0504	0.0086	0.0505	0.0086	0.0506	0.0086
C->Z	0.0610	0.0157	0.0613	0.0157	0.0615	0.0157	0.0617	0.0158	0.0618	0.0158	0.0619	0.0158

Hidden Power (uW/MHz)

NR3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0003	-0.0004	-0.0009	-0.0012	-0.0016	-0.0025	-0.0033
A	F	0.0009	0.0010	0.0013	0.0027	0.0043	0.0059	0.0084	0.0112
B	R	-0.0006	-0.0007	-0.0010	-0.0019	-0.0028	-0.0038	-0.0056	-0.0074
B	F	0.0007	0.0008	0.0011	0.0021	0.0033	0.0043	0.0066	0.0087
C	R	-0.0009	-0.0010	-0.0014	-0.0027	-0.0040	-0.0055	-0.0080	-0.0107
C	F	0.0009	0.0011	0.0016	0.0032	0.0049	0.0065	0.0097	0.0130

Propagation Delays (ns)
NR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0019 pF		0.0031 pF		0.0051 pF		0.0079 pF		0.0115 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1233	0.0289	0.1501	0.0332	0.1957	0.0404	0.2712	0.0520	0.3764	0.0680	0.5114	0.0887
B->Z	0.1514	0.0319	0.1781	0.0363	0.2234	0.0434	0.2987	0.0551	0.4038	0.0711	0.5387	0.0916
C->Z	0.1626	0.0321	0.1892	0.0367	0.2345	0.0442	0.3098	0.0563	0.4149	0.0728	0.5498	0.0937

NR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1031	0.0298	0.1309	0.0353	0.1798	0.0448	0.2588	0.0598	0.3677	0.0805	0.5096	0.1074
B->Z	0.1304	0.0337	0.1580	0.0392	0.2067	0.0487	0.2855	0.0637	0.3943	0.0843	0.5361	0.1111
C->Z	0.1412	0.0342	0.1687	0.0401	0.2173	0.0501	0.2961	0.0657	0.4049	0.0868	0.5467	0.1139

NR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0207 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0848	0.0318	0.1114	0.0387	0.1639	0.0520	0.2444	0.0721	0.3571	0.1003	0.5042	0.1371
B->Z	0.1113	0.0371	0.1376	0.0440	0.1900	0.0573	0.2702	0.0775	0.3827	0.1055	0.5298	0.1419
C->Z	0.1217	0.0382	0.1480	0.0456	0.2003	0.0597	0.2805	0.0806	0.3931	0.1092	0.5401	0.1460

NR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0168 pF		0.0275 pF		0.0415 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0646	0.0285	0.0938	0.0370	0.1480	0.0522	0.2316	0.0752	0.3487	0.1075	0.5018	0.1496
B->Z	0.0925	0.0346	0.1214	0.0431	0.1754	0.0584	0.2587	0.0815	0.3757	0.1136	0.5287	0.1553
C->Z	0.1025	0.0362	0.1315	0.0456	0.1854	0.0621	0.2687	0.0866	0.3857	0.1200	0.5387	0.1630

NR3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0130 pF		0.0243 pF		0.0400 pF		0.0607 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0680	0.0259	0.0961	0.0328	0.1500	0.0453	0.2338	0.0643	0.3498	0.0905	0.5025	0.1250
B->Z	0.1019	0.0313	0.1298	0.0383	0.1834	0.0510	0.2670	0.0703	0.3829	0.0966	0.5354	0.1310
C->Z	0.1159	0.0321	0.1438	0.0398	0.1973	0.0537	0.2810	0.0743	0.3968	0.1019	0.5494	0.1375

NR3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0025 pF		0.0076 pF		0.0173 pF		0.0326 pF		0.0539 pF		0.0820 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0595	0.0239	0.0884	0.0311	0.1430	0.0438	0.2282	0.0630	0.3462	0.0897	0.5017	0.1247
B->Z	0.0967	0.0306	0.1256	0.0384	0.1797	0.0519	0.2646	0.0725	0.3824	0.1005	0.5377	0.1372
C->Z	0.1067	0.0308	0.1356	0.0391	0.1897	0.0535	0.2746	0.0751	0.3925	0.1040	0.5477	0.1413

NR3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0108 pF		0.0253 pF		0.0480 pF		0.0798 pF		0.1217 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0590	0.0239	0.0881	0.0312	0.1429	0.0441	0.2279	0.0635	0.3464	0.0906	0.5023	0.1261
B->Z	0.0917	0.0292	0.1207	0.0366	0.1752	0.0498	0.2599	0.0695	0.3783	0.0967	0.5340	0.1322
C->Z	0.1047	0.0297	0.1337	0.0379	0.1882	0.0521	0.2729	0.0732	0.3913	0.1016	0.5470	0.1382

NR3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0039 pF		0.0140 pF		0.0333 pF		0.0633 pF		0.1054 pF		0.1609 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0595	0.0237	0.0886	0.0309	0.1436	0.0437	0.2282	0.0628	0.3463	0.0894	0.5017	0.1243
B->Z	0.0933	0.0292	0.1223	0.0367	0.1769	0.0497	0.2612	0.0691	0.3791	0.0960	0.5344	0.1310
C->Z	0.1064	0.0296	0.1354	0.0377	0.1900	0.0518	0.2743	0.0725	0.3923	0.1006	0.5475	0.1367

Combinational Cell

NR4B1

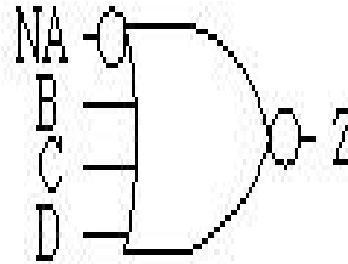
Cell Description

The NR4B1 cell provides a NOR gate with one inverted input (NA) and three non-inverted inputs (B, C, D).

Truth Table

NA	B	C	D	Z
1	0	0	0	1
X	X	X	1	0
X	X	1	X	0
X	1	X	X	0
0	X	X	X	0

Symbol



Cell List

NR4B1M0HM, NR4B1M1HM, NR4B1M2HM
, NR4B1M4HM, NR4B1M8HM

NR4B1 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00115	0.00146	0.00292	0.00559	0.01104
C	input	0.00113	0.00142	0.00296	0.00555	0.01095
D	input	0.00112	0.00145	0.00266	0.00521	0.01057
NA	input	0.00101	0.00096	0.00120	0.00171	0.00329
Z	output					

Power Dissipation (uW/MHz)

NR4B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0027 pF		0.0042 pF		0.0064 pF		0.0093 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0062	0.0016	0.0062	0.0017	0.0062	0.0017	0.0062	0.0017	0.0063	0.0017	0.0063	0.0017
C->Z	0.0054	0.0010	0.0054	0.0010	0.0055	0.0010	0.0055	0.0010	0.0055	0.0010	0.0055	0.0010
D->Z	0.0046	0.0003	0.0046	0.0003	0.0046	0.0003	0.0046	0.0003	0.0046	0.0003	0.0046	0.0003
NA->Z	0.0071	0.0073	0.0072	0.0073	0.0072	0.0073	0.0072	0.0073	0.0072	0.0073	0.0072	0.0073

NR4B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0038 pF		0.0064 pF		0.0100 pF		0.0148 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0078	0.0022	0.0078	0.0022	0.0078	0.0023	0.0079	0.0023	0.0079	0.0023	0.0079	0.0023
C->Z	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0068	0.0013
D->Z	0.0054	0.0002	0.0055	0.0003	0.0055	0.0003	0.0055	0.0003	0.0055	0.0003	0.0055	0.0004
NA->Z	0.0091	0.0088	0.0091	0.0088	0.0091	0.0088	0.0091	0.0088	0.0092	0.0088	0.0092	0.0088

NR4B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0069 pF		0.0123 pF		0.0200 pF		0.0301 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0159	0.0043	0.0159	0.0044	0.0160	0.0044	0.0160	0.0044	0.0160	0.0044	0.0161	0.0044
C->Z	0.0122	0.0017	0.0122	0.0017	0.0122	0.0018	0.0123	0.0018	0.0123	0.0018	0.0123	0.0018
D->Z	0.0096	-0.0002	0.0097	-0.0001	0.0097	-0.0000	0.0098	0.0001	0.0098	0.0001	0.0098	0.0001
NA->Z	0.0183	0.0148	0.0183	0.0149	0.0184	0.0149	0.0184	0.0149	0.0184	0.0149	0.0184	0.0149

NR4B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0129 pF		0.0239 pF		0.0394 pF		0.0598 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0310	0.0082	0.0311	0.0083	0.0311	0.0083	0.0312	0.0083	0.0312	0.0083	0.0313	0.0083
C->Z	0.0236	0.0035	0.0237	0.0035	0.0238	0.0035	0.0238	0.0036	0.0239	0.0036	0.0239	0.0036
D->Z	0.0185	-0.0004	0.0186	-0.0002	0.0188	-0.0000	0.0189	0.0001	0.0189	0.0002	0.0190	0.0003
NA->Z	0.0356	0.0278	0.0357	0.0278	0.0358	0.0279	0.0359	0.0279	0.0359	0.0279	0.0360	0.0278

NR4B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0105 pF		0.0247 pF		0.0467 pF		0.0776 pF		0.1183 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0622	0.0160	0.0623	0.0160	0.0625	0.0161	0.0626	0.0161	0.0627	0.0161	0.0627	0.0161
C->Z	0.0479	0.0069	0.0480	0.0070	0.0482	0.0071	0.0483	0.0072	0.0484	0.0072	0.0485	0.0072
D->Z	0.0377	-0.0008	0.0379	-0.0004	0.0382	-0.0000	0.0384	0.0002	0.0385	0.0004	0.0386	0.0005
NA->Z	0.0708	0.0544	0.0710	0.0545	0.0712	0.0545	0.0713	0.0545	0.0714	0.0545	0.0715	0.0545

Hidden Power (uW/MHz)

NR4B1 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0008	-0.0012	-0.0021	-0.0042	-0.0085
B	F	0.0008	0.0012	0.0024	0.0049	0.0098
C	R	-0.0006	-0.0009	-0.0016	-0.0032	-0.0065
C	F	0.0008	0.0011	0.0024	0.0045	0.0089
D	R	-0.0003	-0.0004	-0.0009	-0.0018	-0.0034
D	F	0.0011	0.0015	0.0030	0.0059	0.0116
NA	R	0.0013	0.0018	0.0035	0.0069	0.0132
NA	F	0.0038	0.0040	0.0058	0.0101	0.0196

Propagation Delays (ns)

NR4B1M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0027 pF		0.0042 pF		0.0064 pF		0.0093 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.2087	0.0491	0.2354	0.0549	0.2798	0.0643	0.3463	0.0781	0.4435	0.0979	0.5714	0.1234
C->Z	0.1826	0.0467	0.2094	0.0521	0.2537	0.0610	0.3202	0.0741	0.4174	0.0933	0.5453	0.1183
D->Z	0.1381	0.0412	0.1650	0.0466	0.2095	0.0555	0.2761	0.0688	0.3735	0.0883	0.5015	0.1139
NA->Z	0.2509	0.1300	0.2777	0.1366	0.3221	0.1469	0.3886	0.1617	0.4858	0.1826	0.6137	0.2091

NR4B1M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0038 pF		0.0064 pF		0.0100 pF		0.0148 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1704	0.0402	0.1970	0.0459	0.2470	0.0564	0.3231	0.0719	0.4283	0.0927	0.5684	0.1199
C->Z	0.1454	0.0383	0.1720	0.0437	0.2221	0.0534	0.2982	0.0681	0.4034	0.0882	0.5434	0.1148
D->Z	0.1025	0.0327	0.1293	0.0381	0.1796	0.0478	0.2560	0.0625	0.3614	0.0826	0.5015	0.1094
NA->Z	0.2157	0.1301	0.2423	0.1371	0.2924	0.1492	0.3686	0.1664	0.4739	0.1888	0.6139	0.2174

NR4B1M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0034 pF		0.0069 pF		0.0123 pF		0.0200 pF		0.0301 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1562	0.0370	0.1846	0.0439	0.2366	0.0560	0.3163	0.0738	0.4296	0.0982	0.5780	0.1293
C->Z	0.1162	0.0349	0.1447	0.0411	0.1966	0.0520	0.2763	0.0684	0.3896	0.0915	0.5380	0.1215
D->Z	0.0752	0.0291	0.1032	0.0353	0.1553	0.0462	0.2353	0.0625	0.3488	0.0857	0.4974	0.1159
NA->Z	0.1988	0.1199	0.2273	0.1280	0.2794	0.1417	0.3592	0.1611	0.4727	0.1871	0.6211	0.2197

NR4B1M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0058 pF		0.0129 pF		0.0239 pF		0.0394 pF		0.0598 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1459	0.0379	0.1740	0.0454	0.2272	0.0589	0.3090	0.0788	0.4240	0.1058	0.5751	0.1403
C->Z	0.1081	0.0354	0.1361	0.0420	0.1893	0.0542	0.2711	0.0726	0.3861	0.0982	0.5371	0.1315
D->Z	0.0673	0.0288	0.0944	0.0354	0.1477	0.0475	0.2299	0.0658	0.3450	0.0913	0.4963	0.1247
NA->Z	0.1907	0.1239	0.2189	0.1327	0.2722	0.1480	0.3542	0.1696	0.4693	0.1981	0.6204	0.2341

NR4B1M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0105 pF		0.0247 pF		0.0467 pF		0.0776 pF		0.1183 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.1425	0.0369	0.1708	0.0444	0.2243	0.0580	0.3067	0.0778	0.4222	0.1045	0.5739	0.1389
C->Z	0.1061	0.0345	0.1344	0.0412	0.1879	0.0534	0.2704	0.0717	0.3857	0.0971	0.5375	0.1302
D->Z	0.0651	0.0279	0.0924	0.0346	0.1460	0.0466	0.2288	0.0647	0.3444	0.0900	0.4963	0.1231
NA->Z	0.1852	0.1199	0.2135	0.1287	0.2672	0.1439	0.3498	0.1653	0.4652	0.1935	0.6170	0.2290

Combinational Cell

NR4B2

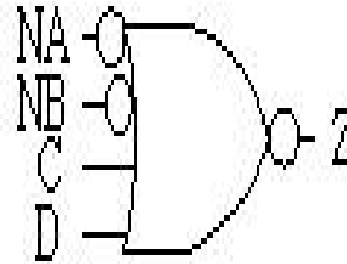
Cell Description

The NR4B2 cell provides a NOR gate with two inverted inputs (NA, NB) and two non-inverted inputs (C, D).

Truth Table

NA	NB	C	D	Z
1	1	0	0	1
X	X	X	1	0
X	X	1	X	0
X	0	X	X	0
0	X	X	X	0

Symbol



Cell List

NR4B2M0HM, NR4B2M1HM, NR4B2M2HM
, NR4B2M4HM, NR4B2M8HM

NR4B2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
C	input	0.00112	0.00144	0.00290	0.00563	0.01089
D	input	0.00115	0.00149	0.00292	0.00567	0.01100
NA	input	0.00101	0.00096	0.00125	0.00169	0.00329
NB	input	0.00101	0.00100	0.00120	0.00169	0.00335
Z	output					

Power Dissipation (uW/MHz)

NR4B2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0027 pF		0.0042 pF		0.0064 pF		0.0093 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009
D->Z	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016	0.0063	0.0016
NA->Z	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072
NB->Z	0.0047	0.0054	0.0047	0.0054	0.0048	0.0054	0.0048	0.0054	0.0048	0.0055	0.0048	0.0055

NR4B2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0068	0.0013	0.0068	0.0013	0.0068	0.0013	0.0068	0.0013	0.0068	0.0013	0.0068	0.0013
D->Z	0.0079	0.0022	0.0079	0.0023	0.0079	0.0023	0.0080	0.0023	0.0080	0.0023	0.0080	0.0023
NA->Z	0.0092	0.0088	0.0092	0.0088	0.0092	0.0088	0.0092	0.0088	0.0092	0.0088	0.0093	0.0088
NB->Z	0.0056	0.0062	0.0056	0.0063	0.0057	0.0063	0.0057	0.0064	0.0057	0.0064	0.0057	0.0064

NR4B2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0123 pF		0.0199 pF		0.0300 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0116	0.0017	0.0116	0.0017	0.0116	0.0017	0.0117	0.0018	0.0117	0.0018	0.0117	0.0018
D->Z	0.0154	0.0045	0.0154	0.0045	0.0155	0.0045	0.0155	0.0045	0.0155	0.0045	0.0155	0.0045
NA->Z	0.0178	0.0151	0.0178	0.0151	0.0178	0.0151	0.0179	0.0151	0.0179	0.0151	0.0179	0.0151
NB->Z	0.0090	0.0092	0.0091	0.0093	0.0092	0.0094	0.0092	0.0095	0.0093	0.0096	0.0093	0.0096

NR4B2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0127 pF		0.0237 pF		0.0390 pF		0.0592 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0235	0.0034	0.0236	0.0035	0.0237	0.0035	0.0238	0.0036	0.0238	0.0036	0.0239	0.0036
D->Z	0.0311	0.0084	0.0312	0.0084	0.0312	0.0084	0.0313	0.0084	0.0313	0.0084	0.0314	0.0084
NA->Z	0.0356	0.0279	0.0357	0.0279	0.0358	0.0279	0.0359	0.0279	0.0359	0.0279	0.0360	0.0279
NB->Z	0.0184	0.0172	0.0185	0.0174	0.0187	0.0176	0.0188	0.0178	0.0189	0.0180	0.0190	0.0181

NR4B2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0104 pF		0.0244 pF		0.0463 pF		0.0769 pF		0.1172 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.0474	0.0069	0.0475	0.0070	0.0477	0.0071	0.0478	0.0071	0.0479	0.0072	0.0480	0.0072
D->Z	0.0619	0.0162	0.0620	0.0162	0.0622	0.0162	0.0623	0.0163	0.0624	0.0163	0.0624	0.0163
NA->Z	0.0705	0.0546	0.0707	0.0546	0.0708	0.0547	0.0710	0.0547	0.0711	0.0547	0.0712	0.0547
NB->Z	0.0365	0.0335	0.0368	0.0338	0.0371	0.0343	0.0374	0.0348	0.0376	0.0350	0.0377	0.0353

Hidden Power (uW/MHz)

NR4B2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
C	R	-0.0006	-0.0009	-0.0017	-0.0034	-0.0068
C	F	0.0008	0.0011	0.0025	0.0047	0.0091
D	R	-0.0008	-0.0012	-0.0022	-0.0043	-0.0086
D	F	0.0009	0.0012	0.0024	0.0049	0.0098
NA	R	0.0013	0.0018	0.0035	0.0069	0.0132
NA	F	0.0038	0.0040	0.0059	0.0101	0.0195
NB	R	0.0012	0.0016	0.0032	0.0061	0.0113
NB	F	0.0040	0.0043	0.0061	0.0112	0.0214

Propagation Delays (ns)

NR4B2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0027 pF		0.0042 pF		0.0064 pF		0.0093 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1829	0.0462	0.2096	0.0515	0.2540	0.0603	0.3204	0.0734	0.4175	0.0924	0.5454	0.1173
D->Z	0.2090	0.0488	0.2357	0.0546	0.2801	0.0640	0.3465	0.0777	0.4437	0.0974	0.5715	0.1228
NA->Z	0.2512	0.1300	0.2779	0.1365	0.3224	0.1468	0.3888	0.1616	0.4860	0.1824	0.6139	0.2089
NB->Z	0.1666	0.1159	0.1936	0.1222	0.2383	0.1321	0.3050	0.1462	0.4023	0.1659	0.5304	0.1911

NR4B2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0099 pF		0.0146 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1475	0.0382	0.1741	0.0436	0.2212	0.0527	0.2974	0.0673	0.4025	0.0873	0.5396	0.1132
D->Z	0.1726	0.0404	0.1991	0.0461	0.2462	0.0559	0.3224	0.0713	0.4276	0.0920	0.5647	0.1186
NA->Z	0.2178	0.1307	0.2445	0.1376	0.2916	0.1490	0.3678	0.1662	0.4731	0.1885	0.6102	0.2165
NB->Z	0.1357	0.1166	0.1626	0.1235	0.2101	0.1346	0.2867	0.1512	0.3922	0.1726	0.5295	0.1992

NR4B2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0123 pF		0.0199 pF		0.0300 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1131	0.0338	0.1401	0.0398	0.1921	0.0508	0.2733	0.0675	0.3852	0.0903	0.5337	0.1204
D->Z	0.1549	0.0362	0.1819	0.0429	0.2339	0.0551	0.3152	0.0732	0.4270	0.0974	0.5755	0.1286
NA->Z	0.1978	0.1200	0.2249	0.1278	0.2770	0.1416	0.3584	0.1615	0.4704	0.1871	0.6189	0.2199
NB->Z	0.1009	0.1053	0.1272	0.1132	0.1796	0.1268	0.2613	0.1457	0.3735	0.1700	0.5222	0.2009

NR4B2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0127 pF		0.0237 pF		0.0390 pF		0.0592 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1087	0.0323	0.1367	0.0385	0.1892	0.0496	0.2711	0.0663	0.3846	0.0892	0.5343	0.1192
D->Z	0.1476	0.0346	0.1757	0.0415	0.2282	0.0537	0.3100	0.0718	0.4236	0.0960	0.5732	0.1271
NA->Z	0.1918	0.1235	0.2200	0.1323	0.2724	0.1473	0.3544	0.1689	0.4680	0.1971	0.6177	0.2327
NB->Z	0.0980	0.1091	0.1251	0.1183	0.1778	0.1333	0.2601	0.1540	0.3740	0.1807	0.5239	0.2146

NR4B2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0104 pF		0.0244 pF		0.0463 pF		0.0769 pF		0.1172 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
C->Z	0.1066	0.0340	0.1345	0.0407	0.1873	0.0528	0.2693	0.0711	0.3836	0.0963	0.5338	0.1292
D->Z	0.1435	0.0368	0.1715	0.0442	0.2242	0.0576	0.3063	0.0773	0.4206	0.1038	0.5709	0.1377
NA->Z	0.1863	0.1199	0.2142	0.1286	0.2671	0.1436	0.3493	0.1649	0.4637	0.1927	0.6140	0.2279
NB->Z	0.0939	0.1057	0.1208	0.1146	0.1739	0.1295	0.2564	0.1500	0.3711	0.1765	0.5216	0.2099

Combinational Cell

NR4

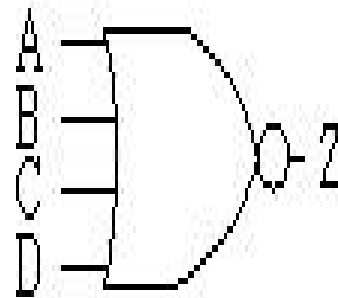
Cell Description

The NR4 cell provides a NOR gate with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	0	0	0	1
X	X	X	1	0
X	X	1	X	0
X	1	X	X	0
1	X	X	X	0

Symbol



Cell List

NR4M0HM, NR4M1HM, NR4M2HM
, NR4M4HM, NR4M6HM
, NR4M8HM, NR4M12HM
, NR4M16HM

NR4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00119	0.00148	0.00269	0.00123	0.00122	0.01076	0.01604	0.02154
B	input	0.00121	0.00148	0.00295	0.00139	0.00139	0.01107	0.01649	0.02192
C	input	0.00121	0.00148	0.00295	0.00155	0.00154	0.01104	0.01650	0.02192
D	input	0.00113	0.00150	0.00277	0.00159	0.00157	0.01105	0.01661	0.02212
Z	output								

Power Dissipation (uW/MHz)

NR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0026 pF		0.0042 pF		0.0063 pF		0.0091 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0049	0.0002	0.0049	0.0003	0.0049	0.0003	0.0049	0.0003	0.0049	0.0003	0.0049	0.0003
B->Z	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057	0.0009	0.0057	0.0010	0.0057	0.0010
C->Z	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016	0.0065	0.0016
D->Z	0.0072	0.0022	0.0072	0.0022	0.0073	0.0022	0.0073	0.0022	0.0073	0.0022	0.0073	0.0022

NR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0098 pF		0.0145 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0056	0.0003	0.0056	0.0003	0.0056	0.0004	0.0057	0.0004	0.0057	0.0004	0.0057	0.0004
B->Z	0.0068	0.0013	0.0069	0.0013	0.0069	0.0013	0.0069	0.0013	0.0069	0.0014	0.0069	0.0014
C->Z	0.0080	0.0023	0.0080	0.0023	0.0080	0.0023	0.0080	0.0023	0.0080	0.0023	0.0081	0.0023
D->Z	0.0091	0.0031	0.0091	0.0031	0.0092	0.0031	0.0092	0.0031	0.0092	0.0031	0.0092	0.0031

NR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0121 pF		0.0197 pF		0.0296 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0096	-0.0002	0.0096	-0.0001	0.0097	-0.0000	0.0097	0.0001	0.0098	0.0001	0.0098	0.0001
B->Z	0.0121	0.0017	0.0121	0.0017	0.0122	0.0018	0.0122	0.0018	0.0122	0.0018	0.0122	0.0018
C->Z	0.0158	0.0043	0.0158	0.0043	0.0159	0.0044	0.0159	0.0044	0.0159	0.0044	0.0159	0.0044
D->Z	0.0181	0.0057	0.0181	0.0057	0.0182	0.0057	0.0182	0.0057	0.0182	0.0058	0.0182	0.0057

NR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0525 pF		0.0873 pF		0.1331 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0163	0.0115	0.0165	0.0117	0.0167	0.0119	0.0169	0.0119	0.0170	0.0120	0.0170	0.0120
B->Z	0.0155	0.0110	0.0157	0.0112	0.0159	0.0113	0.0160	0.0114	0.0161	0.0114	0.0162	0.0115
C->Z	0.0170	0.0122	0.0172	0.0123	0.0175	0.0124	0.0177	0.0125	0.0177	0.0126	0.0178	0.0126
D->Z	0.0160	0.0115	0.0162	0.0117	0.0165	0.0118	0.0166	0.0119	0.0167	0.0119	0.0168	0.0120

NR4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0169 pF		0.0405 pF		0.0773 pF		0.1290 pF		0.1969 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0209	0.0163	0.0211	0.0165	0.0214	0.0167	0.0216	0.0168	0.0218	0.0169	0.0219	0.0169
B->Z	0.0201	0.0157	0.0203	0.0160	0.0205	0.0162	0.0208	0.0163	0.0209	0.0164	0.0210	0.0164
C->Z	0.0218	0.0169	0.0221	0.0171	0.0224	0.0173	0.0226	0.0174	0.0228	0.0175	0.0229	0.0175
D->Z	0.0208	0.0163	0.0210	0.0165	0.0214	0.0167	0.0216	0.0168	0.0218	0.0169	0.0219	0.0169

NR4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0104 pF		0.0243 pF		0.0460 pF		0.0764 pF		0.1165 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0378	-0.0008	0.0381	-0.0004	0.0383	-0.0001	0.0385	0.0002	0.0387	0.0004	0.0388	0.0005
B->Z	0.0480	0.0069	0.0482	0.0070	0.0483	0.0071	0.0484	0.0072	0.0485	0.0072	0.0486	0.0072
C->Z	0.0622	0.0160	0.0623	0.0160	0.0624	0.0161	0.0626	0.0161	0.0626	0.0161	0.0627	0.0161
D->Z	0.0713	0.0216	0.0714	0.0217	0.0716	0.0217	0.0717	0.0217	0.0718	0.0217	0.0718	0.0217

NR4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0041 pF		0.0150 pF		0.0358 pF		0.0683 pF		0.1138 pF		0.1737 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0566	-0.0012	0.0570	-0.0007	0.0574	-0.0001	0.0578	0.0003	0.0580	0.0006	0.0581	0.0008
B->Z	0.0720	0.0104	0.0722	0.0105	0.0724	0.0107	0.0726	0.0108	0.0727	0.0109	0.0728	0.0109
C->Z	0.0932	0.0237	0.0934	0.0238	0.0936	0.0238	0.0938	0.0239	0.0939	0.0239	0.0940	0.0239
D->Z	0.1069	0.0323	0.1071	0.0323	0.1073	0.0323	0.1074	0.0324	0.1075	0.0324	0.1076	0.0324

NR4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0051 pF		0.0196 pF		0.0472 pF		0.0902 pF		0.1505 pF		0.2299 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0761	-0.0017	0.0767	-0.0009	0.0772	-0.0002	0.0776	0.0004	0.0779	0.0008	0.0781	0.0010
B->Z	0.0966	0.0139	0.0969	0.0140	0.0972	0.0142	0.0974	0.0144	0.0975	0.0145	0.0977	0.0146
C->Z	0.1247	0.0314	0.1250	0.0315	0.1253	0.0316	0.1255	0.0316	0.1257	0.0317	0.1258	0.0317
D->Z	0.1430	0.0428	0.1432	0.0429	0.1435	0.0430	0.1437	0.0430	0.1439	0.0430	0.1439	0.0430

Hidden Power (uW/MHz)

NR4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0004	-0.0009	0.0004	0.0006	-0.0035	-0.0052	-0.0069
A	F	0.0011	0.0015	0.0030	0.0037	0.0037	0.0115	0.0171	0.0228
B	R	-0.0006	-0.0009	-0.0016	0.0005	0.0007	-0.0064	-0.0096	-0.0128
B	F	0.0007	0.0011	0.0023	0.0031	0.0031	0.0087	0.0129	0.0172
C	R	-0.0008	-0.0011	-0.0021	0.0002	0.0004	-0.0082	-0.0123	-0.0164
C	F	0.0008	0.0012	0.0023	0.0039	0.0040	0.0093	0.0140	0.0186
D	R	-0.0010	-0.0014	-0.0027	0.0003	0.0005	-0.0108	-0.0163	-0.0217
D	F	0.0011	0.0016	0.0034	0.0032	0.0033	0.0136	0.0204	0.0272

Propagation Delays (ns)

NR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0017 pF		0.0026 pF		0.0042 pF		0.0063 pF		0.0091 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1425	0.0418	0.1693	0.0471	0.2093	0.0551	0.2801	0.0692	0.3727	0.0876	0.4959	0.1120
B->Z	0.1866	0.0476	0.2132	0.0530	0.2531	0.0610	0.3236	0.0751	0.4161	0.0933	0.5392	0.1176
C->Z	0.2124	0.0503	0.2391	0.0561	0.2789	0.0646	0.3495	0.0793	0.4420	0.0983	0.5651	0.1231
D->Z	0.2232	0.0509	0.2498	0.0571	0.2896	0.0662	0.3602	0.0819	0.4527	0.1020	0.5757	0.1281

NR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0063 pF		0.0098 pF		0.0145 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1051	0.0333	0.1318	0.0386	0.1791	0.0478	0.2553	0.0624	0.3576	0.0820	0.4946	0.1082
B->Z	0.1480	0.0393	0.1746	0.0447	0.2216	0.0540	0.2976	0.0689	0.3997	0.0887	0.5366	0.1151
C->Z	0.1730	0.0413	0.1996	0.0471	0.2466	0.0571	0.3226	0.0728	0.4247	0.0933	0.5616	0.1203
D->Z	0.1833	0.0418	0.2099	0.0481	0.2569	0.0588	0.3329	0.0757	0.4350	0.0976	0.5719	0.1263

NR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0121 pF		0.0197 pF		0.0296 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0750	0.0290	0.1015	0.0349	0.1536	0.0458	0.2321	0.0619	0.3442	0.0847	0.4898	0.1144
B->Z	0.1160	0.0348	0.1430	0.0407	0.1949	0.0516	0.2731	0.0677	0.3850	0.0905	0.5304	0.1199
C->Z	0.1556	0.0369	0.1826	0.0435	0.2345	0.0556	0.3128	0.0731	0.4246	0.0972	0.5701	0.1277
D->Z	0.1652	0.0366	0.1921	0.0435	0.2441	0.0562	0.3223	0.0747	0.4342	0.1001	0.5796	0.1321

NR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0525 pF		0.0873 pF		0.1331 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2117	0.1358	0.2445	0.1563	0.3033	0.1860	0.3945	0.2264	0.5216	0.2801	0.6886	0.3500
B->Z	0.2000	0.1310	0.2328	0.1515	0.2916	0.1812	0.3828	0.2215	0.5099	0.2752	0.6769	0.3452
C->Z	0.1891	0.1456	0.2219	0.1666	0.2808	0.1966	0.3721	0.2373	0.4991	0.2912	0.6661	0.3612
D->Z	0.1767	0.1401	0.2096	0.1610	0.2684	0.1910	0.3596	0.2317	0.4867	0.2856	0.6537	0.3556

NR4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0169 pF		0.0405 pF		0.0773 pF		0.1290 pF		0.1969 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2333	0.1333	0.2675	0.1534	0.3264	0.1825	0.4171	0.2218	0.5440	0.2743	0.7105	0.3425
B->Z	0.2216	0.1284	0.2558	0.1486	0.3147	0.1776	0.4053	0.2169	0.5323	0.2694	0.6987	0.3376
C->Z	0.2106	0.1407	0.2448	0.1613	0.3039	0.1905	0.3945	0.2300	0.5214	0.2827	0.6879	0.3510
D->Z	0.1982	0.1350	0.2324	0.1555	0.2914	0.1847	0.3820	0.2242	0.5090	0.2769	0.6754	0.3452

NR4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0104 pF		0.0243 pF		0.0460 pF		0.0764 pF		0.1165 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0652	0.0280	0.0923	0.0345	0.1448	0.0463	0.2264	0.0642	0.3401	0.0890	0.4897	0.1216
B->Z	0.1064	0.0345	0.1343	0.0412	0.1866	0.0531	0.2679	0.0711	0.3814	0.0961	0.5309	0.1288
C->Z	0.1425	0.0368	0.1704	0.0443	0.2228	0.0575	0.3040	0.0771	0.4176	0.1034	0.5670	0.1372
D->Z	0.1523	0.0359	0.1802	0.0437	0.2325	0.0575	0.3139	0.0781	0.4274	0.1055	0.5768	0.1405

NR4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0041 pF		0.0150 pF		0.0358 pF		0.0683 pF		0.1138 pF		0.1737 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0642	0.0276	0.0912	0.0342	0.1438	0.0460	0.2257	0.0638	0.3397	0.0885	0.4895	0.1209
B->Z	0.1055	0.0342	0.1335	0.0408	0.1860	0.0527	0.2675	0.0708	0.3813	0.0957	0.5309	0.1282
C->Z	0.1415	0.0366	0.1694	0.0441	0.2220	0.0574	0.3035	0.0769	0.4173	0.1033	0.5669	0.1370
D->Z	0.1514	0.0355	0.1792	0.0432	0.2317	0.0571	0.3133	0.0776	0.4271	0.1050	0.5766	0.1398

NR4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0051 pF		0.0196 pF		0.0472 pF		0.0902 pF		0.1505 pF		0.2299 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0643	0.0277	0.0914	0.0342	0.1440	0.0460	0.2257	0.0636	0.3396	0.0883	0.4892	0.1205
B->Z	0.1059	0.0342	0.1339	0.0409	0.1864	0.0528	0.2678	0.0707	0.3814	0.0955	0.5308	0.1279
C->Z	0.1416	0.0366	0.1695	0.0440	0.2221	0.0573	0.3034	0.0768	0.4170	0.1031	0.5665	0.1368
D->Z	0.1515	0.0356	0.1796	0.0433	0.2321	0.0571	0.3134	0.0775	0.4270	0.1049	0.5764	0.1396

Combinational Cell

OA211

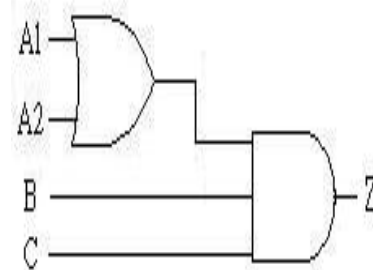
Cell Description

The OA211 cell provides an AND gate with three inputs, one of which is an OR gate's output.

Truth Table

A1	A2	B	C	Z
0	0	X	X	0
X	X	0	X	0
X	X	X	0	0
X	1	1	1	1
1	X	1	1	1

Symbol



Cell List

OA211M0HM, OA211M1HM, OA211M2HM
, OA211M4HM, OA211M8HM

OA211 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00134	0.00135	0.00136	0.00177	0.00338
A2	input	0.00150	0.00149	0.00149	0.00191	0.00375
B	input	0.00124	0.00123	0.00123	0.00161	0.00328
C	input	0.00125	0.00124	0.00126	0.00161	0.00307
Z	output					

Power Dissipation (uW/MHz)

OA211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0039	0.0080	0.0039	0.0080	0.0040	0.0081	0.0040	0.0081	0.0041	0.0081	0.0041	0.0081
A2->Z	0.0044	0.0088	0.0044	0.0089	0.0045	0.0089	0.0045	0.0089	0.0045	0.0089	0.0046	0.0089
B->Z	0.0042	0.0104	0.0042	0.0105	0.0043	0.0105	0.0043	0.0105	0.0043	0.0105	0.0043	0.0105
C->Z	0.0042	0.0114	0.0042	0.0114	0.0043	0.0115	0.0043	0.0115	0.0043	0.0115	0.0043	0.0115

OA211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0084	0.0043	0.0085	0.0043	0.0085	0.0044	0.0085	0.0044	0.0085	0.0044	0.0086
A2->Z	0.0047	0.0093	0.0048	0.0093	0.0048	0.0093	0.0049	0.0093	0.0049	0.0094	0.0049	0.0094
B->Z	0.0045	0.0109	0.0046	0.0109	0.0046	0.0109	0.0047	0.0109	0.0047	0.0110	0.0047	0.0110
C->Z	0.0045	0.0118	0.0046	0.0119	0.0046	0.0119	0.0047	0.0119	0.0047	0.0119	0.0047	0.0119

OA211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0049	0.0092	0.0050	0.0092	0.0051	0.0093	0.0052	0.0093	0.0052	0.0093	0.0052	0.0094
A2->Z	0.0054	0.0100	0.0055	0.0101	0.0056	0.0101	0.0056	0.0101	0.0057	0.0102	0.0057	0.0102
B->Z	0.0052	0.0116	0.0053	0.0117	0.0054	0.0117	0.0054	0.0117	0.0055	0.0117	0.0055	0.0118
C->Z	0.0052	0.0126	0.0053	0.0126	0.0054	0.0127	0.0054	0.0127	0.0055	0.0127	0.0055	0.0127

OA211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0083	0.0138	0.0085	0.0138	0.0087	0.0139	0.0089	0.0140	0.0090	0.0140	0.0090	0.0140
A2->Z	0.0091	0.0151	0.0092	0.0151	0.0094	0.0152	0.0096	0.0152	0.0097	0.0153	0.0098	0.0153
B->Z	0.0088	0.0170	0.0090	0.0170	0.0092	0.0171	0.0094	0.0172	0.0094	0.0172	0.0095	0.0172
C->Z	0.0088	0.0185	0.0090	0.0184	0.0092	0.0185	0.0093	0.0186	0.0094	0.0186	0.0095	0.0186

OA211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0544 pF		0.1042 pF		0.1740 pF		0.2658 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0156	0.0271	0.0160	0.0271	0.0165	0.0273	0.0168	0.0274	0.0170	0.0275	0.0171	0.0275
A2->Z	0.0172	0.0296	0.0175	0.0296	0.0179	0.0298	0.0183	0.0299	0.0185	0.0300	0.0186	0.0300
B->Z	0.0166	0.0338	0.0170	0.0338	0.0175	0.0341	0.0178	0.0342	0.0180	0.0343	0.0181	0.0344
C->Z	0.0166	0.0367	0.0170	0.0367	0.0175	0.0369	0.0178	0.0370	0.0180	0.0371	0.0181	0.0372

Hidden Power (uW/MHz)

OA211 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0002	-0.0002	-0.0005	-0.0009
A1	F	0.0011	0.0011	0.0011	0.0017	0.0034
A2	R	-0.0003	-0.0003	-0.0003	-0.0007	-0.0012
A2	F	0.0012	0.0012	0.0012	0.0018	0.0036
B	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0022
B	F	0.0007	0.0007	0.0007	0.0011	0.0022
C	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0022
C	F	0.0007	0.0007	0.0007	0.0011	0.0021

Propagation Delays (ns)

OA211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1155	0.1513	0.1473	0.1719	0.2058	0.2041	0.2965	0.2470	0.4215	0.3006	0.5871	0.3687
A2->Z	0.1232	0.1632	0.1551	0.1839	0.2137	0.2161	0.3047	0.2589	0.4298	0.3125	0.5954	0.3806
B->Z	0.1382	0.1590	0.1702	0.1781	0.2288	0.2079	0.3197	0.2485	0.4447	0.3005	0.6104	0.3678
C->Z	0.1412	0.1700	0.1731	0.1894	0.2317	0.2198	0.3226	0.2607	0.4477	0.3130	0.6133	0.3804

OA211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1114	0.1530	0.1452	0.1760	0.2045	0.2100	0.2953	0.2544	0.4214	0.3102	0.5870	0.3803
A2->Z	0.1190	0.1648	0.1529	0.1879	0.2124	0.2220	0.3033	0.2663	0.4295	0.3221	0.5952	0.3922
B->Z	0.1339	0.1598	0.1679	0.1811	0.2273	0.2127	0.3183	0.2545	0.4445	0.3086	0.6101	0.3778
C->Z	0.1369	0.1709	0.1708	0.1925	0.2302	0.2245	0.3212	0.2668	0.4474	0.3211	0.6130	0.3905

OA211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1099	0.1589	0.1444	0.1838	0.2043	0.2199	0.2953	0.2661	0.4225	0.3244	0.5892	0.3970
A2->Z	0.1173	0.1707	0.1520	0.1956	0.2121	0.2318	0.3033	0.2780	0.4307	0.3362	0.5974	0.4088
B->Z	0.1323	0.1640	0.1670	0.1870	0.2271	0.2204	0.3182	0.2639	0.4456	0.3201	0.6123	0.3917
C->Z	0.1352	0.1751	0.1699	0.1984	0.2300	0.2323	0.3211	0.2761	0.4485	0.3326	0.6152	0.4044

OA211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1025	0.1431	0.1388	0.1688	0.1992	0.2041	0.2910	0.2489	0.4195	0.3054	0.5882	0.3760
A2->Z	0.1099	0.1541	0.1465	0.1798	0.2071	0.2152	0.2990	0.2600	0.4277	0.3164	0.5965	0.3870
B->Z	0.1228	0.1445	0.1593	0.1680	0.2199	0.2005	0.3118	0.2426	0.4405	0.2971	0.6092	0.3667
C->Z	0.1255	0.1545	0.1620	0.1784	0.2226	0.2113	0.3145	0.2538	0.4431	0.3085	0.6119	0.3783

OA211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0544 pF		0.1042 pF		0.1740 pF		0.2658 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0970	0.1391	0.1335	0.1651	0.1944	0.2005	0.2867	0.2452	0.4156	0.3012	0.5849	0.3714
A2->Z	0.1055	0.1503	0.1424	0.1763	0.2034	0.2117	0.2960	0.2564	0.4250	0.3124	0.5943	0.3826
B->Z	0.1196	0.1417	0.1565	0.1653	0.2175	0.1977	0.3101	0.2397	0.4391	0.2938	0.6085	0.3630
C->Z	0.1223	0.1526	0.1592	0.1768	0.2202	0.2097	0.3128	0.2520	0.4418	0.3064	0.6111	0.3758

Combinational Cell

OA21

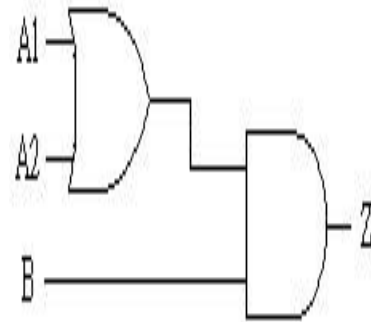
Cell Description

The OA21 cell provides an AND gate with two inputs, one of which is an OR gate's output.

Truth Table

A1	A2	B	Z
X	X	0	0
0	0	X	0
X	1	1	1
1	X	1	1

Symbol



Cell List

OA21M0HM, OA21M1HM, OA21M2HM
, OA21M4HM, OA21M8HM

OA21 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00133	0.00134	0.00133	0.00174	0.00326
A2	input	0.00128	0.00128	0.00127	0.00176	0.00356
B	input	0.00130	0.00129	0.00130	0.00165	0.00288
Z	output					

Power Dissipation (uW/MHz)

OA21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0073	0.0034	0.0073	0.0035	0.0073	0.0035	0.0074	0.0036	0.0074	0.0036	0.0074
A2->Z	0.0039	0.0081	0.0039	0.0081	0.0040	0.0081	0.0040	0.0082	0.0041	0.0082	0.0041	0.0082
B->Z	0.0037	0.0095	0.0037	0.0095	0.0038	0.0095	0.0038	0.0096	0.0038	0.0096	0.0038	0.0096

OA21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0037	0.0076	0.0038	0.0077	0.0038	0.0077	0.0039	0.0077	0.0039	0.0077	0.0039	0.0078
A2->Z	0.0042	0.0084	0.0042	0.0085	0.0043	0.0085	0.0044	0.0085	0.0044	0.0086	0.0044	0.0086
B->Z	0.0040	0.0098	0.0041	0.0099	0.0041	0.0099	0.0042	0.0099	0.0042	0.0099	0.0042	0.0100

OA21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0084	0.0046	0.0085	0.0047	0.0085	0.0048	0.0085	0.0048	0.0086	0.0048	0.0086
A2->Z	0.0050	0.0092	0.0051	0.0093	0.0052	0.0093	0.0052	0.0094	0.0053	0.0094	0.0053	0.0094
B->Z	0.0048	0.0106	0.0049	0.0106	0.0050	0.0107	0.0050	0.0107	0.0051	0.0107	0.0051	0.0107

OA21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0079	0.0130	0.0081	0.0130	0.0084	0.0131	0.0085	0.0132	0.0086	0.0132	0.0086	0.0133
A2->Z	0.0086	0.0142	0.0088	0.0143	0.0091	0.0144	0.0092	0.0145	0.0093	0.0145	0.0094	0.0145
B->Z	0.0083	0.0160	0.0086	0.0160	0.0089	0.0161	0.0090	0.0161	0.0090	0.0162	0.0091	0.0162

OA21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0547 pF		0.1048 pF		0.1750 pF		0.2674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0144	0.0263	0.0150	0.0263	0.0155	0.0265	0.0158	0.0267	0.0159	0.0267	0.0160	0.0268
A2->Z	0.0161	0.0288	0.0165	0.0288	0.0171	0.0290	0.0174	0.0292	0.0175	0.0292	0.0176	0.0293
B->Z	0.0155	0.0323	0.0160	0.0323	0.0165	0.0325	0.0168	0.0327	0.0169	0.0328	0.0170	0.0328

Hidden Power (uW/MHz)

OA21 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0004	-0.0004	-0.0007	-0.0013
A1	F	0.0010	0.0010	0.0010	0.0015	0.0031
A2	R	-0.0006	-0.0006	-0.0006	-0.0010	-0.0020
A2	F	0.0011	0.0011	0.0011	0.0017	0.0034
B	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0022
B	F	0.0007	0.0007	0.0007	0.0011	0.0022

Propagation Delays (ns)

OA21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0959	0.1361	0.1262	0.1556	0.1853	0.1870	0.2747	0.2279	0.4008	0.2811	0.5650	0.3482
A2->Z	0.1035	0.1479	0.1339	0.1674	0.1932	0.1989	0.2827	0.2397	0.4089	0.2929	0.5732	0.3600
B->Z	0.1121	0.1432	0.1425	0.1611	0.2018	0.1903	0.2913	0.2293	0.4175	0.2812	0.5817	0.3478

OA21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0928	0.1384	0.1235	0.1595	0.1820	0.1921	0.2726	0.2352	0.3996	0.2907	0.5651	0.3606
A2->Z	0.1004	0.1502	0.1313	0.1713	0.1899	0.2039	0.2807	0.2470	0.4078	0.3025	0.5733	0.3724
B->Z	0.1089	0.1446	0.1399	0.1640	0.1985	0.1942	0.2892	0.2352	0.4163	0.2893	0.5818	0.3587

OA21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0907	0.1442	0.1226	0.1678	0.1815	0.2024	0.2730	0.2476	0.4001	0.3049	0.5674	0.3774
A2->Z	0.0982	0.1559	0.1304	0.1795	0.1894	0.2141	0.2810	0.2593	0.4083	0.3166	0.5756	0.3892
B->Z	0.1066	0.1485	0.1389	0.1700	0.1979	0.2021	0.2895	0.2449	0.4168	0.3006	0.5840	0.3725

OA21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0886 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0832	0.1339	0.1165	0.1586	0.1758	0.1928	0.2676	0.2368	0.3963	0.2927	0.5649	0.3630
A2->Z	0.0905	0.1450	0.1240	0.1697	0.1835	0.2039	0.2755	0.2479	0.4043	0.3038	0.5729	0.3741
B->Z	0.0975	0.1353	0.1311	0.1578	0.1905	0.1892	0.2825	0.2307	0.4113	0.2850	0.5799	0.3545

OA21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0547 pF		0.1048 pF		0.1750 pF		0.2674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0813	0.1312	0.1150	0.1564	0.1749	0.1908	0.2672	0.2346	0.3962	0.2899	0.5659	0.3596
A2->Z	0.0883	0.1429	0.1223	0.1681	0.1824	0.2025	0.2749	0.2463	0.4040	0.3016	0.5737	0.3713
B->Z	0.0958	0.1340	0.1299	0.1570	0.1899	0.1887	0.2824	0.2300	0.4115	0.2836	0.5812	0.3526

Combinational Cell

OA221

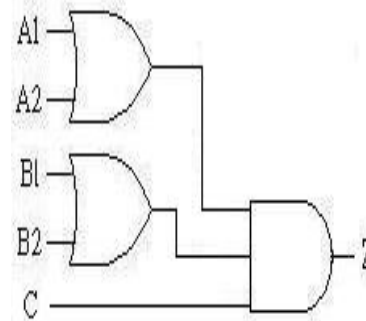
Cell Description

The OA221 cell provides an AND gate with three inputs, two of which are OR gates' outputs.

Truth Table

A1	A2	B1	B2	C	Z
0	0	X	X	X	0
X	X	0	0	X	0
X	X	X	X	0	0
X	1	X	1	1	1
X	1	1	X	1	1
1	X	X	1	1	1
1	X	1	X	1	1

Symbol



Cell List

OA221M0HM, OA221M1HM, OA221M2HM
, OA221M4HM, OA221M8HM

OA221 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00139	0.00136	0.00138	0.00182	0.00360
A2	input	0.00131	0.00128	0.00127	0.00184	0.00345
B1	input	0.00134	0.00139	0.00139	0.00178	0.00359
B2	input	0.00138	0.00137	0.00140	0.00177	0.00345
C	input	0.00124	0.00124	0.00123	0.00161	0.00285
Z	output					

Power Dissipation (uW/MHz)

OA221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0040	0.0084	0.0041	0.0084	0.0041	0.0084	0.0042	0.0085	0.0042	0.0085	0.0042	0.0085
A2->Z	0.0045	0.0092	0.0046	0.0092	0.0046	0.0093	0.0047	0.0093	0.0047	0.0093	0.0047	0.0093
B1->Z	0.0040	0.0116	0.0041	0.0116	0.0041	0.0116	0.0042	0.0116	0.0042	0.0116	0.0042	0.0116
B2->Z	0.0045	0.0124	0.0046	0.0124	0.0046	0.0124	0.0047	0.0124	0.0047	0.0124	0.0047	0.0124
C->Z	0.0043	0.0138	0.0044	0.0138	0.0044	0.0138	0.0045	0.0139	0.0045	0.0139	0.0045	0.0139

OA221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0088	0.0045	0.0089	0.0046	0.0089	0.0046	0.0089	0.0047	0.0089	0.0047	0.0089
A2->Z	0.0049	0.0096	0.0050	0.0097	0.0051	0.0097	0.0051	0.0097	0.0052	0.0097	0.0052	0.0098
B1->Z	0.0044	0.0121	0.0045	0.0121	0.0046	0.0121	0.0046	0.0121	0.0047	0.0121	0.0047	0.0121
B2->Z	0.0049	0.0129	0.0050	0.0129	0.0051	0.0129	0.0051	0.0129	0.0052	0.0129	0.0052	0.0129
C->Z	0.0047	0.0143	0.0048	0.0143	0.0049	0.0143	0.0049	0.0143	0.0049	0.0143	0.0050	0.0143

OA221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0052	0.0095	0.0053	0.0095	0.0054	0.0096	0.0055	0.0096	0.0055	0.0096	0.0055	0.0096
A2->Z	0.0057	0.0103	0.0058	0.0103	0.0059	0.0104	0.0059	0.0104	0.0060	0.0104	0.0060	0.0105
B1->Z	0.0052	0.0129	0.0053	0.0128	0.0054	0.0128	0.0054	0.0128	0.0055	0.0128	0.0055	0.0128
B2->Z	0.0057	0.0137	0.0058	0.0136	0.0059	0.0136	0.0059	0.0136	0.0060	0.0136	0.0060	0.0136
C->Z	0.0055	0.0150	0.0056	0.0150	0.0056	0.0150	0.0057	0.0150	0.0057	0.0150	0.0058	0.0151

OA221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0088	0.0147	0.0090	0.0147	0.0092	0.0148	0.0094	0.0148	0.0095	0.0149	0.0095	0.0149
A2->Z	0.0096	0.0160	0.0097	0.0159	0.0099	0.0160	0.0101	0.0161	0.0102	0.0161	0.0102	0.0161
B1->Z	0.0088	0.0193	0.0090	0.0191	0.0092	0.0191	0.0094	0.0191	0.0095	0.0192	0.0095	0.0192
B2->Z	0.0096	0.0205	0.0097	0.0203	0.0100	0.0203	0.0101	0.0204	0.0102	0.0204	0.0102	0.0204
C->Z	0.0093	0.0220	0.0095	0.0219	0.0097	0.0219	0.0098	0.0219	0.0099	0.0220	0.0099	0.0220

OA221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1050 pF		0.1754 pF		0.2680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0186	0.0291	0.0189	0.0289	0.0195	0.0291	0.0198	0.0292	0.0200	0.0292	0.0201	0.0293
A2->Z	0.0201	0.0316	0.0204	0.0314	0.0209	0.0316	0.0212	0.0317	0.0214	0.0317	0.0215	0.0318
B1->Z	0.0186	0.0378	0.0190	0.0373	0.0195	0.0372	0.0198	0.0373	0.0200	0.0374	0.0201	0.0374
B2->Z	0.0202	0.0402	0.0204	0.0397	0.0209	0.0397	0.0212	0.0398	0.0214	0.0398	0.0215	0.0398
C->Z	0.0196	0.0431	0.0199	0.0428	0.0203	0.0429	0.0207	0.0430	0.0209	0.0431	0.0210	0.0431

Hidden Power (uW/MHz)

OA221 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	0.0004	0.0004	0.0004	0.0003	0.0005
A1	F	0.0011	0.0011	0.0011	0.0016	0.0033
A2	R	0.0003	0.0003	0.0003	0.0001	0.0001
A2	F	0.0012	0.0012	0.0012	0.0017	0.0036
B1	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0021
B1	F	0.0009	0.0009	0.0009	0.0014	0.0028
B2	R	-0.0008	-0.0008	-0.0008	-0.0013	-0.0026
B2	F	0.0010	0.0010	0.0010	0.0015	0.0031
C	R	-0.0007	-0.0007	-0.0007	-0.0011	-0.0022
C	F	0.0007	0.0007	0.0007	0.0011	0.0022

Propagation Delays (ns)
OA221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1269	0.1579	0.1597	0.1823	0.2200	0.2197	0.3097	0.2658	0.4360	0.3230	0.6016	0.3933
A2->Z	0.1360	0.1697	0.1690	0.1941	0.2295	0.2315	0.3194	0.2776	0.4457	0.3348	0.6114	0.4051
B1->Z	0.1482	0.2101	0.1809	0.2326	0.2411	0.2677	0.3308	0.3119	0.4570	0.3678	0.6225	0.4372
B2->Z	0.1584	0.2216	0.1913	0.2441	0.2519	0.2793	0.3417	0.3234	0.4680	0.3793	0.6336	0.4488
C->Z	0.1666	0.1976	0.1995	0.2182	0.2601	0.2506	0.3499	0.2921	0.4762	0.3460	0.6418	0.4145

OA221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1238	0.1600	0.1587	0.1872	0.2187	0.2259	0.3097	0.2742	0.4359	0.3333	0.6025	0.4061
A2->Z	0.1328	0.1718	0.1680	0.1991	0.2282	0.2377	0.3194	0.2860	0.4456	0.3451	0.6124	0.4179
B1->Z	0.1457	0.2134	0.1805	0.2386	0.2404	0.2750	0.3314	0.3214	0.4576	0.3791	0.6241	0.4511
B2->Z	0.1555	0.2249	0.1907	0.2502	0.2508	0.2865	0.3419	0.3330	0.4682	0.3906	0.6349	0.4626
C->Z	0.1637	0.1995	0.1989	0.2225	0.2591	0.2558	0.3502	0.2994	0.4764	0.3550	0.6431	0.4259

OA221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1213	0.1641	0.1576	0.1938	0.2179	0.2344	0.3093	0.2847	0.4366	0.3462	0.6036	0.4215
A2->Z	0.1303	0.1759	0.1669	0.2056	0.2274	0.2461	0.3189	0.2964	0.4463	0.3579	0.6134	0.4332
B1->Z	0.1435	0.2179	0.1797	0.2453	0.2399	0.2835	0.3312	0.3318	0.4584	0.3919	0.6254	0.4664
B2->Z	0.1532	0.2294	0.1898	0.2568	0.2503	0.2950	0.3418	0.3433	0.4691	0.4034	0.6362	0.4779
C->Z	0.1614	0.2031	0.1980	0.2280	0.2585	0.2630	0.3500	0.3083	0.4773	0.3661	0.6444	0.4394

OA221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1154	0.1505	0.1526	0.1805	0.2143	0.2212	0.3064	0.2701	0.4348	0.3294	0.6037	0.4020
A2->Z	0.1243	0.1615	0.1618	0.1915	0.2237	0.2322	0.3160	0.2811	0.4444	0.3404	0.6135	0.4130
B1->Z	0.1333	0.1955	0.1703	0.2231	0.2320	0.2609	0.3240	0.3076	0.4524	0.3653	0.6213	0.4370
B2->Z	0.1434	0.2063	0.1809	0.2339	0.2428	0.2717	0.3351	0.3184	0.4635	0.3761	0.6325	0.4477
C->Z	0.1499	0.1789	0.1873	0.2039	0.2493	0.2384	0.3415	0.2820	0.4700	0.3374	0.6389	0.4078

OA221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0549 pF		0.1050 pF		0.1754 pF		0.2680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1141	0.1534	0.1524	0.1851	0.2143	0.2269	0.3068	0.2768	0.4359	0.3371	0.6054	0.4103
A2->Z	0.1222	0.1647	0.1608	0.1964	0.2229	0.2381	0.3156	0.2881	0.4448	0.3483	0.6144	0.4216
B1->Z	0.1313	0.1968	0.1696	0.2259	0.2315	0.2646	0.3239	0.3121	0.4530	0.3706	0.6225	0.4427
B2->Z	0.1400	0.2079	0.1786	0.2370	0.2407	0.2757	0.3334	0.3232	0.4626	0.3817	0.6322	0.4538
C->Z	0.1470	0.1783	0.1856	0.2045	0.2477	0.2396	0.3403	0.2836	0.4695	0.3395	0.6391	0.4101

Combinational Cell

OA222

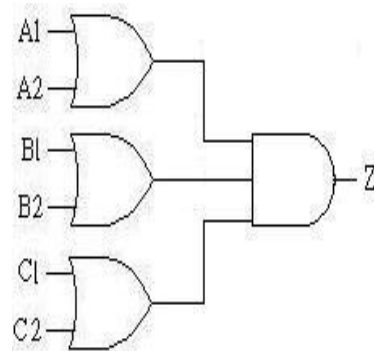
Cell Description

The OA222 cell provides an AND gate with three inputs, all of which are OR gates' outputs.

Truth Table

A1	A2	B1	B2	C1	C2	Z
0	0	X	X	X	X	0
X	X	0	0	X	X	0
X	X	X	X	0	0	0
X	1	X	1	1	X	1
X	1	X	1	X	1	1
X	1	1	X	1	X	1
X	1	1	X	X	1	1
1	X	X	1	1	X	1
1	X	X	1	X	1	1
1	X	1	X	1	X	1
1	X	1	X	X	1	1

Symbol



Cell List

OA222M0HM, OA222M1HM, OA222M2HM
, OA222M4HM, OA222M8HM

OA222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00124	0.00124	0.00126	0.00176	0.00335
A2	input	0.00127	0.00126	0.00129	0.00178	0.00369
B1	input	0.00126	0.00124	0.00127	0.00185	0.00331
B2	input	0.00129	0.00129	0.00130	0.00194	0.00374
C1	input	0.00126	0.00127	0.00127	0.00187	0.00333
C2	input	0.00133	0.00136	0.00136	0.00182	0.00373
Z	output					

Power Dissipation (uW/MHz)

OA222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0089	0.0047	0.0089	0.0047	0.0089	0.0048	0.0090	0.0048	0.0090	0.0048	0.0090
A2->Z	0.0051	0.0097	0.0051	0.0097	0.0052	0.0097	0.0052	0.0097	0.0052	0.0097	0.0052	0.0097
B1->Z	0.0046	0.0123	0.0047	0.0123	0.0047	0.0123	0.0048	0.0123	0.0048	0.0123	0.0048	0.0123
B2->Z	0.0051	0.0131	0.0051	0.0131	0.0052	0.0131	0.0052	0.0131	0.0052	0.0131	0.0053	0.0131
C1->Z	0.0046	0.0149	0.0047	0.0148	0.0047	0.0148	0.0048	0.0148	0.0048	0.0148	0.0048	0.0148
C2->Z	0.0051	0.0156	0.0051	0.0156	0.0051	0.0155	0.0052	0.0155	0.0052	0.0155	0.0052	0.0155

OA222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0049	0.0093	0.0050	0.0093	0.0050	0.0094	0.0051	0.0094	0.0051	0.0094	0.0052	0.0094
A2->Z	0.0054	0.0101	0.0054	0.0101	0.0055	0.0101	0.0055	0.0101	0.0056	0.0101	0.0056	0.0101
B1->Z	0.0049	0.0127	0.0050	0.0127	0.0051	0.0127	0.0051	0.0127	0.0051	0.0127	0.0052	0.0127
B2->Z	0.0054	0.0135	0.0054	0.0134	0.0055	0.0134	0.0055	0.0134	0.0056	0.0134	0.0056	0.0134
C1->Z	0.0049	0.0153	0.0050	0.0152	0.0051	0.0152	0.0051	0.0152	0.0052	0.0152	0.0052	0.0152
C2->Z	0.0054	0.0160	0.0054	0.0160	0.0055	0.0159	0.0055	0.0159	0.0056	0.0159	0.0056	0.0159

OA222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0057	0.0101	0.0058	0.0101	0.0059	0.0101	0.0059	0.0101	0.0060	0.0101	0.0060	0.0101
A2->Z	0.0061	0.0108	0.0062	0.0108	0.0063	0.0108	0.0064	0.0109	0.0064	0.0109	0.0065	0.0109
B1->Z	0.0057	0.0136	0.0058	0.0134	0.0059	0.0134	0.0059	0.0134	0.0060	0.0134	0.0060	0.0134
B2->Z	0.0062	0.0143	0.0062	0.0142	0.0063	0.0142	0.0064	0.0142	0.0064	0.0142	0.0065	0.0142
C1->Z	0.0057	0.0162	0.0058	0.0160	0.0059	0.0159	0.0060	0.0159	0.0060	0.0159	0.0060	0.0159
C2->Z	0.0062	0.0169	0.0062	0.0167	0.0063	0.0167	0.0064	0.0166	0.0064	0.0166	0.0064	0.0166

OA222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0099	0.0156	0.0101	0.0156	0.0103	0.0156	0.0104	0.0157	0.0105	0.0157	0.0106	0.0157
A2->Z	0.0107	0.0169	0.0108	0.0168	0.0110	0.0169	0.0111	0.0169	0.0112	0.0169	0.0113	0.0169
B1->Z	0.0099	0.0202	0.0101	0.0200	0.0103	0.0199	0.0104	0.0200	0.0105	0.0200	0.0106	0.0200
B2->Z	0.0107	0.0215	0.0108	0.0212	0.0110	0.0212	0.0111	0.0212	0.0112	0.0212	0.0113	0.0212
C1->Z	0.0099	0.0240	0.0101	0.0236	0.0103	0.0235	0.0105	0.0235	0.0106	0.0235	0.0106	0.0235
C2->Z	0.0107	0.0252	0.0108	0.0248	0.0110	0.0247	0.0111	0.0247	0.0112	0.0247	0.0112	0.0247

OA222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0543 pF		0.1040 pF		0.1737 pF		0.2654 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0178	0.0303	0.0181	0.0301	0.0186	0.0302	0.0189	0.0303	0.0191	0.0304	0.0192	0.0304
A2->Z	0.0193	0.0328	0.0196	0.0326	0.0200	0.0327	0.0203	0.0328	0.0205	0.0329	0.0207	0.0329
B1->Z	0.0178	0.0390	0.0181	0.0384	0.0186	0.0384	0.0189	0.0384	0.0191	0.0385	0.0192	0.0385
B2->Z	0.0193	0.0414	0.0196	0.0409	0.0200	0.0408	0.0203	0.0409	0.0205	0.0409	0.0207	0.0410
C1->Z	0.0178	0.0463	0.0182	0.0455	0.0186	0.0453	0.0189	0.0453	0.0191	0.0453	0.0193	0.0453
C2->Z	0.0193	0.0487	0.0196	0.0479	0.0200	0.0477	0.0203	0.0477	0.0205	0.0477	0.0206	0.0477

Hidden Power (uW/MHz)

OA222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	0.0003	0.0003	0.0003	0.0001	0.0000
A1	F	0.0009	0.0009	0.0009	0.0015	0.0030
A2	R	0.0001	0.0001	0.0001	-0.0003	-0.0007
A2	F	0.0010	0.0010	0.0010	0.0017	0.0034
B1	R	-0.0005	-0.0005	-0.0005	-0.0009	-0.0018
B1	F	0.0008	0.0008	0.0008	0.0013	0.0027
B2	R	-0.0007	-0.0007	-0.0007	-0.0013	-0.0025
B2	F	0.0009	0.0009	0.0009	0.0015	0.0031
C1	R	-0.0006	-0.0006	-0.0006	-0.0010	-0.0021
C1	F	0.0008	0.0008	0.0008	0.0013	0.0027
C2	R	-0.0008	-0.0008	-0.0008	-0.0014	-0.0029
C2	F	0.0009	0.0009	0.0009	0.0015	0.0031

Propagation Delays (ns)

OA222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1467	0.1842	0.1806	0.2134	0.2406	0.2557	0.3308	0.3071	0.4577	0.3688	0.6225	0.4417
A2->Z	0.1569	0.1962	0.1910	0.2255	0.2512	0.2678	0.3416	0.3191	0.4685	0.3809	0.6334	0.4538
B1->Z	0.1727	0.2441	0.2065	0.2718	0.2664	0.3124	0.3567	0.3622	0.4835	0.4226	0.6483	0.4945
B2->Z	0.1827	0.2558	0.2168	0.2836	0.2769	0.3242	0.3673	0.3739	0.4942	0.4343	0.6591	0.5062
C1->Z	0.1856	0.2840	0.2195	0.3094	0.2796	0.3474	0.3699	0.3950	0.4968	0.4537	0.6617	0.5246
C2->Z	0.1937	0.2957	0.2278	0.3211	0.2879	0.3591	0.3783	0.4067	0.5052	0.4654	0.6701	0.5363

OA222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1423	0.1853	0.1785	0.2181	0.2395	0.2627	0.3299	0.3159	0.4565	0.3795	0.6236	0.4558
A2->Z	0.1524	0.1974	0.1889	0.2301	0.2500	0.2747	0.3407	0.3280	0.4674	0.3916	0.6345	0.4678
B1->Z	0.1678	0.2448	0.2040	0.2757	0.2649	0.3185	0.3553	0.3701	0.4819	0.4323	0.6490	0.5075
B2->Z	0.1777	0.2565	0.2142	0.2874	0.2753	0.3302	0.3660	0.3818	0.4926	0.4440	0.6598	0.5192
C1->Z	0.1809	0.2856	0.2172	0.3140	0.2782	0.3540	0.3688	0.4034	0.4955	0.4639	0.6626	0.5381
C2->Z	0.1890	0.2973	0.2255	0.3256	0.2865	0.3657	0.3772	0.4151	0.5038	0.4756	0.6709	0.5498

OA222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1406	0.1909	0.1777	0.2258	0.2395	0.2729	0.3312	0.3286	0.4582	0.3942	0.6259	0.4728
A2->Z	0.1506	0.2029	0.1881	0.2379	0.2501	0.2849	0.3420	0.3406	0.4690	0.4062	0.6368	0.4848
B1->Z	0.1660	0.2506	0.2032	0.2836	0.2649	0.3287	0.3566	0.3827	0.4835	0.4469	0.6512	0.5244
B2->Z	0.1760	0.2623	0.2134	0.2953	0.2754	0.3404	0.3672	0.3944	0.4942	0.4586	0.6620	0.5361
C1->Z	0.1792	0.2917	0.2164	0.3220	0.2783	0.3642	0.3701	0.4160	0.4971	0.4785	0.6648	0.5549
C2->Z	0.1871	0.3033	0.2245	0.3336	0.2865	0.3758	0.3783	0.4276	0.5053	0.4901	0.6730	0.5665

OA222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1293	0.1637	0.1674	0.1989	0.2294	0.2447	0.3217	0.2980	0.4502	0.3609	0.6190	0.4360
A2->Z	0.1390	0.1747	0.1774	0.2099	0.2397	0.2557	0.3321	0.3090	0.4607	0.3719	0.6296	0.4471
B1->Z	0.1487	0.2081	0.1868	0.2408	0.2488	0.2840	0.3410	0.3351	0.4695	0.3963	0.6382	0.4702
B2->Z	0.1583	0.2188	0.1967	0.2515	0.2590	0.2947	0.3513	0.3459	0.4799	0.4071	0.6488	0.4809
C1->Z	0.1595	0.2422	0.1977	0.2719	0.2599	0.3119	0.3522	0.3607	0.4808	0.4201	0.6496	0.4929
C2->Z	0.1674	0.2529	0.2058	0.2827	0.2680	0.3227	0.3604	0.3715	0.4890	0.4309	0.6578	0.5037

OA222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0543 pF		0.1040 pF		0.1737 pF		0.2654 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1207	0.1523	0.1589	0.1873	0.2207	0.2324	0.3134	0.2848	0.4425	0.3465	0.6119	0.4201
A2->Z	0.1295	0.1634	0.1679	0.1984	0.2298	0.2435	0.3227	0.2958	0.4519	0.3575	0.6215	0.4312
B1->Z	0.1385	0.1965	0.1766	0.2290	0.2383	0.2715	0.3310	0.3217	0.4601	0.3817	0.6296	0.4541
B2->Z	0.1472	0.2074	0.1856	0.2400	0.2476	0.2825	0.3404	0.3327	0.4696	0.3927	0.6391	0.4651
C1->Z	0.1473	0.2303	0.1854	0.2600	0.2472	0.2989	0.3399	0.3466	0.4690	0.4047	0.6385	0.4760
C2->Z	0.1559	0.2411	0.1944	0.2709	0.2563	0.3098	0.3492	0.3575	0.4784	0.4156	0.6479	0.4869

Combinational Cell

OA22

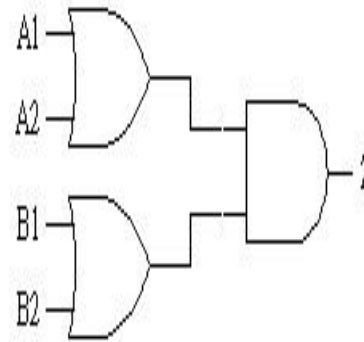
Cell Description

The OA22 cell provides an AND gate with two inputs, both of which are OR gates' outputs.

Truth Table

A1	A2	B1	B2	Z
X	X	0	0	0
0	0	X	X	0
X	1	X	1	1
X	1	1	X	1
1	X	X	1	1
1	X	1	X	1

Symbol



Cell List

OA22M0HM, OA22M1HM, OA22M2HM
, OA22M4HM, OA22M8HM

OA22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00140	0.00138	0.00132	0.00178	0.00341
A2	input	0.00142	0.00142	0.00143	0.00201	0.00383
B1	input	0.00133	0.00131	0.00132	0.00179	0.00342
B2	input	0.00132	0.00128	0.00129	0.00176	0.00373
Z	output					

Power Dissipation (uW/MHz)

OA22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0036	0.0077	0.0037	0.0077	0.0037	0.0077	0.0037	0.0078	0.0038	0.0078	0.0038	0.0078
A2->Z	0.0041	0.0085	0.0041	0.0085	0.0042	0.0086	0.0042	0.0086	0.0043	0.0086	0.0043	0.0086
B1->Z	0.0036	0.0108	0.0037	0.0108	0.0037	0.0108	0.0038	0.0108	0.0038	0.0108	0.0038	0.0108
B2->Z	0.0041	0.0115	0.0042	0.0116	0.0042	0.0116	0.0043	0.0116	0.0043	0.0116	0.0043	0.0116

OA22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0193 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0039	0.0082	0.0040	0.0082	0.0041	0.0083	0.0041	0.0083	0.0042	0.0083	0.0042	0.0083
A2->Z	0.0044	0.0090	0.0045	0.0091	0.0046	0.0091	0.0046	0.0091	0.0047	0.0091	0.0047	0.0091
B1->Z	0.0039	0.0113	0.0040	0.0113	0.0041	0.0113	0.0042	0.0113	0.0042	0.0114	0.0042	0.0114
B2->Z	0.0044	0.0121	0.0045	0.0121	0.0046	0.0121	0.0046	0.0121	0.0047	0.0121	0.0047	0.0122

OA22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0048	0.0087	0.0049	0.0087	0.0050	0.0088	0.0051	0.0088	0.0051	0.0088	0.0051	0.0088
A2->Z	0.0053	0.0095	0.0054	0.0096	0.0055	0.0096	0.0056	0.0096	0.0056	0.0097	0.0057	0.0097
B1->Z	0.0048	0.0120	0.0049	0.0119	0.0050	0.0119	0.0051	0.0120	0.0051	0.0120	0.0051	0.0120
B2->Z	0.0053	0.0127	0.0054	0.0127	0.0055	0.0127	0.0056	0.0127	0.0056	0.0128	0.0056	0.0128

OA22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0083	0.0138	0.0086	0.0138	0.0089	0.0139	0.0090	0.0139	0.0091	0.0140	0.0091	0.0140
A2->Z	0.0091	0.0150	0.0093	0.0150	0.0096	0.0151	0.0097	0.0152	0.0098	0.0152	0.0098	0.0152
B1->Z	0.0083	0.0182	0.0086	0.0180	0.0089	0.0180	0.0090	0.0181	0.0091	0.0181	0.0091	0.0182
B2->Z	0.0091	0.0194	0.0093	0.0192	0.0095	0.0193	0.0097	0.0193	0.0098	0.0194	0.0099	0.0194

OA22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1043 pF		0.1742 pF		0.2662 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0156	0.0271	0.0162	0.0270	0.0167	0.0272	0.0170	0.0273	0.0171	0.0274	0.0172	0.0274
A2->Z	0.0171	0.0296	0.0176	0.0295	0.0181	0.0297	0.0184	0.0298	0.0186	0.0299	0.0187	0.0299
B1->Z	0.0156	0.0355	0.0162	0.0351	0.0167	0.0352	0.0170	0.0353	0.0171	0.0354	0.0172	0.0354
B2->Z	0.0171	0.0379	0.0176	0.0376	0.0182	0.0377	0.0185	0.0378	0.0186	0.0379	0.0187	0.0379

Hidden Power (uW/MHz)

OA22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0002	-0.0002	-0.0003	-0.0009
A1	F	0.0009	0.0009	0.0009	0.0013	0.0027
A2	R	-0.0005	-0.0005	-0.0005	-0.0009	-0.0019
A2	F	0.0011	0.0011	0.0011	0.0016	0.0033
B1	R	-0.0006	-0.0006	-0.0006	-0.0008	-0.0017
B1	F	0.0008	0.0008	0.0008	0.0012	0.0024
B2	R	-0.0009	-0.0009	-0.0009	-0.0014	-0.0028
B2	F	0.0010	0.0010	0.0010	0.0016	0.0031

Propagation Delays (ns)

OA22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1058	0.1490	0.1367	0.1732	0.1951	0.2094	0.2852	0.2556	0.4109	0.3129	0.5762	0.3839
A2->Z	0.1140	0.1612	0.1450	0.1854	0.2036	0.2217	0.2938	0.2678	0.4197	0.3251	0.5850	0.3961
B1->Z	0.1200	0.1960	0.1508	0.2179	0.2093	0.2515	0.2994	0.2954	0.4251	0.3512	0.5904	0.4215
B2->Z	0.1277	0.2076	0.1588	0.2294	0.2174	0.2631	0.3076	0.3070	0.4334	0.3628	0.5987	0.4331

OA22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0193 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1028	0.1515	0.1355	0.1785	0.1936	0.2162	0.2851	0.2646	0.4112	0.3236	0.5770	0.3966
A2->Z	0.1110	0.1637	0.1438	0.1908	0.2021	0.2284	0.2937	0.2768	0.4199	0.3358	0.5858	0.4088
B1->Z	0.1169	0.1989	0.1495	0.2233	0.2077	0.2582	0.2993	0.3043	0.4253	0.3618	0.5911	0.4340
B2->Z	0.1247	0.2104	0.1575	0.2348	0.2158	0.2698	0.3075	0.3159	0.4336	0.3733	0.5995	0.4456

OA22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0993	0.1526	0.1320	0.1810	0.1908	0.2202	0.2823	0.2695	0.4090	0.3295	0.5768	0.4040
A2->Z	0.1073	0.1658	0.1403	0.1941	0.1993	0.2334	0.2909	0.2826	0.4177	0.3427	0.5855	0.4172
B1->Z	0.1138	0.2020	0.1466	0.2277	0.2054	0.2641	0.2969	0.3110	0.4236	0.3694	0.5914	0.4431
B2->Z	0.1216	0.2136	0.1546	0.2392	0.2135	0.2756	0.3052	0.3225	0.4320	0.3809	0.5998	0.4546

OA22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0932	0.1481	0.1270	0.1785	0.1869	0.2191	0.2787	0.2683	0.4072	0.3283	0.5761	0.4020
A2->Z	0.1005	0.1596	0.1345	0.1899	0.1946	0.2305	0.2865	0.2797	0.4151	0.3397	0.5840	0.4134
B1->Z	0.1047	0.1855	0.1385	0.2124	0.1985	0.2492	0.2903	0.2954	0.4188	0.3534	0.5876	0.4259
B2->Z	0.1119	0.1964	0.1459	0.2232	0.2061	0.2601	0.2980	0.3063	0.4266	0.3642	0.5955	0.4367

OA22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1043 pF		0.1742 pF		0.2662 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0856	0.1377	0.1194	0.1676	0.1795	0.2073	0.2718	0.2552	0.4009	0.3136	0.5705	0.3853
A2->Z	0.0916	0.1490	0.1256	0.1789	0.1858	0.2186	0.2782	0.2665	0.4074	0.3249	0.5771	0.3966
B1->Z	0.0957	0.1782	0.1295	0.2051	0.1896	0.2413	0.2819	0.2866	0.4110	0.3431	0.5806	0.4138
B2->Z	0.1017	0.1892	0.1357	0.2160	0.1959	0.2523	0.2883	0.2976	0.4175	0.3541	0.5872	0.4248

Combinational Cell

OA31

Cell Description

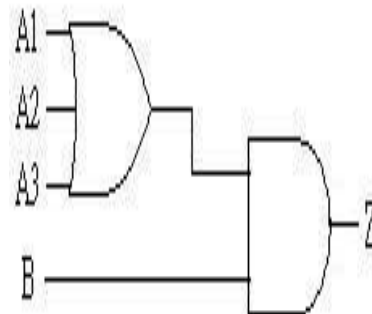
The OA31 cell provides an AND gate with two inputs, one of which is an OR gate's output.

The OR gate has three inputs.

Truth Table

A1	A2	A3	B	Z
0	0	0	X	0
X	X	X	0	0
X	X	1	1	1
X	1	X	1	1
1	X	X	1	1

Symbol



Cell List

OA31M0HM, OA31M1HM, OA31M2HM
 , OA31M4HM, OA31M8HM

OA31 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00143	0.00143	0.00144	0.00172	0.00313
A2	input	0.00139	0.00140	0.00141	0.00176	0.00350
A3	input	0.00134	0.00134	0.00133	0.00175	0.00333
B	input	0.00125	0.00125	0.00124	0.00170	0.00273
Z	output					

Power Dissipation (uW/MHz)

OA31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0034	0.0090	0.0035	0.0090	0.0035	0.0090	0.0036	0.0090	0.0036	0.0090	0.0036	0.0090
A2->Z	0.0041	0.0099	0.0042	0.0099	0.0042	0.0099	0.0043	0.0099	0.0043	0.0100	0.0043	0.0100
A3->Z	0.0047	0.0108	0.0048	0.0108	0.0048	0.0108	0.0049	0.0108	0.0049	0.0108	0.0049	0.0108
B->Z	0.0040	0.0118	0.0040	0.0118	0.0041	0.0118	0.0041	0.0119	0.0041	0.0119	0.0042	0.0119

OA31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0037	0.0094	0.0038	0.0094	0.0039	0.0094	0.0039	0.0094	0.0039	0.0095	0.0040	0.0095
A2->Z	0.0044	0.0103	0.0045	0.0103	0.0046	0.0104	0.0046	0.0104	0.0046	0.0104	0.0047	0.0104
A3->Z	0.0051	0.0112	0.0051	0.0112	0.0052	0.0112	0.0052	0.0112	0.0053	0.0112	0.0053	0.0112
B->Z	0.0043	0.0122	0.0044	0.0122	0.0044	0.0123	0.0045	0.0123	0.0045	0.0123	0.0045	0.0123

OA31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0103	0.0045	0.0103	0.0047	0.0103	0.0047	0.0103	0.0048	0.0103	0.0048	0.0103
A2->Z	0.0051	0.0112	0.0052	0.0112	0.0053	0.0112	0.0054	0.0112	0.0054	0.0112	0.0055	0.0112
A3->Z	0.0058	0.0121	0.0059	0.0120	0.0060	0.0121	0.0060	0.0121	0.0061	0.0121	0.0061	0.0121
B->Z	0.0050	0.0130	0.0051	0.0130	0.0052	0.0131	0.0053	0.0131	0.0053	0.0131	0.0053	0.0131

OA31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0533 pF		0.0887 pF		0.1352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0077	0.0153	0.0079	0.0150	0.0082	0.0149	0.0083	0.0150	0.0084	0.0150	0.0084	0.0150
A2->Z	0.0087	0.0166	0.0089	0.0162	0.0092	0.0162	0.0093	0.0162	0.0094	0.0162	0.0094	0.0162
A3->Z	0.0096	0.0177	0.0098	0.0174	0.0100	0.0174	0.0102	0.0174	0.0102	0.0174	0.0103	0.0174
B->Z	0.0085	0.0188	0.0088	0.0187	0.0090	0.0188	0.0091	0.0189	0.0092	0.0189	0.0092	0.0189

OA31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1758 pF		0.2687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0152	0.0295	0.0157	0.0288	0.0162	0.0287	0.0165	0.0288	0.0167	0.0288	0.0168	0.0288
A2->Z	0.0178	0.0332	0.0181	0.0325	0.0186	0.0325	0.0189	0.0325	0.0191	0.0325	0.0192	0.0325
A3->Z	0.0193	0.0355	0.0196	0.0348	0.0201	0.0348	0.0204	0.0348	0.0206	0.0348	0.0208	0.0348
B->Z	0.0170	0.0371	0.0175	0.0369	0.0180	0.0371	0.0183	0.0372	0.0185	0.0373	0.0186	0.0373

Hidden Power (uW/MHz)

OA31 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0006	-0.0006	-0.0006	-0.0008	-0.0014
A1	F	0.0012	0.0012	0.0012	0.0017	0.0034
A2	R	-0.0008	-0.0008	-0.0008	-0.0010	-0.0019
A2	F	0.0010	0.0010	0.0010	0.0014	0.0028
A3	R	-0.0009	-0.0009	-0.0009	-0.0012	-0.0023
A3	F	0.0013	0.0013	0.0013	0.0017	0.0035
B	R	-0.0007	-0.0007	-0.0007	-0.0010	-0.0019
B	F	0.0007	0.0007	0.0007	0.0010	0.0019

Propagation Delays (ns)

OA31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1053	0.1826	0.1359	0.2064	0.1951	0.2437	0.2845	0.2903	0.4105	0.3483	0.5758	0.4190
A2->Z	0.1142	0.2096	0.1450	0.2335	0.2044	0.2708	0.2939	0.3174	0.4201	0.3754	0.5855	0.4462
A3->Z	0.1203	0.2204	0.1516	0.2442	0.2115	0.2816	0.3013	0.3282	0.4277	0.3862	0.5932	0.4569
B->Z	0.1304	0.1697	0.1618	0.1893	0.2216	0.2204	0.3114	0.2608	0.4377	0.3136	0.6032	0.3809

OA31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1024	0.1861	0.1336	0.2117	0.1921	0.2504	0.2827	0.2995	0.4095	0.3599	0.5758	0.4333
A2->Z	0.1112	0.2131	0.1427	0.2388	0.2014	0.2775	0.2921	0.3266	0.4191	0.3870	0.5854	0.4604
A3->Z	0.1172	0.2239	0.1493	0.2496	0.2085	0.2883	0.2995	0.3374	0.4267	0.3978	0.5933	0.4712
B->Z	0.1273	0.1713	0.1594	0.1925	0.2186	0.2247	0.3096	0.2671	0.4368	0.3220	0.6033	0.3919

OA31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0997	0.1932	0.1332	0.2226	0.1921	0.2635	0.2827	0.3147	0.4097	0.3770	0.5775	0.4531
A2->Z	0.1085	0.2203	0.1423	0.2496	0.2014	0.2906	0.2922	0.3417	0.4193	0.4041	0.5871	0.4802
A3->Z	0.1145	0.2310	0.1489	0.2603	0.2086	0.3014	0.2997	0.3525	0.4271	0.4148	0.5950	0.4909
B->Z	0.1246	0.1750	0.1591	0.1990	0.2187	0.2330	0.3098	0.2769	0.4371	0.3333	0.6051	0.4054

OA31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0533 pF		0.0887 pF		0.1352 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0852	0.1941	0.1187	0.2251	0.1784	0.2672	0.2701	0.3186	0.3987	0.3807	0.5674	0.4553
A2->Z	0.0925	0.2223	0.1263	0.2533	0.1861	0.2954	0.2780	0.3469	0.4067	0.4089	0.5754	0.4835
A3->Z	0.0969	0.2332	0.1314	0.2642	0.1917	0.3064	0.2839	0.3578	0.4127	0.4199	0.5816	0.4945
B->Z	0.1050	0.1713	0.1395	0.1964	0.1999	0.2308	0.2920	0.2742	0.4208	0.3295	0.5897	0.3996

OA31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1758 pF		0.2687 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0906	0.1835	0.1255	0.2154	0.1857	0.2581	0.2780	0.3101	0.4069	0.3725	0.5766	0.4477
A2->Z	0.1018	0.2227	0.1373	0.2545	0.1979	0.2972	0.2904	0.3492	0.4195	0.4116	0.5893	0.4868
A3->Z	0.1055	0.2329	0.1418	0.2647	0.2029	0.3075	0.2958	0.3594	0.4252	0.4219	0.5951	0.4971
B->Z	0.1164	0.1638	0.1527	0.1894	0.2138	0.2238	0.3067	0.2674	0.4360	0.3227	0.6060	0.3931

Combinational Cell

OA32

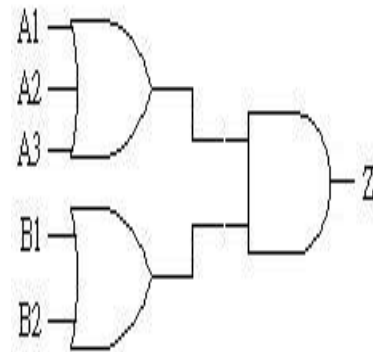
Cell Description

The OA32 cell provides an AND gate with two inputs, both of which are OR gates' outputs. One OR gate has three inputs, while the other has two.

Truth Table

A1	A2	A3	B1	B2	Z
0	0	0	X	X	0
X	X	X	0	0	0
X	X	1	X	1	1
X	X	1	1	X	1
X	1	X	1	X	1
X	1	X	X	1	1
1	X	X	1	X	1
1	X	X	X	1	1

Symbol



Cell List

OA32M0HM, OA32M1HM, OA32M2HM
, OA32M4HM, OA32M8HM

OA32 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00138	0.00138	0.00137	0.00181	0.00329
A2	input	0.00135	0.00136	0.00133	0.00175	0.00366
A3	input	0.00132	0.00133	0.00134	0.00173	0.00346
B1	input	0.00135	0.00134	0.00133	0.00167	0.00354
B2	input	0.00142	0.00144	0.00142	0.00174	0.00337
Z	output					

Power Dissipation (uW/MHz)

OA32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0040	0.0096	0.0040	0.0096	0.0041	0.0097	0.0041	0.0097	0.0041	0.0097	0.0042	0.0097
A2->Z	0.0047	0.0106	0.0048	0.0106	0.0048	0.0106	0.0049	0.0106	0.0049	0.0106	0.0049	0.0106
A3->Z	0.0054	0.0115	0.0055	0.0115	0.0056	0.0115	0.0056	0.0115	0.0056	0.0115	0.0056	0.0115
B1->Z	0.0043	0.0135	0.0044	0.0135	0.0044	0.0135	0.0045	0.0135	0.0045	0.0135	0.0045	0.0135
B2->Z	0.0048	0.0143	0.0049	0.0143	0.0049	0.0143	0.0050	0.0143	0.0050	0.0143	0.0050	0.0143

OA32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0043	0.0101	0.0044	0.0101	0.0045	0.0101	0.0045	0.0101	0.0046	0.0101	0.0046	0.0101
A2->Z	0.0051	0.0111	0.0051	0.0110	0.0052	0.0111	0.0053	0.0111	0.0053	0.0111	0.0053	0.0111
A3->Z	0.0058	0.0119	0.0059	0.0119	0.0060	0.0119	0.0060	0.0119	0.0060	0.0119	0.0061	0.0119
B1->Z	0.0047	0.0140	0.0048	0.0139	0.0048	0.0139	0.0049	0.0139	0.0049	0.0140	0.0049	0.0140
B2->Z	0.0052	0.0148	0.0052	0.0147	0.0053	0.0147	0.0054	0.0147	0.0054	0.0148	0.0054	0.0148

OA32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0051	0.0109	0.0052	0.0109	0.0053	0.0109	0.0054	0.0109	0.0054	0.0109	0.0054	0.0109
A2->Z	0.0058	0.0119	0.0059	0.0118	0.0060	0.0118	0.0061	0.0118	0.0061	0.0118	0.0061	0.0118
A3->Z	0.0065	0.0127	0.0067	0.0127	0.0068	0.0127	0.0068	0.0127	0.0069	0.0127	0.0069	0.0127
B1->Z	0.0054	0.0148	0.0055	0.0147	0.0056	0.0146	0.0057	0.0147	0.0058	0.0147	0.0058	0.0147
B2->Z	0.0059	0.0156	0.0060	0.0155	0.0061	0.0154	0.0062	0.0155	0.0062	0.0155	0.0063	0.0155

OA32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0082	0.0163	0.0085	0.0159	0.0088	0.0159	0.0089	0.0159	0.0090	0.0159	0.0090	0.0159
A2->Z	0.0092	0.0176	0.0094	0.0172	0.0097	0.0171	0.0098	0.0171	0.0099	0.0171	0.0099	0.0171
A3->Z	0.0101	0.0187	0.0103	0.0183	0.0105	0.0183	0.0107	0.0183	0.0107	0.0183	0.0108	0.0183
B1->Z	0.0086	0.0213	0.0088	0.0210	0.0091	0.0209	0.0092	0.0209	0.0093	0.0210	0.0094	0.0210
B2->Z	0.0094	0.0225	0.0096	0.0221	0.0099	0.0221	0.0100	0.0221	0.0101	0.0221	0.0102	0.0221

OA32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1759 pF		0.2688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0162	0.0308	0.0167	0.0300	0.0172	0.0299	0.0175	0.0298	0.0177	0.0299	0.0178	0.0299
A2->Z	0.0187	0.0345	0.0191	0.0337	0.0197	0.0336	0.0200	0.0336	0.0201	0.0336	0.0203	0.0336
A3->Z	0.0202	0.0368	0.0206	0.0360	0.0211	0.0359	0.0214	0.0359	0.0216	0.0359	0.0217	0.0359
B1->Z	0.0172	0.0417	0.0177	0.0409	0.0183	0.0407	0.0185	0.0407	0.0187	0.0408	0.0188	0.0408
B2->Z	0.0185	0.0438	0.0190	0.0431	0.0195	0.0429	0.0198	0.0429	0.0200	0.0430	0.0201	0.0430

Hidden Power (uW/MHz)

OA32 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0004	-0.0004	-0.0005	-0.0010
A1	F	0.0011	0.0011	0.0011	0.0015	0.0033
A2	R	-0.0007	-0.0007	-0.0007	-0.0009	-0.0018
A2	F	0.0010	0.0010	0.0010	0.0013	0.0025
A3	R	-0.0009	-0.0009	-0.0009	-0.0012	-0.0024
A3	F	0.0013	0.0013	0.0013	0.0016	0.0034
B1	R	-0.0004	-0.0004	-0.0004	-0.0006	-0.0012
B1	F	0.0008	0.0008	0.0008	0.0012	0.0020
B2	R	-0.0009	-0.0009	-0.0009	-0.0012	-0.0024
B2	F	0.0010	0.0010	0.0010	0.0014	0.0028

Propagation Delays (ns)

OA32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1179	0.2035	0.1493	0.2328	0.2080	0.2760	0.2981	0.3291	0.4240	0.3927	0.5893	0.4684
A2->Z	0.1271	0.2319	0.1588	0.2611	0.2176	0.3043	0.3078	0.3575	0.4338	0.4210	0.5992	0.4968
A3->Z	0.1343	0.2441	0.1665	0.2734	0.2258	0.3166	0.3164	0.3697	0.4426	0.4333	0.6082	0.5090
B1->Z	0.1418	0.2418	0.1738	0.2661	0.2331	0.3028	0.3236	0.3495	0.4497	0.4073	0.6153	0.4786
B2->Z	0.1502	0.2535	0.1825	0.2779	0.2418	0.3146	0.3325	0.3613	0.4586	0.4191	0.6243	0.4904

OA32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1141	0.2053	0.1474	0.2378	0.2058	0.2824	0.2962	0.3374	0.4233	0.4032	0.5890	0.4808
A2->Z	0.1232	0.2336	0.1567	0.2661	0.2153	0.3107	0.3059	0.3657	0.4331	0.4315	0.5989	0.5091
A3->Z	0.1303	0.2459	0.1645	0.2784	0.2236	0.3230	0.3145	0.3779	0.4420	0.4438	0.6080	0.5214
B1->Z	0.1378	0.2432	0.1719	0.2702	0.2308	0.3082	0.3217	0.3564	0.4490	0.4163	0.6149	0.4894
B2->Z	0.1463	0.2550	0.1805	0.2821	0.2396	0.3200	0.3305	0.3682	0.4580	0.4281	0.6240	0.5012

OA32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1118	0.2108	0.1456	0.2454	0.2055	0.2930	0.2963	0.3497	0.4237	0.4171	0.5907	0.4968
A2->Z	0.1209	0.2391	0.1550	0.2737	0.2150	0.3213	0.3060	0.3780	0.4335	0.4454	0.6006	0.5251
A3->Z	0.1280	0.2514	0.1628	0.2859	0.2234	0.3335	0.3147	0.3903	0.4425	0.4576	0.6097	0.5373
B1->Z	0.1354	0.2471	0.1699	0.2758	0.2304	0.3163	0.3216	0.3660	0.4493	0.4272	0.6165	0.5021
B2->Z	0.1438	0.2588	0.1786	0.2876	0.2392	0.3280	0.3305	0.3778	0.4583	0.4390	0.6255	0.5139

OA32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0880 pF		0.1342 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0953	0.2103	0.1294	0.2475	0.1895	0.2971	0.2813	0.3548	0.4098	0.4223	0.5787	0.5016
A2->Z	0.1021	0.2370	0.1365	0.2742	0.1968	0.3238	0.2887	0.3816	0.4173	0.4490	0.5863	0.5283
A3->Z	0.1071	0.2481	0.1422	0.2853	0.2028	0.3349	0.2951	0.3926	0.4239	0.4601	0.5930	0.5394
B1->Z	0.1122	0.2375	0.1470	0.2678	0.2076	0.3083	0.2998	0.3576	0.4285	0.4178	0.5975	0.4915
B2->Z	0.1194	0.2503	0.1545	0.2805	0.2151	0.3211	0.3074	0.3704	0.4362	0.4306	0.6053	0.5042

OA32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1759 pF		0.2688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0887	0.1928	0.1232	0.2299	0.1833	0.2785	0.2757	0.3353	0.4048	0.4017	0.5746	0.4800
A2->Z	0.0980	0.2319	0.1329	0.2690	0.1933	0.3176	0.2859	0.3744	0.4152	0.4409	0.5850	0.5191
A3->Z	0.1010	0.2418	0.1365	0.2790	0.1975	0.3275	0.2903	0.3843	0.4198	0.4508	0.5897	0.5290
B1->Z	0.1077	0.2265	0.1431	0.2569	0.2040	0.2968	0.2967	0.3452	0.4262	0.4045	0.5960	0.4772
B2->Z	0.1131	0.2377	0.1487	0.2681	0.2096	0.3079	0.3024	0.3564	0.4320	0.4156	0.6019	0.4884

Combinational Cell

OA33

Cell Description

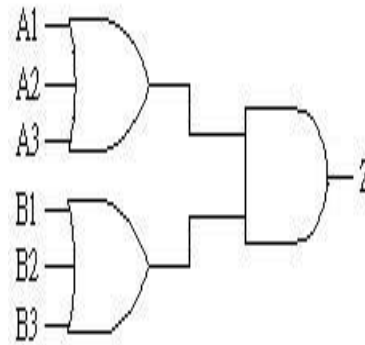
The OA33 cell provides an AND gate with two inputs, both of which are OR gates' outputs.

Both OR gates have three inputs each.

Truth Table

A1	A2	A3	B1	B2	B3	Z
0	0	0	X	X	X	0
X	X	X	0	0	0	0
X	X	1	X	X	1	1
X	X	1	X	1	X	1
X	X	1	1	X	X	1
X	1	X	X	X	1	1
X	1	X	X	1	X	1
X	1	X	1	X	X	1
1	X	X	X	X	1	1
1	X	X	X	1	X	1
1	X	X	1	X	X	1

Symbol



Cell List

OA33M0HM, OA33M1HM, OA33M2HM

, OA33M4HM, OA33M8HM

OA33 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00149	0.00148	0.00148	0.00176	0.00328
A2	input	0.00146	0.00143	0.00143	0.00171	0.00369
A3	input	0.00142	0.00135	0.00136	0.00163	0.00351
B1	input	0.00142	0.00141	0.00140	0.00170	0.00325
B2	input	0.00144	0.00143	0.00143	0.00172	0.00368
B3	input	0.00148	0.00140	0.00140	0.00171	0.00352
Z	output					

Power Dissipation (uW/MHz)

OA33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0154 pF		0.0252 pF		0.0381 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0043	0.0102	0.0044	0.0102	0.0045	0.0102	0.0045	0.0102	0.0045	0.0102	0.0045	0.0102
A2->Z	0.0051	0.0111	0.0051	0.0111	0.0052	0.0111	0.0052	0.0111	0.0052	0.0111	0.0052	0.0111
A3->Z	0.0057	0.0120	0.0057	0.0120	0.0058	0.0120	0.0058	0.0120	0.0058	0.0120	0.0059	0.0120
B1->Z	0.0044	0.0143	0.0044	0.0142	0.0045	0.0142	0.0045	0.0142	0.0045	0.0142	0.0046	0.0142
B2->Z	0.0051	0.0152	0.0051	0.0151	0.0052	0.0151	0.0052	0.0151	0.0052	0.0151	0.0053	0.0151
B3->Z	0.0057	0.0161	0.0057	0.0160	0.0058	0.0160	0.0058	0.0160	0.0058	0.0160	0.0058	0.0160

OA33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0104	0.0046	0.0104	0.0047	0.0104	0.0048	0.0104	0.0048	0.0104	0.0048	0.0104
A2->Z	0.0053	0.0113	0.0053	0.0113	0.0054	0.0113	0.0055	0.0113	0.0055	0.0113	0.0055	0.0113
A3->Z	0.0059	0.0122	0.0060	0.0122	0.0060	0.0122	0.0061	0.0122	0.0061	0.0122	0.0061	0.0122
B1->Z	0.0046	0.0144	0.0047	0.0143	0.0047	0.0143	0.0048	0.0143	0.0048	0.0143	0.0048	0.0143
B2->Z	0.0053	0.0154	0.0054	0.0153	0.0054	0.0152	0.0055	0.0152	0.0055	0.0152	0.0055	0.0152
B3->Z	0.0059	0.0162	0.0060	0.0161	0.0060	0.0161	0.0061	0.0161	0.0061	0.0161	0.0061	0.0161

OA33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0054	0.0113	0.0055	0.0113	0.0056	0.0112	0.0057	0.0112	0.0057	0.0112	0.0057	0.0112
A2->Z	0.0061	0.0123	0.0062	0.0122	0.0063	0.0122	0.0064	0.0122	0.0064	0.0122	0.0064	0.0122
A3->Z	0.0067	0.0131	0.0068	0.0131	0.0069	0.0130	0.0070	0.0130	0.0070	0.0130	0.0070	0.0130
B1->Z	0.0054	0.0155	0.0055	0.0153	0.0056	0.0152	0.0057	0.0151	0.0057	0.0151	0.0057	0.0151
B2->Z	0.0061	0.0164	0.0062	0.0162	0.0063	0.0161	0.0064	0.0161	0.0064	0.0161	0.0064	0.0161
B3->Z	0.0067	0.0172	0.0068	0.0170	0.0069	0.0170	0.0069	0.0169	0.0070	0.0169	0.0070	0.0169

OA33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0877 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0087	0.0165	0.0089	0.0161	0.0091	0.0161	0.0093	0.0160	0.0094	0.0160	0.0094	0.0160
A2->Z	0.0096	0.0178	0.0098	0.0174	0.0100	0.0173	0.0102	0.0173	0.0103	0.0173	0.0103	0.0172
A3->Z	0.0104	0.0189	0.0106	0.0186	0.0108	0.0185	0.0110	0.0184	0.0111	0.0184	0.0112	0.0184
B1->Z	0.0087	0.0219	0.0089	0.0213	0.0091	0.0210	0.0093	0.0209	0.0094	0.0208	0.0095	0.0208
B2->Z	0.0096	0.0231	0.0098	0.0225	0.0100	0.0222	0.0102	0.0221	0.0103	0.0220	0.0104	0.0220
B3->Z	0.0104	0.0243	0.0106	0.0236	0.0108	0.0234	0.0109	0.0233	0.0110	0.0232	0.0111	0.0232

OA33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1758 pF		0.2686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0165	0.0316	0.0170	0.0308	0.0175	0.0306	0.0178	0.0306	0.0180	0.0306	0.0181	0.0306
A2->Z	0.0190	0.0354	0.0194	0.0346	0.0199	0.0344	0.0202	0.0344	0.0204	0.0344	0.0205	0.0344
A3->Z	0.0205	0.0377	0.0209	0.0369	0.0214	0.0367	0.0217	0.0368	0.0218	0.0367	0.0220	0.0367
B1->Z	0.0165	0.0446	0.0170	0.0432	0.0176	0.0426	0.0178	0.0424	0.0180	0.0423	0.0181	0.0423
B2->Z	0.0190	0.0483	0.0194	0.0469	0.0200	0.0463	0.0203	0.0461	0.0204	0.0461	0.0206	0.0461
B3->Z	0.0205	0.0506	0.0209	0.0492	0.0214	0.0486	0.0217	0.0484	0.0219	0.0484	0.0220	0.0483

Hidden Power (uW/MHz)

OA33 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0003	-0.0003	-0.0005	-0.0009
A1	F	0.0011	0.0011	0.0011	0.0014	0.0032
A2	R	-0.0007	-0.0007	-0.0007	-0.0009	-0.0018
A2	F	0.0009	0.0009	0.0009	0.0012	0.0023
A3	R	-0.0010	-0.0010	-0.0010	-0.0013	-0.0025
A3	F	0.0012	0.0012	0.0012	0.0016	0.0033
B1	R	-0.0004	-0.0004	-0.0004	-0.0006	-0.0011
B1	F	0.0010	0.0010	0.0010	0.0014	0.0031
B2	R	-0.0008	-0.0008	-0.0008	-0.0010	-0.0020
B2	F	0.0009	0.0009	0.0009	0.0011	0.0022
B3	R	-0.0011	-0.0011	-0.0011	-0.0014	-0.0027
B3	F	0.0012	0.0012	0.0012	0.0016	0.0032

Propagation Delays (ns)

OA33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0154 pF		0.0252 pF		0.0381 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1270	0.2060	0.1590	0.2354	0.2180	0.2786	0.3072	0.3309	0.4333	0.3938	0.5989	0.4683
A2->Z	0.1365	0.2334	0.1685	0.2635	0.2277	0.3109	0.3170	0.3699	0.4432	0.4389	0.6088	0.5182
A3->Z	0.1438	0.2444	0.1763	0.2745	0.2358	0.3218	0.3254	0.3808	0.4518	0.4499	0.6176	0.5292
B1->Z	0.1450	0.2943	0.1770	0.3215	0.2361	0.3622	0.3254	0.4121	0.4515	0.4730	0.6171	0.5458
B2->Z	0.1543	0.3216	0.1865	0.3488	0.2457	0.3894	0.3351	0.4393	0.4613	0.5002	0.6270	0.5731
B3->Z	0.1606	0.3326	0.1932	0.3599	0.2527	0.4005	0.3422	0.4504	0.4685	0.5113	0.6343	0.5841

OA33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1208	0.2041	0.1547	0.2375	0.2136	0.2867	0.3046	0.3486	0.4311	0.4195	0.5964	0.5006
A2->Z	0.1302	0.2314	0.1642	0.2649	0.2232	0.3140	0.3143	0.3760	0.4410	0.4469	0.6064	0.5280
A3->Z	0.1374	0.2423	0.1719	0.2757	0.2313	0.3249	0.3227	0.3868	0.4495	0.4577	0.6151	0.5388
B1->Z	0.1383	0.2915	0.1722	0.3217	0.2312	0.3637	0.3223	0.4160	0.4489	0.4787	0.6142	0.5534
B2->Z	0.1476	0.3188	0.1817	0.3490	0.2407	0.3910	0.3319	0.4434	0.4586	0.5060	0.6240	0.5807
B3->Z	0.1538	0.3299	0.1883	0.3601	0.2477	0.4021	0.3391	0.4545	0.4659	0.5171	0.6314	0.5918

OA33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1190	0.2127	0.1532	0.2485	0.2134	0.3015	0.3043	0.3660	0.4316	0.4398	0.5983	0.5242
A2->Z	0.1283	0.2400	0.1628	0.2758	0.2230	0.3288	0.3140	0.3933	0.4414	0.4671	0.6082	0.5515
A3->Z	0.1355	0.2509	0.1705	0.2860	0.2312	0.3342	0.3225	0.3914	0.4501	0.4590	0.6170	0.5387
B1->Z	0.1365	0.3007	0.1709	0.3331	0.2311	0.3784	0.3221	0.4331	0.4494	0.4985	0.6162	0.5765
B2->Z	0.1457	0.3280	0.1803	0.3605	0.2406	0.4057	0.3317	0.4604	0.4591	0.5259	0.6260	0.6038
B3->Z	0.1519	0.3391	0.1869	0.3716	0.2476	0.4169	0.3388	0.4715	0.4664	0.5370	0.6333	0.6149

OA33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0877 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1112	0.2093	0.1471	0.2471	0.2078	0.3003	0.2999	0.3651	0.4286	0.4383	0.5975	0.5215
A2->Z	0.1199	0.2358	0.1561	0.2736	0.2168	0.3269	0.3090	0.3917	0.4379	0.4649	0.6068	0.5480
A3->Z	0.1266	0.2464	0.1633	0.2841	0.2245	0.3374	0.3170	0.4021	0.4460	0.4753	0.6150	0.5585
B1->Z	0.1265	0.2906	0.1625	0.3256	0.2232	0.3715	0.3154	0.4262	0.4442	0.4909	0.6130	0.5674
B2->Z	0.1350	0.3172	0.1712	0.3522	0.2321	0.3981	0.3243	0.4528	0.4532	0.5175	0.6222	0.5940
B3->Z	0.1406	0.3279	0.1773	0.3629	0.2385	0.4088	0.3309	0.4635	0.4599	0.5282	0.6290	0.6048

OA33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1053 pF		0.1758 pF		0.2686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0933	0.1892	0.1286	0.2278	0.1895	0.2831	0.2823	0.3502	0.4116	0.4254	0.5813	0.5104
A2->Z	0.1033	0.2292	0.1390	0.2679	0.2001	0.3232	0.2930	0.3903	0.4224	0.4655	0.5923	0.5504
A3->Z	0.1067	0.2392	0.1430	0.2778	0.2044	0.3308	0.2977	0.3910	0.4272	0.4598	0.5972	0.5398
B1->Z	0.1080	0.2866	0.1434	0.3220	0.2043	0.3678	0.2970	0.4224	0.4263	0.4869	0.5960	0.5637
B2->Z	0.1178	0.3261	0.1535	0.3615	0.2146	0.4074	0.3076	0.4620	0.4370	0.5265	0.6068	0.6032
B3->Z	0.1212	0.3359	0.1574	0.3714	0.2189	0.4172	0.3121	0.4718	0.4417	0.5363	0.6117	0.6130

Combinational Cell

OAI211B100

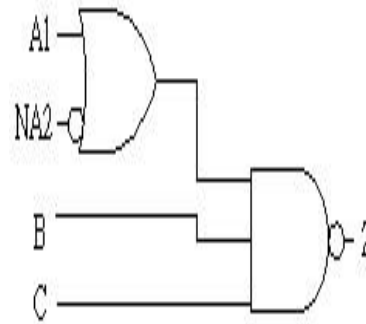
Cell Description

The OAI211B100 cell provides a NAND gate with three inputs, one of which is an OR gate's output. The OR gate has an inverted input (NA2).

Truth Table

A1	NA2	B	C	Z
0	1	X	X	1
X	X	0	X	1
X	X	X	0	1
X	0	1	1	0
1	X	1	1	0

Symbol



Cell List

OAI211B100M0HM, OAI211B100M1HM, OAI211B100M2HM
, OAI211B100M4HM, OAI211B100M8HM

OAI211B100 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00126	0.00137	0.00175	0.00327	0.00615
B	input	0.00120	0.00130	0.00155	0.00333	0.00537
C	input	0.00121	0.00128	0.00155	0.00308	0.00543
NA2	input	0.00123	0.00123	0.00119	0.00139	0.00175
Z	output					

Power Dissipation (uW/MHz)

OAI211B100M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0046 pF		0.0079 pF		0.0126 pF		0.0187 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0049	0.0010	0.0050	0.0010	0.0050	0.0010	0.0050	0.0010	0.0051	0.0010	0.0051	0.0011
B->Z	0.0069	0.0018	0.0069	0.0019	0.0069	0.0019	0.0069	0.0019	0.0069	0.0019	0.0069	0.0019
C->Z	0.0079	0.0018	0.0079	0.0018	0.0079	0.0019	0.0079	0.0019	0.0079	0.0019	0.0079	0.0019
NA2->Z	0.0058	0.0072	0.0059	0.0072	0.0059	0.0072	0.0059	0.0072	0.0059	0.0072	0.0059	0.0072

OAI211B100M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0092 pF		0.0147 pF		0.0220 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0053	0.0010	0.0053	0.0010	0.0053	0.0010	0.0054	0.0010	0.0054	0.0010	0.0054	0.0011
B->Z	0.0073	0.0019	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020
C->Z	0.0084	0.0019	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020
NA2->Z	0.0063	0.0075	0.0063	0.0075	0.0063	0.0075	0.0063	0.0075	0.0064	0.0075	0.0064	0.0075

OAI211B100M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0061	0.0013	0.0061	0.0013	0.0062	0.0013	0.0062	0.0013	0.0063	0.0014	0.0063	0.0014
B->Z	0.0085	0.0025	0.0085	0.0025	0.0085	0.0025	0.0086	0.0026	0.0086	0.0026	0.0086	0.0026
C->Z	0.0100	0.0025	0.0100	0.0025	0.0100	0.0025	0.0100	0.0026	0.0100	0.0026	0.0100	0.0026
NA2->Z	0.0074	0.0089	0.0075	0.0089	0.0075	0.0089	0.0076	0.0089	0.0076	0.0089	0.0076	0.0089

OAI211B100M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0248 pF		0.0408 pF		0.0620 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0118	0.0020	0.0120	0.0021	0.0121	0.0021	0.0123	0.0022	0.0123	0.0022	0.0124	0.0022
B->Z	0.0172	0.0046	0.0173	0.0046	0.0174	0.0046	0.0174	0.0047	0.0174	0.0047	0.0174	0.0047
C->Z	0.0201	0.0046	0.0201	0.0046	0.0201	0.0046	0.0202	0.0047	0.0202	0.0047	0.0202	0.0047
NA2->Z	0.0144	0.0158	0.0145	0.0159	0.0147	0.0159	0.0148	0.0159	0.0149	0.0160	0.0149	0.0160

OAI211B100M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0485 pF		0.0807 pF		0.1230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0230	0.0040	0.0233	0.0042	0.0237	0.0043	0.0239	0.0044	0.0240	0.0045	0.0241	0.0045
B->Z	0.0335	0.0095	0.0336	0.0096	0.0338	0.0097	0.0339	0.0098	0.0339	0.0098	0.0339	0.0098
C->Z	0.0407	0.0096	0.0408	0.0097	0.0408	0.0098	0.0408	0.0099	0.0409	0.0099	0.0409	0.0099
NA2->Z	0.0300	0.0275	0.0304	0.0276	0.0307	0.0277	0.0310	0.0278	0.0311	0.0278	0.0312	0.0278

Hidden Power (uW/MHz)

OAI211B100 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0003	-0.0006	-0.0010	-0.0020
A1	F	0.0011	0.0013	0.0018	0.0036	0.0072
B	R	-0.0007	-0.0008	-0.0011	-0.0022	-0.0039
B	F	0.0007	0.0008	0.0011	0.0022	0.0044
C	R	-0.0007	-0.0008	-0.0011	-0.0022	-0.0042
C	F	0.0007	0.0008	0.0011	0.0022	0.0042
NA2	R	0.0012	0.0014	0.0019	0.0037	0.0073
NA2	F	0.0046	0.0047	0.0051	0.0091	0.0128

Propagation Delays (ns)

OAI211B100M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0046 pF		0.0079 pF		0.0126 pF		0.0187 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1048	0.0493	0.1311	0.0609	0.1831	0.0838	0.2607	0.1181	0.3708	0.1668	0.5134	0.2300
B->Z	0.1134	0.0738	0.1333	0.0858	0.1727	0.1093	0.2315	0.1443	0.3148	0.1938	0.4227	0.2579
C->Z	0.1229	0.0771	0.1427	0.0891	0.1819	0.1127	0.2403	0.1476	0.3229	0.1972	0.4299	0.2612
NA2->Z	0.1388	0.1069	0.1649	0.1190	0.2168	0.1426	0.2943	0.1775	0.4043	0.2270	0.5468	0.2911

OAI211B100M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0052 pF		0.0092 pF		0.0147 pF		0.0220 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0964	0.0473	0.1231	0.0594	0.1740	0.0827	0.2549	0.1197	0.3657	0.1706	0.5125	0.2379
B->Z	0.1046	0.0711	0.1248	0.0837	0.1634	0.1077	0.2246	0.1455	0.3084	0.1971	0.4194	0.2655
C->Z	0.1135	0.0745	0.1337	0.0871	0.1719	0.1110	0.2326	0.1488	0.3156	0.2004	0.4254	0.2688
NA2->Z	0.1309	0.1069	0.1576	0.1196	0.2083	0.1436	0.2891	0.1813	0.3998	0.2330	0.5466	0.3013

OAI211B100M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0803	0.0417	0.1099	0.0556	0.1622	0.0804	0.2444	0.1195	0.3594	0.1742	0.5101	0.2459
B->Z	0.0890	0.0643	0.1112	0.0788	0.1507	0.1044	0.2127	0.1443	0.2993	0.1999	0.4127	0.2726
C->Z	0.0974	0.0675	0.1195	0.0821	0.1588	0.1076	0.2202	0.1475	0.3060	0.2031	0.4183	0.2759
NA2->Z	0.1169	0.1077	0.1464	0.1225	0.1986	0.1481	0.2808	0.1880	0.3957	0.2436	0.5463	0.3163

OAI211B100M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0248 pF		0.0408 pF		0.0620 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0721	0.0370	0.1007	0.0503	0.1554	0.0757	0.2395	0.1150	0.3560	0.1695	0.5101	0.2417
B->Z	0.0846	0.0613	0.1061	0.0753	0.1473	0.1016	0.2106	0.1416	0.2983	0.1967	0.4141	0.2693
C->Z	0.0946	0.0641	0.1163	0.0781	0.1579	0.1044	0.2219	0.1444	0.3103	0.1995	0.4271	0.2721
NA2->Z	0.1200	0.1256	0.1486	0.1405	0.2034	0.1675	0.2876	0.2076	0.4041	0.2626	0.5583	0.3352

OAI211B100M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0485 pF		0.0807 pF		0.1230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0669	0.0346	0.0963	0.0481	0.1511	0.0733	0.2357	0.1122	0.3540	0.1668	0.5092	0.2384
B->Z	0.0792	0.0610	0.1010	0.0757	0.1418	0.1024	0.2048	0.1426	0.2929	0.1982	0.4083	0.2708
C->Z	0.0911	0.0653	0.1130	0.0799	0.1541	0.1066	0.2173	0.1468	0.3056	0.2024	0.4212	0.2750
NA2->Z	0.1232	0.1299	0.1526	0.1453	0.2076	0.1726	0.2923	0.2128	0.4107	0.2684	0.5659	0.3409

Combinational Cell

OAI211

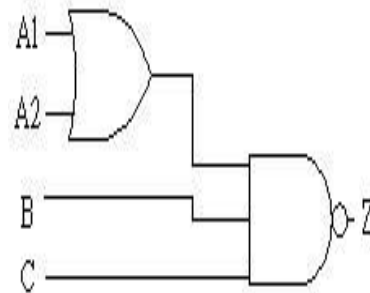
Cell Description

The OAI211 cell provides a NAND gate with three inputs, one of which is an OR gate's output.

Truth Table

A1	A2	B	C	Z
0	0	X	X	1
X	X	0	X	1
X	X	X	0	1
X	1	1	1	0
1	X	1	1	0

Symbol



Cell List

OAI211M0HM, OAI211M1HM, OAI211M2HM
, OAI211M4HM, OAI211M8HM

OAI211 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00122	0.00153	0.00172	0.00324	0.00611
A2	input	0.00131	0.00161	0.00181	0.00370	0.00627
B	input	0.00111	0.00135	0.00148	0.00322	0.00531
C	input	0.00107	0.00129	0.00142	0.00296	0.00533
Z	output					

Power Dissipation (uW/MHz)

OAI211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0082 pF		0.0131 pF		0.0195 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0042	0.0009	0.0043	0.0009	0.0043	0.0010	0.0043	0.0010	0.0043	0.0010	0.0043	0.0010
A2->Z	0.0051	0.0014	0.0051	0.0015	0.0051	0.0015	0.0051	0.0015	0.0051	0.0015	0.0051	0.0015
B->Z	0.0065	0.0012	0.0065	0.0012	0.0065	0.0012	0.0066	0.0012	0.0066	0.0012	0.0066	0.0012
C->Z	0.0074	0.0012	0.0074	0.0012	0.0074	0.0012	0.0074	0.0012	0.0074	0.0012	0.0074	0.0012

OAI211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0184 pF		0.0276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0053	0.0012	0.0053	0.0012	0.0054	0.0012	0.0054	0.0013	0.0054	0.0013	0.0054	0.0013
A2->Z	0.0064	0.0019	0.0064	0.0019	0.0065	0.0019	0.0065	0.0019	0.0065	0.0019	0.0065	0.0019
B->Z	0.0080	0.0016	0.0080	0.0016	0.0081	0.0016	0.0081	0.0017	0.0081	0.0017	0.0081	0.0017
C->Z	0.0092	0.0016	0.0092	0.0016	0.0092	0.0016	0.0092	0.0017	0.0092	0.0017	0.0092	0.0017

OAI211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0058	0.0012	0.0059	0.0013	0.0060	0.0013	0.0060	0.0013	0.0060	0.0013	0.0060	0.0013
A2->Z	0.0071	0.0020	0.0071	0.0020	0.0072	0.0020	0.0072	0.0020	0.0072	0.0020	0.0073	0.0020
B->Z	0.0089	0.0017	0.0089	0.0017	0.0089	0.0018	0.0090	0.0018	0.0090	0.0018	0.0090	0.0018
C->Z	0.0103	0.0017	0.0103	0.0018	0.0103	0.0018	0.0103	0.0018	0.0103	0.0018	0.0103	0.0018

OAI211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0248 pF		0.0409 pF		0.0620 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0118	0.0020	0.0120	0.0021	0.0121	0.0021	0.0122	0.0022	0.0123	0.0022	0.0123	0.0022
A2->Z	0.0143	0.0036	0.0145	0.0036	0.0146	0.0036	0.0147	0.0036	0.0147	0.0036	0.0147	0.0036
B->Z	0.0186	0.0030	0.0187	0.0030	0.0187	0.0031	0.0188	0.0031	0.0188	0.0031	0.0188	0.0031
C->Z	0.0215	0.0030	0.0215	0.0030	0.0215	0.0031	0.0215	0.0031	0.0215	0.0031	0.0216	0.0031

OAI211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0485 pF		0.0807 pF		0.1230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0231	0.0040	0.0235	0.0042	0.0238	0.0044	0.0240	0.0045	0.0242	0.0045	0.0242	0.0046
A2->Z	0.0303	0.0083	0.0306	0.0084	0.0308	0.0084	0.0310	0.0084	0.0311	0.0084	0.0312	0.0084
B->Z	0.0366	0.0064	0.0367	0.0065	0.0368	0.0065	0.0369	0.0066	0.0369	0.0066	0.0370	0.0066
C->Z	0.0438	0.0065	0.0438	0.0066	0.0439	0.0066	0.0439	0.0067	0.0439	0.0067	0.0439	0.0067

Hidden Power (uW/MHz)

OAI211 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0005	-0.0006	-0.0010	-0.0019
A1	F	0.0011	0.0015	0.0017	0.0035	0.0070
A2	R	-0.0003	-0.0006	-0.0007	-0.0012	-0.0025
A2	F	0.0012	0.0016	0.0018	0.0036	0.0072
B	R	-0.0008	-0.0010	-0.0010	-0.0022	-0.0040
B	F	0.0008	0.0010	0.0010	0.0022	0.0043
C	R	-0.0008	-0.0010	-0.0010	-0.0022	-0.0042
C	F	0.0008	0.0010	0.0010	0.0022	0.0042

Propagation Delays (ns)

OAI211M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0082 pF		0.0131 pF		0.0195 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0942	0.0527	0.1221	0.0675	0.1727	0.0945	0.2529	0.1372	0.3648	0.1968	0.5107	0.2747
A2->Z	0.1059	0.0603	0.1336	0.0752	0.1842	0.1022	0.2642	0.1447	0.3761	0.2039	0.5219	0.2812
B->Z	0.1013	0.0769	0.1222	0.0919	0.1602	0.1189	0.2202	0.1614	0.3038	0.2207	0.4128	0.2979
C->Z	0.1089	0.0801	0.1298	0.0950	0.1676	0.1220	0.2273	0.1645	0.3103	0.2238	0.4184	0.3011

OAI211M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0184 pF		0.0276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0829	0.0470	0.1112	0.0618	0.1639	0.0895	0.2457	0.1326	0.3598	0.1928	0.5096	0.2719
A2->Z	0.0942	0.0541	0.1224	0.0691	0.1749	0.0968	0.2566	0.1397	0.3706	0.1995	0.5203	0.2778
B->Z	0.0905	0.0681	0.1120	0.0830	0.1520	0.1108	0.2141	0.1537	0.3006	0.2135	0.4141	0.2919
C->Z	0.0983	0.0711	0.1198	0.0861	0.1598	0.1138	0.2218	0.1567	0.3080	0.2165	0.4210	0.2949

OAI211M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0071 pF		0.0128 pF		0.0208 pF		0.0313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0789	0.0415	0.1085	0.0556	0.1610	0.0807	0.2436	0.1202	0.3590	0.1756	0.5101	0.2482
A2->Z	0.0900	0.0477	0.1195	0.0619	0.1718	0.0871	0.2543	0.1265	0.3696	0.1814	0.5207	0.2534
B->Z	0.0944	0.0604	0.1186	0.0746	0.1616	0.0998	0.2292	0.1392	0.3236	0.1941	0.4473	0.2661
C->Z	0.1039	0.0633	0.1281	0.0776	0.1712	0.1027	0.2386	0.1421	0.3328	0.1971	0.4560	0.2691

OAI211M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0248 pF		0.0409 pF		0.0620 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0721	0.0370	0.1007	0.0503	0.1553	0.0757	0.2395	0.1149	0.3568	0.1698	0.5103	0.2415
A2->Z	0.0833	0.0438	0.1117	0.0573	0.1662	0.0831	0.2502	0.1227	0.3674	0.1778	0.5208	0.2498
B->Z	0.0842	0.0575	0.1056	0.0711	0.1467	0.0969	0.2099	0.1366	0.2980	0.1917	0.4131	0.2637
C->Z	0.0938	0.0602	0.1156	0.0738	0.1572	0.0996	0.2212	0.1393	0.3101	0.1944	0.4263	0.2664

OAI211M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0256 pF		0.0485 pF		0.0807 pF		0.1230 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0671	0.0351	0.0965	0.0488	0.1513	0.0742	0.2359	0.1137	0.3541	0.1689	0.5092	0.2415
A2->Z	0.0844	0.0440	0.1135	0.0582	0.1681	0.0846	0.2524	0.1249	0.3706	0.1810	0.5257	0.2544
B->Z	0.0794	0.0567	0.1011	0.0711	0.1419	0.0975	0.2048	0.1378	0.2928	0.1939	0.4081	0.2673
C->Z	0.0905	0.0608	0.1125	0.0751	0.1535	0.1016	0.2165	0.1419	0.3044	0.1980	0.4195	0.2714

Combinational Cell

OAI21B01

Cell Description

The OAI21B01 cell provides a NAND gate with two inputs, one of which is an OR gate's output. The other input is inverted (NB).

Truth Table

A1	A2	NB	Z
0	0	X	1
X	X	1	1
X	1	0	0
1	X	0	0

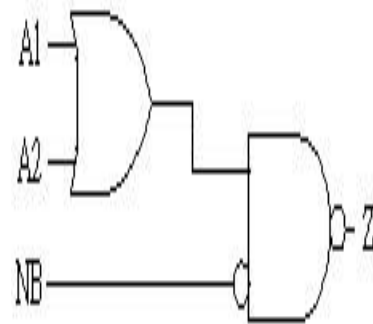
Cell List

OAI21B01M0HM, OAI21B01M1HM, OAI21B01M2HM
, OAI21B01M4HM, OAI21B01M8HM

OAI21B01 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00137	0.00169	0.00327	0.00613
A2	input	0.00137	0.00139	0.00172	0.00359	0.00638
NB	input	0.00137	0.00129	0.00128	0.00119	0.00179
Z	output					

Symbol



Power Dissipation (uW/MHz)

OAI21B01M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0046 pF		0.0080 pF		0.0128 pF		0.0191 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0006	0.0044	0.0006	0.0044	0.0006	0.0045	0.0007	0.0045	0.0007	0.0045	0.0007
A2->Z	0.0052	0.0012	0.0052	0.0012	0.0052	0.0012	0.0053	0.0012	0.0053	0.0012	0.0053	0.0012
NB->Z	0.0068	0.0066	0.0069	0.0067	0.0069	0.0067	0.0069	0.0067	0.0069	0.0067	0.0069	0.0067

OAI21B01M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0093 pF		0.0150 pF		0.0224 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0045	0.0006	0.0045	0.0007	0.0045	0.0007	0.0046	0.0007	0.0046	0.0007	0.0046	0.0007
A2->Z	0.0054	0.0013	0.0054	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013	0.0055	0.0013
NB->Z	0.0072	0.0068	0.0072	0.0068	0.0072	0.0068	0.0072	0.0068	0.0072	0.0068	0.0072	0.0068

OAI21B01M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0210 pF		0.0317 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0053	0.0008	0.0054	0.0009	0.0054	0.0009	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009
A2->Z	0.0066	0.0017	0.0066	0.0017	0.0067	0.0017	0.0067	0.0017	0.0068	0.0017	0.0068	0.0017
NB->Z	0.0086	0.0077	0.0086	0.0077	0.0087	0.0077	0.0087	0.0077	0.0087	0.0077	0.0087	0.0077

OAI21B01M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0247 pF		0.0407 pF		0.0617 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0114	0.0033	0.0115	0.0035	0.0115	0.0036	0.0116	0.0036	0.0116	0.0036	0.0116	0.0037
A2->Z	0.0139	0.0051	0.0139	0.0052	0.0140	0.0052	0.0140	0.0052	0.0140	0.0052	0.0140	0.0052
NB->Z	0.0078	0.0111	0.0080	0.0112	0.0082	0.0113	0.0083	0.0113	0.0084	0.0113	0.0085	0.0114

OAI21B01M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0486 pF		0.0808 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0208	0.0058	0.0210	0.0061	0.0211	0.0063	0.0212	0.0065	0.0213	0.0065	0.0213	0.0065
A2->Z	0.0276	0.0104	0.0277	0.0104	0.0278	0.0105	0.0278	0.0105	0.0279	0.0105	0.0279	0.0105
NB->Z	0.0148	0.0197	0.0151	0.0199	0.0155	0.0201	0.0157	0.0202	0.0158	0.0202	0.0159	0.0202

Hidden Power (uW/MHz)

OAI21B01 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0023	-0.0044
A1	F	0.0011	0.0012	0.0016	0.0028	0.0058
A2	R	-0.0006	-0.0007	-0.0010	-0.0029	-0.0057
A2	F	0.0011	0.0012	0.0017	0.0031	0.0062
NB	R	0.0008	0.0009	0.0012	0.0028	0.0051
NB	F	0.0048	0.0047	0.0051	0.0082	0.0136

Propagation Delays (ns)

OAI21B01M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0046 pF		0.0080 pF		0.0128 pF		0.0191 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0949	0.0394	0.1236	0.0495	0.1734	0.0669	0.2536	0.0949	0.3663	0.1344	0.5140	0.1861
A2->Z	0.1082	0.0457	0.1367	0.0561	0.1864	0.0741	0.2664	0.1029	0.3790	0.1432	0.5267	0.1960
NB->Z	0.1243	0.1073	0.1461	0.1180	0.1837	0.1362	0.2442	0.1651	0.3293	0.2055	0.4407	0.2583

OAI21B01M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0093 pF		0.0150 pF		0.0224 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0865	0.0366	0.1133	0.0461	0.1665	0.0646	0.2477	0.0931	0.3629	0.1334	0.5122	0.1858
A2->Z	0.0988	0.0424	0.1256	0.0522	0.1785	0.0714	0.2595	0.1005	0.3747	0.1417	0.5240	0.1951
NB->Z	0.1160	0.1034	0.1363	0.1135	0.1765	0.1330	0.2377	0.1623	0.3246	0.2036	0.4371	0.2569

OAI21B01M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0210 pF		0.0317 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0745	0.0329	0.1027	0.0432	0.1568	0.0624	0.2394	0.0919	0.3564	0.1337	0.5106	0.1888
A2->Z	0.0863	0.0386	0.1143	0.0492	0.1682	0.0690	0.2507	0.0993	0.3676	0.1419	0.5218	0.1980
NB->Z	0.1061	0.1039	0.1271	0.1149	0.1677	0.1353	0.2295	0.1658	0.3170	0.2085	0.4323	0.2646

OAI21B01M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0247 pF		0.0407 pF		0.0617 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0812	0.0378	0.1101	0.0493	0.1650	0.0700	0.2487	0.1006	0.3655	0.1427	0.5184	0.1976
A2->Z	0.0929	0.0434	0.1216	0.0549	0.1764	0.0757	0.2599	0.1064	0.3767	0.1487	0.5295	0.2038
NB->Z	0.0777	0.1033	0.0994	0.1160	0.1407	0.1378	0.2032	0.1689	0.2906	0.2112	0.4050	0.2662

OAI21B01M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0257 pF		0.0486 pF		0.0808 pF		0.1232 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0714	0.0366	0.1010	0.0499	0.1565	0.0731	0.2413	0.1076	0.3599	0.1551	0.5158	0.2174
A2->Z	0.0880	0.0445	0.1174	0.0579	0.1727	0.0817	0.2574	0.1167	0.3760	0.1649	0.5318	0.2278
NB->Z	0.0725	0.1048	0.0944	0.1193	0.1355	0.1438	0.1983	0.1791	0.2862	0.2274	0.4016	0.2903

Combinational Cell

OAI21B10

Cell Description

The OAI21B10 cell provides a NAND gate with two inputs, one of which is an OR gate's output. The OR gate has an inverted input (NA2).

Truth Table

A1	NA2	B	Z
0	1	X	1
X	X	0	1
X	0	1	0
1	X	1	0

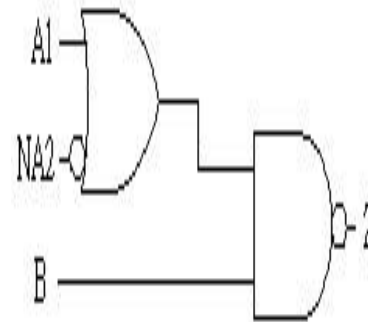
Cell List

OAI21B10M0HM, OAI21B10M1HM, OAI21B10M2HM
, OAI21B10M4HM, OAI21B10M8HM

OAI21B10 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00131	0.00141	0.00172	0.00324	0.00610
B	input	0.00127	0.00135	0.00161	0.00285	0.00526
NA2	input	0.00121	0.00121	0.00121	0.00132	0.00175
Z	output					

Symbol



Power Dissipation (uW/MHz)

OAI21B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0081 pF		0.0130 pF		0.0193 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0004	0.0045	0.0004	0.0045	0.0004	0.0045	0.0005	0.0045	0.0005	0.0046	0.0005
B->Z	0.0062	0.0012	0.0062	0.0012	0.0062	0.0012	0.0062	0.0012	0.0062	0.0012	0.0062	0.0012
NA2->Z	0.0053	0.0067	0.0053	0.0067	0.0054	0.0067	0.0054	0.0067	0.0054	0.0067	0.0054	0.0067

OAI21B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0094 pF		0.0151 pF		0.0225 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0047	0.0004	0.0048	0.0004	0.0048	0.0005	0.0049	0.0005	0.0049	0.0005	0.0049	0.0005
B->Z	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013	0.0067	0.0013
NA2->Z	0.0057	0.0071	0.0058	0.0071	0.0058	0.0071	0.0058	0.0071	0.0058	0.0071	0.0059	0.0071

OAI21B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0212 pF		0.0319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0055	0.0005	0.0056	0.0005	0.0057	0.0006	0.0057	0.0006	0.0058	0.0006	0.0058	0.0006
B->Z	0.0078	0.0018	0.0078	0.0018	0.0079	0.0018	0.0079	0.0018	0.0079	0.0018	0.0079	0.0018
NA2->Z	0.0069	0.0081	0.0069	0.0081	0.0070	0.0081	0.0070	0.0081	0.0071	0.0081	0.0071	0.0081

OAI21B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0629 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0107	0.0009	0.0109	0.0010	0.0110	0.0011	0.0111	0.0011	0.0112	0.0012	0.0112	0.0012
B->Z	0.0155	0.0034	0.0155	0.0035	0.0156	0.0035	0.0156	0.0035	0.0157	0.0036	0.0157	0.0036
NA2->Z	0.0132	0.0149	0.0133	0.0149	0.0135	0.0150	0.0136	0.0150	0.0137	0.0150	0.0137	0.0150

OAI21B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0255 pF		0.0483 pF		0.0803 pF		0.1224 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0271	0.0017	0.0272	0.0020	0.0273	0.0023	0.0274	0.0024	0.0275	0.0024	0.0275	0.0025
B->Z	0.0156	0.0045	0.0160	0.0047	0.0163	0.0048	0.0166	0.0049	0.0167	0.0049	0.0168	0.0049
NA2->Z	0.0339	0.0249	0.0340	0.0250	0.0341	0.0251	0.0342	0.0252	0.0342	0.0252	0.0343	0.0252

Hidden Power (uW/MHz)

OAI21B10 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0014	-0.0045
A1	F	0.0011	0.0012	0.0016	0.0032	0.0061
B	R	-0.0007	-0.0008	-0.0011	-0.0022	0.0022
B	F	0.0007	0.0008	0.0011	0.0022	0.0053
NA2	R	0.0011	0.0013	0.0018	0.0035	0.0063
NA2	F	0.0046	0.0047	0.0049	0.0087	0.0115

Propagation Delays (ns)

OAI21B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0081 pF		0.0130 pF		0.0193 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0930	0.0395	0.1215	0.0497	0.1732	0.0682	0.2526	0.0967	0.3667	0.1376	0.5132	0.1902
B->Z	0.1007	0.0562	0.1221	0.0669	0.1611	0.0861	0.2208	0.1153	0.3065	0.1570	0.4165	0.2105
NA2->Z	0.1269	0.0970	0.1553	0.1080	0.2069	0.1274	0.2862	0.1566	0.4002	0.1983	0.5465	0.2518

OAI21B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0094 pF		0.0151 pF		0.0225 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0865	0.0371	0.1132	0.0467	0.1660	0.0654	0.2486	0.0949	0.3630	0.1358	0.5114	0.1887
B->Z	0.0943	0.0532	0.1143	0.0632	0.1538	0.0828	0.2156	0.1130	0.3012	0.1547	0.4121	0.2086
NA2->Z	0.1211	0.0964	0.1477	0.1068	0.2003	0.1266	0.2828	0.1569	0.3972	0.1986	0.5454	0.2524

OAI21B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0212 pF		0.0319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0736	0.0330	0.1017	0.0433	0.1554	0.0627	0.2390	0.0929	0.3566	0.1355	0.5099	0.1910
B->Z	0.0814	0.0483	0.1022	0.0591	0.1422	0.0794	0.2044	0.1106	0.2919	0.1541	0.4059	0.2106
NA2->Z	0.1100	0.0970	0.1380	0.1084	0.1916	0.1292	0.2751	0.1604	0.3927	0.2039	0.5459	0.2604

OAI21B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0629 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0649	0.0294	0.0944	0.0403	0.1498	0.0601	0.2347	0.0905	0.3542	0.1333	0.5099	0.1892
B->Z	0.0762	0.0454	0.0981	0.0570	0.1396	0.0780	0.2032	0.1093	0.2926	0.1528	0.4090	0.2090
NA2->Z	0.1138	0.1199	0.1431	0.1331	0.1986	0.1557	0.2836	0.1878	0.4032	0.2314	0.5589	0.2876

OAI21B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0255 pF		0.0483 pF		0.0803 pF		0.1224 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0763	0.0324	0.1060	0.0430	0.1608	0.0622	0.2453	0.0918	0.3632	0.1332	0.5179	0.1876
B->Z	0.0423	0.0297	0.0642	0.0411	0.1045	0.0612	0.1666	0.0916	0.2535	0.1338	0.3675	0.1889
NA2->Z	0.1320	0.1241	0.1616	0.1372	0.2164	0.1592	0.3009	0.1908	0.4188	0.2335	0.5735	0.2887

Combinational Cell

OAI21B20

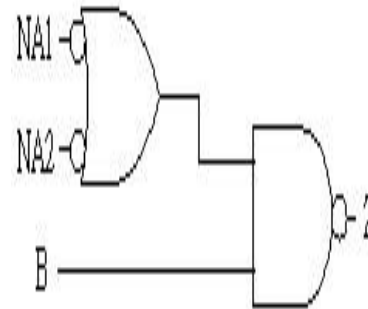
Cell Description

The OAI21B20 cell provides a NAND gate with two inputs, one of which is an OR gate's output. Both of OR gate's inputs are inverted.

Truth Table

NA1	NA2	B	Z
1	1	X	1
X	X	0	1
X	0	1	0
0	X	1	0

Symbol



Cell List

OAI21B20M0HM, OAI21B20M1HM, OAI21B20M2HM
, OAI21B20M4HM, OAI21B20M8HM

OAI21B20 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B	input	0.00120	0.00128	0.00158	0.00298	0.00594
NA1	input	0.00124	0.00120	0.00122	0.00130	0.00160
NA2	input	0.00137	0.00137	0.00135	0.00144	0.00177
Z	output					

Power Dissipation (uW/MHz)

OAI21B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0184 pF		0.0276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0030	0.0005	0.0031	0.0005	0.0031	0.0005	0.0031	0.0005	0.0032	0.0005	0.0032	0.0005
NA1->Z	0.0044	0.0063	0.0045	0.0063	0.0045	0.0064	0.0045	0.0064	0.0045	0.0064	0.0045	0.0064
NA2->Z	0.0044	0.0073	0.0045	0.0073	0.0045	0.0074	0.0045	0.0074	0.0045	0.0074	0.0045	0.0074

OAI21B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0135 pF		0.0219 pF		0.0330 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0033	0.0005	0.0033	0.0005	0.0034	0.0006	0.0034	0.0006	0.0034	0.0006	0.0035	0.0006
NA1->Z	0.0049	0.0065	0.0050	0.0066	0.0050	0.0066	0.0050	0.0066	0.0050	0.0066	0.0050	0.0066
NA2->Z	0.0049	0.0075	0.0050	0.0076	0.0050	0.0076	0.0050	0.0076	0.0050	0.0076	0.0050	0.0076

OAI21B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0102 pF		0.0188 pF		0.0309 pF		0.0467 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0040	0.0006	0.0041	0.0007	0.0042	0.0007	0.0042	0.0007	0.0043	0.0007	0.0043	0.0007
NA1->Z	0.0061	0.0073	0.0062	0.0074	0.0062	0.0075	0.0062	0.0075	0.0063	0.0075	0.0063	0.0075
NA2->Z	0.0061	0.0083	0.0062	0.0084	0.0062	0.0084	0.0062	0.0084	0.0063	0.0085	0.0063	0.0085

OAI21B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0362 pF		0.0599 pF		0.0912 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0071	0.0012	0.0074	0.0013	0.0076	0.0014	0.0077	0.0014	0.0077	0.0015	0.0078	0.0015
NA1->Z	0.0110	0.0122	0.0111	0.0124	0.0112	0.0125	0.0113	0.0125	0.0113	0.0126	0.0113	0.0126
NA2->Z	0.0110	0.0133	0.0111	0.0134	0.0112	0.0135	0.0113	0.0136	0.0113	0.0136	0.0114	0.0137

OAI21B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0042 pF		0.0156 pF		0.0373 pF		0.0711 pF		0.1185 pF		0.1810 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0135	0.0023	0.0140	0.0025	0.0144	0.0026	0.0147	0.0027	0.0148	0.0027	0.0148	0.0027
NA1->Z	0.0211	0.0208	0.0213	0.0210	0.0216	0.0212	0.0217	0.0213	0.0218	0.0214	0.0219	0.0215
NA2->Z	0.0211	0.0223	0.0213	0.0225	0.0216	0.0227	0.0217	0.0228	0.0218	0.0229	0.0219	0.0230

Hidden Power (uW/MHz)

OAI21B20 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B	R	-0.0005	-0.0006	-0.0008	-0.0015	-0.0028
B	F	0.0009	0.0011	0.0014	0.0029	0.0056
NA1	R	0.0000	0.0001	0.0002	0.0005	0.0011
NA1	F	0.0023	0.0023	0.0024	0.0035	0.0055
NA2	R	-0.0001	-0.0001	0.0000	0.0003	0.0008
NA2	F	0.0025	0.0025	0.0026	0.0037	0.0058

Propagation Delays (ns)

OAI21B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0064 pF		0.0114 pF		0.0184 pF		0.0276 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0654	0.0363	0.0948	0.0508	0.1493	0.0775	0.2340	0.1193	0.3524	0.1776	0.5078	0.2543
NA1->Z	0.1139	0.1101	0.1436	0.1260	0.1988	0.1540	0.2845	0.1962	0.4043	0.2547	0.5615	0.3313
NA2->Z	0.1173	0.1229	0.1469	0.1390	0.2021	0.1672	0.2878	0.2096	0.4076	0.2681	0.5648	0.3449

OAI21B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0075 pF		0.0135 pF		0.0219 pF		0.0330 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0603	0.0332	0.0894	0.0474	0.1452	0.0742	0.2306	0.1154	0.3498	0.1730	0.5071	0.2491
NA1->Z	0.1098	0.1113	0.1391	0.1272	0.1955	0.1557	0.2817	0.1975	0.4021	0.2552	0.5609	0.3313
NA2->Z	0.1131	0.1244	0.1424	0.1406	0.1988	0.1693	0.2850	0.2113	0.4053	0.2692	0.5642	0.3454

OAI21B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0102 pF		0.0188 pF		0.0309 pF		0.0467 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0522	0.0299	0.0820	0.0449	0.1377	0.0723	0.2240	0.1151	0.3452	0.1752	0.5033	0.2537
NA1->Z	0.1048	0.1146	0.1349	0.1321	0.1909	0.1618	0.2779	0.2055	0.3999	0.2659	0.5591	0.3444
NA2->Z	0.1081	0.1277	0.1382	0.1455	0.1942	0.1754	0.2811	0.2195	0.4032	0.2799	0.5623	0.3585

OAI21B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0026 pF		0.0083 pF		0.0192 pF		0.0362 pF		0.0599 pF		0.0912 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0459	0.0257	0.0763	0.0405	0.1330	0.0672	0.2208	0.1087	0.3428	0.1665	0.5037	0.2428
NA1->Z	0.1130	0.1352	0.1434	0.1549	0.1997	0.1862	0.2866	0.2300	0.4073	0.2887	0.5665	0.3652
NA2->Z	0.1161	0.1482	0.1466	0.1683	0.2029	0.1999	0.2898	0.2440	0.4105	0.3028	0.5697	0.3794

OAI21B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0042 pF		0.0156 pF		0.0373 pF		0.0711 pF		0.1185 pF		0.1810 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B->Z	0.0423	0.0236	0.0730	0.0384	0.1299	0.0648	0.2176	0.1057	0.3403	0.1630	0.5020	0.2385
NA1->Z	0.1178	0.1365	0.1492	0.1573	0.2062	0.1890	0.2939	0.2329	0.4164	0.2913	0.5777	0.3672
NA2->Z	0.1207	0.1481	0.1521	0.1692	0.2092	0.2013	0.2969	0.2454	0.4194	0.3040	0.5808	0.3799

Combinational Cell

OAI21

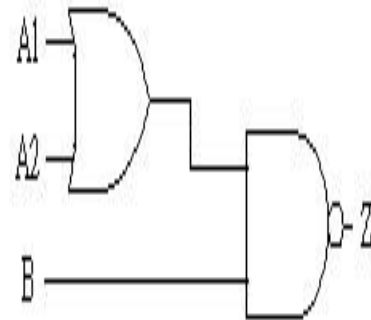
Cell Description

The OAI21 cell provides a NAND gate with two inputs, one of which is an OR gate's output.

Truth Table

A1	A2	B	Z
0	0	X	1
X	X	0	1
X	1	1	0
1	X	1	0

Symbol



Cell List

OAI21M0HM, OAI21M1HM, OAI21M2HM
 , OAI21M3HM, OAI21M4HM
 , OAI21M6HM, OAI21M8HM

OAI21 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A1	input	0.00129	0.00140	0.00173	0.00267	0.00327	0.00455	0.00611
A2	input	0.00126	0.00138	0.00170	0.00256	0.00371	0.00462	0.00624
B	input	0.00130	0.00140	0.00166	0.00178	0.00273	0.00395	0.00524
Z	output							

Power Dissipation (uW/MHz)

OAI21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0046 pF		0.0080 pF		0.0128 pF		0.0191 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0006	0.0047	0.0006	0.0047	0.0006	0.0047	0.0006	0.0047	0.0006	0.0048	0.0006
A2->Z	0.0054	0.0011	0.0055	0.0011	0.0055	0.0011	0.0055	0.0011	0.0055	0.0011	0.0055	0.0011
B->Z	0.0069	0.0008	0.0069	0.0009	0.0069	0.0009	0.0069	0.0009	0.0069	0.0009	0.0069	0.0009

OAI21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0093 pF		0.0149 pF		0.0222 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0050	0.0006	0.0050	0.0006	0.0051	0.0007	0.0051	0.0007	0.0051	0.0007	0.0052	0.0007
A2->Z	0.0059	0.0012	0.0060	0.0012	0.0060	0.0012	0.0060	0.0012	0.0060	0.0012	0.0060	0.0012
B->Z	0.0075	0.0009	0.0075	0.0010	0.0075	0.0010	0.0075	0.0010	0.0075	0.0010	0.0075	0.0010

OAI21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0209 pF		0.0315 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0058	0.0008	0.0059	0.0008	0.0060	0.0008	0.0060	0.0009	0.0060	0.0009	0.0060	0.0009
A2->Z	0.0071	0.0015	0.0071	0.0016	0.0072	0.0016	0.0072	0.0016	0.0072	0.0016	0.0073	0.0016
B->Z	0.0088	0.0012	0.0089	0.0012	0.0089	0.0013	0.0089	0.0013	0.0089	0.0013	0.0089	0.0013

OAI21M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0087	0.0009	0.0088	0.0010	0.0089	0.0011	0.0090	0.0011	0.0090	0.0011	0.0091	0.0011
A2->Z	0.0104	0.0022	0.0104	0.0023	0.0105	0.0023	0.0105	0.0023	0.0105	0.0023	0.0105	0.0023
B->Z	0.0118	0.0018	0.0119	0.0018	0.0119	0.0019	0.0119	0.0019	0.0119	0.0019	0.0119	0.0019

OAI21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0107	0.0009	0.0109	0.0010	0.0110	0.0011	0.0111	0.0011	0.0112	0.0012	0.0112	0.0012
A2->Z	0.0132	0.0025	0.0134	0.0025	0.0135	0.0026	0.0136	0.0026	0.0136	0.0026	0.0137	0.0026
B->Z	0.0169	0.0019	0.0170	0.0020	0.0170	0.0020	0.0171	0.0020	0.0171	0.0020	0.0171	0.0020

OAI21M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0197 pF		0.0371 pF		0.0615 pF		0.0936 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0152	0.0014	0.0155	0.0016	0.0157	0.0017	0.0159	0.0018	0.0160	0.0019	0.0161	0.0019
A2->Z	0.0201	0.0044	0.0204	0.0045	0.0205	0.0045	0.0207	0.0045	0.0207	0.0045	0.0208	0.0045
B->Z	0.0243	0.0033	0.0244	0.0033	0.0245	0.0034	0.0245	0.0034	0.0245	0.0034	0.0246	0.0035

OAI21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0255 pF		0.0484 pF		0.0804 pF		0.1226 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0268	0.0018	0.0269	0.0022	0.0270	0.0024	0.0271	0.0025	0.0272	0.0026	0.0272	0.0026
A2->Z	0.0336	0.0064	0.0337	0.0064	0.0338	0.0065	0.0338	0.0065	0.0338	0.0065	0.0339	0.0065
B->Z	0.0157	0.0044	0.0161	0.0045	0.0165	0.0046	0.0167	0.0047	0.0169	0.0047	0.0170	0.0047

Hidden Power (uW/MHz)

OAI21 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A1	R	-0.0004	-0.0005	-0.0007	-0.0014	-0.0013	-0.0020	-0.0044
A1	F	0.0010	0.0012	0.0015	0.0025	0.0031	0.0048	0.0058
A2	R	-0.0006	-0.0007	-0.0010	-0.0017	-0.0019	-0.0030	-0.0056
A2	F	0.0011	0.0012	0.0017	0.0026	0.0034	0.0052	0.0062
B	R	-0.0007	-0.0008	-0.0011	-0.0015	-0.0022	-0.0031	0.0021
B	F	0.0007	0.0008	0.0011	0.0015	0.0022	0.0031	0.0053

Propagation Delays (ns)

OAI21M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0046 pF		0.0080 pF		0.0128 pF		0.0191 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0970	0.0409	0.1256	0.0511	0.1751	0.0687	0.2549	0.0972	0.3672	0.1373	0.5143	0.1899
A2->Z	0.1087	0.0467	0.1371	0.0572	0.1866	0.0754	0.2662	0.1045	0.3784	0.1453	0.5254	0.1987
B->Z	0.1037	0.0560	0.1251	0.0665	0.1623	0.0847	0.2221	0.1138	0.3061	0.1547	0.4162	0.2081

OAI21M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0093 pF		0.0149 pF		0.0222 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0910	0.0387	0.1177	0.0482	0.1707	0.0670	0.2516	0.0957	0.3645	0.1358	0.5115	0.1881
A2->Z	0.1025	0.0443	0.1291	0.0542	0.1818	0.0735	0.2626	0.1028	0.3754	0.1437	0.5223	0.1968
B->Z	0.0973	0.0529	0.1172	0.0627	0.1567	0.0820	0.2171	0.1114	0.3012	0.1523	0.4107	0.2054

OAI21M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0035 pF		0.0072 pF		0.0129 pF		0.0209 pF		0.0315 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0758	0.0338	0.1054	0.0446	0.1593	0.0640	0.2418	0.0937	0.3570	0.1352	0.5095	0.1902
A2->Z	0.0869	0.0393	0.1163	0.0504	0.1700	0.0703	0.2523	0.1007	0.3675	0.1430	0.5199	0.1989
B->Z	0.0830	0.0468	0.1049	0.0579	0.1449	0.0778	0.2061	0.1082	0.2915	0.1506	0.4045	0.2065

OAI21M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0702	0.0366	0.0998	0.0499	0.1548	0.0745	0.2390	0.1122	0.3572	0.1653	0.5113	0.2345
A2->Z	0.0799	0.0488	0.1089	0.0643	0.1634	0.0930	0.2472	0.1368	0.3652	0.1982	0.5191	0.2782
B->Z	0.0737	0.0565	0.0959	0.0720	0.1376	0.1008	0.2016	0.1446	0.2915	0.2060	0.4087	0.2861

OAI21M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0251 pF		0.0415 pF		0.0630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0650	0.0295	0.0944	0.0404	0.1499	0.0603	0.2347	0.0908	0.3542	0.1337	0.5106	0.1899
A2->Z	0.0764	0.0345	0.1055	0.0455	0.1607	0.0657	0.2454	0.0965	0.3648	0.1396	0.5211	0.1960
B->Z	0.0762	0.0423	0.0981	0.0532	0.1395	0.0734	0.2031	0.1042	0.2924	0.1474	0.4093	0.2038

OAI21M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0085 pF		0.0197 pF		0.0371 pF		0.0615 pF		0.0936 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0611	0.0280	0.0907	0.0389	0.1464	0.0586	0.2322	0.0890	0.3519	0.1313	0.5091	0.1870
A2->Z	0.0765	0.0340	0.1058	0.0452	0.1614	0.0656	0.2469	0.0967	0.3665	0.1398	0.5237	0.1963
B->Z	0.0731	0.0410	0.0951	0.0521	0.1370	0.0726	0.2013	0.1037	0.2912	0.1468	0.4091	0.2033

OAI21M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0109 pF		0.0255 pF		0.0484 pF		0.0804 pF		0.1226 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0760	0.0323	0.1057	0.0429	0.1604	0.0621	0.2452	0.0919	0.3631	0.1332	0.5181	0.1878
A2->Z	0.0927	0.0379	0.1221	0.0492	0.1767	0.0692	0.2614	0.0997	0.3792	0.1418	0.5342	0.1969
B->Z	0.0421	0.0298	0.0640	0.0412	0.1042	0.0613	0.1666	0.0918	0.2533	0.1339	0.3675	0.1890

Combinational Cell

OAI221

Cell Description

The OAI221 cell provides a NAND gate with three inputs, two of which are OR gates' outputs.

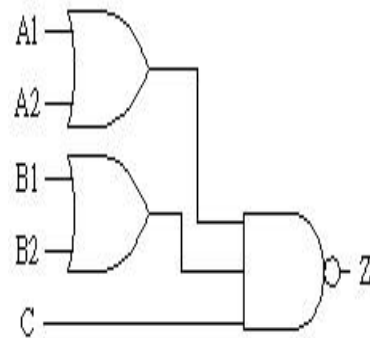
Truth Table

A1	A2	B1	B2	C	Z
0	0	X	X	X	1
X	X	0	0	X	1
X	X	X	X	0	1
X	1	X	1	1	0
X	1	1	X	1	0
1	X	X	1	1	0
1	X	1	X	1	0

Cell List

OAI221M0HM, OAI221M1HM, OAI221M2HM
, OAI221M4HM, OAI221M8HM

Symbol



OAI221 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00142	0.00173	0.00329	0.00618
A2	input	0.00135	0.00144	0.00177	0.00367	0.00626
B1	input	0.00127	0.00136	0.00172	0.00327	0.00611
B2	input	0.00135	0.00142	0.00184	0.00368	0.00649
C	input	0.00117	0.00123	0.00151	0.00286	0.00545
Z	output					

Power Dissipation (uW/MHz)

OAI221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0073 pF		0.0116 pF		0.0172 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0056	0.0014	0.0056	0.0014	0.0056	0.0014	0.0056	0.0014	0.0057	0.0014	0.0057	0.0014
A2->Z	0.0064	0.0019	0.0064	0.0019	0.0064	0.0019	0.0064	0.0019	0.0064	0.0019	0.0065	0.0019
B1->Z	0.0087	0.0014	0.0087	0.0014	0.0087	0.0014	0.0087	0.0014	0.0087	0.0014	0.0087	0.0014
B2->Z	0.0095	0.0019	0.0095	0.0019	0.0095	0.0019	0.0095	0.0019	0.0095	0.0019	0.0095	0.0019
C->Z	0.0110	0.0017	0.0110	0.0017	0.0110	0.0017	0.0110	0.0017	0.0110	0.0017	0.0110	0.0017

OAI221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0026 pF		0.0049 pF		0.0085 pF		0.0135 pF		0.0201 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0059	0.0015	0.0059	0.0015	0.0059	0.0015	0.0059	0.0015	0.0060	0.0016	0.0060	0.0016
A2->Z	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021	0.0069	0.0021	0.0069	0.0021	0.0069	0.0021
B1->Z	0.0093	0.0015	0.0093	0.0015	0.0093	0.0015	0.0093	0.0015	0.0093	0.0016	0.0093	0.0016
B2->Z	0.0102	0.0021	0.0102	0.0021	0.0102	0.0021	0.0102	0.0021	0.0102	0.0021	0.0102	0.0021
C->Z	0.0117	0.0019	0.0117	0.0019	0.0117	0.0019	0.0117	0.0019	0.0117	0.0019	0.0117	0.0019

OAI221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0066 pF		0.0118 pF		0.0191 pF		0.0288 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0069	0.0019	0.0070	0.0020	0.0070	0.0020	0.0071	0.0020	0.0071	0.0020	0.0071	0.0021
A2->Z	0.0082	0.0027	0.0082	0.0027	0.0083	0.0027	0.0083	0.0027	0.0083	0.0027	0.0083	0.0027
B1->Z	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0020	0.0112	0.0021
B2->Z	0.0124	0.0027	0.0124	0.0027	0.0124	0.0027	0.0124	0.0028	0.0124	0.0028	0.0124	0.0028
C->Z	0.0140	0.0025	0.0140	0.0025	0.0140	0.0025	0.0140	0.0025	0.0140	0.0025	0.0140	0.0025

OAI221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0056 pF		0.0124 pF		0.0230 pF		0.0379 pF		0.0575 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0134	0.0031	0.0136	0.0032	0.0137	0.0032	0.0138	0.0033	0.0139	0.0033	0.0139	0.0033
A2->Z	0.0160	0.0046	0.0161	0.0047	0.0162	0.0047	0.0163	0.0047	0.0163	0.0047	0.0163	0.0047
B1->Z	0.0217	0.0031	0.0217	0.0032	0.0217	0.0032	0.0218	0.0033	0.0218	0.0033	0.0218	0.0033
B2->Z	0.0241	0.0047	0.0241	0.0047	0.0242	0.0047	0.0242	0.0047	0.0242	0.0047	0.0242	0.0047
C->Z	0.0275	0.0040	0.0275	0.0041	0.0275	0.0041	0.0275	0.0041	0.0275	0.0041	0.0275	0.0042

OAI221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0100 pF		0.0233 pF		0.0441 pF		0.0732 pF		0.1115 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0269	0.0066	0.0272	0.0067	0.0275	0.0068	0.0277	0.0069	0.0279	0.0070	0.0279	0.0070
A2->Z	0.0337	0.0108	0.0339	0.0109	0.0342	0.0109	0.0343	0.0109	0.0344	0.0109	0.0345	0.0109
B1->Z	0.0428	0.0066	0.0429	0.0068	0.0430	0.0069	0.0431	0.0069	0.0431	0.0070	0.0431	0.0070
B2->Z	0.0498	0.0109	0.0498	0.0109	0.0499	0.0109	0.0499	0.0109	0.0499	0.0109	0.0500	0.0109
C->Z	0.0547	0.0090	0.0548	0.0091	0.0548	0.0092	0.0548	0.0092	0.0548	0.0092	0.0548	0.0093

Hidden Power (uW/MHz)

OAI221 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	0.0004	0.0004	0.0003	0.0005	0.0008
A1	F	0.0011	0.0013	0.0017	0.0033	0.0068
A2	R	0.0003	0.0002	0.0001	0.0001	-0.0000
A2	F	0.0012	0.0013	0.0017	0.0036	0.0070
B1	R	-0.0007	-0.0007	-0.0011	-0.0022	-0.0042
B1	F	0.0009	0.0010	0.0014	0.0028	0.0059
B2	R	-0.0008	-0.0009	-0.0013	-0.0026	-0.0050
B2	F	0.0010	0.0011	0.0015	0.0031	0.0062
C	R	-0.0007	-0.0008	-0.0011	-0.0022	-0.0042
C	F	0.0007	0.0008	0.0011	0.0022	0.0042

Propagation Delays (ns)

OAI221M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0043 pF		0.0073 pF		0.0116 pF		0.0172 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1118	0.0602	0.1358	0.0714	0.1835	0.0935	0.2546	0.1263	0.3561	0.1730	0.4882	0.2337
A2->Z	0.1238	0.0678	0.1476	0.0790	0.1952	0.1013	0.2661	0.1343	0.3676	0.1812	0.4996	0.2420
B1->Z	0.1646	0.0821	0.1888	0.0932	0.2369	0.1151	0.3085	0.1477	0.4107	0.1940	0.5435	0.2543
B2->Z	0.1763	0.0902	0.2005	0.1015	0.2486	0.1237	0.3201	0.1567	0.4223	0.2036	0.5550	0.2644
C->Z	0.1510	0.0989	0.1694	0.1102	0.2057	0.1325	0.2594	0.1655	0.3357	0.2124	0.4344	0.2732

OAI221M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0026 pF		0.0049 pF		0.0085 pF		0.0135 pF		0.0201 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1016	0.0574	0.1284	0.0703	0.1757	0.0930	0.2493	0.1281	0.3512	0.1765	0.4853	0.2402
A2->Z	0.1132	0.0650	0.1400	0.0781	0.1872	0.1009	0.2606	0.1361	0.3624	0.1847	0.4965	0.2485
B1->Z	0.1506	0.0783	0.1778	0.0912	0.2255	0.1136	0.2997	0.1484	0.4022	0.1965	0.5371	0.2597
B2->Z	0.1621	0.0865	0.1893	0.0995	0.2369	0.1223	0.3110	0.1576	0.4134	0.2061	0.5484	0.2700
C->Z	0.1381	0.0947	0.1587	0.1077	0.1945	0.1306	0.2499	0.1658	0.3260	0.2144	0.4260	0.2783

OAI221M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0066 pF		0.0118 pF		0.0191 pF		0.0288 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0876	0.0524	0.1143	0.0656	0.1628	0.0893	0.2387	0.1263	0.3449	0.1779	0.4857	0.2463
A2->Z	0.0988	0.0599	0.1254	0.0732	0.1737	0.0971	0.2495	0.1343	0.3556	0.1860	0.4963	0.2545
B1->Z	0.1314	0.0707	0.1584	0.0838	0.2074	0.1073	0.2839	0.1439	0.3908	0.1949	0.5324	0.2626
B2->Z	0.1424	0.0790	0.1693	0.0923	0.2182	0.1162	0.2947	0.1534	0.4015	0.2051	0.5431	0.2736
C->Z	0.1194	0.0855	0.1397	0.0988	0.1763	0.1228	0.2331	0.1600	0.3121	0.2118	0.4164	0.2802

OAI221M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0056 pF		0.0124 pF		0.0230 pF		0.0379 pF		0.0575 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0768	0.0459	0.1041	0.0589	0.1546	0.0829	0.2327	0.1199	0.3421	0.1715	0.4856	0.2391
A2->Z	0.0881	0.0536	0.1152	0.0668	0.1655	0.0912	0.2434	0.1286	0.3527	0.1807	0.4961	0.2490
B1->Z	0.1194	0.0640	0.1468	0.0771	0.1977	0.1014	0.2764	0.1386	0.3863	0.1906	0.5306	0.2588
B2->Z	0.1304	0.0713	0.1576	0.0845	0.2085	0.1089	0.2871	0.1463	0.3970	0.1984	0.5412	0.2667
C->Z	0.1125	0.0782	0.1333	0.0914	0.1718	0.1159	0.2308	0.1533	0.3130	0.2054	0.4204	0.2737

OAI221M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0100 pF		0.0233 pF		0.0441 pF		0.0732 pF		0.1115 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0718	0.0452	0.0984	0.0581	0.1482	0.0818	0.2252	0.1182	0.3325	0.1685	0.4735	0.2343
A2->Z	0.0883	0.0545	0.1149	0.0676	0.1644	0.0917	0.2412	0.1284	0.3485	0.1791	0.4893	0.2452
B1->Z	0.1127	0.0624	0.1393	0.0754	0.1892	0.0992	0.2664	0.1358	0.3737	0.1864	0.5146	0.2526
B2->Z	0.1294	0.0714	0.1560	0.0845	0.2057	0.1086	0.2828	0.1453	0.3901	0.1959	0.5310	0.2621
C->Z	0.1070	0.0778	0.1272	0.0909	0.1647	0.1150	0.2223	0.1518	0.3020	0.2024	0.4063	0.2686

Combinational Cell

OAI222

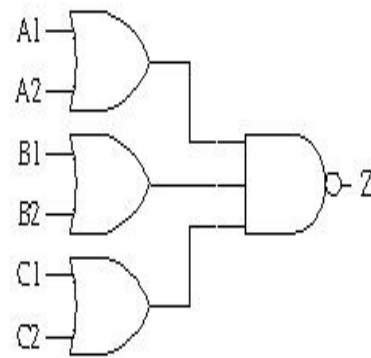
Cell Description

The OAI222 cell provides a NAND gate with three inputs, all of which are OR gates' outputs.

Truth Table

A1	A2	B1	B2	C1	C2	Z
0	0	X	X	X	X	1
X	X	0	0	X	X	1
X	X	X	X	0	0	1
X	1	X	1	1	X	0
X	1	X	1	X	1	0
X	1	1	X	1	X	0
X	1	1	X	X	1	0
1	X	X	1	1	X	0
1	X	X	1	X	1	0
1	X	1	X	1	X	0
1	X	1	X	X	1	0

Symbol



Cell List

OAI222M0HM, OAI222M1HM, OAI222M2HM
, OAI222M4HM, OAI222M8HM

OAI222 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00128	0.00146	0.00176	0.00329	0.00620
A2	input	0.00142	0.00160	0.00187	0.00385	0.00630
B1	input	0.00129	0.00145	0.00177	0.00326	0.00603
B2	input	0.00137	0.00155	0.00184	0.00372	0.00639
C1	input	0.00133	0.00149	0.00180	0.00328	0.00623
C2	input	0.00124	0.00143	0.00175	0.00365	0.00633
Z	output					

Power Dissipation (uW/MHz)

OAI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0061 pF		0.0096 pF		0.0142 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0060	0.0016	0.0060	0.0017	0.0060	0.0017	0.0060	0.0017	0.0061	0.0017	0.0061	0.0017
A2->Z	0.0067	0.0021	0.0067	0.0021	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021	0.0068	0.0021
B1->Z	0.0091	0.0017	0.0091	0.0017	0.0091	0.0017	0.0091	0.0017	0.0091	0.0017	0.0091	0.0017
B2->Z	0.0098	0.0021	0.0098	0.0021	0.0098	0.0021	0.0098	0.0021	0.0098	0.0021	0.0098	0.0021
C1->Z	0.0117	0.0017	0.0117	0.0017	0.0117	0.0017	0.0117	0.0017	0.0117	0.0017	0.0117	0.0017
C2->Z	0.0124	0.0021	0.0124	0.0021	0.0124	0.0021	0.0124	0.0021	0.0124	0.0021	0.0124	0.0021

OAI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0124 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0066	0.0020	0.0066	0.0020	0.0067	0.0020	0.0067	0.0020	0.0067	0.0021	0.0067	0.0021
A2->Z	0.0075	0.0026	0.0076	0.0026	0.0076	0.0026	0.0076	0.0026	0.0076	0.0026	0.0076	0.0026
B1->Z	0.0102	0.0020	0.0102	0.0020	0.0102	0.0020	0.0102	0.0021	0.0102	0.0021	0.0102	0.0021
B2->Z	0.0111	0.0026	0.0111	0.0026	0.0111	0.0026	0.0111	0.0026	0.0111	0.0026	0.0111	0.0026
C1->Z	0.0131	0.0020	0.0131	0.0020	0.0131	0.0020	0.0131	0.0021	0.0131	0.0021	0.0131	0.0021
C2->Z	0.0140	0.0026	0.0140	0.0026	0.0140	0.0026	0.0140	0.0026	0.0140	0.0026	0.0140	0.0026

OAI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0061 pF		0.0109 pF		0.0177 pF		0.0265 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0079	0.0026	0.0080	0.0026	0.0080	0.0026	0.0081	0.0027	0.0081	0.0027	0.0081	0.0027
A2->Z	0.0092	0.0034	0.0092	0.0034	0.0092	0.0034	0.0093	0.0034	0.0093	0.0034	0.0093	0.0034
B1->Z	0.0122	0.0026	0.0122	0.0026	0.0122	0.0026	0.0122	0.0027	0.0122	0.0027	0.0122	0.0027
B2->Z	0.0134	0.0034	0.0134	0.0034	0.0134	0.0034	0.0134	0.0034	0.0135	0.0034	0.0135	0.0034
C1->Z	0.0155	0.0026	0.0155	0.0026	0.0155	0.0026	0.0155	0.0027	0.0155	0.0027	0.0155	0.0027
C2->Z	0.0167	0.0034	0.0167	0.0034	0.0167	0.0034	0.0167	0.0034	0.0167	0.0034	0.0167	0.0034

OAI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0052 pF		0.0116 pF		0.0214 pF		0.0352 pF		0.0533 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0145	0.0041	0.0147	0.0042	0.0148	0.0043	0.0149	0.0043	0.0150	0.0043	0.0150	0.0044
A2->Z	0.0170	0.0057	0.0172	0.0057	0.0173	0.0057	0.0173	0.0057	0.0174	0.0057	0.0174	0.0057
B1->Z	0.0228	0.0041	0.0228	0.0042	0.0228	0.0043	0.0229	0.0043	0.0229	0.0043	0.0229	0.0044
B2->Z	0.0252	0.0057	0.0252	0.0057	0.0253	0.0057	0.0253	0.0058	0.0253	0.0058	0.0253	0.0058
C1->Z	0.0296	0.0041	0.0296	0.0042	0.0296	0.0043	0.0296	0.0043	0.0296	0.0043	0.0296	0.0044
C2->Z	0.0320	0.0057	0.0320	0.0057	0.0320	0.0057	0.0320	0.0058	0.0320	0.0058	0.0320	0.0058

OAI222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0094 pF		0.0218 pF		0.0411 pF		0.0683 pF		0.1040 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0296	0.0089	0.0299	0.0090	0.0302	0.0091	0.0304	0.0093	0.0305	0.0093	0.0306	0.0093
A2->Z	0.0364	0.0132	0.0367	0.0132	0.0369	0.0132	0.0371	0.0132	0.0372	0.0133	0.0372	0.0133
B1->Z	0.0460	0.0089	0.0461	0.0090	0.0462	0.0092	0.0462	0.0093	0.0463	0.0093	0.0463	0.0094
B2->Z	0.0529	0.0132	0.0529	0.0132	0.0530	0.0133	0.0530	0.0133	0.0531	0.0133	0.0531	0.0133
C1->Z	0.0600	0.0089	0.0600	0.0090	0.0600	0.0092	0.0601	0.0093	0.0601	0.0093	0.0601	0.0093
C2->Z	0.0665	0.0132	0.0665	0.0132	0.0666	0.0132	0.0666	0.0133	0.0665	0.0133	0.0665	0.0133

Hidden Power (uW/MHz)

OAI222 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	0.0002	0.0002	0.0001	0.0000	0.0002
A1	F	0.0009	0.0012	0.0015	0.0030	0.0064
A2	R	0.0000	-0.0001	-0.0003	-0.0007	-0.0013
A2	F	0.0010	0.0013	0.0017	0.0035	0.0069
B1	R	-0.0005	-0.0006	-0.0009	-0.0019	-0.0035
B1	F	0.0008	0.0010	0.0013	0.0027	0.0057
B2	R	-0.0007	-0.0009	-0.0013	-0.0026	-0.0050
B2	F	0.0009	0.0011	0.0015	0.0031	0.0062
C1	R	-0.0006	-0.0008	-0.0010	-0.0022	-0.0042
C1	F	0.0008	0.0010	0.0013	0.0027	0.0057
C2	R	-0.0008	-0.0010	-0.0014	-0.0029	-0.0057
C2	F	0.0009	0.0011	0.0015	0.0031	0.0062

Propagation Delays (ns)

OAI222M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0037 pF		0.0061 pF		0.0096 pF		0.0142 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1238	0.0725	0.1474	0.0834	0.1894	0.1027	0.2520	0.1313	0.3431	0.1726	0.4626	0.2267
A2->Z	0.1358	0.0813	0.1594	0.0924	0.2012	0.1119	0.2637	0.1408	0.3547	0.1827	0.4741	0.2374
B1->Z	0.1792	0.0965	0.2029	0.1074	0.2450	0.1267	0.3077	0.1553	0.3988	0.1967	0.5183	0.2509
B2->Z	0.1909	0.1052	0.2147	0.1163	0.2566	0.1359	0.3193	0.1648	0.4104	0.2067	0.5298	0.2614
C1->Z	0.2204	0.1096	0.2443	0.1206	0.2864	0.1400	0.3488	0.1689	0.4393	0.2106	0.5574	0.2652
C2->Z	0.2319	0.1173	0.2557	0.1285	0.2977	0.1480	0.3602	0.1769	0.4506	0.2188	0.5688	0.2735

OAI222M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0045 pF		0.0078 pF		0.0124 pF		0.0185 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1092	0.0674	0.1320	0.0782	0.1751	0.0985	0.2427	0.1301	0.3365	0.1736	0.4608	0.2312
A2->Z	0.1207	0.0759	0.1433	0.0869	0.1865	0.1075	0.2539	0.1395	0.3476	0.1836	0.4718	0.2417
B1->Z	0.1594	0.0895	0.1823	0.1003	0.2257	0.1206	0.2933	0.1522	0.3872	0.1958	0.5114	0.2535
B2->Z	0.1707	0.0980	0.1935	0.1089	0.2368	0.1295	0.3044	0.1615	0.3982	0.2056	0.5224	0.2637
C1->Z	0.1957	0.1010	0.2187	0.1119	0.2621	0.1324	0.3295	0.1643	0.4226	0.2083	0.5455	0.2663
C2->Z	0.2067	0.1087	0.2297	0.1196	0.2730	0.1402	0.3404	0.1722	0.4335	0.2163	0.5563	0.2745

OAI222M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0031 pF		0.0061 pF		0.0109 pF		0.0177 pF		0.0265 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0944	0.0630	0.1180	0.0747	0.1622	0.0963	0.2324	0.1303	0.3315	0.1781	0.4596	0.2396
A2->Z	0.1053	0.0714	0.1290	0.0833	0.1730	0.1051	0.2431	0.1396	0.3422	0.1879	0.4701	0.2500
B1->Z	0.1377	0.0823	0.1615	0.0940	0.2058	0.1156	0.2761	0.1497	0.3752	0.1975	0.5030	0.2591
B2->Z	0.1486	0.0907	0.1724	0.1026	0.2165	0.1244	0.2867	0.1589	0.3858	0.2072	0.5136	0.2693
C1->Z	0.1679	0.0919	0.1918	0.1037	0.2361	0.1255	0.3061	0.1598	0.4043	0.2080	0.5308	0.2700
C2->Z	0.1784	0.0996	0.2024	0.1114	0.2466	0.1333	0.3165	0.1677	0.4147	0.2160	0.5411	0.2782

OAI222M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0052 pF		0.0116 pF		0.0214 pF		0.0352 pF		0.0533 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0797	0.0550	0.1048	0.0671	0.1526	0.0900	0.2250	0.1244	0.3266	0.1724	0.4596	0.2350
A2->Z	0.0910	0.0626	0.1159	0.0747	0.1634	0.0978	0.2358	0.1324	0.3373	0.1806	0.4702	0.2434
B1->Z	0.1230	0.0730	0.1481	0.0851	0.1963	0.1080	0.2695	0.1425	0.3719	0.1905	0.5059	0.2531
B2->Z	0.1341	0.0805	0.1591	0.0927	0.2072	0.1157	0.2803	0.1504	0.3827	0.1985	0.5166	0.2613
C1->Z	0.1549	0.0816	0.1803	0.0937	0.2289	0.1166	0.3020	0.1510	0.4041	0.1988	0.5373	0.2613
C2->Z	0.1656	0.0895	0.1911	0.1017	0.2395	0.1247	0.3127	0.1593	0.4147	0.2075	0.5478	0.2703

OAI222M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0094 pF		0.0218 pF		0.0411 pF		0.0683 pF		0.1040 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0745	0.0559	0.0994	0.0681	0.1459	0.0907	0.2176	0.1249	0.3181	0.1723	0.4498	0.2340
A2->Z	0.0911	0.0663	0.1159	0.0787	0.1621	0.1015	0.2336	0.1362	0.3340	0.1841	0.4657	0.2465
B1->Z	0.1170	0.0738	0.1417	0.0860	0.1883	0.1086	0.2601	0.1429	0.3608	0.1904	0.4925	0.2522
B2->Z	0.1337	0.0842	0.1583	0.0966	0.2048	0.1195	0.2766	0.1541	0.3771	0.2020	0.5088	0.2644
C1->Z	0.1505	0.0832	0.1758	0.0955	0.2231	0.1182	0.2956	0.1526	0.3968	0.2003	0.5287	0.2623
C2->Z	0.1664	0.0930	0.1917	0.1054	0.2390	0.1283	0.3114	0.1629	0.4125	0.2109	0.5444	0.2732

Combinational Cell

OAI22B10

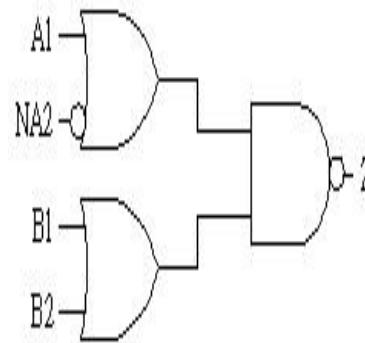
Cell Description

The OAI22B10 cell provides a NAND gate with two inputs, both are outputs of OR gates. One OR gate has an inverted input (NA2).

Truth Table

A1	NA2	B1	B2	Z
0	1	X	X	1
X	X	0	0	1
X	0	X	1	0
X	0	1	X	0
1	X	X	1	0
1	X	1	X	0

Symbol



Cell List

OAI22B10M0HM, OAI22B10M1HM, OAI22B10M2HM
, OAI22B10M4HM, OAI22B10M8HM

OAI22B10 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00142	0.00173	0.00324	0.00606
B1	input	0.00129	0.00138	0.00170	0.00318	0.00610
B2	input	0.00137	0.00141	0.00173	0.00363	0.00625
NA2	input	0.00124	0.00123	0.00122	0.00120	0.00181
Z	output					

Power Dissipation (uW/MHz)

OAI22B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0180 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0044	0.0008	0.0044	0.0008	0.0044	0.0009	0.0044	0.0009	0.0045	0.0009	0.0045	0.0009
B1->Z	0.0069	0.0013	0.0069	0.0013	0.0069	0.0014	0.0070	0.0014	0.0070	0.0014	0.0070	0.0014
B2->Z	0.0077	0.0018	0.0077	0.0018	0.0077	0.0018	0.0077	0.0019	0.0077	0.0019	0.0077	0.0019
NA2->Z	0.0053	0.0071	0.0053	0.0071	0.0053	0.0071	0.0053	0.0071	0.0053	0.0071	0.0053	0.0071

OAI22B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0088 pF		0.0141 pF		0.0210 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0046	0.0009	0.0047	0.0009	0.0047	0.0009	0.0048	0.0009	0.0048	0.0009	0.0048	0.0009
B1->Z	0.0075	0.0014	0.0075	0.0015	0.0075	0.0015	0.0075	0.0015	0.0075	0.0015	0.0075	0.0015
B2->Z	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020	0.0084	0.0020
NA2->Z	0.0056	0.0075	0.0057	0.0075	0.0057	0.0075	0.0057	0.0075	0.0058	0.0075	0.0058	0.0075

OAI22B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0297 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0056	0.0011	0.0056	0.0012	0.0057	0.0012	0.0058	0.0012	0.0058	0.0012	0.0058	0.0012
B1->Z	0.0089	0.0019	0.0089	0.0020	0.0089	0.0020	0.0090	0.0020	0.0090	0.0020	0.0090	0.0020
B2->Z	0.0101	0.0027	0.0101	0.0027	0.0102	0.0027	0.0102	0.0027	0.0102	0.0027	0.0102	0.0027
NA2->Z	0.0069	0.0087	0.0070	0.0087	0.0070	0.0087	0.0071	0.0087	0.0071	0.0087	0.0071	0.0087

OAI22B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0127 pF		0.0235 pF		0.0387 pF		0.0588 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0116	0.0020	0.0118	0.0021	0.0119	0.0022	0.0120	0.0022	0.0121	0.0023	0.0121	0.0023
B1->Z	0.0179	0.0035	0.0179	0.0036	0.0180	0.0037	0.0180	0.0037	0.0180	0.0038	0.0180	0.0038
B2->Z	0.0204	0.0051	0.0204	0.0051	0.0204	0.0052	0.0204	0.0052	0.0205	0.0052	0.0205	0.0052
NA2->Z	0.0141	0.0149	0.0142	0.0150	0.0144	0.0150	0.0145	0.0150	0.0146	0.0150	0.0146	0.0150

OAI22B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0451 pF		0.0749 pF		0.1142 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0231	0.0042	0.0234	0.0044	0.0238	0.0045	0.0240	0.0046	0.0241	0.0047	0.0242	0.0047
B1->Z	0.0359	0.0073	0.0360	0.0075	0.0361	0.0076	0.0362	0.0077	0.0362	0.0078	0.0363	0.0078
B2->Z	0.0429	0.0116	0.0430	0.0117	0.0430	0.0117	0.0431	0.0117	0.0431	0.0117	0.0431	0.0117
NA2->Z	0.0302	0.0278	0.0305	0.0279	0.0308	0.0279	0.0310	0.0280	0.0312	0.0280	0.0313	0.0280

Hidden Power (uW/MHz)

OAI22B10 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0003	-0.0005	-0.0010	-0.0018
A1	F	0.0010	0.0011	0.0015	0.0029	0.0064
B1	R	-0.0006	-0.0006	-0.0008	-0.0017	-0.0033
B1	F	0.0008	0.0009	0.0012	0.0024	0.0055
B2	R	-0.0009	-0.0010	-0.0014	-0.0028	-0.0055
B2	F	0.0010	0.0011	0.0015	0.0031	0.0062
NA2	R	0.0011	0.0013	0.0017	0.0034	0.0068
NA2	F	0.0047	0.0048	0.0050	0.0078	0.0124

Propagation Delays (ns)

OAI22B10M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0180 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0935	0.0446	0.1200	0.0541	0.1676	0.0713	0.2434	0.0983	0.3495	0.1361	0.4884	0.1855
B1->Z	0.1423	0.0601	0.1689	0.0699	0.2166	0.0872	0.2924	0.1144	0.3984	0.1524	0.5371	0.2019
B2->Z	0.1539	0.0664	0.1803	0.0764	0.2280	0.0940	0.3037	0.1216	0.4097	0.1601	0.5483	0.2102
NA2->Z	0.1278	0.1027	0.1542	0.1128	0.2017	0.1305	0.2773	0.1582	0.3833	0.1967	0.5221	0.2468

OAI22B10M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0088 pF		0.0141 pF		0.0210 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0871	0.0421	0.1121	0.0512	0.1614	0.0688	0.2390	0.0964	0.3468	0.1346	0.4869	0.1842
B1->Z	0.1332	0.0570	0.1582	0.0662	0.2077	0.0842	0.2853	0.1121	0.3930	0.1506	0.5328	0.2004
B2->Z	0.1445	0.0631	0.1694	0.0725	0.2188	0.0907	0.2963	0.1191	0.4040	0.1580	0.5437	0.2085
NA2->Z	0.1220	0.1024	0.1468	0.1119	0.1960	0.1304	0.2735	0.1587	0.3812	0.1977	0.5212	0.2482

OAI22B10M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0122 pF		0.0198 pF		0.0297 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0736	0.0379	0.1006	0.0478	0.1520	0.0666	0.2308	0.0951	0.3412	0.1348	0.4848	0.1864
B1->Z	0.1137	0.0512	0.1406	0.0615	0.1921	0.0806	0.2709	0.1093	0.3812	0.1492	0.5244	0.2010
B2->Z	0.1245	0.0572	0.1513	0.0676	0.2027	0.0869	0.2814	0.1161	0.3916	0.1565	0.5349	0.2089
NA2->Z	0.1100	0.1026	0.1368	0.1133	0.1882	0.1329	0.2669	0.1622	0.3773	0.2026	0.5208	0.2549

OAI22B10M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0127 pF		0.0235 pF		0.0387 pF		0.0588 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0673	0.0353	0.0954	0.0457	0.1474	0.0644	0.2269	0.0929	0.3383	0.1325	0.4853	0.1848
B1->Z	0.1062	0.0493	0.1342	0.0603	0.1864	0.0800	0.2661	0.1091	0.3778	0.1492	0.5250	0.2017
B2->Z	0.1173	0.0551	0.1452	0.0660	0.1973	0.0857	0.2769	0.1149	0.3885	0.1552	0.5356	0.2077
NA2->Z	0.1182	0.1328	0.1463	0.1450	0.1983	0.1658	0.2779	0.1956	0.3894	0.2360	0.5364	0.2885

OAI22B10M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0451 pF		0.0749 pF		0.1142 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0613	0.0339	0.0891	0.0443	0.1400	0.0628	0.2189	0.0910	0.3288	0.1298	0.4733	0.1807
B1->Z	0.1008	0.0491	0.1282	0.0603	0.1792	0.0798	0.2582	0.1088	0.3680	0.1482	0.5124	0.1995
B2->Z	0.1177	0.0569	0.1450	0.0681	0.1958	0.0878	0.2747	0.1172	0.3844	0.1571	0.5288	0.2089
NA2->Z	0.1180	0.1296	0.1456	0.1415	0.1966	0.1619	0.2755	0.1916	0.3855	0.2316	0.5301	0.2833

Combinational Cell

OAI22B20

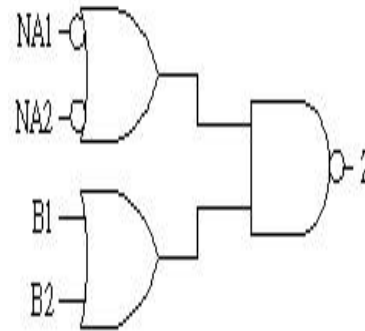
Cell Description

The OAI22B20 cell provides a NAND gate with two inputs, both are outputs of OR gates. One OR gate has two inverted inputs (NA1 and NA2).

Truth Table

NA1	NA2	B1	B2	Z
1	1	X	X	1
X	X	0	0	1
X	0	X	1	0
X	0	1	X	0
0	X	X	1	0
0	X	1	X	0

Symbol



Cell List

OAI22B20M0HM, OAI22B20M1HM, OAI22B20M2HM
, OAI22B20M4HM, OAI22B20M8HM

OAI22B20 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
B1	input	0.00129	0.00140	0.00174	0.00325	0.00601
B2	input	0.00132	0.00143	0.00177	0.00367	0.00620
NA1	input	0.00120	0.00120	0.00116	0.00143	0.00176
NA2	input	0.00127	0.00127	0.00127	0.00128	0.00160
Z	output					

Power Dissipation (uW/MHz)

OAI22B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0081 pF		0.0129 pF		0.0192 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0041	0.0005	0.0042	0.0006	0.0042	0.0006	0.0042	0.0006	0.0042	0.0006	0.0042	0.0006
B2->Z	0.0050	0.0011	0.0050	0.0011	0.0050	0.0011	0.0050	0.0011	0.0050	0.0011	0.0050	0.0011
NA1->Z	0.0069	0.0063	0.0070	0.0063	0.0070	0.0064	0.0070	0.0064	0.0070	0.0064	0.0070	0.0064
NA2->Z	0.0070	0.0073	0.0070	0.0073	0.0070	0.0074	0.0070	0.0074	0.0070	0.0074	0.0070	0.0074

OAI22B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0094 pF		0.0150 pF		0.0225 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0043	0.0006	0.0044	0.0006	0.0044	0.0006	0.0045	0.0007	0.0045	0.0007	0.0045	0.0007
B2->Z	0.0053	0.0012	0.0053	0.0012	0.0053	0.0012	0.0054	0.0012	0.0054	0.0012	0.0054	0.0012
NA1->Z	0.0074	0.0066	0.0074	0.0066	0.0074	0.0067	0.0074	0.0067	0.0074	0.0067	0.0074	0.0067
NA2->Z	0.0074	0.0076	0.0074	0.0076	0.0074	0.0077	0.0074	0.0077	0.0074	0.0077	0.0075	0.0077

OAI22B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0210 pF		0.0317 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0053	0.0008	0.0054	0.0008	0.0055	0.0009	0.0055	0.0009	0.0055	0.0009	0.0056	0.0009
B2->Z	0.0066	0.0016	0.0066	0.0016	0.0067	0.0016	0.0067	0.0016	0.0068	0.0016	0.0068	0.0016
NA1->Z	0.0088	0.0076	0.0089	0.0076	0.0089	0.0077	0.0089	0.0077	0.0089	0.0077	0.0089	0.0077
NA2->Z	0.0089	0.0086	0.0089	0.0086	0.0089	0.0087	0.0089	0.0087	0.0090	0.0087	0.0090	0.0087

OAI22B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0252 pF		0.0415 pF		0.0630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0101	0.0013	0.0103	0.0014	0.0105	0.0015	0.0106	0.0016	0.0106	0.0016	0.0107	0.0016
B2->Z	0.0126	0.0029	0.0128	0.0030	0.0129	0.0030	0.0130	0.0030	0.0130	0.0030	0.0131	0.0030
NA1->Z	0.0170	0.0119	0.0171	0.0120	0.0172	0.0120	0.0172	0.0121	0.0173	0.0121	0.0173	0.0121
NA2->Z	0.0170	0.0129	0.0171	0.0130	0.0172	0.0131	0.0173	0.0132	0.0173	0.0132	0.0173	0.0132

OAI22B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0111 pF		0.0260 pF		0.0494 pF		0.0821 pF		0.1251 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0192	0.0026	0.0196	0.0029	0.0199	0.0031	0.0202	0.0032	0.0203	0.0032	0.0204	0.0033
B2->Z	0.0262	0.0070	0.0265	0.0071	0.0268	0.0071	0.0270	0.0072	0.0271	0.0072	0.0271	0.0072
NA1->Z	0.0329	0.0209	0.0331	0.0211	0.0333	0.0213	0.0334	0.0214	0.0335	0.0215	0.0335	0.0215
NA2->Z	0.0329	0.0224	0.0331	0.0226	0.0333	0.0228	0.0334	0.0229	0.0335	0.0229	0.0335	0.0230

Hidden Power (uW/MHz)

OAI22B20 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
B1	R	-0.0003	-0.0004	-0.0006	-0.0012	-0.0022
B1	F	0.0009	0.0010	0.0013	0.0027	0.0059
B2	R	-0.0007	-0.0008	-0.0012	-0.0022	-0.0044
B2	F	0.0011	0.0012	0.0016	0.0033	0.0067
NA1	R	-0.0002	-0.0002	-0.0001	0.0001	0.0003
NA1	F	0.0016	0.0017	0.0017	0.0022	0.0034
NA2	R	-0.0003	-0.0003	-0.0003	-0.0001	-0.0000
NA2	F	0.0017	0.0017	0.0018	0.0023	0.0035

Propagation Delays (ns)

OAI22B20M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0081 pF		0.0129 pF		0.0192 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0916	0.0383	0.1204	0.0483	0.1725	0.0665	0.2526	0.0945	0.3653	0.1339	0.5129	0.1856
B2->Z	0.1043	0.0443	0.1329	0.0547	0.1849	0.0735	0.2648	0.1022	0.3774	0.1425	0.5249	0.1952
NA1->Z	0.1341	0.1252	0.1553	0.1362	0.1937	0.1557	0.2526	0.1848	0.3353	0.2252	0.4436	0.2779
NA2->Z	0.1374	0.1386	0.1586	0.1498	0.1970	0.1694	0.2559	0.1986	0.3386	0.2391	0.4469	0.2919

OAI22B20M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0027 pF		0.0053 pF		0.0094 pF		0.0150 pF		0.0225 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0850	0.0360	0.1119	0.0455	0.1650	0.0640	0.2482	0.0931	0.3613	0.1327	0.5127	0.1858
B2->Z	0.0966	0.0416	0.1234	0.0514	0.1763	0.0705	0.2593	0.1004	0.3724	0.1408	0.5237	0.1948
NA1->Z	0.1309	0.1238	0.1513	0.1343	0.1916	0.1542	0.2545	0.1845	0.3399	0.2251	0.4540	0.2792
NA2->Z	0.1343	0.1373	0.1547	0.1478	0.1949	0.1679	0.2578	0.1984	0.3432	0.2391	0.4573	0.2932

OAI22B20M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0210 pF		0.0317 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0745	0.0329	0.1027	0.0432	0.1567	0.0624	0.2408	0.0925	0.3562	0.1337	0.5104	0.1889
B2->Z	0.0858	0.0385	0.1137	0.0490	0.1676	0.0689	0.2515	0.0997	0.3668	0.1418	0.5210	0.1980
NA1->Z	0.1223	0.1259	0.1433	0.1375	0.1836	0.1585	0.2463	0.1900	0.3322	0.2324	0.4469	0.2887
NA2->Z	0.1257	0.1397	0.1467	0.1514	0.1871	0.1726	0.2497	0.2043	0.3356	0.2468	0.4503	0.3031

OAI22B20M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0060 pF		0.0135 pF		0.0252 pF		0.0415 pF		0.0630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0645	0.0292	0.0939	0.0400	0.1494	0.0598	0.2350	0.0905	0.3538	0.1331	0.5102	0.1893
B2->Z	0.0758	0.0341	0.1050	0.0451	0.1602	0.0652	0.2457	0.0962	0.3643	0.1391	0.5207	0.1954
NA1->Z	0.1285	0.1418	0.1509	0.1546	0.1931	0.1770	0.2581	0.2095	0.3481	0.2530	0.4664	0.3096
NA2->Z	0.1320	0.1526	0.1544	0.1655	0.1966	0.1880	0.2616	0.2206	0.3516	0.2642	0.4699	0.3208

OAI22B20M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0111 pF		0.0260 pF		0.0494 pF		0.0821 pF		0.1251 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
B1->Z	0.0587	0.0269	0.0890	0.0378	0.1447	0.0573	0.2312	0.0874	0.3515	0.1295	0.5094	0.1848
B2->Z	0.0758	0.0329	0.1057	0.0443	0.1612	0.0645	0.2475	0.0955	0.3677	0.1384	0.5255	0.1945
NA1->Z	0.1294	0.1409	0.1519	0.1543	0.1932	0.1768	0.2573	0.2095	0.3463	0.2531	0.4629	0.3094
NA2->Z	0.1326	0.1512	0.1551	0.1647	0.1965	0.1873	0.2606	0.2201	0.3496	0.2638	0.4662	0.3202

Combinational Cell

OAI22

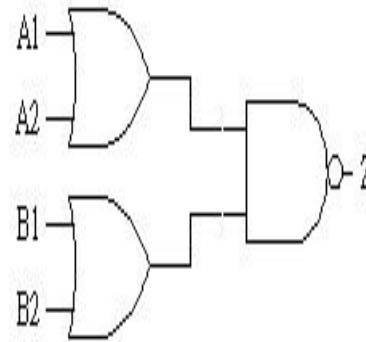
Cell Description

The OAI22 cell provides a NAND gate with two OR gates' outputs as inputs.

Truth Table

A1	A2	B1	B2	Z
0	0	X	X	1
X	X	0	0	1
X	1	X	1	0
X	1	1	X	0
1	X	X	1	0
1	X	1	X	0

Symbol



Cell List

OAI22M0HM, OAI22M1HM, OAI22M2HM
, OAI22M4HM, OAI22M8HM

OAI22 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00143	0.00175	0.00327	0.00620
A2	input	0.00139	0.00150	0.00181	0.00368	0.00637
B1	input	0.00134	0.00144	0.00175	0.00326	0.00610
B2	input	0.00133	0.00144	0.00176	0.00361	0.00628
Z	output					

Power Dissipation (uW/MHz)

OAI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0120 pF		0.0178 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0048	0.0008	0.0048	0.0008	0.0048	0.0008	0.0049	0.0008	0.0049	0.0008	0.0049	0.0008
A2->Z	0.0056	0.0013	0.0056	0.0013	0.0056	0.0013	0.0057	0.0013	0.0057	0.0013	0.0057	0.0013
B1->Z	0.0079	0.0008	0.0079	0.0008	0.0079	0.0008	0.0079	0.0008	0.0079	0.0008	0.0079	0.0008
B2->Z	0.0087	0.0013	0.0087	0.0013	0.0087	0.0013	0.0087	0.0013	0.0087	0.0013	0.0087	0.0013

OAI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0208 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0051	0.0009	0.0051	0.0009	0.0052	0.0009	0.0052	0.0009	0.0052	0.0009	0.0052	0.0009
A2->Z	0.0060	0.0015	0.0061	0.0015	0.0061	0.0015	0.0061	0.0015	0.0061	0.0015	0.0061	0.0015
B1->Z	0.0085	0.0009	0.0085	0.0009	0.0086	0.0009	0.0086	0.0009	0.0086	0.0009	0.0086	0.0009
B2->Z	0.0094	0.0015	0.0094	0.0015	0.0095	0.0015	0.0095	0.0015	0.0095	0.0015	0.0095	0.0015

OAI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0121 pF		0.0196 pF		0.0295 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0061	0.0011	0.0062	0.0012	0.0063	0.0012	0.0063	0.0012	0.0063	0.0012	0.0064	0.0012
A2->Z	0.0074	0.0019	0.0074	0.0019	0.0075	0.0019	0.0075	0.0019	0.0076	0.0019	0.0076	0.0019
B1->Z	0.0103	0.0011	0.0103	0.0012	0.0104	0.0012	0.0104	0.0012	0.0104	0.0012	0.0104	0.0012
B2->Z	0.0116	0.0019	0.0116	0.0019	0.0116	0.0019	0.0116	0.0019	0.0116	0.0019	0.0116	0.0019

OAI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0126 pF		0.0234 pF		0.0385 pF		0.0585 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0119	0.0021	0.0121	0.0022	0.0122	0.0022	0.0123	0.0023	0.0124	0.0023	0.0124	0.0023
A2->Z	0.0144	0.0040	0.0146	0.0040	0.0147	0.0040	0.0148	0.0040	0.0148	0.0040	0.0148	0.0040
B1->Z	0.0196	0.0022	0.0196	0.0023	0.0197	0.0023	0.0197	0.0024	0.0197	0.0024	0.0197	0.0024
B2->Z	0.0221	0.0038	0.0221	0.0038	0.0221	0.0038	0.0221	0.0038	0.0222	0.0038	0.0222	0.0038

OAI22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0450 pF		0.0748 pF		0.1140 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0235	0.0042	0.0239	0.0044	0.0242	0.0045	0.0245	0.0046	0.0246	0.0047	0.0247	0.0047
A2->Z	0.0308	0.0087	0.0311	0.0087	0.0313	0.0088	0.0315	0.0088	0.0316	0.0088	0.0317	0.0088
B1->Z	0.0397	0.0043	0.0398	0.0044	0.0399	0.0046	0.0400	0.0047	0.0400	0.0048	0.0400	0.0048
B2->Z	0.0467	0.0086	0.0468	0.0087	0.0469	0.0087	0.0469	0.0087	0.0469	0.0087	0.0469	0.0087

Hidden Power (uW/MHz)

OAI22 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0002	-0.0002	-0.0004	-0.0009	-0.0016
A1	F	0.0009	0.0010	0.0013	0.0028	0.0061
A2	R	-0.0005	-0.0006	-0.0010	-0.0020	-0.0038
A2	F	0.0011	0.0012	0.0016	0.0033	0.0067
B1	R	-0.0006	-0.0006	-0.0008	-0.0017	-0.0033
B1	F	0.0008	0.0009	0.0012	0.0024	0.0055
B2	R	-0.0009	-0.0010	-0.0014	-0.0028	-0.0055
B2	F	0.0010	0.0011	0.0015	0.0031	0.0062

Propagation Delays (ns)

OAI22M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0120 pF		0.0178 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0975	0.0459	0.1239	0.0555	0.1715	0.0726	0.2472	0.0996	0.3510	0.1365	0.4875	0.1850
A2->Z	0.1095	0.0520	0.1357	0.0618	0.1831	0.0793	0.2587	0.1068	0.3624	0.1443	0.4989	0.1934
B1->Z	0.1471	0.0600	0.1736	0.0695	0.2213	0.0867	0.2971	0.1138	0.4008	0.1507	0.5370	0.1992
B2->Z	0.1586	0.0662	0.1850	0.0760	0.2327	0.0935	0.3084	0.1210	0.4120	0.1585	0.5482	0.2076

OAI22M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0026 pF		0.0050 pF		0.0087 pF		0.0139 pF		0.0208 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0913	0.0436	0.1162	0.0526	0.1656	0.0702	0.2411	0.0971	0.3468	0.1345	0.4869	0.1840
A2->Z	0.1031	0.0495	0.1278	0.0587	0.1769	0.0767	0.2523	0.1040	0.3579	0.1420	0.4980	0.1922
B1->Z	0.1381	0.0566	0.1630	0.0656	0.2125	0.0833	0.2880	0.1102	0.3937	0.1476	0.5335	0.1972
B2->Z	0.1493	0.0626	0.1742	0.0718	0.2236	0.0898	0.2990	0.1171	0.4046	0.1551	0.5444	0.2053

OAI22M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0033 pF		0.0068 pF		0.0121 pF		0.0196 pF		0.0295 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0774	0.0383	0.1043	0.0480	0.1557	0.0663	0.2330	0.0936	0.3420	0.1319	0.4856	0.1823
A2->Z	0.0886	0.0438	0.1153	0.0537	0.1666	0.0723	0.2437	0.1000	0.3526	0.1388	0.4961	0.1898
B1->Z	0.1193	0.0498	0.1462	0.0594	0.1977	0.0777	0.2750	0.1050	0.3839	0.1433	0.5271	0.1936
B2->Z	0.1302	0.0554	0.1569	0.0653	0.2084	0.0839	0.2856	0.1117	0.3944	0.1505	0.5376	0.2014

OAI22M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0057 pF		0.0126 pF		0.0234 pF		0.0385 pF		0.0585 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0684	0.0358	0.0966	0.0461	0.1478	0.0646	0.2275	0.0931	0.3384	0.1325	0.4850	0.1845
A2->Z	0.0810	0.0413	0.1088	0.0517	0.1599	0.0705	0.2395	0.0992	0.3503	0.1389	0.4968	0.1911
B1->Z	0.1070	0.0462	0.1350	0.0565	0.1864	0.0751	0.2659	0.1037	0.3765	0.1432	0.5227	0.1952
B2->Z	0.1181	0.0514	0.1460	0.0619	0.1972	0.0807	0.2766	0.1094	0.3872	0.1490	0.5333	0.2012

OAI22M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0102 pF		0.0238 pF		0.0450 pF		0.0748 pF		0.1140 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0624	0.0333	0.0901	0.0435	0.1411	0.0615	0.2196	0.0888	0.3296	0.1267	0.4739	0.1761
A2->Z	0.0801	0.0403	0.1076	0.0507	0.1582	0.0692	0.2367	0.0971	0.3465	0.1356	0.4908	0.1857
B1->Z	0.1030	0.0441	0.1305	0.0542	0.1815	0.0722	0.2601	0.0996	0.3699	0.1376	0.5139	0.1871
B2->Z	0.1200	0.0509	0.1473	0.0612	0.1982	0.0798	0.2766	0.1077	0.3864	0.1462	0.5304	0.1963

Combinational Cell

OAI31

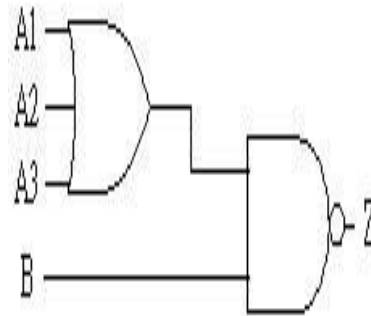
Cell Description

The OAI31 cell provides a NAND gate with two inputs, one of which is an OR gate with three inputs.

Truth Table

A1	A2	A3	B	Z
0	0	0	X	1
X	X	X	0	1
X	X	1	1	0
X	1	X	1	0
1	X	X	1	0

Symbol



Cell List

OAI31M0HM, OAI31M1HM, OAI31M2HM
, OAI31M4HM, OAI31M8HM

OAI31 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00135	0.00146	0.00172	0.00309	0.00546
A2	input	0.00125	0.00135	0.00162	0.00311	0.00552
A3	input	0.00122	0.00134	0.00162	0.00320	0.00564
B	input	0.00106	0.00110	0.00129	0.00273	0.00436
Z	output					

Power Dissipation (uW/MHz)

OAI31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0030 pF		0.0048 pF		0.0073 pF		0.0107 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0056	0.0004	0.0056	0.0004	0.0056	0.0005	0.0056	0.0005	0.0056	0.0005	0.0057	0.0005
A2->Z	0.0064	0.0011	0.0064	0.0011	0.0064	0.0011	0.0064	0.0011	0.0064	0.0011	0.0064	0.0011
A3->Z	0.0071	0.0017	0.0071	0.0017	0.0071	0.0017	0.0071	0.0017	0.0071	0.0017	0.0071	0.0017
B->Z	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009	0.0083	0.0009

OAI31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0036 pF		0.0060 pF		0.0095 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0060	0.0005	0.0060	0.0005	0.0060	0.0005	0.0060	0.0005	0.0061	0.0005	0.0061	0.0006
A2->Z	0.0069	0.0013	0.0069	0.0013	0.0070	0.0013	0.0070	0.0013	0.0070	0.0013	0.0070	0.0013
A3->Z	0.0078	0.0021	0.0078	0.0021	0.0078	0.0021	0.0078	0.0021	0.0079	0.0021	0.0079	0.0021
B->Z	0.0088	0.0011	0.0088	0.0011	0.0088	0.0011	0.0088	0.0012	0.0088	0.0012	0.0088	0.0012

OAI31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0082 pF		0.0131 pF		0.0196 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0070	0.0005	0.0070	0.0005	0.0071	0.0006	0.0071	0.0006	0.0071	0.0006	0.0072	0.0006
A2->Z	0.0083	0.0017	0.0083	0.0017	0.0083	0.0017	0.0084	0.0017	0.0084	0.0017	0.0084	0.0017
A3->Z	0.0094	0.0026	0.0095	0.0026	0.0095	0.0026	0.0095	0.0026	0.0095	0.0026	0.0096	0.0026
B->Z	0.0104	0.0014	0.0104	0.0015	0.0104	0.0015	0.0105	0.0015	0.0105	0.0015	0.0105	0.0015

OAI31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0392 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0135	0.0013	0.0135	0.0014	0.0137	0.0014	0.0137	0.0015	0.0138	0.0015	0.0139	0.0016
A2->Z	0.0168	0.0035	0.0169	0.0035	0.0170	0.0035	0.0170	0.0035	0.0171	0.0035	0.0171	0.0035
A3->Z	0.0202	0.0057	0.0203	0.0057	0.0204	0.0057	0.0204	0.0057	0.0205	0.0057	0.0205	0.0057
B->Z	0.0224	0.0031	0.0224	0.0031	0.0224	0.0032	0.0224	0.0032	0.0225	0.0032	0.0225	0.0032

OAI31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0074 pF		0.0169 pF		0.0316 pF		0.0523 pF		0.0796 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0219	0.0017	0.0221	0.0019	0.0223	0.0020	0.0225	0.0022	0.0226	0.0022	0.0227	0.0023
A2->Z	0.0286	0.0061	0.0287	0.0062	0.0289	0.0062	0.0290	0.0062	0.0291	0.0063	0.0291	0.0063
A3->Z	0.0350	0.0102	0.0352	0.0103	0.0353	0.0103	0.0355	0.0103	0.0356	0.0103	0.0356	0.0103
B->Z	0.0360	0.0055	0.0361	0.0055	0.0361	0.0056	0.0361	0.0056	0.0362	0.0057	0.0362	0.0057

Hidden Power (uW/MHz)

OAI31 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0005	-0.0006	-0.0009	-0.0015	-0.0032
A1	F	0.0010	0.0013	0.0017	0.0034	0.0066
A2	R	-0.0006	-0.0008	-0.0011	-0.0018	-0.0039
A2	F	0.0009	0.0011	0.0014	0.0029	0.0056
A3	R	-0.0007	-0.0009	-0.0013	-0.0023	-0.0048
A3	F	0.0010	0.0013	0.0017	0.0035	0.0069
B	R	-0.0006	-0.0007	-0.0009	-0.0019	-0.0036
B	F	0.0006	0.0007	0.0009	0.0019	0.0036

Propagation Delays (ns)

OAI31M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0030 pF		0.0048 pF		0.0073 pF		0.0107 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1533	0.0454	0.1764	0.0509	0.2222	0.0618	0.2906	0.0782	0.3853	0.1009	0.5137	0.1318
A2->Z	0.1840	0.0519	0.2069	0.0576	0.2525	0.0688	0.3208	0.0855	0.4153	0.1085	0.5436	0.1395
A3->Z	0.1966	0.0550	0.2196	0.0611	0.2652	0.0731	0.3335	0.0907	0.4280	0.1147	0.5563	0.1468
B->Z	0.1383	0.0659	0.1513	0.0720	0.1774	0.0840	0.2162	0.1016	0.2700	0.1255	0.3429	0.1576

OAI31M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0021 pF		0.0036 pF		0.0060 pF		0.0095 pF		0.0139 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1279	0.0445	0.1552	0.0521	0.2005	0.0647	0.2725	0.0847	0.3772	0.1139	0.5084	0.1504
A2->Z	0.1574	0.0519	0.1846	0.0597	0.2297	0.0726	0.3016	0.0930	0.4061	0.1225	0.5372	0.1593
A3->Z	0.1695	0.0555	0.1967	0.0640	0.2418	0.0777	0.3137	0.0992	0.4182	0.1298	0.5494	0.1678
B->Z	0.1202	0.0658	0.1362	0.0742	0.1628	0.0880	0.2052	0.1095	0.2667	0.1401	0.3438	0.1781

OAI31M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0025 pF		0.0047 pF		0.0082 pF		0.0131 pF		0.0196 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1070	0.0391	0.1337	0.0467	0.1824	0.0603	0.2591	0.0818	0.3662	0.1118	0.5078	0.1516
A2->Z	0.1365	0.0465	0.1631	0.0542	0.2115	0.0682	0.2881	0.0901	0.3950	0.1205	0.5365	0.1606
A3->Z	0.1482	0.0495	0.1748	0.0580	0.2232	0.0730	0.2998	0.0961	0.4066	0.1276	0.5482	0.1689
B->Z	0.1050	0.0586	0.1207	0.0670	0.1493	0.0820	0.1946	0.1051	0.2576	0.1367	0.3411	0.1780

OAI31M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0392 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0947	0.0322	0.1217	0.0389	0.1729	0.0513	0.2523	0.0705	0.3629	0.0973	0.5071	0.1323
A2->Z	0.1288	0.0388	0.1557	0.0457	0.2066	0.0585	0.2857	0.0782	0.3962	0.1055	0.5403	0.1409
A3->Z	0.1455	0.0402	0.1723	0.0478	0.2232	0.0617	0.3024	0.0825	0.4129	0.1109	0.5570	0.1472
B->Z	0.1069	0.0502	0.1229	0.0577	0.1532	0.0716	0.2002	0.0924	0.2657	0.1208	0.3511	0.1571

OAI31M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0024 pF		0.0074 pF		0.0169 pF		0.0316 pF		0.0523 pF		0.0796 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0749	0.0319	0.1035	0.0407	0.1569	0.0565	0.2388	0.0808	0.3534	0.1149	0.5042	0.1597
A2->Z	0.1091	0.0402	0.1375	0.0492	0.1906	0.0656	0.2722	0.0905	0.3867	0.1251	0.5374	0.1704
A3->Z	0.1245	0.0421	0.1529	0.0521	0.2060	0.0699	0.2876	0.0962	0.4021	0.1321	0.5528	0.1784
B->Z	0.0867	0.0514	0.1036	0.0613	0.1355	0.0791	0.1842	0.1055	0.2525	0.1413	0.3422	0.1876

Combinational Cell

OAI32

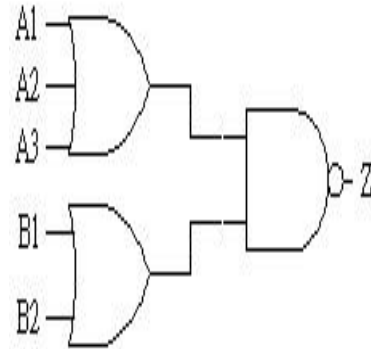
Cell Description

The OAI32 cell provides a NAND gate with two inputs, both of which are OR gates' outputs. One OR gate has three inputs.

Truth Table

A1	A2	A3	B1	B2	Z
0	0	0	X	X	1
X	X	X	0	0	1
X	X	1	X	1	0
X	X	1	1	X	0
X	1	X	1	X	0
X	1	X	X	1	0
1	X	X	1	X	0
1	X	X	X	1	0

Symbol



Cell List

OAI32M0HM, OAI32M1HM, OAI32M2HM
, OAI32M4HM, OAI32M8HM

OAI32 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00121	0.00132	0.00167	0.00305	0.00548
A2	input	0.00123	0.00134	0.00168	0.00339	0.00554
A3	input	0.00122	0.00134	0.00171	0.00326	0.00566
B1	input	0.00117	0.00126	0.00157	0.00332	0.00475
B2	input	0.00118	0.00127	0.00160	0.00307	0.00478
Z	output					

Power Dissipation (uW/MHz)

OAI32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0044 pF		0.0067 pF		0.0098 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0055	0.0006	0.0055	0.0006	0.0055	0.0007	0.0055	0.0007	0.0056	0.0007	0.0056	0.0007
A2->Z	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013	0.0063	0.0013
A3->Z	0.0070	0.0019	0.0070	0.0019	0.0070	0.0019	0.0070	0.0019	0.0070	0.0019	0.0070	0.0019
B1->Z	0.0090	0.0009	0.0090	0.0009	0.0090	0.0009	0.0090	0.0009	0.0091	0.0009	0.0091	0.0009
B2->Z	0.0097	0.0014	0.0097	0.0014	0.0097	0.0014	0.0097	0.0014	0.0097	0.0014	0.0097	0.0014

OAI32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0034 pF		0.0056 pF		0.0087 pF		0.0128 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0059	0.0008	0.0059	0.0008	0.0059	0.0008	0.0059	0.0008	0.0059	0.0008	0.0060	0.0008
A2->Z	0.0068	0.0016	0.0068	0.0016	0.0068	0.0016	0.0069	0.0016	0.0069	0.0016	0.0069	0.0016
A3->Z	0.0077	0.0023	0.0077	0.0023	0.0077	0.0023	0.0077	0.0023	0.0077	0.0023	0.0078	0.0023
B1->Z	0.0095	0.0011	0.0096	0.0011	0.0096	0.0011	0.0096	0.0011	0.0096	0.0011	0.0096	0.0011
B2->Z	0.0103	0.0017	0.0103	0.0017	0.0104	0.0017	0.0104	0.0017	0.0104	0.0017	0.0104	0.0017

OAI32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0180 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0071	0.0009	0.0072	0.0010	0.0072	0.0010	0.0073	0.0010	0.0073	0.0010	0.0073	0.0010
A2->Z	0.0084	0.0020	0.0084	0.0020	0.0085	0.0020	0.0085	0.0020	0.0085	0.0020	0.0085	0.0020
A3->Z	0.0096	0.0030	0.0096	0.0030	0.0096	0.0030	0.0097	0.0030	0.0097	0.0030	0.0097	0.0030
B1->Z	0.0120	0.0014	0.0120	0.0014	0.0120	0.0014	0.0120	0.0014	0.0121	0.0015	0.0121	0.0015
B2->Z	0.0131	0.0022	0.0131	0.0022	0.0131	0.0022	0.0131	0.0022	0.0131	0.0022	0.0131	0.0022

OAI32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0039 pF		0.0082 pF		0.0148 pF		0.0242 pF		0.0365 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0131	0.0023	0.0132	0.0023	0.0133	0.0024	0.0134	0.0025	0.0134	0.0025	0.0135	0.0025
A2->Z	0.0168	0.0049	0.0169	0.0049	0.0170	0.0049	0.0170	0.0049	0.0171	0.0049	0.0171	0.0049
A3->Z	0.0191	0.0064	0.0192	0.0064	0.0193	0.0064	0.0194	0.0064	0.0194	0.0064	0.0194	0.0064
B1->Z	0.0231	0.0033	0.0231	0.0034	0.0232	0.0034	0.0232	0.0035	0.0232	0.0035	0.0232	0.0035
B2->Z	0.0252	0.0047	0.0252	0.0047	0.0253	0.0047	0.0253	0.0047	0.0253	0.0047	0.0253	0.0047

OAI32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0023 pF		0.0068 pF		0.0153 pF		0.0286 pF		0.0474 pF		0.0720 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0238	0.0035	0.0240	0.0036	0.0242	0.0038	0.0243	0.0039	0.0244	0.0040	0.0245	0.0040
A2->Z	0.0304	0.0079	0.0306	0.0079	0.0307	0.0080	0.0308	0.0080	0.0309	0.0080	0.0310	0.0080
A3->Z	0.0369	0.0120	0.0370	0.0120	0.0372	0.0120	0.0373	0.0120	0.0374	0.0120	0.0375	0.0120
B1->Z	0.0399	0.0057	0.0399	0.0057	0.0400	0.0058	0.0400	0.0059	0.0401	0.0059	0.0401	0.0059
B2->Z	0.0449	0.0089	0.0449	0.0089	0.0449	0.0090	0.0450	0.0090	0.0450	0.0090	0.0450	0.0090

Hidden Power (uW/MHz)

OAI32 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0004	-0.0006	-0.0011	-0.0023
A1	F	0.0010	0.0012	0.0016	0.0033	0.0063
A2	R	-0.0005	-0.0007	-0.0010	-0.0018	-0.0036
A2	F	0.0008	0.0010	0.0013	0.0025	0.0051
A3	R	-0.0007	-0.0009	-0.0012	-0.0024	-0.0048
A3	F	0.0010	0.0013	0.0016	0.0034	0.0067
B1	R	-0.0003	-0.0004	-0.0006	-0.0012	-0.0019
B1	F	0.0007	0.0008	0.0011	0.0019	0.0041
B2	R	-0.0007	-0.0009	-0.0012	-0.0023	-0.0041
B2	F	0.0008	0.0010	0.0013	0.0026	0.0047

Propagation Delays (ns)

OAI32M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0017 pF		0.0028 pF		0.0044 pF		0.0067 pF		0.0098 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1508	0.0494	0.1701	0.0541	0.2125	0.0644	0.2738	0.0792	0.3615	0.1003	0.4794	0.1286
A2->Z	0.1819	0.0563	0.2012	0.0612	0.2433	0.0716	0.3044	0.0866	0.3920	0.1080	0.5098	0.1365
A3->Z	0.1947	0.0600	0.2139	0.0651	0.2560	0.0763	0.3171	0.0920	0.4047	0.1142	0.5225	0.1437
B1->Z	0.1990	0.0690	0.2140	0.0741	0.2471	0.0851	0.2948	0.1006	0.3633	0.1225	0.4551	0.1516
B2->Z	0.2127	0.0760	0.2278	0.0811	0.2607	0.0922	0.3085	0.1080	0.3768	0.1301	0.4687	0.1596

OAI32M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0020 pF		0.0034 pF		0.0056 pF		0.0087 pF		0.0128 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1248	0.0490	0.1492	0.0559	0.1918	0.0679	0.2583	0.0866	0.3516	0.1127	0.4747	0.1470
A2->Z	0.1548	0.0569	0.1791	0.0639	0.2214	0.0762	0.2877	0.0950	0.3809	0.1214	0.5039	0.1559
A3->Z	0.1669	0.0611	0.1912	0.0686	0.2336	0.0816	0.2999	0.1014	0.3931	0.1287	0.5161	0.1643
B1->Z	0.1670	0.0686	0.1862	0.0761	0.2198	0.0889	0.2721	0.1085	0.3456	0.1355	0.4424	0.1706
B2->Z	0.1801	0.0763	0.1993	0.0839	0.2328	0.0968	0.2851	0.1166	0.3585	0.1439	0.4553	0.1795

OAI32M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0024 pF		0.0044 pF		0.0076 pF		0.0121 pF		0.0180 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1090	0.0395	0.1337	0.0457	0.1783	0.0566	0.2492	0.0739	0.3482	0.0979	0.4777	0.1291
A2->Z	0.1376	0.0458	0.1622	0.0521	0.2066	0.0632	0.2771	0.0807	0.3761	0.1049	0.5055	0.1364
A3->Z	0.1493	0.0487	0.1739	0.0554	0.2182	0.0673	0.2889	0.0856	0.3878	0.1108	0.5171	0.1433
B1->Z	0.1543	0.0548	0.1738	0.0615	0.2089	0.0732	0.2647	0.0914	0.3427	0.1162	0.4447	0.1483
B2->Z	0.1669	0.0611	0.1863	0.0678	0.2214	0.0796	0.2771	0.0980	0.3551	0.1231	0.4570	0.1556

OAI32M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0039 pF		0.0082 pF		0.0148 pF		0.0242 pF		0.0365 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0909	0.0373	0.1169	0.0442	0.1648	0.0567	0.2377	0.0755	0.3409	0.1020	0.4755	0.1364
A2->Z	0.1302	0.0458	0.1559	0.0529	0.2035	0.0658	0.2762	0.0852	0.3793	0.1123	0.5138	0.1474
A3->Z	0.1400	0.0471	0.1658	0.0547	0.2135	0.0682	0.2861	0.0883	0.3892	0.1160	0.5237	0.1515
B1->Z	0.1411	0.0544	0.1616	0.0620	0.1997	0.0756	0.2576	0.0957	0.3396	0.1234	0.4466	0.1590
B2->Z	0.1524	0.0598	0.1729	0.0673	0.2109	0.0809	0.2687	0.1009	0.3507	0.1286	0.4576	0.1641

OAI32M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0023 pF		0.0068 pF		0.0153 pF		0.0286 pF		0.0474 pF		0.0720 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0777	0.0385	0.1034	0.0466	0.1514	0.0613	0.2258	0.0838	0.3303	0.1152	0.4667	0.1559
A2->Z	0.1118	0.0475	0.1375	0.0558	0.1852	0.0708	0.2593	0.0937	0.3636	0.1255	0.4999	0.1666
A3->Z	0.1272	0.0506	0.1529	0.0596	0.2006	0.0757	0.2747	0.0997	0.3790	0.1326	0.5153	0.1746
B1->Z	0.1316	0.0547	0.1541	0.0637	0.1963	0.0797	0.2616	0.1035	0.3534	0.1361	0.4732	0.1777
B2->Z	0.1478	0.0627	0.1703	0.0716	0.2123	0.0877	0.2776	0.1117	0.3693	0.1446	0.4890	0.1866

Combinational Cell

OAI33

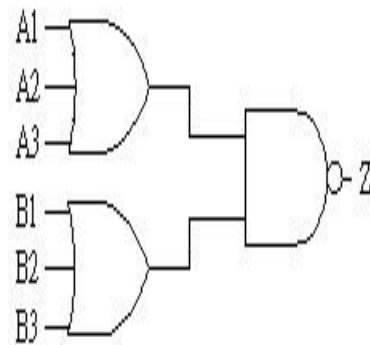
Cell Description

The OAI33 cell provides a NAND gate with two inputs, both of which are OR gates' outputs. Both OR gates have three inputs.

Truth Table

A1	A2	A3	B1	B2	B3	Z
0	0	0	X	X	X	1
X	X	X	0	0	0	1
X	X	1	X	X	1	0
X	X	1	X	1	X	0
X	X	1	1	X	X	0
X	1	X	X	X	1	0
X	1	X	X	1	X	0
X	1	X	1	X	X	0
1	X	X	X	X	1	0
1	X	X	X	1	X	0
1	X	X	1	X	X	0

Symbol



Cell List

OAI33M0HM, OAI33M1HM, OAI33M2HM
, OAI33M4HM, OAI33M8HM

OAI33 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A1	input	0.00132	0.00144	0.00171	0.00308	0.00531
A2	input	0.00123	0.00135	0.00164	0.00345	0.00544
A3	input	0.00120	0.00132	0.00163	0.00329	0.00562
B1	input	0.00116	0.00128	0.00154	0.00292	0.00528
B2	input	0.00120	0.00133	0.00160	0.00333	0.00539
B3	input	0.00119	0.00132	0.00159	0.00316	0.00554
Z	output					

Power Dissipation (uW/MHz)

OAI33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0016 pF		0.0025 pF		0.0040 pF		0.0060 pF		0.0086 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0059	0.0011	0.0059	0.0011	0.0060	0.0011	0.0060	0.0011	0.0060	0.0011	0.0060	0.0011
A2->Z	0.0067	0.0016	0.0067	0.0016	0.0067	0.0016	0.0067	0.0017	0.0067	0.0017	0.0067	0.0017
A3->Z	0.0074	0.0022	0.0074	0.0022	0.0074	0.0022	0.0074	0.0022	0.0074	0.0022	0.0075	0.0022
B1->Z	0.0095	0.0011	0.0095	0.0011	0.0095	0.0011	0.0095	0.0011	0.0095	0.0011	0.0095	0.0011
B2->Z	0.0102	0.0017	0.0102	0.0017	0.0102	0.0017	0.0102	0.0017	0.0102	0.0017	0.0102	0.0017
B3->Z	0.0109	0.0022	0.0109	0.0022	0.0109	0.0022	0.0109	0.0022	0.0109	0.0022	0.0109	0.0022

OAI33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0031 pF		0.0050 pF		0.0078 pF		0.0113 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0064	0.0013	0.0064	0.0013	0.0064	0.0013	0.0064	0.0013	0.0064	0.0013	0.0064	0.0013
A2->Z	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020	0.0073	0.0020
A3->Z	0.0082	0.0026	0.0082	0.0026	0.0082	0.0026	0.0082	0.0026	0.0082	0.0026	0.0082	0.0026
B1->Z	0.0101	0.0013	0.0101	0.0013	0.0101	0.0013	0.0101	0.0013	0.0101	0.0013	0.0101	0.0013
B2->Z	0.0110	0.0021	0.0110	0.0021	0.0110	0.0021	0.0110	0.0021	0.0110	0.0021	0.0110	0.0021
B3->Z	0.0118	0.0026	0.0118	0.0026	0.0118	0.0026	0.0118	0.0026	0.0118	0.0026	0.0118	0.0026

OAI33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0022 pF		0.0040 pF		0.0069 pF		0.0109 pF		0.0161 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0073	0.0016	0.0074	0.0017	0.0074	0.0017	0.0074	0.0017	0.0075	0.0017	0.0075	0.0017
A2->Z	0.0086	0.0026	0.0086	0.0026	0.0086	0.0026	0.0087	0.0026	0.0087	0.0026	0.0087	0.0026
A3->Z	0.0098	0.0035	0.0098	0.0035	0.0098	0.0035	0.0098	0.0035	0.0098	0.0035	0.0099	0.0035
B1->Z	0.0119	0.0016	0.0119	0.0017	0.0119	0.0017	0.0119	0.0017	0.0120	0.0017	0.0120	0.0017
B2->Z	0.0131	0.0027	0.0131	0.0027	0.0131	0.0027	0.0132	0.0027	0.0132	0.0027	0.0132	0.0027
B3->Z	0.0143	0.0034	0.0143	0.0034	0.0143	0.0035	0.0143	0.0035	0.0143	0.0035	0.0143	0.0035

OAI33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0211 pF		0.0318 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0139	0.0027	0.0139	0.0028	0.0140	0.0028	0.0141	0.0029	0.0142	0.0029	0.0143	0.0030
A2->Z	0.0177	0.0053	0.0177	0.0053	0.0178	0.0054	0.0179	0.0054	0.0179	0.0054	0.0179	0.0054
A3->Z	0.0200	0.0068	0.0200	0.0068	0.0201	0.0068	0.0202	0.0068	0.0202	0.0068	0.0203	0.0068
B1->Z	0.0238	0.0027	0.0238	0.0028	0.0239	0.0028	0.0239	0.0029	0.0239	0.0029	0.0239	0.0030
B2->Z	0.0276	0.0053	0.0276	0.0054	0.0276	0.0054	0.0276	0.0054	0.0276	0.0054	0.0276	0.0054
B3->Z	0.0298	0.0068	0.0299	0.0068	0.0299	0.0068	0.0299	0.0068	0.0299	0.0068	0.0299	0.0068

OAI33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0247 pF		0.0408 pF		0.0619 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0268	0.0059	0.0269	0.0060	0.0271	0.0061	0.0272	0.0062	0.0273	0.0063	0.0274	0.0063
A2->Z	0.0336	0.0101	0.0337	0.0101	0.0338	0.0101	0.0340	0.0102	0.0340	0.0102	0.0341	0.0102
A3->Z	0.0398	0.0142	0.0399	0.0142	0.0400	0.0142	0.0401	0.0142	0.0402	0.0142	0.0403	0.0142
B1->Z	0.0444	0.0058	0.0444	0.0059	0.0444	0.0060	0.0445	0.0061	0.0445	0.0062	0.0445	0.0062
B2->Z	0.0510	0.0102	0.0510	0.0102	0.0510	0.0102	0.0510	0.0102	0.0510	0.0103	0.0510	0.0103
B3->Z	0.0574	0.0143	0.0574	0.0143	0.0574	0.0143	0.0575	0.0143	0.0575	0.0143	0.0575	0.0143

Hidden Power (uW/MHz)

OAI33 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M8HM
A1	R	-0.0003	-0.0003	-0.0005	-0.0009	-0.0018
A1	F	0.0008	0.0011	0.0014	0.0032	0.0060
A2	R	-0.0006	-0.0007	-0.0009	-0.0018	-0.0036
A2	F	0.0007	0.0009	0.0012	0.0023	0.0048
A3	R	-0.0008	-0.0010	-0.0013	-0.0025	-0.0050
A3	F	0.0010	0.0012	0.0016	0.0033	0.0066
B1	R	-0.0004	-0.0004	-0.0006	-0.0011	-0.0022
B1	F	0.0009	0.0011	0.0014	0.0031	0.0059
B2	R	-0.0006	-0.0008	-0.0010	-0.0020	-0.0039
B2	F	0.0007	0.0009	0.0011	0.0022	0.0047
B3	R	-0.0009	-0.0011	-0.0014	-0.0027	-0.0053
B3	F	0.0009	0.0012	0.0016	0.0032	0.0065

Propagation Delays (ns)

OAI33M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0011 pF		0.0016 pF		0.0025 pF		0.0040 pF		0.0060 pF		0.0086 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1578	0.0548	0.1772	0.0598	0.2119	0.0688	0.2697	0.0834	0.3463	0.1025	0.4457	0.1270
A2->Z	0.1852	0.0620	0.2045	0.0670	0.2391	0.0760	0.2967	0.0907	0.3732	0.1100	0.4725	0.1347
A3->Z	0.1973	0.0658	0.2166	0.0711	0.2512	0.0804	0.3088	0.0956	0.3854	0.1153	0.4847	0.1405
B1->Z	0.2555	0.0710	0.2748	0.0760	0.3093	0.0850	0.3668	0.0996	0.4431	0.1187	0.5420	0.1431
B2->Z	0.2842	0.0783	0.3035	0.0833	0.3380	0.0923	0.3954	0.1069	0.4716	0.1261	0.5704	0.1507
B3->Z	0.2948	0.0825	0.3141	0.0878	0.3486	0.0971	0.4060	0.1123	0.4821	0.1320	0.5810	0.1572

OAI33M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0012 pF		0.0018 pF		0.0031 pF		0.0050 pF		0.0078 pF		0.0113 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1352	0.0563	0.1536	0.0619	0.1932	0.0738	0.2509	0.0907	0.3356	0.1151	0.4413	0.1452
A2->Z	0.1615	0.0654	0.1798	0.0710	0.2193	0.0831	0.2768	0.1003	0.3614	0.1252	0.4669	0.1559
A3->Z	0.1731	0.0702	0.1914	0.0761	0.2309	0.0887	0.2885	0.1064	0.3730	0.1319	0.4786	0.1632
B1->Z	0.2147	0.0725	0.2330	0.0781	0.2725	0.0902	0.3300	0.1073	0.4144	0.1321	0.5195	0.1626
B2->Z	0.2425	0.0810	0.2608	0.0866	0.3002	0.0987	0.3576	0.1159	0.4419	0.1407	0.5469	0.1713
B3->Z	0.2527	0.0860	0.2710	0.0919	0.3104	0.1044	0.3678	0.1222	0.4521	0.1477	0.5571	0.1790

OAI33M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0022 pF		0.0040 pF		0.0069 pF		0.0109 pF		0.0161 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.1125	0.0496	0.1328	0.0558	0.1730	0.0679	0.2374	0.0868	0.3258	0.1123	0.4405	0.1449
A2->Z	0.1384	0.0574	0.1586	0.0636	0.1986	0.0757	0.2628	0.0947	0.3511	0.1202	0.4657	0.1530
A3->Z	0.1496	0.0622	0.1697	0.0688	0.2098	0.0815	0.2740	0.1012	0.3622	0.1275	0.4768	0.1611
B1->Z	0.1861	0.0638	0.2062	0.0701	0.2463	0.0822	0.3105	0.1012	0.3985	0.1268	0.5126	0.1595
B2->Z	0.2132	0.0721	0.2333	0.0783	0.2733	0.0905	0.3374	0.1095	0.4253	0.1352	0.5394	0.1681
B3->Z	0.2230	0.0767	0.2432	0.0832	0.2832	0.0958	0.3472	0.1156	0.4351	0.1419	0.5492	0.1755

OAI33M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0211 pF		0.0318 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0876	0.0433	0.1092	0.0503	0.1508	0.0633	0.2153	0.0829	0.3049	0.1094	0.4229	0.1437
A2->Z	0.1275	0.0543	0.1489	0.0612	0.1902	0.0744	0.2546	0.0941	0.3440	0.1209	0.4619	0.1555
A3->Z	0.1374	0.0571	0.1589	0.0643	0.2002	0.0779	0.2645	0.0982	0.3540	0.1254	0.4718	0.1603
B1->Z	0.1684	0.0609	0.1899	0.0679	0.2313	0.0810	0.2958	0.1006	0.3854	0.1271	0.5032	0.1614
B2->Z	0.2077	0.0719	0.2292	0.0789	0.2706	0.0920	0.3350	0.1118	0.4244	0.1386	0.5421	0.1732
B3->Z	0.2176	0.0746	0.2390	0.0819	0.2804	0.0954	0.3448	0.1157	0.4342	0.1429	0.5520	0.1779

OAI33M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0021 pF		0.0059 pF		0.0133 pF		0.0247 pF		0.0408 pF		0.0619 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A1->Z	0.0825	0.0473	0.1045	0.0553	0.1466	0.0703	0.2111	0.0923	0.3016	0.1224	0.4199	0.1609
A2->Z	0.1172	0.0572	0.1389	0.0650	0.1810	0.0796	0.2452	0.1012	0.3356	0.1308	0.4538	0.1686
A3->Z	0.1322	0.0615	0.1539	0.0697	0.1960	0.0849	0.2602	0.1070	0.3506	0.1371	0.4689	0.1753
B1->Z	0.1525	0.0616	0.1743	0.0694	0.2162	0.0840	0.2801	0.1054	0.3698	0.1346	0.4870	0.1720
B2->Z	0.1865	0.0725	0.2081	0.0803	0.2499	0.0948	0.3138	0.1162	0.4034	0.1455	0.5204	0.1830
B3->Z	0.2017	0.0774	0.2234	0.0856	0.2652	0.1007	0.3290	0.1229	0.4187	0.1530	0.5357	0.1912

Combinational Cell

OR2

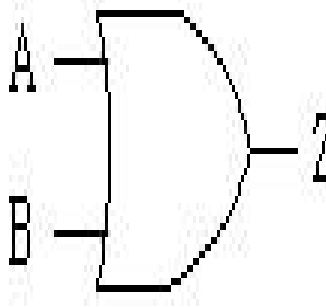
Cell Description

The OR2 cell provides an OR gate with two inputs (A, B).

Truth Table

A	B	Z
0	0	0
X	1	1
1	X	1

Symbol



Cell List

OR2M0HM, OR2M1HM, OR2M2HM
 , OR2M4HM, OR2M6HM
 , OR2M8HM, OR2M12HM
 , OR2M16HM

OR2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00114	0.00114	0.00113	0.00157	0.00165	0.00311	0.00455	0.00452
B	input	0.00124	0.00124	0.00124	0.00167	0.00175	0.00339	0.00474	0.00469
Z	output								

Power Dissipation (uW/MHz)

OR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0029	0.0063	0.0030	0.0064	0.0030	0.0064	0.0031	0.0064	0.0031	0.0064	0.0031	0.0064
B->Z	0.0034	0.0071	0.0034	0.0071	0.0035	0.0072	0.0035	0.0072	0.0035	0.0072	0.0035	0.0072

OR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0068	0.0034	0.0068	0.0034	0.0068	0.0035	0.0069	0.0035	0.0069	0.0035	0.0069
B->Z	0.0037	0.0075	0.0038	0.0076	0.0039	0.0076	0.0039	0.0076	0.0039	0.0076	0.0040	0.0077

OR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0040	0.0076	0.0042	0.0077	0.0043	0.0077	0.0043	0.0078	0.0044	0.0078	0.0044	0.0078
B->Z	0.0045	0.0084	0.0046	0.0084	0.0047	0.0085	0.0048	0.0085	0.0048	0.0086	0.0048	0.0086

OR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0073	0.0119	0.0075	0.0119	0.0078	0.0121	0.0079	0.0121	0.0080	0.0122	0.0080	0.0122
B->Z	0.0080	0.0131	0.0082	0.0132	0.0085	0.0133	0.0086	0.0134	0.0087	0.0134	0.0087	0.0134

OR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0108	0.0164	0.0112	0.0162	0.0116	0.0163	0.0118	0.0164	0.0119	0.0165	0.0120	0.0165
B->Z	0.0115	0.0177	0.0119	0.0175	0.0123	0.0176	0.0124	0.0177	0.0126	0.0177	0.0126	0.0177

OR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0132	0.0228	0.0138	0.0230	0.0143	0.0232	0.0145	0.0234	0.0147	0.0235	0.0147	0.0235
B->Z	0.0147	0.0254	0.0152	0.0255	0.0157	0.0258	0.0160	0.0259	0.0161	0.0260	0.0162	0.0260

OR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0333 pF		0.0812 pF		0.1559 pF		0.2606 pF		0.3985 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0204	0.0341	0.0213	0.0342	0.0221	0.0346	0.0225	0.0348	0.0227	0.0349	0.0228	0.0350
B->Z	0.0227	0.0379	0.0234	0.0381	0.0242	0.0384	0.0246	0.0386	0.0249	0.0387	0.0250	0.0388

OR2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2070 pF		0.3463 pF		0.5297 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0272	0.0422	0.0284	0.0419	0.0295	0.0422	0.0300	0.0424	0.0304	0.0426	0.0305	0.0427
B->Z	0.0295	0.0460	0.0304	0.0456	0.0315	0.0460	0.0321	0.0462	0.0324	0.0463	0.0326	0.0464

Hidden Power (uW/MHz)

OR2 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0003	-0.0003	-0.0004	-0.0004	-0.0009	-0.0013	-0.0013
A	F	0.0006	0.0006	0.0006	0.0010	0.0010	0.0020	0.0031	0.0031
B	R	-0.0008	-0.0008	-0.0008	-0.0014	-0.0014	-0.0027	-0.0041	-0.0041
B	F	0.0009	0.0009	0.0009	0.0016	0.0016	0.0031	0.0047	0.0047

Propagation Delays (ns)

OR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0156 pF		0.0254 pF		0.0384 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0875	0.1255	0.1175	0.1446	0.1755	0.1749	0.2664	0.2163	0.3916	0.2694	0.5575	0.3381
B->Z	0.0921	0.1376	0.1221	0.1567	0.1801	0.1871	0.2711	0.2284	0.3963	0.2815	0.5623	0.3502

OR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0854	0.1290	0.1156	0.1496	0.1741	0.1815	0.2648	0.2242	0.3919	0.2798	0.5585	0.3506
B->Z	0.0899	0.1411	0.1202	0.1616	0.1786	0.1936	0.2694	0.2363	0.3966	0.2918	0.5633	0.3626

OR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0840	0.1364	0.1159	0.1599	0.1745	0.1938	0.2652	0.2381	0.3929	0.2954	0.5600	0.3680
B->Z	0.0884	0.1484	0.1204	0.1719	0.1790	0.2058	0.2697	0.2501	0.3975	0.3075	0.5646	0.3800

OR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0724	0.1228	0.1043	0.1468	0.1636	0.1808	0.2555	0.2250	0.3840	0.2820	0.5534	0.3547
B->Z	0.0768	0.1340	0.1087	0.1580	0.1681	0.1920	0.2601	0.2362	0.3887	0.2932	0.5581	0.3659

OR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0748	0.1500	0.1071	0.1768	0.1664	0.2135	0.2585	0.2599	0.3873	0.3182	0.5566	0.3910
B->Z	0.0783	0.1612	0.1106	0.1880	0.1700	0.2247	0.2621	0.2711	0.3910	0.3293	0.5603	0.4022

OR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0669	0.1153	0.0991	0.1394	0.1587	0.1727	0.2510	0.2161	0.3802	0.2720	0.5501	0.3436
B->Z	0.0722	0.1266	0.1045	0.1506	0.1642	0.1839	0.2566	0.2273	0.3858	0.2832	0.5558	0.3548

OR2M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0333 pF		0.0812 pF		0.1559 pF		0.2606 pF		0.3985 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0698	0.1138	0.1023	0.1375	0.1621	0.1700	0.2545	0.2119	0.3837	0.2657	0.5536	0.3342
B->Z	0.0743	0.1252	0.1069	0.1489	0.1667	0.1815	0.2592	0.2234	0.3885	0.2771	0.5585	0.3456

OR2M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2070 pF		0.3463 pF		0.5297 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0768	0.1312	0.1097	0.1567	0.1694	0.1910	0.2619	0.2345	0.3912	0.2893	0.5611	0.3581
B->Z	0.0828	0.1425	0.1157	0.1679	0.1756	0.2023	0.2681	0.2458	0.3974	0.3005	0.5674	0.3694

Combinational Cell

OR3

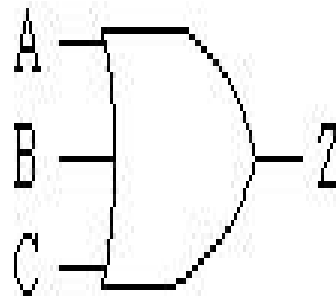
Cell Description

The OR3 cell provides an OR gate with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	0	0	0
X	X	1	1
X	1	X	1
1	X	X	1

Symbol



Cell List

OR3M0HM, OR3M1HM, OR3M2HM
 , OR3M4HM, OR3M6HM
 , OR3M8HM, OR3M12HM
 , OR3M16HM

OR3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00120	0.00119	0.00119	0.00152	0.00254	0.00311	0.00409	0.00395
B	input	0.00119	0.00120	0.00120	0.00154	0.00284	0.00341	0.00412	0.00401
C	input	0.00122	0.00123	0.00123	0.00159	0.00302	0.00368	0.00424	0.00414
Z	output								

Power Dissipation (uW/MHz)

OR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0030	0.0073	0.0031	0.0073	0.0031	0.0074	0.0032	0.0074	0.0032	0.0074	0.0032	0.0074
B->Z	0.0038	0.0082	0.0039	0.0082	0.0039	0.0082	0.0040	0.0082	0.0040	0.0082	0.0040	0.0082
C->Z	0.0045	0.0090	0.0046	0.0090	0.0046	0.0090	0.0046	0.0090	0.0047	0.0090	0.0047	0.0090

OR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0077	0.0034	0.0077	0.0035	0.0078	0.0036	0.0078	0.0036	0.0078	0.0036	0.0078
B->Z	0.0041	0.0086	0.0042	0.0086	0.0043	0.0086	0.0043	0.0086	0.0044	0.0086	0.0044	0.0086
C->Z	0.0048	0.0094	0.0049	0.0094	0.0050	0.0094	0.0050	0.0094	0.0050	0.0094	0.0051	0.0094

OR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0045 pF		0.0097 pF		0.0177 pF		0.0291 pF		0.0440 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0033	0.0077	0.0034	0.0077	0.0035	0.0077	0.0035	0.0078	0.0035	0.0078	0.0036	0.0078
B->Z	0.0041	0.0086	0.0042	0.0086	0.0043	0.0086	0.0043	0.0086	0.0043	0.0086	0.0044	0.0086
C->Z	0.0048	0.0093	0.0049	0.0094	0.0049	0.0094	0.0050	0.0094	0.0050	0.0094	0.0050	0.0094

OR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0883 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0069	0.0131	0.0072	0.0129	0.0075	0.0129	0.0076	0.0130	0.0077	0.0130	0.0077	0.0130
B->Z	0.0080	0.0144	0.0082	0.0142	0.0085	0.0142	0.0086	0.0142	0.0087	0.0142	0.0088	0.0142
C->Z	0.0089	0.0155	0.0091	0.0153	0.0094	0.0153	0.0095	0.0154	0.0096	0.0154	0.0096	0.0154

OR3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0107	0.0205	0.0111	0.0203	0.0115	0.0204	0.0117	0.0205	0.0119	0.0205	0.0119	0.0206
B->Z	0.0126	0.0228	0.0129	0.0226	0.0133	0.0227	0.0135	0.0227	0.0137	0.0228	0.0137	0.0228
C->Z	0.0139	0.0248	0.0143	0.0247	0.0146	0.0248	0.0148	0.0248	0.0150	0.0249	0.0150	0.0249

OR3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1045 pF		0.1746 pF		0.2667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0134	0.0253	0.0140	0.0249	0.0146	0.0249	0.0149	0.0250	0.0150	0.0250	0.0151	0.0251
B->Z	0.0157	0.0279	0.0162	0.0275	0.0167	0.0276	0.0170	0.0276	0.0172	0.0277	0.0173	0.0277
C->Z	0.0177	0.0302	0.0181	0.0298	0.0186	0.0298	0.0189	0.0299	0.0191	0.0300	0.0192	0.0300

OR3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1557 pF		0.2604 pF		0.3982 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0204	0.0388	0.0213	0.0380	0.0221	0.0380	0.0226	0.0380	0.0228	0.0381	0.0229	0.0381
B->Z	0.0236	0.0436	0.0243	0.0428	0.0251	0.0428	0.0256	0.0428	0.0259	0.0429	0.0260	0.0429
C->Z	0.0264	0.0482	0.0271	0.0473	0.0278	0.0473	0.0283	0.0474	0.0285	0.0475	0.0287	0.0475

OR3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2068 pF		0.3461 pF		0.5294 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0266	0.0459	0.0275	0.0444	0.0286	0.0443	0.0291	0.0443	0.0294	0.0444	0.0296	0.0445
B->Z	0.0300	0.0509	0.0308	0.0494	0.0318	0.0493	0.0323	0.0494	0.0326	0.0495	0.0329	0.0495
C->Z	0.0331	0.0559	0.0337	0.0544	0.0346	0.0543	0.0352	0.0544	0.0355	0.0544	0.0357	0.0545

Hidden Power (uW/MHz)

OR3 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0003	-0.0003	-0.0005	-0.0008	-0.0010	-0.0012	-0.0013
A	F	0.0011	0.0011	0.0011	0.0015	0.0025	0.0030	0.0043	0.0046
B	R	-0.0007	-0.0007	-0.0007	-0.0010	-0.0018	-0.0021	-0.0028	-0.0030
B	F	0.0008	0.0008	0.0008	0.0011	0.0019	0.0024	0.0033	0.0036
C	R	-0.0010	-0.0010	-0.0010	-0.0014	-0.0025	-0.0028	-0.0040	-0.0043
C	F	0.0011	0.0011	0.0011	0.0016	0.0029	0.0032	0.0049	0.0053

Propagation Delays (ns)
OR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0254 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0896	0.1634	0.1197	0.1864	0.1779	0.2219	0.2677	0.2676	0.3945	0.3251	0.5596	0.3952
B->Z	0.0960	0.1942	0.1262	0.2171	0.1844	0.2527	0.2744	0.2984	0.4014	0.3558	0.5665	0.4259
C->Z	0.0994	0.2067	0.1301	0.2297	0.1886	0.2652	0.2788	0.3110	0.4059	0.3684	0.5712	0.4385

OR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0859	0.1666	0.1174	0.1923	0.1761	0.2298	0.2662	0.2774	0.3929	0.3367	0.5593	0.4095
B->Z	0.0922	0.1974	0.1238	0.2231	0.1827	0.2607	0.2730	0.3082	0.3998	0.3675	0.5663	0.4403
C->Z	0.0958	0.2100	0.1279	0.2357	0.1871	0.2732	0.2776	0.3208	0.4046	0.3800	0.5712	0.4529

OR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0045 pF		0.0097 pF		0.0177 pF		0.0291 pF		0.0440 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0889	0.1634	0.1198	0.1860	0.1782	0.2196	0.2677	0.2618	0.3947	0.3143	0.5606	0.3777
B->Z	0.0952	0.1942	0.1262	0.2168	0.1848	0.2504	0.2743	0.2926	0.4015	0.3451	0.5675	0.4085
C->Z	0.0986	0.2068	0.1300	0.2294	0.1889	0.2630	0.2787	0.3051	0.4060	0.3577	0.5721	0.4211

OR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0883 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0771	0.1687	0.1093	0.1980	0.1688	0.2382	0.2607	0.2879	0.3898	0.3485	0.5590	0.4222
B->Z	0.0828	0.1972	0.1151	0.2265	0.1746	0.2668	0.2667	0.3164	0.3959	0.3771	0.5651	0.4507
C->Z	0.0856	0.2087	0.1185	0.2380	0.1784	0.2782	0.2707	0.3279	0.4000	0.3885	0.5693	0.4622

OR3M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0412 pF		0.0787 pF		0.1313 pF		0.2005 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0762	0.1483	0.1084	0.1758	0.1678	0.2136	0.2599	0.2609	0.3887	0.3192	0.5581	0.3908
B->Z	0.0826	0.1764	0.1150	0.2040	0.1745	0.2418	0.2667	0.2891	0.3957	0.3474	0.5651	0.4190
C->Z	0.0857	0.1867	0.1187	0.2142	0.1785	0.2520	0.2709	0.2993	0.4000	0.3576	0.5695	0.4292

OR3M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1045 pF		0.1746 pF		0.2667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0726	0.1545	0.1051	0.1835	0.1648	0.2226	0.2571	0.2710	0.3863	0.3302	0.5560	0.4024
B->Z	0.0795	0.1839	0.1121	0.2129	0.1719	0.2520	0.2642	0.3004	0.3936	0.3596	0.5634	0.4318
C->Z	0.0831	0.1957	0.1164	0.2247	0.1765	0.2638	0.2691	0.3121	0.3987	0.3713	0.5686	0.4436

OR3M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1557 pF		0.2604 pF		0.3982 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0735	0.1599	0.1062	0.1896	0.1660	0.2296	0.2583	0.2786	0.3876	0.3381	0.5576	0.4103
B->Z	0.0801	0.1937	0.1129	0.2234	0.1729	0.2634	0.2654	0.3123	0.3948	0.3718	0.5649	0.4441
C->Z	0.0832	0.2077	0.1167	0.2374	0.1771	0.2774	0.2699	0.3264	0.3995	0.3859	0.5697	0.4581

OR3M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2068 pF		0.3461 pF		0.5294 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0865	0.1713	0.1202	0.2037	0.1800	0.2472	0.2723	0.3008	0.4016	0.3661	0.5715	0.4458
B->Z	0.0958	0.2043	0.1298	0.2367	0.1898	0.2803	0.2823	0.3338	0.4117	0.3991	0.5817	0.4788
C->Z	0.1010	0.2183	0.1360	0.2507	0.1965	0.2942	0.2892	0.3478	0.4189	0.4131	0.5891	0.4928

Combinational Cell

OR4

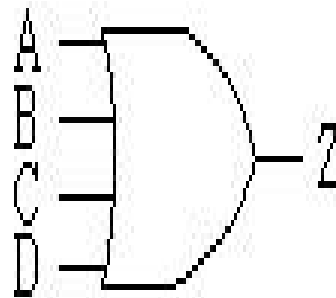
Cell Description

The OR4 cell provides an OR gate with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	0	0	0	0
X	X	X	1	1
X	X	1	X	1
X	1	X	X	1
1	X	X	X	1

Symbol



Cell List

OR4M0HM, OR4M1HM, OR4M2HM
, OR4M4HM, OR4M6HM
, OR4M8HM, OR4M12HM
, OR4M16HM

OR4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	input	0.00127	0.00127	0.00126	0.00138	0.00272	0.00268	0.00404	0.00396
B	input	0.00134	0.00134	0.00133	0.00142	0.00293	0.00292	0.00401	0.00395
C	input	0.00138	0.00138	0.00138	0.00149	0.00294	0.00293	0.00404	0.00398
D	input	0.00145	0.00145	0.00145	0.00152	0.00279	0.00278	0.00416	0.00409
Z	output								

Power Dissipation (uW/MHz)

OR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0030	0.0088	0.0031	0.0088	0.0031	0.0088	0.0032	0.0088	0.0032	0.0088	0.0032	0.0088
B->Z	0.0038	0.0097	0.0039	0.0097	0.0039	0.0097	0.0040	0.0097	0.0040	0.0097	0.0040	0.0097
C->Z	0.0045	0.0106	0.0046	0.0106	0.0047	0.0106	0.0047	0.0106	0.0047	0.0106	0.0047	0.0106
D->Z	0.0052	0.0115	0.0052	0.0114	0.0053	0.0114	0.0053	0.0114	0.0053	0.0114	0.0054	0.0114

OR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0034	0.0093	0.0034	0.0092	0.0035	0.0092	0.0036	0.0092	0.0036	0.0092	0.0036	0.0092
B->Z	0.0042	0.0102	0.0043	0.0102	0.0043	0.0102	0.0044	0.0102	0.0044	0.0102	0.0044	0.0102
C->Z	0.0049	0.0111	0.0050	0.0110	0.0051	0.0110	0.0051	0.0110	0.0051	0.0110	0.0051	0.0110
D->Z	0.0055	0.0119	0.0056	0.0119	0.0057	0.0119	0.0057	0.0119	0.0057	0.0119	0.0058	0.0119

OR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0042	0.0103	0.0043	0.0102	0.0044	0.0101	0.0045	0.0101	0.0045	0.0101	0.0045	0.0101
B->Z	0.0050	0.0112	0.0051	0.0111	0.0052	0.0111	0.0053	0.0110	0.0053	0.0110	0.0054	0.0110
C->Z	0.0057	0.0121	0.0058	0.0120	0.0060	0.0119	0.0060	0.0119	0.0061	0.0119	0.0061	0.0119
D->Z	0.0064	0.0130	0.0065	0.0128	0.0066	0.0128	0.0066	0.0128	0.0067	0.0128	0.0067	0.0128

OR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0069	0.0151	0.0072	0.0145	0.0075	0.0143	0.0076	0.0143	0.0077	0.0142	0.0077	0.0142
B->Z	0.0081	0.0163	0.0083	0.0158	0.0086	0.0156	0.0087	0.0155	0.0088	0.0155	0.0088	0.0155
C->Z	0.0091	0.0175	0.0093	0.0169	0.0095	0.0167	0.0096	0.0167	0.0097	0.0166	0.0098	0.0166
D->Z	0.0099	0.0187	0.0101	0.0181	0.0103	0.0179	0.0104	0.0178	0.0105	0.0178	0.0106	0.0178

OR4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0173 pF		0.0416 pF		0.0794 pF		0.1325 pF		0.2023 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0107	0.0219	0.0111	0.0215	0.0115	0.0215	0.0117	0.0215	0.0118	0.0215	0.0119	0.0215
B->Z	0.0125	0.0244	0.0129	0.0240	0.0133	0.0239	0.0135	0.0240	0.0136	0.0240	0.0137	0.0240
C->Z	0.0151	0.0281	0.0154	0.0277	0.0158	0.0276	0.0160	0.0277	0.0161	0.0277	0.0162	0.0277
D->Z	0.0165	0.0304	0.0168	0.0300	0.0172	0.0299	0.0174	0.0300	0.0175	0.0300	0.0176	0.0300

OR4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0551 pF		0.1054 pF		0.1761 pF		0.2691 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0135	0.0263	0.0140	0.0253	0.0146	0.0250	0.0148	0.0250	0.0150	0.0250	0.0151	0.0250
B->Z	0.0153	0.0288	0.0157	0.0278	0.0163	0.0275	0.0166	0.0275	0.0167	0.0275	0.0168	0.0275
C->Z	0.0179	0.0325	0.0183	0.0315	0.0187	0.0312	0.0191	0.0312	0.0192	0.0312	0.0194	0.0312
D->Z	0.0193	0.0348	0.0197	0.0338	0.0201	0.0335	0.0204	0.0335	0.0206	0.0335	0.0207	0.0335

OR4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1558 pF		0.2605 pF		0.3983 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0200	0.0425	0.0208	0.0407	0.0216	0.0402	0.0219	0.0401	0.0221	0.0401	0.0222	0.0401
B->Z	0.0231	0.0474	0.0239	0.0456	0.0246	0.0451	0.0251	0.0450	0.0253	0.0450	0.0254	0.0450
C->Z	0.0262	0.0519	0.0269	0.0502	0.0276	0.0496	0.0281	0.0495	0.0283	0.0495	0.0284	0.0495
D->Z	0.0289	0.0565	0.0296	0.0548	0.0303	0.0542	0.0307	0.0541	0.0309	0.0541	0.0310	0.0541

OR4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2068 pF		0.3461 pF		0.5293 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0266	0.0531	0.0277	0.0495	0.0287	0.0482	0.0292	0.0478	0.0295	0.0476	0.0297	0.0475
B->Z	0.0298	0.0580	0.0307	0.0544	0.0317	0.0530	0.0323	0.0526	0.0326	0.0525	0.0328	0.0524
C->Z	0.0330	0.0625	0.0337	0.0590	0.0347	0.0576	0.0353	0.0572	0.0356	0.0570	0.0358	0.0569
D->Z	0.0356	0.0671	0.0364	0.0636	0.0373	0.0622	0.0378	0.0618	0.0382	0.0616	0.0384	0.0615

Hidden Power (uW/MHz)

OR4 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM	M16HM
A	R	-0.0003	-0.0003	-0.0003	-0.0005	-0.0009	-0.0009	-0.0012	-0.0012
A	F	0.0012	0.0012	0.0012	0.0016	0.0030	0.0030	0.0047	0.0047
B	R	-0.0007	-0.0007	-0.0007	-0.0009	-0.0016	-0.0016	-0.0024	-0.0024
B	F	0.0008	0.0008	0.0008	0.0011	0.0023	0.0023	0.0032	0.0032
C	R	-0.0008	-0.0008	-0.0008	-0.0011	-0.0021	-0.0021	-0.0031	-0.0031
C	F	0.0009	0.0009	0.0009	0.0012	0.0023	0.0023	0.0034	0.0034
D	R	-0.0011	-0.0011	-0.0011	-0.0014	-0.0027	-0.0027	-0.0040	-0.0040
D	F	0.0012	0.0012	0.0012	0.0016	0.0034	0.0034	0.0052	0.0052

Propagation Delays (ns)

OR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0383 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0839	0.2073	0.1140	0.2347	0.1722	0.2763	0.2621	0.3287	0.3877	0.3919	0.5542	0.4680
B->Z	0.0886	0.2543	0.1188	0.2816	0.1771	0.3232	0.2671	0.3756	0.3928	0.4388	0.5594	0.5149
C->Z	0.0913	0.2803	0.1218	0.3077	0.1803	0.3493	0.2706	0.4017	0.3964	0.4649	0.5630	0.5410
D->Z	0.0924	0.2916	0.1233	0.3190	0.1823	0.3606	0.2729	0.4130	0.3989	0.4761	0.5657	0.5522

OR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0800	0.2108	0.1115	0.2412	0.1694	0.2842	0.2598	0.3383	0.3870	0.4037	0.5529	0.4809
B->Z	0.0847	0.2578	0.1163	0.2882	0.1743	0.3311	0.2648	0.3853	0.3920	0.4506	0.5581	0.5279
C->Z	0.0873	0.2839	0.1192	0.3143	0.1775	0.3573	0.2682	0.4114	0.3956	0.4768	0.5617	0.5541
D->Z	0.0881	0.2952	0.1205	0.3256	0.1793	0.3685	0.2703	0.4227	0.3979	0.4880	0.5642	0.5653

OR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0782	0.2224	0.1095	0.2547	0.1680	0.3003	0.2594	0.3570	0.3862	0.4239	0.5535	0.5033
B->Z	0.0829	0.2693	0.1143	0.3016	0.1728	0.3472	0.2644	0.4039	0.3913	0.4708	0.5585	0.5502
C->Z	0.0853	0.2954	0.1171	0.3278	0.1760	0.3734	0.2677	0.4301	0.3948	0.4969	0.5621	0.5764
D->Z	0.0858	0.3066	0.1181	0.3390	0.1774	0.3846	0.2695	0.4413	0.3967	0.5082	0.5642	0.5876

OR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0872	0.2193	0.1200	0.2543	0.1795	0.3018	0.2716	0.3592	0.4004	0.4268	0.5697	0.5063
B->Z	0.0941	0.2664	0.1271	0.3014	0.1867	0.3490	0.2789	0.4064	0.4078	0.4739	0.5772	0.5534
C->Z	0.0981	0.2918	0.1317	0.3269	0.1917	0.3745	0.2842	0.4319	0.4132	0.4994	0.5827	0.5789
D->Z	0.0992	0.3028	0.1335	0.3379	0.1942	0.3855	0.2870	0.4428	0.4164	0.5104	0.5860	0.5899

OR4M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0173 pF		0.0416 pF		0.0794 pF		0.1325 pF		0.2023 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0778	0.1643	0.1101	0.1957	0.1697	0.2389	0.2617	0.2919	0.3906	0.3559	0.5599	0.4326
B->Z	0.0849	0.2062	0.1174	0.2376	0.1771	0.2808	0.2693	0.3338	0.3983	0.3978	0.5677	0.4746
C->Z	0.0910	0.2456	0.1245	0.2770	0.1849	0.3202	0.2775	0.3732	0.4068	0.4372	0.5764	0.5140
D->Z	0.0928	0.2552	0.1271	0.2866	0.1884	0.3298	0.2815	0.3828	0.4112	0.4468	0.5810	0.5236

OR4M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0551 pF		0.1054 pF		0.1761 pF		0.2691 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0826	0.1865	0.1156	0.2202	0.1755	0.2656	0.2677	0.3205	0.3969	0.3860	0.5667	0.4638
B->Z	0.0897	0.2284	0.1229	0.2620	0.1829	0.3074	0.2752	0.3623	0.4045	0.4278	0.5744	0.5056
C->Z	0.0961	0.2678	0.1303	0.3014	0.1910	0.3468	0.2837	0.4017	0.4133	0.4672	0.5835	0.5450
D->Z	0.0982	0.2773	0.1333	0.3110	0.1947	0.3564	0.2880	0.4113	0.4180	0.4768	0.5883	0.5546

OR4M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0081 pF		0.0332 pF		0.0811 pF		0.1558 pF		0.2605 pF		0.3983 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0729	0.2036	0.1056	0.2407	0.1653	0.2905	0.2578	0.3508	0.3871	0.4224	0.5570	0.5074
B->Z	0.0799	0.2574	0.1128	0.2945	0.1727	0.3443	0.2653	0.4046	0.3947	0.4762	0.5648	0.5612
C->Z	0.0839	0.2891	0.1176	0.3263	0.1780	0.3761	0.2709	0.4364	0.4005	0.5080	0.5707	0.5930
D->Z	0.0845	0.3030	0.1191	0.3402	0.1803	0.3900	0.2737	0.4503	0.4037	0.5219	0.5741	0.6069

OR4M16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0439 pF		0.1076 pF		0.2068 pF		0.3461 pF		0.5293 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0814	0.2353	0.1148	0.2745	0.1745	0.3268	0.2669	0.3895	0.3962	0.4633	0.5662	0.5499
B->Z	0.0888	0.2892	0.1226	0.3284	0.1825	0.3807	0.2749	0.4434	0.4044	0.5171	0.5744	0.6037
C->Z	0.0936	0.3210	0.1282	0.3602	0.1886	0.4125	0.2813	0.4752	0.4110	0.5489	0.5811	0.6355
D->Z	0.0947	0.3349	0.1301	0.3741	0.1912	0.4264	0.2846	0.4891	0.4146	0.5629	0.5849	0.6495

Combinational Cell

OR6

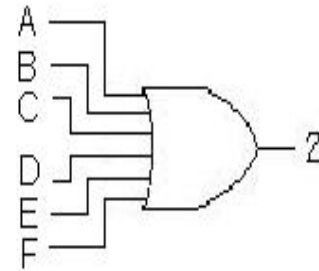
Cell Description

The OR6 cell provides an OR gate with six inputs (A, B, C, D, E, F).

Truth Table

A	B	C	D	E	F	Z
0	0	0	0	0	0	0
X	X	X	X	X	1	1
X	X	X	X	1	X	1
X	X	X	1	X	X	1
X	X	1	X	X	X	1
X	1	X	X	X	X	1
1	X	X	X	X	X	1

Symbol



Cell List

OR6M0HM, OR6M1HM, OR6M2HM
, OR6M4HM, OR6M6HM
, OR6M8HM, OR6M12HM

OR6 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM
A	input	0.00138	0.00137	0.00137	0.00157	0.00232	0.00287	0.00410
B	input	0.00137	0.00137	0.00136	0.00150	0.00282	0.00290	0.00408
C	input	0.00126	0.00126	0.00126	0.00147	0.00263	0.00293	0.00411
D	input	0.00130	0.00130	0.00129	0.00153	0.00243	0.00287	0.00410
E	input	0.00138	0.00138	0.00137	0.00152	0.00305	0.00289	0.00408
F	input	0.00125	0.00125	0.00125	0.00148	0.00264	0.00293	0.00409
Z	output							

Power Dissipation (uW/MHz)

OR6M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0065 pF		0.0116 pF		0.0188 pF		0.0282 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0032	0.0080	0.0032	0.0080	0.0033	0.0081	0.0033	0.0081	0.0033	0.0081	0.0033	0.0081
B->Z	0.0038	0.0089	0.0038	0.0089	0.0039	0.0089	0.0039	0.0089	0.0039	0.0089	0.0040	0.0089
C->Z	0.0043	0.0097	0.0044	0.0097	0.0044	0.0097	0.0044	0.0097	0.0045	0.0097	0.0045	0.0097
D->Z	0.0035	0.0082	0.0035	0.0082	0.0036	0.0083	0.0036	0.0083	0.0036	0.0083	0.0036	0.0083
E->Z	0.0041	0.0091	0.0041	0.0091	0.0042	0.0091	0.0042	0.0092	0.0042	0.0092	0.0042	0.0092
F->Z	0.0047	0.0099	0.0047	0.0099	0.0047	0.0099	0.0048	0.0099	0.0048	0.0099	0.0048	0.0100

OR6M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0076 pF		0.0137 pF		0.0223 pF		0.0336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0034	0.0084	0.0035	0.0084	0.0036	0.0084	0.0036	0.0084	0.0036	0.0084	0.0037	0.0085
B->Z	0.0040	0.0092	0.0041	0.0093	0.0042	0.0093	0.0042	0.0093	0.0043	0.0093	0.0043	0.0093
C->Z	0.0045	0.0100	0.0046	0.0100	0.0047	0.0101	0.0047	0.0101	0.0048	0.0101	0.0048	0.0101
D->Z	0.0038	0.0087	0.0039	0.0087	0.0039	0.0087	0.0039	0.0088	0.0039	0.0088	0.0039	0.0088
E->Z	0.0044	0.0095	0.0045	0.0096	0.0045	0.0096	0.0045	0.0096	0.0045	0.0096	0.0046	0.0096
F->Z	0.0050	0.0103	0.0051	0.0104	0.0051	0.0104	0.0051	0.0104	0.0051	0.0104	0.0051	0.0104

OR6M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0321 pF		0.0487 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0041	0.0093	0.0042	0.0093	0.0044	0.0093	0.0044	0.0093	0.0044	0.0093	0.0045	0.0094
B->Z	0.0047	0.0101	0.0048	0.0101	0.0049	0.0102	0.0050	0.0102	0.0050	0.0102	0.0051	0.0102
C->Z	0.0052	0.0109	0.0053	0.0109	0.0055	0.0110	0.0055	0.0110	0.0056	0.0110	0.0056	0.0110
D->Z	0.0047	0.0098	0.0047	0.0098	0.0048	0.0099	0.0048	0.0099	0.0048	0.0099	0.0048	0.0099
E->Z	0.0053	0.0106	0.0053	0.0107	0.0054	0.0107	0.0054	0.0108	0.0054	0.0108	0.0054	0.0108
F->Z	0.0058	0.0114	0.0059	0.0115	0.0060	0.0115	0.0060	0.0115	0.0060	0.0116	0.0060	0.0116

OR6M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0087 pF		0.0201 pF		0.0379 pF		0.0629 pF		0.0957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0066	0.0138	0.0069	0.0138	0.0072	0.0139	0.0073	0.0139	0.0074	0.0139	0.0075	0.0139
B->Z	0.0076	0.0151	0.0079	0.0150	0.0082	0.0151	0.0083	0.0151	0.0084	0.0152	0.0085	0.0152
C->Z	0.0085	0.0162	0.0088	0.0162	0.0091	0.0162	0.0092	0.0163	0.0093	0.0163	0.0094	0.0163
D->Z	0.0093	0.0155	0.0094	0.0156	0.0095	0.0158	0.0096	0.0158	0.0096	0.0159	0.0096	0.0159
E->Z	0.0103	0.0168	0.0105	0.0169	0.0106	0.0170	0.0106	0.0171	0.0107	0.0171	0.0107	0.0171
F->Z	0.0112	0.0180	0.0114	0.0181	0.0115	0.0182	0.0115	0.0183	0.0116	0.0183	0.0116	0.0183

OR6M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0036 pF		0.0125 pF		0.0296 pF		0.0563 pF		0.0937 pF		0.1429 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0099	0.0208	0.0104	0.0208	0.0108	0.0209	0.0110	0.0210	0.0111	0.0210	0.0112	0.0211
B->Z	0.0122	0.0245	0.0126	0.0245	0.0130	0.0247	0.0132	0.0247	0.0134	0.0248	0.0135	0.0248
C->Z	0.0139	0.0274	0.0143	0.0274	0.0147	0.0276	0.0150	0.0276	0.0152	0.0277	0.0152	0.0277
D->Z	0.0130	0.0238	0.0132	0.0240	0.0134	0.0241	0.0134	0.0242	0.0135	0.0243	0.0135	0.0243
E->Z	0.0153	0.0276	0.0154	0.0278	0.0156	0.0280	0.0157	0.0281	0.0158	0.0281	0.0158	0.0282
F->Z	0.0169	0.0303	0.0171	0.0304	0.0172	0.0306	0.0173	0.0307	0.0174	0.0308	0.0174	0.0308

OR6M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0162 pF		0.0389 pF		0.0742 pF		0.1237 pF		0.1888 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0138	0.0276	0.0144	0.0276	0.0149	0.0277	0.0152	0.0278	0.0154	0.0278	0.0155	0.0278
B->Z	0.0159	0.0311	0.0165	0.0310	0.0170	0.0311	0.0174	0.0312	0.0176	0.0313	0.0177	0.0313
C->Z	0.0182	0.0346	0.0187	0.0345	0.0193	0.0346	0.0196	0.0347	0.0198	0.0347	0.0200	0.0348
D->Z	0.0185	0.0314	0.0188	0.0316	0.0190	0.0318	0.0191	0.0320	0.0192	0.0321	0.0192	0.0321
E->Z	0.0207	0.0349	0.0210	0.0351	0.0212	0.0353	0.0213	0.0354	0.0214	0.0355	0.0214	0.0356
F->Z	0.0230	0.0383	0.0232	0.0385	0.0235	0.0388	0.0236	0.0389	0.0237	0.0390	0.0237	0.0390

OR6M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0062 pF		0.0245 pF		0.0593 pF		0.1137 pF		0.1899 pF		0.2902 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0182	0.0365	0.0192	0.0365	0.0199	0.0368	0.0203	0.0369	0.0205	0.0370	0.0206	0.0370
B->Z	0.0216	0.0416	0.0224	0.0417	0.0232	0.0419	0.0236	0.0421	0.0238	0.0422	0.0240	0.0422
C->Z	0.0245	0.0466	0.0253	0.0466	0.0261	0.0469	0.0265	0.0470	0.0268	0.0471	0.0269	0.0471
D->Z	0.0236	0.0418	0.0240	0.0421	0.0244	0.0425	0.0245	0.0427	0.0246	0.0428	0.0246	0.0429
E->Z	0.0270	0.0470	0.0274	0.0473	0.0277	0.0477	0.0279	0.0479	0.0280	0.0480	0.0281	0.0481
F->Z	0.0300	0.0519	0.0303	0.0522	0.0307	0.0526	0.0309	0.0528	0.0310	0.0529	0.0311	0.0530

Hidden Power (uW/MHz)

OR6 at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM	M6HM	M8HM	M12HM
A	R	0.0000	0.0001	0.0001	0.0003	0.0004	0.0007	0.0009
A	F	0.0021	0.0021	0.0022	0.0033	0.0054	0.0066	0.0088
B	R	-0.0001	-0.0001	0.0000	0.0002	0.0002	0.0004	0.0004
B	F	0.0022	0.0022	0.0023	0.0034	0.0055	0.0069	0.0092
C	R	-0.0002	-0.0002	-0.0001	0.0001	0.0001	0.0002	0.0000
C	F	0.0026	0.0027	0.0027	0.0040	0.0069	0.0085	0.0116
D	R	-0.0000	0.0000	0.0001	0.0002	0.0002	0.0004	0.0006
D	F	0.0021	0.0021	0.0022	0.0032	0.0054	0.0065	0.0088
E	R	-0.0002	-0.0001	-0.0001	0.0000	0.0000	0.0001	0.0000
E	F	0.0022	0.0022	0.0023	0.0032	0.0055	0.0067	0.0092
F	R	-0.0003	-0.0002	-0.0002	-0.0000	-0.0002	-0.0000	-0.0003
F	F	0.0026	0.0026	0.0027	0.0038	0.0069	0.0084	0.0117

Propagation Delays (ns)
OR6M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0015 pF		0.0032 pF		0.0065 pF		0.0116 pF		0.0188 pF		0.0282 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0953	0.1818	0.1247	0.2046	0.1808	0.2416	0.2668	0.2915	0.3880	0.3561	0.5459	0.4370
B->Z	0.0997	0.2082	0.1292	0.2309	0.1854	0.2680	0.2716	0.3178	0.3928	0.3824	0.5508	0.4633
C->Z	0.1028	0.2185	0.1325	0.2412	0.1889	0.2783	0.2753	0.3282	0.3966	0.3928	0.5548	0.4737
D->Z	0.1030	0.1771	0.1321	0.1975	0.1881	0.2321	0.2741	0.2802	0.3952	0.3440	0.5532	0.4247
E->Z	0.1079	0.2035	0.1371	0.2240	0.1932	0.2586	0.2793	0.3066	0.4005	0.3704	0.5585	0.4512
F->Z	0.1112	0.2144	0.1407	0.2349	0.1969	0.2695	0.2832	0.3176	0.4045	0.3814	0.5626	0.4621

OR6M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0076 pF		0.0137 pF		0.0223 pF		0.0336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0915	0.1813	0.1205	0.2042	0.1777	0.2421	0.2642	0.2916	0.3858	0.3553	0.5453	0.4350
B->Z	0.0958	0.2076	0.1250	0.2305	0.1823	0.2684	0.2689	0.3179	0.3906	0.3816	0.5502	0.4614
C->Z	0.0989	0.2180	0.1283	0.2409	0.1859	0.2788	0.2727	0.3283	0.3944	0.3919	0.5541	0.4717
D->Z	0.0988	0.1773	0.1277	0.1979	0.1847	0.2332	0.2712	0.2809	0.3927	0.3437	0.5522	0.4233
E->Z	0.1039	0.2038	0.1328	0.2244	0.1899	0.2596	0.2765	0.3073	0.3981	0.3701	0.5577	0.4497
F->Z	0.1072	0.2147	0.1364	0.2353	0.1937	0.2706	0.2804	0.3183	0.4022	0.3811	0.5618	0.4607

OR6M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0321 pF		0.0487 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0868	0.1871	0.1177	0.2134	0.1754	0.2535	0.2656	0.3069	0.3905	0.3739	0.5561	0.4586
B->Z	0.0912	0.2133	0.1221	0.2396	0.1799	0.2797	0.2703	0.3331	0.3953	0.4001	0.5610	0.4849
C->Z	0.0942	0.2237	0.1255	0.2500	0.1836	0.2901	0.2741	0.3435	0.3992	0.4105	0.5650	0.4952
D->Z	0.0933	0.1845	0.1240	0.2083	0.1815	0.2457	0.2717	0.2973	0.3966	0.3637	0.5622	0.4484
E->Z	0.0984	0.2109	0.1292	0.2347	0.1868	0.2722	0.2771	0.3237	0.4021	0.3901	0.5678	0.4748
F->Z	0.1018	0.2218	0.1329	0.2456	0.1907	0.2831	0.2811	0.3346	0.4062	0.4010	0.5720	0.4857

OR6M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0087 pF		0.0201 pF		0.0379 pF		0.0629 pF		0.0957 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0850	0.1664	0.1170	0.1940	0.1761	0.2345	0.2672	0.2872	0.3948	0.3540	0.5619	0.4374
B->Z	0.0908	0.1945	0.1229	0.2220	0.1820	0.2625	0.2734	0.3152	0.4011	0.3820	0.5682	0.4654
C->Z	0.0950	0.2057	0.1275	0.2333	0.1870	0.2738	0.2785	0.3265	0.4064	0.3933	0.5737	0.4767
D->Z	0.0989	0.1771	0.1307	0.2025	0.1897	0.2411	0.2809	0.2928	0.4086	0.3596	0.5758	0.4435
E->Z	0.1049	0.2053	0.1367	0.2307	0.1959	0.2692	0.2872	0.3210	0.4150	0.3878	0.5822	0.4717
F->Z	0.1094	0.2167	0.1415	0.2420	0.2009	0.2806	0.2925	0.3324	0.4204	0.3992	0.5878	0.4831

OR6M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0036 pF		0.0125 pF		0.0296 pF		0.0563 pF		0.0937 pF		0.1429 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0819	0.1391	0.1136	0.1652	0.1729	0.2045	0.2644	0.2561	0.3920	0.3218	0.5597	0.4045
B->Z	0.0909	0.1821	0.1229	0.2082	0.1824	0.2475	0.2742	0.2991	0.4020	0.3648	0.5698	0.4475
C->Z	0.0956	0.1976	0.1283	0.2237	0.1884	0.2630	0.2806	0.3146	0.4087	0.3803	0.5767	0.4630
D->Z	0.0946	0.1493	0.1261	0.1735	0.1853	0.2110	0.2768	0.2617	0.4045	0.3274	0.5722	0.4105
E->Z	0.1041	0.1930	0.1357	0.2173	0.1951	0.2547	0.2869	0.3055	0.4148	0.3712	0.5826	0.4542
F->Z	0.1088	0.2067	0.1410	0.2310	0.2008	0.2685	0.2929	0.3192	0.4210	0.3849	0.5889	0.4680

OR6M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0044 pF		0.0162 pF		0.0389 pF		0.0742 pF		0.1237 pF		0.1888 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0840	0.1531	0.1158	0.1800	0.1753	0.2200	0.2667	0.2718	0.3944	0.3375	0.5620	0.4198
B->Z	0.0910	0.1866	0.1229	0.2135	0.1826	0.2535	0.2742	0.3053	0.4020	0.3710	0.5696	0.4533
C->Z	0.0951	0.2028	0.1277	0.2297	0.1878	0.2696	0.2798	0.3215	0.4079	0.3872	0.5757	0.4695
D->Z	0.0977	0.1646	0.1293	0.1894	0.1887	0.2275	0.2801	0.2785	0.4078	0.3442	0.5755	0.4269
E->Z	0.1048	0.1980	0.1366	0.2228	0.1961	0.2609	0.2877	0.3119	0.4155	0.3776	0.5833	0.4603
F->Z	0.1094	0.2141	0.1415	0.2389	0.2015	0.2770	0.2934	0.3280	0.4215	0.3937	0.5894	0.4764

OR6M12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0062 pF		0.0245 pF		0.0593 pF		0.1137 pF		0.1899 pF		0.2902 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0805	0.1379	0.1128	0.1668	0.1721	0.2094	0.2638	0.2661	0.3918	0.3393	0.5600	0.4327
B->Z	0.0890	0.1711	0.1214	0.2000	0.1809	0.2426	0.2728	0.2993	0.4010	0.3726	0.5693	0.4659
C->Z	0.0935	0.1849	0.1266	0.2138	0.1867	0.2564	0.2789	0.3131	0.4073	0.3863	0.5758	0.4797
D->Z	0.0906	0.1476	0.1225	0.1746	0.1818	0.2158	0.2735	0.2720	0.4016	0.3455	0.5698	0.4394
E->Z	0.1004	0.1810	0.1324	0.2079	0.1919	0.2491	0.2838	0.3052	0.4119	0.3788	0.5803	0.4727
F->Z	0.1053	0.1947	0.1379	0.2216	0.1978	0.2628	0.2900	0.3190	0.4184	0.3925	0.5869	0.4864

Combinational Cell

XNR2

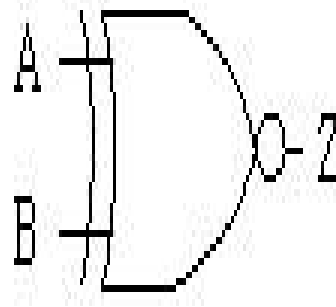
Cell Description

The XNR2 cell provides an EXCLUSIVE NOR gate with two inputs (A, B).

Truth Table

A	B	Z
0	0	1
0	1	0
1	0	0
1	1	1

Symbol



Cell List

XNR2M0HM, XNR2M1HM, XNR2M2HM
, XNR2M4HM

XNR2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00225	0.00252	0.00270	0.00265
B	input	0.00141	0.00154	0.00184	0.00191
Z	output				

Power Dissipation (uW/MHz)

XNR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF	0.0023 pF	0.0042 pF	0.0071 pF	0.0113 pF	0.0167 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0060	0.0043	0.0060	0.0043	0.0060	0.0041
B->Z	0.0097	0.0080	0.0097	0.0080	0.0097	0.0080

XNR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF	0.0030 pF	0.0059 pF	0.0104 pF	0.0168 pF	0.0252 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0089	0.0057	0.0088	0.0057	0.0087	0.0056
B->Z	0.0127	0.0100	0.0127	0.0100	0.0128	0.0100

XNR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF	0.0035 pF	0.0072 pF	0.0130 pF	0.0211 pF	0.0318 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0095	0.0063	0.0095	0.0064	0.0093	0.0062
B->Z	0.0143	0.0116	0.0143	0.0116	0.0144	0.0116

XNR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0277 pF	0.0526 pF	0.0875 pF	0.1335 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0112	0.0157	0.0115	0.0154	0.0116	0.0154
B->Z	0.0164	0.0210	0.0166	0.0207	0.0168	0.0205

Propagation Delays (ns)
XNR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0013 pF		0.0023 pF		0.0042 pF		0.0071 pF		0.0113 pF		0.0167 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0772	0.0764	0.0966	0.0836	0.1272	0.0972	0.1734	0.1181	0.2399	0.1489	0.3247	0.1895
B->Z	0.1310	0.1285	0.1496	0.1368	0.1832	0.1520	0.2313	0.1744	0.2987	0.2062	0.3847	0.2467

XNR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0014 pF		0.0030 pF		0.0059 pF		0.0104 pF		0.0168 pF		0.0252 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0838	0.0850	0.1019	0.0929	0.1360	0.1070	0.1905	0.1286	0.2698	0.1603	0.3752	0.2033
B->Z	0.1332	0.1283	0.1541	0.1389	0.1915	0.1576	0.2492	0.1857	0.3311	0.2250	0.4387	0.2764

XNR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0035 pF		0.0072 pF		0.0130 pF		0.0211 pF		0.0318 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0745	0.0878	0.0898	0.0960	0.1217	0.1114	0.1740	0.1351	0.2491	0.1685	0.3497	0.2140
B->Z	0.1167	0.1121	0.1353	0.1218	0.1709	0.1400	0.2265	0.1677	0.3041	0.2059	0.4066	0.2562

XNR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1453	0.1712	0.1812	0.2032	0.2406	0.2454	0.3313	0.2969	0.4579	0.3587	0.6246	0.4332
B->Z	0.1831	0.2221	0.2191	0.2541	0.2786	0.2966	0.3693	0.3482	0.4960	0.4100	0.6626	0.4846

Combinational Cell

XNR3

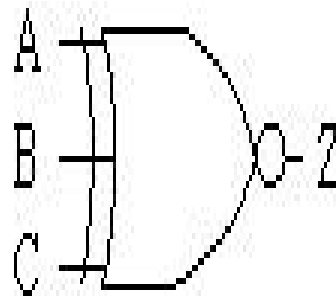
Cell Description

The XNR3 cell provides an EXCLUSIVE NOR gate with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

Symbol



Cell List

XNR3M0HM, XNR3M1HM, XNR3M2HM
, XNR3M4HM

XNR3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00132	0.00149	0.00178	0.00190
B	input	0.00244	0.00244	0.00267	0.00251
C	input	0.00223	0.00227	0.00235	0.00259
Z	output				

Power Dissipation (uW/MHz)

XNR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0187	0.0226	0.0187	0.0224	0.0188	0.0223	0.0188	0.0222	0.0188	0.0222	0.0189	0.0221
B->Z	0.0148	0.0186	0.0148	0.0185	0.0149	0.0184	0.0149	0.0183	0.0149	0.0183	0.0150	0.0183
C->Z	0.0069	0.0102	0.0069	0.0101	0.0069	0.0101	0.0069	0.0101	0.0070	0.0101	0.0070	0.0101

XNR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0195	0.0235	0.0196	0.0233	0.0197	0.0232	0.0197	0.0231	0.0197	0.0231	0.0198	0.0231
B->Z	0.0155	0.0194	0.0155	0.0192	0.0155	0.0191	0.0156	0.0190	0.0156	0.0190	0.0157	0.0189
C->Z	0.0075	0.0107	0.0075	0.0107	0.0076	0.0107	0.0077	0.0107	0.0077	0.0107	0.0077	0.0107

XNR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0230	0.0269	0.0230	0.0267	0.0231	0.0266	0.0231	0.0265	0.0231	0.0265	0.0232	0.0265
B->Z	0.0181	0.0222	0.0182	0.0219	0.0183	0.0218	0.0183	0.0218	0.0184	0.0217	0.0184	0.0217
C->Z	0.0090	0.0124	0.0091	0.0124	0.0092	0.0124	0.0092	0.0125	0.0092	0.0125	0.0093	0.0125

XNR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0280	0.0342	0.0281	0.0335	0.0282	0.0331	0.0284	0.0330	0.0285	0.0328	0.0286	0.0328
B->Z	0.0226	0.0286	0.0226	0.0280	0.0227	0.0276	0.0228	0.0274	0.0230	0.0273	0.0231	0.0272
C->Z	0.0123	0.0171	0.0125	0.0168	0.0126	0.0168	0.0128	0.0168	0.0129	0.0168	0.0129	0.0168

Propagation Delays (ns)

XNR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3840	0.4158	0.4157	0.4563	0.4724	0.5109	0.5616	0.5763	0.6850	0.6504	0.8477	0.7352
B->Z	0.3302	0.3605	0.3619	0.4010	0.4185	0.4555	0.5078	0.5209	0.6312	0.5949	0.7939	0.6798
C->Z	0.1791	0.1805	0.2148	0.2107	0.2752	0.2560	0.3657	0.3149	0.4894	0.3848	0.6521	0.4670

XNR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3798	0.4142	0.4136	0.4579	0.4703	0.5137	0.5589	0.5803	0.6829	0.6566	0.8463	0.7442
B->Z	0.3315	0.3641	0.3653	0.4078	0.4220	0.4636	0.5106	0.5302	0.6346	0.6065	0.7980	0.6941
C->Z	0.1766	0.1735	0.2148	0.2069	0.2757	0.2541	0.3659	0.3148	0.4902	0.3874	0.6536	0.4725

XNR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3252	0.3510	0.3585	0.3907	0.4160	0.4426	0.5053	0.5048	0.6303	0.5773	0.7946	0.6615
B->Z	0.2814	0.3071	0.3146	0.3468	0.3722	0.3987	0.4614	0.4609	0.5864	0.5333	0.7507	0.6175
C->Z	0.1670	0.1528	0.2039	0.1845	0.2645	0.2302	0.3547	0.2883	0.4799	0.3583	0.6443	0.4410

XNR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2949	0.3371	0.3289	0.3801	0.3876	0.4347	0.4775	0.4982	0.6035	0.5715	0.7692	0.6559
B->Z	0.2746	0.3203	0.3086	0.3633	0.3673	0.4178	0.4572	0.4813	0.5832	0.5545	0.7489	0.6390
C->Z	0.1634	0.1649	0.2035	0.2014	0.2670	0.2516	0.3584	0.3124	0.4847	0.3840	0.6505	0.4675

Combinational Cell

XNR4

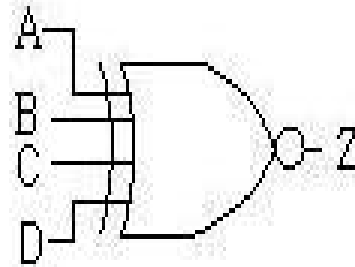
Cell Description

The XNR4 cell provides an EXCLUSIVE NOR gate with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	0
1	0	0	1	1
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

Symbol



Cell List

XNR4M0HM, XNR4M1HM, XNR4M2HM
, XNR4M4HM

XNR4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00223	0.00238	0.00246	0.00243
B	input	0.00128	0.00157	0.00182	0.00183
C	input	0.00108	0.00139	0.00178	0.00178
D	input	0.00245	0.00245	0.00272	0.00244
Z	output				

Power Dissipation (uW/MHz)

XNR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0154	0.0166	0.0155	0.0165	0.0155	0.0165	0.0155	0.0164	0.0156	0.0164	0.0156	0.0164
B->Z	0.0164	0.0177	0.0165	0.0176	0.0165	0.0175	0.0165	0.0175	0.0166	0.0175	0.0166	0.0175
C->Z	0.0186	0.0196	0.0186	0.0196	0.0187	0.0196	0.0187	0.0196	0.0187	0.0197	0.0188	0.0197
D->Z	0.0163	0.0172	0.0163	0.0172	0.0163	0.0172	0.0164	0.0173	0.0164	0.0173	0.0164	0.0173

XNR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0158	0.0173	0.0159	0.0172	0.0159	0.0171	0.0159	0.0171	0.0160	0.0170	0.0160	0.0170
B->Z	0.0170	0.0186	0.0171	0.0184	0.0171	0.0184	0.0172	0.0183	0.0172	0.0183	0.0172	0.0183
C->Z	0.0193	0.0204	0.0194	0.0204	0.0194	0.0205	0.0195	0.0205	0.0195	0.0205	0.0195	0.0205
D->Z	0.0166	0.0177	0.0166	0.0177	0.0167	0.0177	0.0167	0.0177	0.0168	0.0177	0.0168	0.0177

XNR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0267 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0164	0.0182	0.0165	0.0180	0.0166	0.0179	0.0166	0.0179	0.0167	0.0178	0.0167	0.0178
B->Z	0.0181	0.0198	0.0181	0.0196	0.0182	0.0195	0.0182	0.0194	0.0182	0.0194	0.0183	0.0194
C->Z	0.0207	0.0219	0.0208	0.0219	0.0209	0.0219	0.0210	0.0219	0.0210	0.0219	0.0210	0.0220
D->Z	0.0177	0.0188	0.0178	0.0188	0.0178	0.0188	0.0179	0.0189	0.0179	0.0189	0.0180	0.0189

XNR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0036 pF		0.0125 pF		0.0296 pF		0.0563 pF		0.0937 pF		0.1429 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0194	0.0234	0.0195	0.0224	0.0196	0.0220	0.0197	0.0217	0.0198	0.0216	0.0198	0.0215
B->Z	0.0223	0.0263	0.0224	0.0254	0.0225	0.0249	0.0226	0.0246	0.0227	0.0245	0.0227	0.0244
C->Z	0.0229	0.0255	0.0230	0.0250	0.0231	0.0248	0.0232	0.0248	0.0233	0.0248	0.0233	0.0248
D->Z	0.0198	0.0224	0.0199	0.0219	0.0200	0.0217	0.0201	0.0217	0.0202	0.0217	0.0203	0.0217

Propagation Delays (ns)

XNR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3912	0.4145	0.4221	0.4481	0.4804	0.4974	0.5684	0.5559	0.6924	0.6252	0.8551	0.7060
B->Z	0.4181	0.4439	0.4490	0.4775	0.5074	0.5268	0.5953	0.5853	0.7193	0.6546	0.8820	0.7354
C->Z	0.3506	0.3790	0.3844	0.4006	0.4456	0.4351	0.5345	0.4792	0.6587	0.5353	0.8214	0.6052
D->Z	0.2829	0.3075	0.3166	0.3291	0.3779	0.3636	0.4668	0.4077	0.5909	0.4638	0.7536	0.5337

XNR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3621	0.4134	0.3945	0.4518	0.4526	0.5029	0.5417	0.5635	0.6660	0.6340	0.8305	0.7166
B->Z	0.3877	0.4412	0.4200	0.4796	0.4782	0.5307	0.5673	0.5913	0.6916	0.6618	0.8561	0.7444
C->Z	0.3037	0.3397	0.3390	0.3632	0.3994	0.3982	0.4891	0.4431	0.6134	0.4996	0.7779	0.5705
D->Z	0.2652	0.2816	0.3005	0.3052	0.3609	0.3401	0.4506	0.3851	0.5749	0.4415	0.7394	0.5125

XNR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0267 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3628	0.4312	0.3954	0.4734	0.4541	0.5309	0.5439	0.5990	0.6691	0.6784	0.8338	0.7715
B->Z	0.3857	0.4564	0.4182	0.4987	0.4769	0.5561	0.5668	0.6242	0.6919	0.7037	0.8566	0.7967
C->Z	0.2982	0.3433	0.3308	0.3703	0.3894	0.4105	0.4794	0.4620	0.6045	0.5269	0.7693	0.6082
D->Z	0.2532	0.2871	0.2889	0.3141	0.3503	0.3543	0.4410	0.4059	0.5662	0.4707	0.7310	0.5521

XNR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0036 pF		0.0125 pF		0.0296 pF		0.0563 pF		0.0937 pF		0.1429 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2873	0.3455	0.3238	0.3964	0.3835	0.4617	0.4741	0.5379	0.6006	0.6258	0.7668	0.7276
B->Z	0.3426	0.4035	0.3791	0.4545	0.4388	0.5197	0.5294	0.5959	0.6559	0.6839	0.8221	0.7857
C->Z	0.3066	0.3715	0.3430	0.4063	0.4027	0.4539	0.4933	0.5129	0.6198	0.5850	0.7860	0.6736
D->Z	0.2727	0.3190	0.3136	0.3539	0.3779	0.4015	0.4703	0.4604	0.5972	0.5326	0.7635	0.6211

Combinational Cell

XOR2

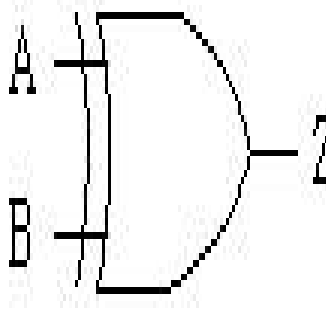
Cell Description

The XOR2 cell provides an EXCLUSIVE OR gate with two inputs (A, B).

Truth Table

A	B	Z
0	0	0
0	1	1
1	0	1
1	1	0

Symbol



Cell List

XOR2M0HM, XOR2M1HM, XOR2M2HM
, XOR2M3HM, XOR2M4HM
, XOR2M6HM, XOR2M8HM

XOR2 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M3HM	M4HM	M6HM	M8HM
A	input	0.00241	0.00241	0.00241	0.00241	0.00241	0.00270	0.00344
B	input	0.00123	0.00143	0.00182	0.00180	0.00179	0.00284	0.00339
Z	output							

Power Dissipation (uW/MHz)

XOR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF	0.0041 pF	0.0087 pF	0.0159 pF	0.0260 pF	0.0392 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0070	0.0096	0.0071	0.0096	0.0071	0.0096
B->Z	0.0096	0.0122	0.0097	0.0122	0.0097	0.0122

XOR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0104 pF	0.0192 pF	0.0314 pF	0.0476 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0074	0.0100	0.0075	0.0100	0.0075	0.0101
B->Z	0.0102	0.0128	0.0103	0.0128	0.0103	0.0129

XOR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0063 pF	0.0143 pF	0.0266 pF	0.0440 pF	0.0668 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0083	0.0110	0.0083	0.0110	0.0085	0.0111
B->Z	0.0115	0.0141	0.0116	0.0140	0.0117	0.0141

XOR2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF	0.0098 pF	0.0229 pF	0.0433 pF	0.0719 pF	0.1095 pF
edge	rise	fall	rise	fall	rise	fall
A->Z	0.0101	0.0133	0.0103	0.0132	0.0104	0.0132
B->Z	0.0134	0.0164	0.0135	0.0163	0.0137	0.0163

XOR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0112	0.0147	0.0114	0.0145	0.0116	0.0145	0.0118	0.0145	0.0118	0.0145	0.0119	0.0145
B->Z	0.0146	0.0180	0.0147	0.0176	0.0149	0.0176	0.0150	0.0176	0.0151	0.0176	0.0152	0.0176

XOR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0170 pF		0.0407 pF		0.0776 pF		0.1295 pF		0.1977 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0152	0.0196	0.0155	0.0191	0.0158	0.0191	0.0160	0.0192	0.0162	0.0192	0.0163	0.0192
B->Z	0.0206	0.0248	0.0209	0.0244	0.0212	0.0243	0.0214	0.0243	0.0216	0.0243	0.0217	0.0244

XOR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1726 pF		0.2637 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0199	0.0263	0.0203	0.0256	0.0207	0.0256	0.0210	0.0255	0.0212	0.0256	0.0214	0.0256
B->Z	0.0261	0.0322	0.0265	0.0315	0.0270	0.0314	0.0272	0.0314	0.0274	0.0314	0.0276	0.0314

Propagation Delays (ns)

XOR2M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0087 pF		0.0159 pF		0.0260 pF		0.0392 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1421	0.1305	0.1735	0.1536	0.2310	0.1890	0.3204	0.2363	0.4456	0.2969	0.6090	0.3728
B->Z	0.1876	0.1861	0.2191	0.2096	0.2767	0.2452	0.3662	0.2924	0.4914	0.3527	0.6548	0.4285

XOR2M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1358	0.1284	0.1680	0.1521	0.2255	0.1863	0.3155	0.2309	0.4399	0.2865	0.6050	0.3566
B->Z	0.1774	0.1779	0.2102	0.2016	0.2681	0.2359	0.3581	0.2805	0.4826	0.3361	0.6477	0.4062

XOR2M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1322	0.1336	0.1635	0.1585	0.2219	0.1950	0.3114	0.2407	0.4376	0.2982	0.6029	0.3694
B->Z	0.1659	0.1786	0.1987	0.2036	0.2578	0.2401	0.3473	0.2859	0.4737	0.3434	0.6389	0.4146

XOR2M3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0030 pF		0.0098 pF		0.0229 pF		0.0433 pF		0.0719 pF		0.1095 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1367	0.1508	0.1702	0.1816	0.2291	0.2242	0.3197	0.2772	0.4465	0.3423	0.6130	0.4223
B->Z	0.1734	0.1976	0.2091	0.2285	0.2691	0.2712	0.3600	0.3242	0.4868	0.3893	0.6533	0.4693

XOR2M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1402	0.1568	0.1746	0.1877	0.2334	0.2289	0.3239	0.2792	0.4507	0.3397	0.6173	0.4127
B->Z	0.1791	0.2040	0.2161	0.2350	0.2763	0.2763	0.3672	0.3266	0.4941	0.3872	0.6607	0.4602

XOR2M6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0170 pF		0.0407 pF		0.0776 pF		0.1295 pF		0.1977 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1335	0.1512	0.1685	0.1824	0.2276	0.2237	0.3180	0.2737	0.4449	0.3340	0.6113	0.4068
B->Z	0.1628	0.1913	0.1994	0.2226	0.2594	0.2639	0.3500	0.3139	0.4768	0.3743	0.6433	0.4471

XOR2M8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1726 pF		0.2637 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.1274	0.1535	0.1620	0.1856	0.2214	0.2276	0.3125	0.2783	0.4398	0.3390	0.6072	0.4120
B->Z	0.1546	0.1921	0.1911	0.2242	0.2514	0.2664	0.3426	0.3171	0.4700	0.3778	0.6373	0.4508

Combinational Cell

XOR3

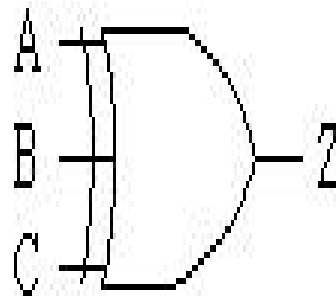
Cell Description

The XOR3 cell provides an EXCLUSIVE OR gate with three inputs (A, B, C).

Truth Table

A	B	C	Z
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

Symbol



Cell List

XOR3M0HM, XOR3M1HM, XOR3M2HM
, XOR3M4HM

XOR3 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00111	0.00119	0.00182	0.00170
B	input	0.00214	0.00234	0.00234	0.00233
C	input	0.00108	0.00120	0.00180	0.00169
Z	output				

Power Dissipation (uW/MHz)

XOR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0154 pF		0.0252 pF		0.0380 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0155	0.0172	0.0155	0.0172	0.0155	0.0172	0.0156	0.0172	0.0156	0.0173	0.0156	0.0173
B->Z	0.0145	0.0162	0.0145	0.0162	0.0146	0.0162	0.0146	0.0162	0.0146	0.0163	0.0147	0.0163
C->Z	0.0081	0.0095	0.0081	0.0095	0.0082	0.0095	0.0082	0.0095	0.0082	0.0095	0.0083	0.0095

XOR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0168	0.0183	0.0168	0.0183	0.0169	0.0183	0.0169	0.0184	0.0170	0.0184	0.0170	0.0184
B->Z	0.0156	0.0172	0.0157	0.0172	0.0158	0.0172	0.0158	0.0172	0.0158	0.0173	0.0159	0.0173
C->Z	0.0087	0.0100	0.0088	0.0100	0.0089	0.0101	0.0089	0.0101	0.0089	0.0101	0.0089	0.0101

XOR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0186	0.0203	0.0187	0.0203	0.0187	0.0204	0.0188	0.0204	0.0189	0.0204	0.0189	0.0204
B->Z	0.0170	0.0187	0.0170	0.0187	0.0171	0.0188	0.0172	0.0188	0.0173	0.0188	0.0173	0.0188
C->Z	0.0106	0.0121	0.0106	0.0122	0.0107	0.0122	0.0108	0.0122	0.0108	0.0122	0.0108	0.0123

XOR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0110 pF		0.0259 pF		0.0492 pF		0.0818 pF		0.1247 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0208	0.0232	0.0209	0.0231	0.0210	0.0231	0.0212	0.0231	0.0213	0.0231	0.0213	0.0232
B->Z	0.0194	0.0218	0.0194	0.0216	0.0196	0.0216	0.0197	0.0216	0.0198	0.0216	0.0199	0.0217
C->Z	0.0129	0.0152	0.0130	0.0151	0.0132	0.0150	0.0132	0.0150	0.0134	0.0151	0.0134	0.0151

Propagation Delays (ns)

XOR3M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0154 pF		0.0252 pF		0.0380 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3659	0.4078	0.3973	0.4309	0.4555	0.4665	0.5436	0.5119	0.6683	0.5693	0.8310	0.6394
B->Z	0.3471	0.3892	0.3785	0.4123	0.4366	0.4479	0.5248	0.4933	0.6495	0.5506	0.8121	0.6208
C->Z	0.2094	0.2190	0.2409	0.2409	0.2990	0.2744	0.3872	0.3174	0.5120	0.3724	0.6747	0.4409

XOR3M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3275	0.3540	0.3603	0.3775	0.4172	0.4112	0.5064	0.4559	0.6311	0.5122	0.7954	0.5826
B->Z	0.3015	0.3282	0.3343	0.3517	0.3912	0.3855	0.4804	0.4301	0.6051	0.4864	0.7695	0.5569
C->Z	0.1944	0.2012	0.2280	0.2247	0.2853	0.2578	0.3747	0.3016	0.4995	0.3571	0.6640	0.4269

XOR3M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3144	0.3221	0.3487	0.3428	0.4085	0.3745	0.4984	0.4160	0.6250	0.4704	0.7906	0.5396
B->Z	0.2860	0.3067	0.3174	0.3274	0.3761	0.3591	0.4658	0.4006	0.5922	0.4550	0.7577	0.5242
C->Z	0.1789	0.2081	0.2133	0.2334	0.2732	0.2702	0.3631	0.3159	0.4897	0.3733	0.6553	0.4442

XOR3M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0110 pF		0.0259 pF		0.0492 pF		0.0818 pF		0.1247 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3328	0.3431	0.3716	0.3685	0.4331	0.4043	0.5246	0.4502	0.6516	0.5080	0.8184	0.5806
B->Z	0.3037	0.3270	0.3380	0.3525	0.3968	0.3883	0.4877	0.4342	0.6145	0.4920	0.7811	0.5646
C->Z	0.1963	0.2385	0.2351	0.2695	0.2967	0.3112	0.3882	0.3621	0.5152	0.4237	0.6821	0.4987

Combinational Cell

XOR4

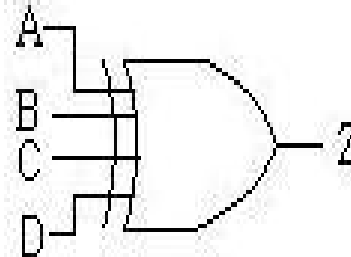
Cell Description

The XOR4 cell provides an EXCLUSIVE OR gate with four inputs (A, B, C, D).

Truth Table

A	B	C	D	Z
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	0	0	1
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

Symbol



Cell List

XOR4M0HM, XOR4M1HM, XOR4M2HM
, XOR4M4HM

XOR4 Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
A	input	0.00221	0.00233	0.00262	0.00247
B	input	0.00114	0.00140	0.00178	0.00170
C	input	0.00113	0.00144	0.00177	0.00179
D	input	0.00280	0.00280	0.00304	0.00277
Z	output				

Power Dissipation (uW/MHz)

XOR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0378 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0152	0.0173	0.0153	0.0173	0.0153	0.0172	0.0153	0.0171	0.0153	0.0171	0.0154	0.0171
B->Z	0.0163	0.0184	0.0163	0.0183	0.0163	0.0182	0.0163	0.0182	0.0164	0.0182	0.0164	0.0182
C->Z	0.0187	0.0206	0.0188	0.0206	0.0188	0.0206	0.0188	0.0206	0.0188	0.0206	0.0189	0.0207
D->Z	0.0161	0.0180	0.0162	0.0180	0.0162	0.0180	0.0162	0.0180	0.0162	0.0180	0.0163	0.0180

XOR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0159	0.0181	0.0159	0.0180	0.0160	0.0179	0.0160	0.0179	0.0161	0.0178	0.0161	0.0178
B->Z	0.0172	0.0194	0.0173	0.0193	0.0173	0.0192	0.0174	0.0192	0.0174	0.0192	0.0174	0.0192
C->Z	0.0196	0.0214	0.0197	0.0214	0.0197	0.0214	0.0198	0.0214	0.0198	0.0214	0.0198	0.0214
D->Z	0.0166	0.0183	0.0166	0.0183	0.0167	0.0183	0.0167	0.0184	0.0167	0.0184	0.0168	0.0184

XOR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0665 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0178	0.0203	0.0179	0.0201	0.0179	0.0199	0.0180	0.0199	0.0180	0.0199	0.0181	0.0198
B->Z	0.0194	0.0219	0.0195	0.0217	0.0195	0.0216	0.0196	0.0215	0.0196	0.0215	0.0197	0.0215
C->Z	0.0218	0.0240	0.0218	0.0239	0.0219	0.0240	0.0220	0.0240	0.0220	0.0240	0.0221	0.0240
D->Z	0.0182	0.0203	0.0182	0.0203	0.0183	0.0203	0.0184	0.0203	0.0184	0.0204	0.0185	0.0204

XOR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0111 pF		0.0260 pF		0.0493 pF		0.0820 pF		0.1250 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.0200	0.0247	0.0200	0.0239	0.0202	0.0235	0.0202	0.0233	0.0203	0.0231	0.0204	0.0230
B->Z	0.0232	0.0279	0.0232	0.0271	0.0234	0.0267	0.0234	0.0265	0.0235	0.0263	0.0236	0.0263
C->Z	0.0233	0.0270	0.0234	0.0265	0.0235	0.0264	0.0236	0.0264	0.0237	0.0263	0.0238	0.0263
D->Z	0.0195	0.0232	0.0196	0.0227	0.0197	0.0226	0.0198	0.0226	0.0199	0.0225	0.0200	0.0225

Propagation Delays (ns)

XOR4M0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0378 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3925	0.4152	0.4243	0.4498	0.4811	0.4979	0.5704	0.5573	0.6940	0.6261	0.8555	0.7056
B->Z	0.4191	0.4445	0.4509	0.4791	0.5077	0.5272	0.5970	0.5866	0.7205	0.6554	0.8821	0.7349
C->Z	0.3767	0.4176	0.4113	0.4447	0.4712	0.4861	0.5621	0.5408	0.6861	0.6065	0.8478	0.6840
D->Z	0.2933	0.3345	0.3279	0.3615	0.3879	0.4030	0.4787	0.4577	0.6027	0.5233	0.7644	0.6009

XOR4M1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0190 pF		0.0312 pF		0.0472 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3615	0.4155	0.3934	0.4527	0.4513	0.5037	0.5406	0.5643	0.6655	0.6350	0.8291	0.7168
B->Z	0.3872	0.4436	0.4191	0.4808	0.4770	0.5317	0.5663	0.5924	0.6912	0.6631	0.8548	0.7449
C->Z	0.3198	0.3563	0.3550	0.3853	0.4158	0.4294	0.5061	0.4854	0.6313	0.5532	0.7950	0.6330
D->Z	0.2609	0.2976	0.2961	0.3267	0.3569	0.3708	0.4472	0.4268	0.5724	0.4946	0.7362	0.5744

XOR4M2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0665 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.3609	0.4393	0.3930	0.4803	0.4510	0.5343	0.5406	0.5976	0.6663	0.6709	0.8312	0.7550
B->Z	0.3832	0.4644	0.4154	0.5053	0.4734	0.5594	0.5629	0.6227	0.6887	0.6959	0.8535	0.7801
C->Z	0.2896	0.3558	0.3256	0.3887	0.3868	0.4362	0.4775	0.4953	0.6035	0.5659	0.7684	0.6483
D->Z	0.2423	0.3085	0.2782	0.3414	0.3394	0.3890	0.4301	0.4481	0.5561	0.5187	0.7210	0.6011

XOR4M4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0111 pF		0.0260 pF		0.0493 pF		0.0820 pF		0.1250 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->Z	0.2895	0.3427	0.3258	0.3911	0.3850	0.4512	0.4753	0.5204	0.6017	0.5991	0.7677	0.6888
B->Z	0.3460	0.4017	0.3823	0.4501	0.4415	0.5102	0.5318	0.5794	0.6582	0.6581	0.8242	0.7479
C->Z	0.3081	0.3829	0.3499	0.4240	0.4146	0.4787	0.5073	0.5447	0.6343	0.6214	0.8004	0.7100
D->Z	0.2629	0.3378	0.3047	0.3789	0.3694	0.4336	0.4621	0.4996	0.5891	0.5763	0.7553	0.6649

Sequential Cell

DFC

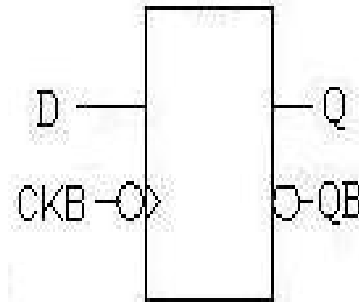
Cell Description

The DFC cell is a negative-edge triggered, static D-type flip-flop.

Truth Table

D	CKB	Q[n+1]	QB[n+1]
0	F	0	1
1	F	1	0
X	R	Q[n]	QB[n]

Symbol



Cell List

DFCM1HM, DFCM2HM, DFCM4HM
, DFCM8HM

DFC Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00116	0.00123	0.00123	0.00178
D	input	0.00123	0.00123	0.00140	0.00145
Q	output				
QB	output				

Power Dissipation (uW/MHz)

DFCM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0322 pF		0.0487 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0196	0.0141	0.0197	0.0141	0.0197	0.0142	0.0198	0.0142	0.0198	0.0142	0.0198	0.0142

DFCM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0219	0.0163	0.0220	0.0164	0.0221	0.0165	0.0222	0.0165	0.0222	0.0165	0.0222	0.0166

DFCM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0311	0.0256	0.0312	0.0258	0.0314	0.0259	0.0316	0.0260	0.0317	0.0260	0.0318	0.0261

DFCM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1727 pF		0.2638 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0486	0.0419	0.0489	0.0423	0.0492	0.0426	0.0496	0.0428	0.0498	0.0429	0.0499	0.0429

Hidden Power (uW/MHz)

DFC at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0094	0.0095	0.0101	0.0112
CKB	F	0.0124	0.0126	0.0126	0.0150
D	R	0.0024	0.0024	0.0027	0.0030
D	F	0.0042	0.0042	0.0049	0.0056

Propagation Delays (ns)

DFCM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0322 pF		0.0487 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3548	0.2941	0.3857	0.3142	0.4434	0.3458	0.5339	0.3900	0.6600	0.4492	0.8249	0.5260
CKB(F)->QB	0.3567	0.4369	0.3874	0.4588	0.4448	0.4919	0.5350	0.5372	0.6610	0.5969	0.8258	0.6739

DFCM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3293	0.2587	0.3606	0.2770	0.4191	0.3054	0.5093	0.3450	0.6361	0.3984	0.8018	0.4677
CKB(F)->QB	0.3240	0.4180	0.3553	0.4403	0.4136	0.4726	0.5035	0.5147	0.6301	0.5696	0.7956	0.6393

DFCM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3284	0.2645	0.3605	0.2848	0.4199	0.3146	0.5115	0.3547	0.6395	0.4075	0.8075	0.4760
CKB(F)->QB	0.3215	0.3851	0.3530	0.4050	0.4119	0.4343	0.5031	0.4737	0.6307	0.5263	0.7983	0.5948

DFCM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1727 pF		0.2638 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.2783	0.2212	0.3107	0.2400	0.3698	0.2676	0.4615	0.3060	0.5897	0.3578	0.7580	0.4252
CKB(F)->QB	0.2932	0.3647	0.3262	0.3887	0.3852	0.4213	0.4764	0.4629	0.6041	0.5163	0.7717	0.5843

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2069	0.1931	0.1937	0.1761
CKB	minpwh	0.1071	0.1050	0.0995	0.0741
D	setupD(R)->CKB(F)	-0.0788	-0.0554	-0.0787	-0.0293
D	setupD(F)->CKB(F)	0.0495	0.0669	0.0379	0.0576
D	holdD(R)->CKB(F)	0.1238	0.1074	0.1157	0.0673
D	holdD(F)->CKB(F)	-0.0167	-0.0263	-0.0051	-0.0237

Sequential Cell

DFCQ

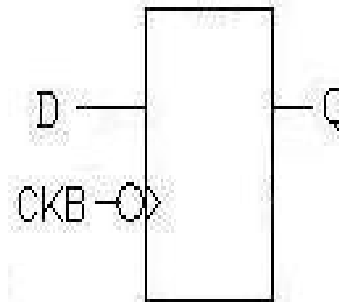
Cell Description

The DFCQ cell is a negative-edge triggered, static D-type flip-flop. The cell has a single output (Q).

Truth Table

D	CKB	Q[n+1]
0	F	0
1	F	1
X	R	Q[n]

Symbol



Cell List

DFCQM1HM, DFCQM2HM, DFCQM4HM
, DFCQM8HM

DFCQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00116	0.00123	0.00123	0.00179
D	input	0.00123	0.00123	0.00140	0.00145
Q	output				

Power Dissipation (uW/MHz)

DFCQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF	0.0049 pF	0.0108 pF	0.0199 pF	0.0326 pF	0.0494 pF
edge	rise	fall	rise	fall	rise	fall
CKB->Q	0.0154	0.0109	0.0154	0.0110	0.0155	0.0110

DFCQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0271 pF	0.0448 pF	0.0680 pF
edge	rise	fall	rise	fall	rise	fall
CKB->Q	0.0167	0.0123	0.0168	0.0124	0.0169	0.0125

DFCQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0280 pF	0.0531 pF	0.0883 pF	0.1347 pF
edge	rise	fall	rise	fall	rise	fall
CKB->Q	0.0224	0.0183	0.0225	0.0184	0.0227	0.0186

DFCQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF	0.0225 pF	0.0545 pF	0.1044 pF	0.1743 pF	0.2664 pF
edge	rise	fall	rise	fall	rise	fall
CKB->Q	0.0320	0.0277	0.0322	0.0281	0.0326	0.0284

Hidden Power (uW/MHz)

DFCQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0094	0.0095	0.0101	0.0112
CKB	F	0.0124	0.0126	0.0126	0.0150
D	R	0.0024	0.0024	0.0027	0.0030
D	F	0.0042	0.0042	0.0049	0.0056

Propagation Delays (ns)

DFCQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0108 pF		0.0199 pF		0.0326 pF		0.0494 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3538	0.2949	0.3843	0.3157	0.4433	0.3488	0.5333	0.3940	0.6585	0.4547	0.8240	0.5345

DFCQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3287	0.2595	0.3597	0.2784	0.4184	0.3077	0.5087	0.3482	0.6353	0.4031	0.8010	0.4747

DFCQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3281	0.2651	0.3603	0.2863	0.4196	0.3167	0.5107	0.3571	0.6381	0.4109	0.8059	0.4812

DFCQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0545 pF		0.1044 pF		0.1743 pF		0.2664 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.2779	0.2214	0.3102	0.2407	0.3692	0.2689	0.4606	0.3076	0.5884	0.3601	0.7566	0.4289

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2030	0.1887	0.1898	0.1668
CKB	minpwh	0.1064	0.1050	0.0995	0.0741
D	setupD(R)->CKB(F)	-0.0817	-0.0576	-0.0788	-0.0292
D	setupD(F)->CKB(F)	0.0494	0.0669	0.0374	0.0580
D	holdD(R)->CKB(F)	0.1238	0.1074	0.1157	0.0672
D	holdD(F)->CKB(F)	-0.0172	-0.0268	-0.0056	-0.0237

Sequential Cell

DFCQRS

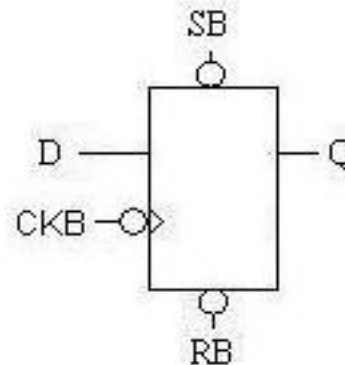
Cell Description

The DFCQRS cell is a negative-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB) and set (SB). Reset (RB) dominates set (SB).

Truth Table

RB	SB	D	CKB	Q[n+1]
0	X	X	X	0
1	0	X	X	1
1	1	0	F	0
1	1	1	F	1
1	1	X	R	Q[n]

Symbol



Cell List

DFCQRSM1HM, DFCQRSM2HM, DFCQRSM4HM
, DFCQRSM8HM

DFCQRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00124	0.00132	0.00132	0.00182
D	input	0.00130	0.00146	0.00146	0.00145
Q	output				
RB	input	0.00361	0.00420	0.00575	0.00572
SB	input	0.00304	0.00342	0.00340	0.00340

Power Dissipation (uW/MHz)

DFCQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0162	0.0117	0.0163	0.0117	0.0163	0.0118	0.0164	0.0118	0.0164	0.0118	0.0164	0.0118
RB->Q	0.0124	0.0157	0.0125	0.0157	0.0126	0.0157	0.0126	0.0158	0.0126	0.0158	0.0126	0.0158
SB->Q	0.0193	0.0193	0.0193	0.0193	0.0194	0.0194	0.0194	0.0194	0.0195	0.0195	0.0196	0.0196

DFCQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0200	0.0150	0.0200	0.0151	0.0201	0.0152	0.0202	0.0152	0.0202	0.0153	0.0203	0.0153
RB->Q	0.0154	0.0193	0.0155	0.0194	0.0156	0.0194	0.0156	0.0195	0.0157	0.0195	0.0157	0.0195
SB->Q	0.0224	0.0224	0.0224	0.0224	0.0225	0.0225	0.0226	0.0226	0.0226	0.0226	0.0226	0.0226

DFCQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0275 pF		0.0521 pF		0.0867 pF		0.1322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0284	0.0224	0.0285	0.0226	0.0286	0.0227	0.0288	0.0228	0.0289	0.0229	0.0289	0.0229
RB->Q	0.0220	0.0273	0.0222	0.0275	0.0224	0.0277	0.0225	0.0277	0.0226	0.0278	0.0226	0.0278
SB->Q	0.0312	0.0312	0.0313	0.0313	0.0314	0.0314	0.0316	0.0316	0.0316	0.0316	0.0317	0.0317

DFCQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0220 pF		0.0531 pF		0.1017 pF		0.1698 pF		0.2595 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0343	0.0286	0.0343	0.0288	0.0345	0.0291	0.0347	0.0293	0.0349	0.0294	0.0351	0.0295
RB->Q	0.0283	0.0337	0.0286	0.0341	0.0290	0.0344	0.0293	0.0345	0.0294	0.0346	0.0294	0.0346
SB->Q	0.0376	0.0376	0.0375	0.0375	0.0378	0.0378	0.0380	0.0380	0.0382	0.0382	0.0383	0.0383

Hidden Power (uW/MHz)

DFCQRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0140	0.0151	0.0150	0.0161
CKB	F	0.0170	0.0177	0.0179	0.0200
D	R	0.0024	0.0023	0.0022	0.0022
D	F	0.0043	0.0049	0.0049	0.0049
RB	R	-0.0013	-0.0021	-0.0036	-0.0036
RB	F	0.0013	0.0021	0.0036	0.0036
SB	R	0.0021	0.0025	0.0035	0.0033
SB	F	0.0092	0.0100	0.0112	0.0112

Propagation Delays (ns)

DFCQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3895	0.3566	0.4225	0.3790	0.4814	0.4120	0.5709	0.4550	0.6962	0.5104	0.8598	0.5808
RB->Q	0.1117	0.1477	0.1441	0.1698	0.2025	0.2023	0.2917	0.2448	0.4170	0.3001	0.5804	0.3705
SB->Q	0.2905	--n/a--	0.3233	--n/a--	0.3816	--n/a--	0.4708	--n/a--	0.5961	--n/a--	0.7597	--n/a--

DFCQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3617	0.2833	0.3943	0.3037	0.4531	0.3357	0.5432	0.3804	0.6693	0.4413	0.8349	0.5212
RB->Q	0.0982	0.0963	0.1300	0.1162	0.1884	0.1475	0.2783	0.1919	0.4042	0.2528	0.5698	0.3328
SB->Q	0.2902	--n/a--	0.3225	--n/a--	0.3809	--n/a--	0.4708	--n/a--	0.5968	--n/a--	0.7625	--n/a--

DFCQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0275 pF		0.0521 pF		0.0867 pF		0.1322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3920	0.3035	0.4255	0.3234	0.4847	0.3538	0.5754	0.3964	0.7025	0.4548	0.8693	0.5313
RB->Q	0.0847	0.0827	0.1168	0.1019	0.1759	0.1318	0.2664	0.1741	0.3933	0.2325	0.5600	0.3091
SB->Q	0.3228	--n/a--	0.3561	--n/a--	0.4151	--n/a--	0.5057	--n/a--	0.6327	--n/a--	0.7995	--n/a--

DFCQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0220 pF		0.0531 pF		0.1017 pF		0.1698 pF		0.2595 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3539	0.2765	0.3897	0.2992	0.4489	0.3314	0.5397	0.3756	0.6665	0.4350	0.8333	0.5127
RB->Q	0.0966	0.0953	0.1309	0.1173	0.1898	0.1490	0.2806	0.1929	0.4073	0.2523	0.5740	0.3301
SB->Q	0.3386	--n/a--	0.3742	--n/a--	0.4331	--n/a--	0.5238	--n/a--	0.6505	--n/a--	0.8173	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2173	0.2069	0.2437	0.2349
CKB	minpwh	0.1194	0.1091	0.1153	0.1153
D	setupD(R)->CKB(F)	-0.0848	-0.0689	-0.0502	0.0108
D	setupD(F)->CKB(F)	0.0452	0.0388	0.0410	0.0675
D	holdD(R)->CKB(F)	0.1310	0.1223	0.1234	0.0776
D	holdD(F)->CKB(F)	-0.0098	0.0044	0.0104	-0.0044
RB	setupRB(R)->SB(R)	-0.0059	0.0030	-0.0049	0.0087
RB	removalRB(R)->CKB(F)	0.5139	0.5191	0.5048	0.4440
RB	recoveryRB(R)->CKB(F)	-0.3518	-0.3189	-0.3367	-0.2655
RB	minpwl	0.1865	0.1179	0.1173	0.1173
RB	holdRB(R)->SB(R)	0.0133	0.0033	0.0167	0.0072
SB	removalSB(R)->CKB(F)	0.1851	0.1702	0.1665	0.1269
SB	recoverySB(R)->CKB(F)	-0.1204	-0.0863	-0.0835	-0.0450
SB	minpwl	0.2025	0.1701	0.2113	0.2244

Sequential Cell

DFCRS

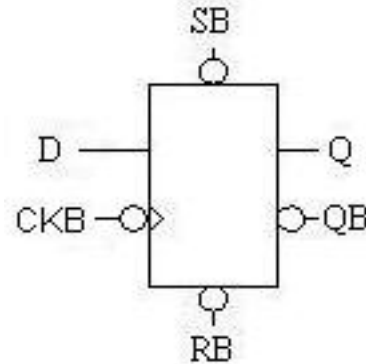
Cell Description

The DFCRS cell is a negative-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB) and asynchronous active-low set (SB).

Truth Table

RB	SB	D	CKB	Q[n+1]	QB[n+1]
0	1	X	X	0	1
1	0	X	X	1	0
0	0	X	X	0	0
1	1	0	F	0	1
1	1	1	F	1	0
1	1	X	R	Q[n]	QB[n]

Symbol



Cell List

DFCRSM1HM, DFCRSM2HM, DFCRSM4HM, DFCRSM8HM

DFCRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00124	0.00132	0.00132	0.00182
D	input	0.00130	0.00146	0.00146	0.00145
Q	output				
QB	output				
RB	input	0.00365	0.00421	0.00580	0.00575
SB	input	0.00302	0.00339	0.00336	0.00334

Power Dissipation (uW/MHz)

DFCRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0216	0.0153	0.0217	0.0153	0.0217	0.0153	0.0218	0.0153	0.0218	0.0153	0.0218	0.0154
RB->Q	0.0144	0.0176	0.0144	0.0176	0.0145	0.0177	0.0145	0.0177	0.0146	0.0177	0.0146	0.0177
SB->Q	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0147	0.0148	0.0148	0.0148	0.0148
SB->QB	0.0076	0.0200	0.0077	0.0200	0.0077	0.0200	0.0079	0.0201	0.0079	0.0201	0.0079	0.0201

DFCRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0260	0.0194	0.0261	0.0195	0.0262	0.0195	0.0262	0.0196	0.0263	0.0196	0.0263	0.0196
RB->Q	0.0176	0.0215	0.0177	0.0216	0.0178	0.0217	0.0178	0.0217	0.0178	0.0217	0.0179	0.0217
SB->Q	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169
SB->QB	0.0098	0.0219	0.0099	0.0220	0.0100	0.0220	0.0101	0.0221	0.0101	0.0221	0.0101	0.0221

DFCRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0116 pF		0.0273 pF		0.0518 pF		0.0861 pF		0.1313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0392	0.0299	0.0392	0.0301	0.0394	0.0302	0.0395	0.0303	0.0396	0.0304	0.0397	0.0304
RB->Q	0.0261	0.0314	0.0263	0.0316	0.0265	0.0318	0.0266	0.0318	0.0267	0.0319	0.0267	0.0319
SB->Q	0.0255	0.0255	0.0255	0.0255	0.0256	0.0256	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257
SB->QB	0.0145	0.0289	0.0147	0.0288	0.0149	0.0289	0.0151	0.0290	0.0152	0.0290	0.0152	0.0292

DFCRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0532 pF		0.1017 pF		0.1699 pF		0.2595 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0521	0.0426	0.0521	0.0429	0.0523	0.0431	0.0525	0.0433	0.0527	0.0434	0.0529	0.0434
RB->Q	0.0352	0.0410	0.0356	0.0413	0.0360	0.0416	0.0362	0.0417	0.0363	0.0418	0.0364	0.0418
SB->Q	0.0338	0.0338	0.0337	0.0337	0.0338	0.0338	0.0340	0.0340	0.0341	0.0341	0.0343	0.0343
SB->QB	0.0206	0.0367	0.0208	0.0361	0.0212	0.0360	0.0215	0.0359	0.0216	0.0358	0.0217	0.0355

Hidden Power (uW/MHz)

DFCRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0140	0.0151	0.0150	0.0161
CKB	F	0.0170	0.0177	0.0179	0.0200
D	R	0.0024	0.0023	0.0022	0.0022
D	F	0.0043	0.0049	0.0049	0.0049
RB	R	-0.0013	-0.0021	-0.0036	-0.0036
RB	F	0.0013	0.0021	0.0036	0.0036
SB	R	-0.0005	-0.0008	-0.0008	-0.0008
SB	F	0.0036	0.0040	0.0040	0.0040

Propagation Delays (ns)

DFCRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3968	0.3643	0.4303	0.3869	0.4884	0.4194	0.5775	0.4620	0.7027	0.5168	0.8672	0.5861
CKB(F)->QB	0.4592	0.5089	0.4924	0.5316	0.5503	0.5641	0.6394	0.6065	0.7649	0.6611	0.9302	0.7304
RB->Q	0.1157	0.1523	0.1486	0.1749	0.2064	0.2072	0.2951	0.2492	0.4200	0.3035	0.5844	0.3727
RB->QB	0.2482	--n/a--	0.2813	--n/a--	0.3393	--n/a--	0.4283	--n/a--	0.5539	--n/a--	0.7192	--n/a--
SB->Q	0.2982	--n/a--	0.3315	--n/a--	0.3891	--n/a--	0.4776	--n/a--	0.6025	--n/a--	0.7668	--n/a--
SB->QB	0.1100	0.1437	0.1431	0.1660	0.2011	0.1984	0.2902	0.2407	0.4158	0.2951	0.5810	0.3639

DFCRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3640	0.2842	0.3968	0.3043	0.4553	0.3354	0.5457	0.3792	0.6715	0.4384	0.8365	0.5158
CKB(F)->QB	0.3515	0.4573	0.3834	0.4787	0.4417	0.5101	0.5322	0.5520	0.6586	0.6066	0.8246	0.6768
RB->Q	0.0991	0.0962	0.1312	0.1159	0.1893	0.1464	0.2793	0.1898	0.4049	0.2489	0.5699	0.3262
RB->QB	0.1638	--n/a--	0.1957	--n/a--	0.2540	--n/a--	0.3445	--n/a--	0.4709	--n/a--	0.6369	--n/a--
SB->Q	0.2927	--n/a--	0.3253	--n/a--	0.3832	--n/a--	0.4730	--n/a--	0.5984	--n/a--	0.7631	--n/a--
SB->QB	0.0876	0.1090	0.1195	0.1288	0.1779	0.1586	0.2684	0.1995	0.3949	0.2539	0.5609	0.3245

DFCRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0116 pF		0.0273 pF		0.0518 pF		0.0861 pF		0.1313 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3965	0.3068	0.4309	0.3270	0.4900	0.3567	0.5814	0.3988	0.7089	0.4560	0.8765	0.5309
CKB(F)->QB	0.3897	0.5166	0.4241	0.5423	0.4827	0.5768	0.5728	0.6205	0.6985	0.6752	0.8640	0.7440
RB->Q	0.0862	0.0842	0.1192	0.1038	0.1782	0.1332	0.2693	0.1749	0.3966	0.2319	0.5640	0.3068
RB->QB	0.1668	--n/a--	0.2012	--n/a--	0.2598	--n/a--	0.3499	--n/a--	0.4756	--n/a--	0.6411	--n/a--
SB->Q	0.3274	--n/a--	0.3616	--n/a--	0.4205	--n/a--	0.5116	--n/a--	0.6387	--n/a--	0.8061	--n/a--
SB->QB	0.0977	0.1274	0.1321	0.1511	0.1908	0.1836	0.2809	0.2257	0.4067	0.2797	0.5722	0.3484

DFCRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0532 pF		0.1017 pF		0.1699 pF		0.2595 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3589	0.2795	0.3948	0.3019	0.4545	0.3340	0.5459	0.3778	0.6741	0.4370	0.8422	0.5139
CKB(F)->QB	0.3854	0.5757	0.4227	0.6116	0.4827	0.6587	0.5726	0.7151	0.6984	0.7827	0.8635	0.8642
RB->Q	0.0978	0.0961	0.1322	0.1180	0.1918	0.1497	0.2831	0.1933	0.4111	0.2522	0.5790	0.3292
RB->QB	0.2014	--n/a--	0.2388	--n/a--	0.2987	--n/a--	0.3886	--n/a--	0.5144	--n/a--	0.6796	--n/a--
SB->Q	0.3434	--n/a--	0.3792	--n/a--	0.4388	--n/a--	0.5300	--n/a--	0.6579	--n/a--	0.8258	--n/a--
SB->QB	0.1165	0.1648	0.1537	0.1946	0.2137	0.2348	0.3037	0.2849	0.4296	0.3473	0.5947	0.4248

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2272	0.2140	0.2568	0.2623
CKB	minpwh	0.1208	0.1098	0.1153	0.1146
D	setupD(R)->CKB(F)	-0.0808	-0.0650	-0.0503	0.0107
D	setupD(F)->CKB(F)	0.0447	0.0388	0.0405	0.0670
D	holdD(R)->CKB(F)	0.1311	0.1228	0.1235	0.0776
D	holdD(F)->CKB(F)	-0.0087	0.0050	0.0109	-0.0039
RB	setupRB(R)->SB(R)	-0.0187	-0.0089	-0.0257	-0.0166
RB	removalRB(R)->CKB(F)	0.5139	0.5196	0.5037	0.4430
RB	recoveryRB(R)->CKB(F)	-0.3450	-0.3154	-0.3395	-0.2684
RB	minpwl	0.2146	0.1327	0.1399	0.1695
RB	holdRB(R)->SB(R)	0.0367	0.0236	0.0539	0.0665
SB	setupSB(R)->RB(R)	0.0367	0.0236	0.0539	0.0665
SB	removalSB(R)->CKB(F)	0.1846	0.1701	0.1665	0.1269
SB	recoverySB(R)->CKB(F)	-0.1220	-0.0863	-0.0841	-0.0456
SB	minpwl	0.2843	0.2255	0.2755	0.3376
SB	holdSB(R)->RB(R)	-0.0187	-0.0089	-0.0257	-0.0166

Sequential Cell

DFE

Cell Description

The DFE cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E).

Truth Table

E	D	CK	Q[n+1]	QB[n+1]
0	X	X	Q[n]	QB[n]
1	0	R	0	1
1	1	R	1	0
X	X	F	Q[n]	QB[n]

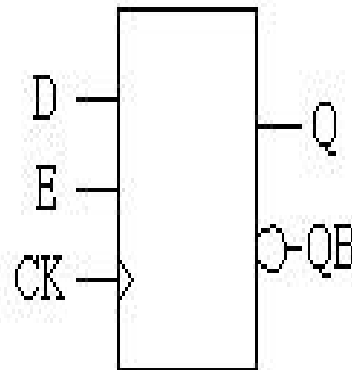
Cell List

DFEM1HM, DFEM2HM, DFEM4HM
, DFEM8HM

DFE Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00124	0.00124	0.00124
D	input	0.00119	0.00136	0.00133	0.00133
E	input	0.00240	0.00272	0.00265	0.00253
Q	output				
QB	output				

Symbol



Power Dissipation (uW/MHz)

DFEM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0228	0.0169	0.0228	0.0169	0.0229	0.0170	0.0229	0.0170	0.0230	0.0170	0.0230	0.0170

DFEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0442 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0263	0.0207	0.0263	0.0208	0.0264	0.0209	0.0265	0.0209	0.0265	0.0209	0.0266	0.0209

DFEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0870 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0364	0.0298	0.0365	0.0300	0.0367	0.0301	0.0368	0.0302	0.0369	0.0303	0.0370	0.0303

DFEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1722 pF		0.2632 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0550	0.0472	0.0551	0.0475	0.0554	0.0478	0.0557	0.0480	0.0559	0.0481	0.0560	0.0481

Hidden Power (uW/MHz)

DFE at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0087	0.0087	0.0086	0.0086
CK	F	0.0114	0.0114	0.0113	0.0113
D	R	0.0027	0.0029	0.0029	0.0029
D	F	0.0084	0.0089	0.0088	0.0087
E	R	-0.0002	-0.0003	-0.0003	-0.0001
E	F	0.0063	0.0070	0.0069	0.0067

Propagation Delays (ns)

DFEM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2541	0.2681	0.2855	0.2865	0.3435	0.3157	0.4340	0.3582	0.5590	0.4154	0.7247	0.4907
CK(R)->QB	0.3482	0.3602	0.3803	0.3850	0.4379	0.4206	0.5279	0.4674	0.6525	0.5268	0.8179	0.6030

DFEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0442 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2570	0.2652	0.2884	0.2840	0.3471	0.3141	0.4374	0.3573	0.5635	0.4160	0.7301	0.4933
CK(R)->QB	0.3351	0.3177	0.3668	0.3386	0.4250	0.3705	0.5148	0.4143	0.6406	0.4733	0.8068	0.5506

DFEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0870 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2853	0.2657	0.3172	0.2837	0.3763	0.3119	0.4685	0.3532	0.5970	0.4096	0.7657	0.4836
CK(R)->QB	0.3265	0.3622	0.3585	0.3859	0.4168	0.4194	0.5078	0.4640	0.6348	0.5224	0.8015	0.5978

DFEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1722 pF		0.2632 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3150	0.2907	0.3487	0.3122	0.4081	0.3435	0.5000	0.3860	0.6285	0.4427	0.7976	0.5168
CK(R)->QB	0.3462	0.3760	0.3782	0.3979	0.4370	0.4293	0.5279	0.4719	0.6552	0.5291	0.8227	0.6037

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1784	0.1771	0.1757	0.1771
CK	minpwh	0.1250	0.1311	0.1734	0.1931
D	setupD(R)->CK(R)	0.1136	0.1057	0.1108	0.1130
D	setupD(F)->CK(R)	0.2259	0.1780	0.1815	0.1803
D	holdD(R)->CK(R)	-0.0751	-0.0638	-0.0664	-0.0657
D	holdD(F)->CK(R)	-0.1252	-0.0873	-0.0790	-0.0740
E	setupE(R)->CK(R)	0.0964	0.0907	0.0947	0.0962
E	setupE(F)->CK(R)	0.1722	0.1045	0.0944	0.1379
E	holdE(R)->CK(R)	-0.0754	-0.0648	-0.0700	-0.0688
E	holdE(F)->CK(R)	-0.1213	-0.0578	-0.0468	-0.0694

Sequential Cell

DFEQ

Cell Description

The DFEQ cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E). The cell has a single output (Q).

Truth Table

E	D	CK	Q[n+1]
0	X	R	Q[n]
1	0	R	0
1	1	R	1
X	X	F	Q[n]

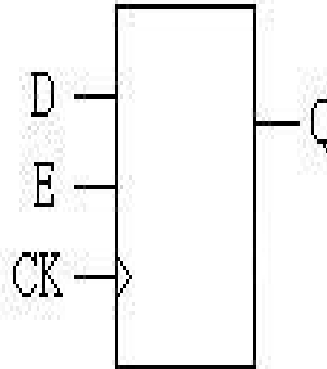
Cell List

DFEQM1HM, DFEQM2HM, DFEQM4HM
, DFEQM8HM

DFEQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00125	0.00125	0.00124
D	input	0.00125	0.00133	0.00133	0.00133
E	input	0.00244	0.00265	0.00253	0.00253
Q	output				

Symbol



Power Dissipation (uW/MHz)

DFEQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0184	0.0131	0.0185	0.0131	0.0185	0.0132	0.0186	0.0132	0.0186	0.0132	0.0186	0.0132

DFEQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0205	0.0154	0.0205	0.0155	0.0206	0.0156	0.0207	0.0156	0.0207	0.0157	0.0208	0.0157

DFEQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0876 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0270	0.0210	0.0271	0.0212	0.0274	0.0214	0.0275	0.0215	0.0276	0.0215	0.0277	0.0215

DFEQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2644 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0334	0.0277	0.0336	0.0281	0.0339	0.0284	0.0342	0.0286	0.0344	0.0287	0.0345	0.0287

Hidden Power (uW/MHz)

DFEQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0086	0.0087	0.0087	0.0086
CK	F	0.0113	0.0113	0.0113	0.0112
D	R	0.0028	0.0029	0.0029	0.0029
D	F	0.0086	0.0088	0.0088	0.0087
E	R	-0.0001	-0.0003	-0.0001	-0.0001
E	F	0.0066	0.0070	0.0067	0.0067

Propagation Delays (ns)

DFEQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2580	0.2702	0.2892	0.2883	0.3479	0.3177	0.4379	0.3599	0.5633	0.4176	0.7293	0.4934

DFEQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2536	0.2593	0.2845	0.2761	0.3429	0.3030	0.4334	0.3420	0.5598	0.3952	0.7264	0.4651

DFEQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0876 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2823	0.2596	0.3140	0.2762	0.3728	0.3022	0.4641	0.3399	0.5916	0.3920	0.7597	0.4606

DFEQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2644 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2942	0.2764	0.3266	0.2964	0.3852	0.3261	0.4766	0.3679	0.6042	0.4250	0.7721	0.4999

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1812	0.1743	0.1750	0.1812
CK	minpwh	0.1278	0.1344	0.1739	0.1800
D	setupD(R)->CK(R)	0.1099	0.1072	0.1109	0.1167
D	setupD(F)->CK(R)	0.1873	0.1792	0.1808	0.1802
D	holdD(R)->CK(R)	-0.0758	-0.0681	-0.0659	-0.0658
D	holdD(F)->CK(R)	-0.1072	-0.0919	-0.0796	-0.0705
E	setupE(R)->CK(R)	0.0910	0.0910	0.0940	0.0999
E	setupE(F)->CK(R)	0.1674	0.1034	0.1442	0.1391
E	holdE(R)->CK(R)	-0.0738	-0.0689	-0.0685	-0.0688
E	holdE(F)->CK(R)	-0.1205	-0.0612	-0.0772	-0.0656

Sequential Cell

DFEQR

Cell Description

The DFEQR cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E) and asynchronous active-low reset (RB). The cell has a single output (Q).

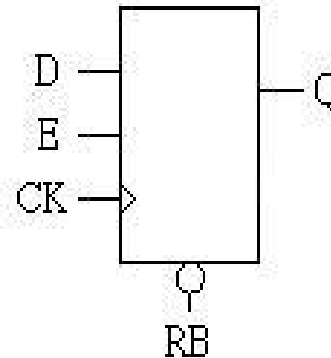
Truth Table

RB	E	D	CK	Q[n+1]
0	X	X	X	0
1	0	X	R	Q[n]
1	1	0	R	0
1	1	1	R	1
1	X	X	F	Q[n]

Cell List

DFEQRM1HM, DFEQRM2HM, DFEQRM4HM
, DFEQRM8HM

Symbol



DFEQR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00117	0.00125	0.00125	0.00129
D	input	0.00136	0.00153	0.00153	0.00133
E	input	0.00252	0.00280	0.00280	0.00258
Q	output				
RB	input	0.00201	0.00236	0.00408	0.00514

Power Dissipation (uW/MHz)

DFEQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0313 pF		0.0474 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0188	0.0122	0.0188	0.0122	0.0189	0.0123	0.0190	0.0123	0.0190	0.0123	0.0190	0.0123
RB->Q	0.0212	0.0212	0.0212	0.0212	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213	0.0213

DFEQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0267 pF		0.0440 pF		0.0669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0210	0.0145	0.0210	0.0146	0.0212	0.0147	0.0212	0.0147	0.0213	0.0147	0.0213	0.0147
RB->Q	0.0247	0.0247	0.0248	0.0248	0.0248	0.0248	0.0249	0.0249	0.0249	0.0249	0.0249	0.0249

DFEQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0271	0.0208	0.0272	0.0210	0.0274	0.0212	0.0276	0.0213	0.0277	0.0213	0.0277	0.0213
RB->Q	0.0326	0.0326	0.0328	0.0328	0.0329	0.0329	0.0330	0.0330	0.0331	0.0331	0.0331	0.0331

DFEQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0536 pF		0.1025 pF		0.1712 pF		0.2616 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0341	0.0280	0.0340	0.0282	0.0342	0.0284	0.0344	0.0286	0.0346	0.0287	0.0347	0.0288
RB->Q	0.0389	0.0389	0.0392	0.0392	0.0395	0.0395	0.0396	0.0396	0.0397	0.0397	0.0398	0.0398

Hidden Power (uW/MHz)

DFEQR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0102	0.0110	0.0113	0.0091
CK	F	0.0141	0.0149	0.0149	0.0133
D	R	0.0032	0.0037	0.0037	0.0031
D	F	0.0090	0.0102	0.0103	0.0087
E	R	0.0035	0.0038	0.0038	0.0033
E	F	0.0088	0.0098	0.0098	0.0103
RB	R	-0.0014	-0.0018	-0.0030	-0.0031
RB	F	0.0014	0.0018	0.0030	0.0032

Propagation Delays (ns)

DFEQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0313 pF		0.0474 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2757	0.2983	0.3081	0.3178	0.3662	0.3473	0.4559	0.3878	0.5809	0.4415	0.7455	0.5108
RB->Q	--n/a--	0.1211	--n/a--	0.1407	--n/a--	0.1703	--n/a--	0.2111	--n/a--	0.2657	--n/a--	0.3357

DFEQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0267 pF		0.0440 pF		0.0669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2349	0.2633	0.2661	0.2816	0.3251	0.3105	0.4157	0.3508	0.5416	0.4047	0.7078	0.4752
RB->Q	--n/a--	0.1020	--n/a--	0.1204	--n/a--	0.1494	--n/a--	0.1900	--n/a--	0.2450	--n/a--	0.3161

DFEQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2465	0.2660	0.2788	0.2846	0.3381	0.3122	0.4295	0.3505	0.5573	0.4023	0.7252	0.4701
RB->Q	--n/a--	0.0864	--n/a--	0.1049	--n/a--	0.1324	--n/a--	0.1708	--n/a--	0.2238	--n/a--	0.2924

DFEQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0536 pF		0.1025 pF		0.1712 pF		0.2616 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3977	0.3263	0.4346	0.3490	0.4940	0.3812	0.5842	0.4245	0.7106	0.4821	0.8767	0.5569
RB->Q	--n/a--	0.1027	--n/a--	0.1249	--n/a--	0.1569	--n/a--	0.2001	--n/a--	0.2585	--n/a--	0.3340

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2176	0.1778	0.1750	0.2519
CK	minpwh	0.1355	0.1146	0.1382	0.2689
D	setupD(R)->CK(R)	0.1509	0.1252	0.1231	0.1808
D	setupD(F)->CK(R)	0.2498	0.2312	0.2444	0.2369
D	holdD(R)->CK(R)	-0.0890	-0.0695	-0.0647	-0.0782
D	holdD(F)->CK(R)	-0.1072	-0.0886	-0.0743	-0.0695
E	setupE(R)->CK(R)	0.1312	0.1067	0.1046	0.1676
E	setupE(F)->CK(R)	0.1481	0.0987	0.1000	0.1394
E	holdE(R)->CK(R)	-0.1005	-0.0793	-0.0772	-0.1157
E	holdE(F)->CK(R)	-0.0955	-0.0538	-0.0416	-0.0792
RB	removalRB(R)->CK(R)	0.2926	0.3275	0.3329	0.1880
RB	recoveryRB(R)->CK(R)	-0.2228	-0.1915	-0.1946	-0.1510
RB	minpwl	0.3475	0.3694	0.3766	0.2431

Sequential Cell

DFEQZR

Cell Description

The DFEQZR cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E) and synchronous active-low reset (RB). The cell has a single output (Q).

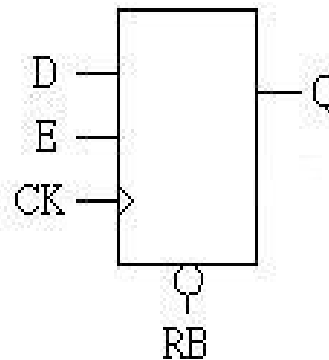
Truth Table

RB	E	D	CK	Q[n+1]
0	X	X	R	0
1	0	X	R	Q[n]
1	1	0	R	0
1	1	1	R	1
X	X	X	F	Q[n]

Cell List

DFEQZRM1HM, DFEQZRM2HM, DFEQZRM4HM
, DFEQZRM8HM

Symbol



DFEQZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00123	0.00125	0.00125	0.00125
D	input	0.00107	0.00107	0.00107	0.00107
E	input	0.00247	0.00280	0.00280	0.00257
Q	output				
RB	input	0.00123	0.00133	0.00125	0.00106

Power Dissipation (uW/MHz)

DFEQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0105 pF	0.0193 pF	0.0316 pF	0.0479 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0141	0.0131	0.0141	0.0131	0.0142	0.0132

DFEQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0144 pF	0.0269 pF	0.0444 pF	0.0675 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0165	0.0155	0.0166	0.0156	0.0167	0.0157

DFEQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0278 pF	0.0527 pF	0.0876 pF	0.1337 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0224	0.0213	0.0227	0.0216	0.0228	0.0217

DFEQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF	0.0224 pF	0.0541 pF	0.1036 pF	0.1730 pF	0.2644 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0285	0.0274	0.0288	0.0278	0.0292	0.0281

Hidden Power (uW/MHz)

DFEQZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0084	0.0087	0.0087	0.0086
CK	F	0.0111	0.0112	0.0112	0.0113
D	R	0.0005	0.0006	0.0006	0.0006
D	F	0.0028	0.0029	0.0029	0.0029
E	R	0.0001	-0.0002	-0.0002	-0.0002
E	F	0.0061	0.0070	0.0070	0.0064
RB	R	0.0003	0.0004	0.0004	0.0004
RB	F	0.0057	0.0059	0.0059	0.0057

Propagation Delays (ns)

DFEQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2563	0.2682	0.2875	0.2854	0.3461	0.3127	0.4362	0.3515	0.5617	0.4041	0.7276	0.4731

DFEQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2534	0.2595	0.2843	0.2763	0.3426	0.3032	0.4332	0.3422	0.5595	0.3955	0.7261	0.4654

DFEQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0876 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2820	0.2596	0.3137	0.2762	0.3725	0.3021	0.4638	0.3399	0.5913	0.3920	0.7594	0.4606

DFEQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2644 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2940	0.2757	0.3264	0.2953	0.3851	0.3247	0.4763	0.3666	0.6039	0.4239	0.7718	0.4989

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2382	0.2306	0.2361	0.2581
CK	minpwh	0.1261	0.1327	0.1734	0.1789
D	setupD(R)->CK(R)	0.1552	0.1538	0.1592	0.1928
D	setupD(F)->CK(R)	0.3246	0.3525	0.3592	0.3519
D	holdD(R)->CK(R)	-0.1101	-0.1008	-0.0986	-0.1168
D	holdD(F)->CK(R)	-0.1764	-0.1835	-0.1619	-0.1424
E	setupE(R)->CK(R)	0.1589	0.1573	0.1632	0.1987
E	setupE(F)->CK(R)	0.1933	0.1261	0.1200	0.1219
E	holdE(R)->CK(R)	-0.1379	-0.1288	-0.1299	-0.1559
E	holdE(F)->CK(R)	-0.1450	-0.0776	-0.0606	-0.0560
RB	setupRB(R)->CK(R)	0.1704	0.1640	0.1698	0.2121
RB	setupRB(F)->CK(R)	0.2183	0.2800	0.2894	0.2952
RB	holdRB(R)->CK(R)	-0.1274	-0.1136	-0.1115	-0.1408
RB	holdRB(F)->CK(R)	-0.0758	-0.1003	-0.0804	-0.0701

Sequential Cell

DFER

Cell Description

The DFER cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E) and asynchronous active-low reset (RB).

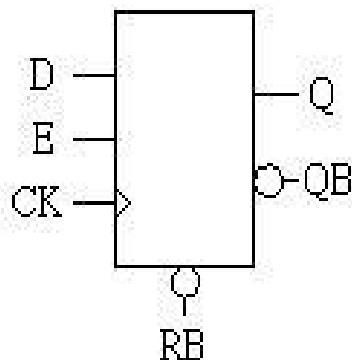
Truth Table

RB	E	D	CK	Q[n+1]	QB[n+1]
0	X	X	X	0	1
1	0	X	R	Q[n]	QB[n]
1	1	0	R	0	1
1	1	1	R	1	0
1	X	X	F	Q[n]	QB[n]

Cell List

DFERM1HM, DFERM2HM, DFERM4HM
, DFERM8HM

Symbol



DFER Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00118	0.00120	0.00120	0.00213
D	input	0.00124	0.00142	0.00142	0.00141
E	input	0.00234	0.00256	0.00256	0.00253
Q	output				
QB	output				
RB	input	0.00329	0.00354	0.00536	0.00533

Power Dissipation (uW/MHz)

DFERM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0248	0.0174	0.0248	0.0175	0.0249	0.0175	0.0249	0.0175	0.0250	0.0175	0.0250	0.0175
RB->Q	0.0262	0.0262	0.0262	0.0262	0.0262	0.0262	0.0263	0.0263	0.0263	0.0263	0.0263	0.0263

DFERM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0274	0.0202	0.0275	0.0203	0.0276	0.0203	0.0276	0.0204	0.0277	0.0204	0.0277	0.0204
RB->Q	0.0300	0.0300	0.0300	0.0300	0.0301	0.0301	0.0301	0.0301	0.0302	0.0302	0.0302	0.0302

DFERM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0868 pF		0.1324 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0374	0.0298	0.0374	0.0300	0.0376	0.0301	0.0377	0.0302	0.0378	0.0302	0.0379	0.0302
RB->Q	0.0410	0.0410	0.0412	0.0412	0.0413	0.0413	0.0414	0.0414	0.0414	0.0414	0.0414	0.0414

DFERM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0537 pF		0.1027 pF		0.1716 pF		0.2622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0522	0.0439	0.0524	0.0440	0.0527	0.0442	0.0529	0.0444	0.0531	0.0445	0.0533	0.0445
RB->Q	0.0553	0.0553	0.0556	0.0556	0.0557	0.0557	0.0559	0.0559	0.0560	0.0560	0.0560	0.0560

Hidden Power (uW/MHz)

DFER at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0113	0.0119	0.0122	0.0124
CK	F	0.0125	0.0131	0.0132	0.0155
D	R	0.0029	0.0032	0.0032	0.0032
D	F	0.0081	0.0092	0.0092	0.0092
E	R	0.0029	0.0030	0.0030	0.0032
E	F	0.0094	0.0104	0.0104	0.0104
RB	R	-0.0014	-0.0017	-0.0028	-0.0028
RB	F	0.0014	0.0017	0.0028	0.0028

Propagation Delays (ns)

DFERM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3185	0.3249	0.3512	0.3449	0.4093	0.3749	0.4988	0.4154	0.6246	0.4689	0.7887	0.5370
CK(R)->QB	0.4194	0.4320	0.4518	0.4560	0.5093	0.4903	0.5981	0.5341	0.7235	0.5897	0.8874	0.6591
RB->Q	--n/a--	0.1299	--n/a--	0.1503	--n/a--	0.1807	--n/a--	0.2217	--n/a--	0.2762	--n/a--	0.3446
RB->QB	0.2472	--n/a--	0.2858	--n/a--	0.3469	--n/a--	0.4363	--n/a--	0.5617	--n/a--	0.7257	--n/a--

DFERM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2705	0.2942	0.3027	0.3145	0.3607	0.3454	0.4510	0.3893	0.5778	0.4486	0.7432	0.5254
CK(R)->QB	0.3817	0.3925	0.4143	0.4194	0.4718	0.4573	0.5614	0.5063	0.6878	0.5686	0.8530	0.6467
RB->Q	--n/a--	0.1164	--n/a--	0.1377	--n/a--	0.1698	--n/a--	0.2147	--n/a--	0.2754	--n/a--	0.3525
RB->QB	0.2264	--n/a--	0.2658	--n/a--	0.3282	--n/a--	0.4187	--n/a--	0.5451	--n/a--	0.7104	--n/a--

DFERM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0868 pF		0.1324 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2894	0.3017	0.3224	0.3224	0.3813	0.3527	0.4728	0.3948	0.6006	0.4518	0.7685	0.5260
CK(R)->QB	0.4015	0.4384	0.4366	0.4687	0.4954	0.5093	0.5859	0.5590	0.7124	0.6196	0.8789	0.6939
RB->Q	--n/a--	0.0938	--n/a--	0.1142	--n/a--	0.1444	--n/a--	0.1867	--n/a--	0.2446	--n/a--	0.3198
RB->QB	0.2174	--n/a--	0.2605	--n/a--	0.3279	--n/a--	0.4207	--n/a--	0.5474	--n/a--	0.7140	--n/a--

DFERM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0537 pF		0.1027 pF		0.1716 pF		0.2622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2729	0.2773	0.3075	0.3009	0.3670	0.3337	0.4584	0.3773	0.5865	0.4347	0.7546	0.5087
CK(R)->QB	0.3733	0.4266	0.4082	0.4575	0.4670	0.4979	0.5574	0.5467	0.6843	0.6059	0.8510	0.6779
RB->Q	--n/a--	0.1128	--n/a--	0.1364	--n/a--	0.1692	--n/a--	0.2130	--n/a--	0.2714	--n/a--	0.3457
RB->QB	0.2243	--n/a--	0.2643	--n/a--	0.3285	--n/a--	0.4200	--n/a--	0.5470	--n/a--	0.7138	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1936	0.1750	0.1833	0.1585
CK	minpwh	0.1794	0.1426	0.1767	0.1794
D	setupD(R)->CK(R)	0.1259	0.1015	0.1107	0.1324
D	setupD(F)->CK(R)	0.2052	0.1932	0.2016	0.2460
D	holdD(R)->CK(R)	-0.0750	-0.0605	-0.0588	-0.0616
D	holdD(F)->CK(R)	-0.0772	-0.0658	-0.0503	-0.0597
E	setupE(R)->CK(R)	0.1102	0.0866	0.0957	0.1174
E	setupE(F)->CK(R)	0.1363	0.1091	0.0991	0.1606
E	holdE(R)->CK(R)	-0.0828	-0.0649	-0.0671	-0.0793
E	holdE(F)->CK(R)	-0.0864	-0.0611	-0.0422	-0.0813
RB	removalRB(R)->CK(R)	0.2656	0.2967	0.2861	0.2615
RB	recoveryRB(R)->CK(R)	-0.2263	-0.2152	-0.2141	-0.1689
RB	minpwl	0.3140	0.3255	0.3343	0.3354

Sequential Cell

DFEZR

Cell Description

The DFEZR cell is a positive-edge triggered, static D-type flip-flop with synchronous active-high enable (E) and synchronous active-low reset (RB).

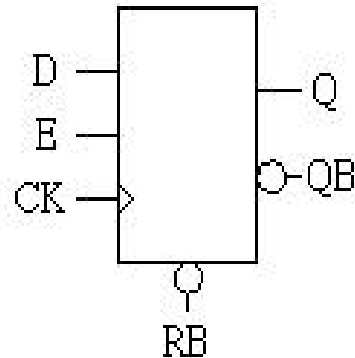
Truth Table

RB	E	D	CK	Q[n+1]	QB[n+1]
0	X	X	R	0	1
1	0	X	R	Q[n]	QB[n]
1	1	0	R	0	1
1	1	1	R	1	0
X	X	X	F	Q[n]	QB[n]

Cell List

DFEZRM1HM, DFEZRM2HM, DFEZRM4HM
, DFEZRM8HM

Symbol



DFEZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00113	0.00118	0.00118	0.00205
D	input	0.00117	0.00122	0.00122	0.00122
E	input	0.00260	0.00299	0.00299	0.00300
Q	output				
QB	output				
RB	input	0.00133	0.00155	0.00155	0.00151

Power Dissipation (uW/MHz)

DFEZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0185	0.0171	0.0185	0.0171	0.0185	0.0171	0.0186	0.0172	0.0186	0.0172	0.0186	0.0172

DFEZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0268 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0214	0.0199	0.0215	0.0200	0.0215	0.0201	0.0216	0.0201	0.0216	0.0201	0.0216	0.0201

DFEZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0316	0.0298	0.0317	0.0300	0.0319	0.0301	0.0320	0.0302	0.0320	0.0302	0.0321	0.0303

DFEZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0219 pF		0.0529 pF		0.1013 pF		0.1691 pF		0.2584 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0479	0.0459	0.0482	0.0462	0.0484	0.0465	0.0486	0.0466	0.0487	0.0467	0.0487	0.0467

Hidden Power (uW/MHz)

DFEZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0075	0.0077	0.0078	0.0080
CK	F	0.0106	0.0108	0.0108	0.0128
D	R	0.0004	0.0005	0.0005	0.0005
D	F	0.0027	0.0027	0.0028	0.0028
E	R	0.0002	0.0000	0.0000	0.0000
E	F	0.0060	0.0069	0.0069	0.0069
RB	R	0.0002	-0.0000	-0.0000	-0.0000
RB	F	0.0054	0.0059	0.0059	0.0060

Propagation Delays (ns)

DFEZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2898	0.2854	0.3212	0.3028	0.3792	0.3299	0.4687	0.3685	0.5948	0.4210	0.7605	0.4894
CK(R)->QB	0.3673	0.3952	0.3994	0.4190	0.4570	0.4527	0.5461	0.4961	0.6718	0.5515	0.8371	0.6211

DFEZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0268 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2812	0.2583	0.3125	0.2769	0.3704	0.3064	0.4614	0.3498	0.5876	0.4086	0.7535	0.4856
CK(R)->QB	0.3301	0.3729	0.3620	0.3959	0.4195	0.4287	0.5101	0.4721	0.6359	0.5272	0.8014	0.5974

DFEZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3136	0.2645	0.3454	0.2829	0.4029	0.3116	0.4926	0.3536	0.6177	0.4112	0.7823	0.4868
CK(R)->QB	0.3441	0.3933	0.3782	0.4163	0.4377	0.4483	0.5303	0.4903	0.6596	0.5445	0.8297	0.6141

DFEZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0219 pF		0.0529 pF		0.1013 pF		0.1691 pF		0.2584 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3317	0.2735	0.3685	0.2941	0.4332	0.3241	0.5337	0.3657	0.6740	0.4215	0.8586	0.4942
CK(R)->QB	0.3420	0.3963	0.3726	0.4181	0.4268	0.4496	0.5106	0.4921	0.6276	0.5485	0.7815	0.6219

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2540	0.2375	0.2395	0.1894
CK	minpwh	0.1476	0.1432	0.1860	0.2228
D	setupD(R)->CK(R)	0.1401	0.1139	0.1151	0.1309
D	setupD(F)->CK(R)	0.3038	0.3519	0.3600	0.3843
D	holdD(R)->CK(R)	-0.1033	-0.0810	-0.0799	-0.0861
D	holdD(F)->CK(R)	-0.1728	-0.2150	-0.2117	-0.2273
E	setupE(R)->CK(R)	0.1433	0.1172	0.1189	0.1348
E	setupE(F)->CK(R)	0.2149	0.2138	0.2077	0.2355
E	holdE(R)->CK(R)	-0.1278	-0.1060	-0.1082	-0.1197
E	holdE(F)->CK(R)	-0.1678	-0.1724	-0.1685	-0.1895
RB	setupRB(R)->CK(R)	0.1553	0.1275	0.1287	0.1453
RB	setupRB(F)->CK(R)	0.2340	0.2539	0.2642	0.2886
RB	holdRB(R)->CK(R)	-0.1210	-0.0968	-0.0958	-0.1031
RB	holdRB(F)->CK(R)	-0.0933	-0.1060	-0.1005	-0.1174

Sequential Cell

DF

Cell Description

The DF cell is a positive-edge triggered, static D-type flip-flop.

Truth Table

D	CK	Q[n+1]	QB[n+1]
0	R	0	1
1	R	1	0
X	F	Q[n]	QB[n]

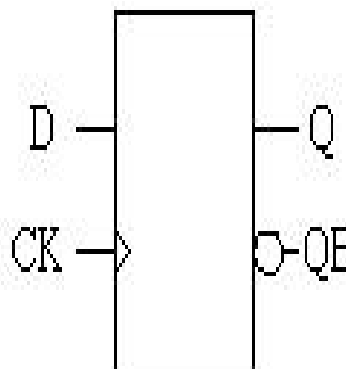
Cell List

DFM1HM, DFM2HM, DFM4HM
, DFM8HM

DF Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00123	0.00130	0.00130	0.00187
D	input	0.00118	0.00118	0.00141	0.00170
Q	output				
QB	output				

Symbol



Power Dissipation (uW/MHz)

DFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0183	0.0152	0.0183	0.0153	0.0184	0.0153	0.0185	0.0153	0.0185	0.0153	0.0185	0.0154

DFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0207	0.0175	0.0208	0.0176	0.0209	0.0177	0.0210	0.0177	0.0210	0.0177	0.0210	0.0177

DFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0292	0.0265	0.0293	0.0267	0.0295	0.0268	0.0297	0.0269	0.0298	0.0269	0.0298	0.0270

DFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1723 pF		0.2632 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0520	0.0464	0.0523	0.0467	0.0525	0.0470	0.0529	0.0472	0.0531	0.0473	0.0532	0.0473

Hidden Power (uW/MHz)

DF at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0086	0.0088	0.0089	0.0099
CK	F	0.0119	0.0122	0.0127	0.0152
D	R	0.0023	0.0023	0.0026	0.0029
D	F	0.0040	0.0040	0.0046	0.0054

Propagation Delays (ns)

DFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2545	0.2845	0.2857	0.3033	0.3440	0.3324	0.4343	0.3730	0.5596	0.4268	0.7250	0.4967
CK(R)->QB	0.3737	0.3334	0.4057	0.3543	0.4637	0.3857	0.5538	0.4278	0.6788	0.4827	0.8438	0.5538

DFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2526	0.2587	0.2837	0.2771	0.3425	0.3058	0.4335	0.3460	0.5607	0.3999	0.7272	0.4700
CK(R)->QB	0.3238	0.3432	0.3549	0.3657	0.4133	0.3988	0.5037	0.4423	0.6300	0.4989	0.7952	0.5711

DFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2498	0.2684	0.2820	0.2890	0.3414	0.3190	0.4333	0.3590	0.5613	0.4111	0.7296	0.4784
CK(R)->QB	0.3264	0.3053	0.3579	0.3250	0.4168	0.3538	0.5078	0.3931	0.6347	0.4453	0.8016	0.5134

DFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1723 pF		0.2632 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2650	0.2257	0.2980	0.2458	0.3575	0.2747	0.4494	0.3132	0.5782	0.3644	0.7471	0.4308
CK(R)->QB	0.2740	0.3120	0.3057	0.3310	0.3646	0.3586	0.4557	0.3965	0.5833	0.4479	0.7509	0.5150

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1654	0.1462	0.1400	0.0988
CK	minpwh	0.1206	0.1355	0.1349	0.1717
D	setupD(R)->CK(R)	0.0399	0.0393	0.0323	0.0212
D	setupD(F)->CK(R)	0.0334	0.0454	0.0167	0.0403
D	holdD(R)->CK(R)	-0.0081	-0.0063	-0.0031	-0.0021
D	holdD(F)->CK(R)	0.0259	0.0191	0.0350	0.0060

Sequential Cell

DFM

Cell Description

The DFM cell is a positive-edge triggered, static D-type flip-flop with a two-to-one data select control (S) for the data inputs (D1, D2).

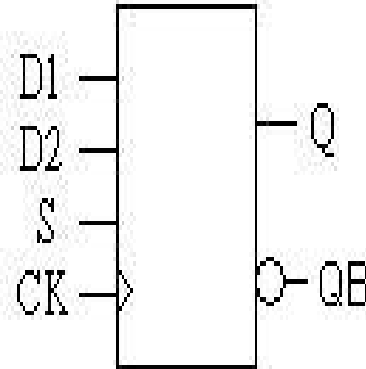
Truth Table

S	D1	D2	CK	Q[n+1]	QB[n+1]
0	X	0	R	0	1
0	X	1	R	1	0
1	0	X	R	0	1
1	1	X	R	1	0
X	X	X	F	Q[n]	QB[n]

Cell List

DFMM1HM, DFMM2HM, DFMM4HM
, DFMM8HM

Symbol



DFM Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00111	0.00114	0.00114	0.00218
D1	input	0.00128	0.00147	0.00147	0.00147
D2	input	0.00148	0.00182	0.00182	0.00181
Q	output				
QB	output				
S	input	0.00257	0.00279	0.00279	0.00279

Power Dissipation (uW/MHz)

DFMM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0179	0.0157	0.0180	0.0157	0.0181	0.0158	0.0181	0.0158	0.0182	0.0158	0.0182	0.0158

DFMM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0204	0.0182	0.0205	0.0183	0.0206	0.0183	0.0206	0.0184	0.0207	0.0184	0.0207	0.0184

DFMM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0267 pF		0.0506 pF		0.0842 pF		0.1283 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0306	0.0278	0.0307	0.0280	0.0309	0.0282	0.0311	0.0282	0.0311	0.0282	0.0312	0.0283

DFMM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0233 pF		0.0563 pF		0.1079 pF		0.1802 pF		0.2753 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0507	0.0464	0.0509	0.0468	0.0512	0.0471	0.0515	0.0473	0.0517	0.0474	0.0518	0.0474

Hidden Power (uW/MHz)

DFM at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0081	0.0085	0.0085	0.0094
CK	F	0.0114	0.0119	0.0120	0.0149
D1	R	0.0014	0.0015	0.0015	0.0015
D1	F	0.0048	0.0056	0.0056	0.0057
D2	R	0.0033	0.0038	0.0038	0.0039
D2	F	0.0080	0.0093	0.0093	0.0094
S	R	0.0031	0.0036	0.0036	0.0036
S	F	0.0087	0.0097	0.0097	0.0097

Propagation Delays (ns)

DFMM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2459	0.2535	0.2772	0.2705	0.3349	0.2971	0.4250	0.3358	0.5503	0.3881	0.7152	0.4564
CK(R)->QB	0.3285	0.3125	0.3603	0.3320	0.4180	0.3611	0.5082	0.4010	0.6340	0.4535	0.7996	0.5217

DFMM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2191	0.2285	0.2502	0.2465	0.3086	0.2758	0.3984	0.3183	0.5248	0.3772	0.6907	0.4545
CK(R)->QB	0.2906	0.2983	0.3220	0.3205	0.3803	0.3536	0.4703	0.3981	0.5971	0.4575	0.7636	0.5346

DFMM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0113 pF		0.0267 pF		0.0506 pF		0.0842 pF		0.1283 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2378	0.2304	0.2706	0.2480	0.3328	0.2757	0.4285	0.3155	0.5626	0.3701	0.7384	0.4417
CK(R)->QB	0.2812	0.2930	0.3114	0.3126	0.3682	0.3418	0.4558	0.3814	0.5786	0.4346	0.7396	0.5037

DFMM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0233 pF		0.0563 pF		0.1079 pF		0.1802 pF		0.2753 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2437	0.2123	0.2757	0.2339	0.3328	0.2656	0.4212	0.3094	0.5445	0.3686	0.7066	0.4460
CK(R)->QB	0.2591	0.2967	0.2922	0.3170	0.3537	0.3464	0.4491	0.3872	0.5824	0.4424	0.7577	0.5145

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2244	0.2045	0.2073	0.1592
CK	minpwh	0.1130	0.0992	0.1245	0.1443
D1	setupD1(R)->CK(R)	0.1267	0.1052	0.1084	0.1092
D1	setupD1(F)->CK(R)	0.2778	0.2366	0.2451	0.2905
D1	holdD1(R)->CK(R)	-0.0829	-0.0712	-0.0695	-0.0679
D1	holdD1(F)->CK(R)	-0.1339	-0.1154	-0.1034	-0.1531
D2	setupD2(R)->CK(R)	0.1087	0.0795	0.0815	0.0845
D2	setupD2(F)->CK(R)	0.1525	0.1302	0.1352	0.1682
D2	holdD2(R)->CK(R)	-0.0696	-0.0521	-0.0504	-0.0512
D2	holdD2(F)->CK(R)	-0.0787	-0.0682	-0.0626	-0.0840
S	setupS(R)->CK(R)	0.1155	0.0935	0.0962	0.0971
S	setupS(F)->CK(R)	0.1399	0.1191	0.1242	0.1585
S	holdS(R)->CK(R)	-0.0653	-0.0530	-0.0512	-0.0503
S	holdS(F)->CK(R)	-0.0684	-0.0578	-0.0521	-0.0776

Sequential Cell

DFMQ

Cell Description

The DFMQ cell is a positive-edge triggered, static D-type flip-flop with a two-to-one data select control (S) for the data inputs (D1, D2). The cell has a single output (Q).

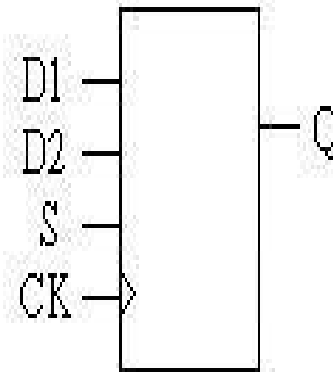
Truth Table

S	D1	D2	CK	Q[n+1]
0	X	0	R	0
0	X	1	R	1
1	0	X	R	0
1	1	X	R	1
X	X	X	F	Q[n]

Cell List

DFMQM1HM, DFMQM2HM, DFMQM4HM
, DFMQM8HM

Symbol



DFMQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00111	0.00114	0.00114	0.00217
D1	input	0.00128	0.00147	0.00147	0.00147
D2	input	0.00148	0.00182	0.00182	0.00181
Q	output				
S	input	0.00257	0.00279	0.00279	0.00279

Power Dissipation (uW/MHz)

DFMQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0131	0.0123	0.0132	0.0123	0.0132	0.0124	0.0133	0.0124	0.0133	0.0124	0.0133	0.0125

DFMQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0150	0.0141	0.0151	0.0143	0.0152	0.0143	0.0152	0.0143	0.0153	0.0143	0.0153	0.0143

DFMQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0110 pF		0.0258 pF		0.0489 pF		0.0812 pF		0.1239 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0215	0.0203	0.0216	0.0205	0.0219	0.0207	0.0220	0.0207	0.0221	0.0207	0.0221	0.0207

DFMQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0061 pF		0.0242 pF		0.0587 pF		0.1125 pF		0.1879 pF		0.2872 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0344	0.0323	0.0345	0.0326	0.0349	0.0330	0.0352	0.0331	0.0354	0.0332	0.0355	0.0332

Hidden Power (uW/MHz)

DFMQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0081	0.0085	0.0085	0.0094
CK	F	0.0114	0.0120	0.0120	0.0149
D1	R	0.0014	0.0015	0.0015	0.0015
D1	F	0.0048	0.0056	0.0056	0.0057
D2	R	0.0033	0.0038	0.0038	0.0039
D2	F	0.0080	0.0093	0.0093	0.0094
S	R	0.0031	0.0036	0.0036	0.0036
S	F	0.0087	0.0097	0.0097	0.0097

Propagation Delays (ns)

DFMQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2468	0.2545	0.2768	0.2713	0.3359	0.2996	0.4259	0.3391	0.5510	0.3927	0.7172	0.4639

DFMQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2196	0.2302	0.2511	0.2491	0.3094	0.2792	0.3994	0.3231	0.5262	0.3842	0.6928	0.4645

DFMQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0032 pF		0.0110 pF		0.0258 pF		0.0489 pF		0.0812 pF		0.1239 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2359	0.2298	0.2677	0.2475	0.3267	0.2743	0.4182	0.3130	0.5457	0.3663	0.7141	0.4367

DFMQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0061 pF		0.0242 pF		0.0587 pF		0.1125 pF		0.1879 pF		0.2872 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2444	0.2136	0.2777	0.2365	0.3365	0.2689	0.4277	0.3143	0.5553	0.3763	0.7232	0.4577

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2169	0.2025	0.2059	0.1592
CK	minpwh	0.1086	0.0959	0.1206	0.1393
D1	setupD1(R)->CK(R)	0.1180	0.1026	0.1073	0.1092
D1	setupD1(F)->CK(R)	0.2778	0.2360	0.2445	0.2905
D1	holdD1(R)->CK(R)	-0.0829	-0.0712	-0.0695	-0.0679
D1	holdD1(F)->CK(R)	-0.1461	-0.1194	-0.1061	-0.1526
D2	setupD2(R)->CK(R)	0.1000	0.0773	0.0805	0.0846
D2	setupD2(F)->CK(R)	0.1520	0.1302	0.1352	0.1682
D2	holdD2(R)->CK(R)	-0.0696	-0.0521	-0.0504	-0.0512
D2	holdD2(F)->CK(R)	-0.0850	-0.0700	-0.0638	-0.0840
S	setupS(R)->CK(R)	0.1065	0.0909	0.0950	0.0971
S	setupS(F)->CK(R)	0.1399	0.1187	0.1242	0.1585
S	holdS(R)->CK(R)	-0.0653	-0.0534	-0.0517	-0.0507
S	holdS(F)->CK(R)	-0.0742	-0.0601	-0.0532	-0.0776

Sequential Cell

DFQ

Cell Description

The DFQ cell is a positive-edge triggered, static D-type flip-flop. The cell has a single output (Q) .

Truth Table

D	CK	Q[n+1]
0	R	0
1	R	1
X	F	Q[n]

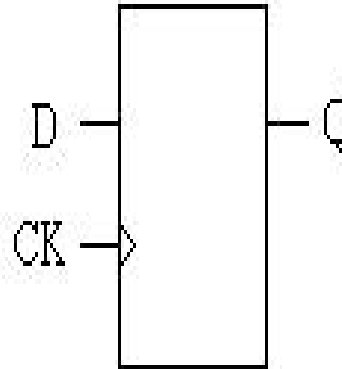
Cell List

DFQM1HM, DFQM2HM, DFQM4HM
, DFQM8HM

DFQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00115	0.00124	0.00124	0.00181
D	input	0.00121	0.00121	0.00149	0.00177
Q	output				

Symbol



Power Dissipation (uW/MHz)

DFQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF	0.0048 pF	0.0105 pF	0.0194 pF	0.0319 pF	0.0483 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0101	0.0103	0.0101	0.0104	0.0102	0.0104

DFQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0271 pF	0.0448 pF	0.0680 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0113	0.0115	0.0114	0.0116	0.0115	0.0116

DFQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0278 pF	0.0528 pF	0.0879 pF	0.1340 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0162	0.0162	0.0164	0.0164	0.0166	0.0165

DFQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF	0.0224 pF	0.0541 pF	0.1036 pF	0.1730 pF	0.2644 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0229	0.0234	0.0231	0.0235	0.0236	0.0238

Hidden Power (uW/MHz)

DFQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0081	0.0083	0.0083	0.0093
CK	F	0.0122	0.0126	0.0127	0.0154
D	R	0.0024	0.0024	0.0024	0.0027
D	F	0.0040	0.0039	0.0046	0.0055

Propagation Delays (ns)

DFQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2564	0.2843	0.2862	0.3022	0.3440	0.3310	0.4338	0.3712	0.5596	0.4256	0.7244	0.4964

DFQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2517	0.2545	0.2824	0.2725	0.3406	0.3009	0.4307	0.3411	0.5571	0.3959	0.7225	0.4675

DFQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0879 pF		0.1340 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2498	0.2521	0.2812	0.2708	0.3396	0.2990	0.4304	0.3385	0.5576	0.3922	0.7245	0.4624

DFQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2644 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2420	0.2319	0.2747	0.2544	0.3332	0.2856	0.4241	0.3266	0.5512	0.3800	0.7185	0.4488

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1606	0.1448	0.1386	0.1016
CK	minpwh	0.1135	0.1250	0.1300	0.1322
D	setupD(R)->CK(R)	0.0328	0.0361	0.0320	0.0271
D	setupD(F)->CK(R)	0.0346	0.0490	0.0243	0.0386
D	holdD(R)->CK(R)	-0.0075	-0.0069	-0.0039	-0.0055
D	holdD(F)->CK(R)	0.0213	0.0143	0.0301	0.0060

Sequential Cell

DFQR

Cell Description

The DFQR cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB). The cell has a single output (Q).

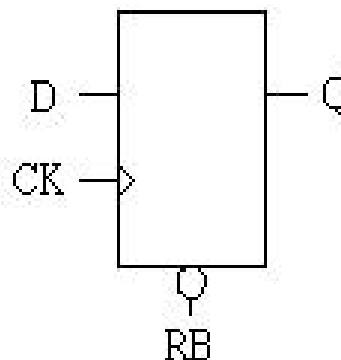
Truth Table

RB	D	CK	Q[n+1]
0	X	X	0
1	0	R	0
1	1	R	1
1	X	F	Q[n]

Cell List

DFQRM1HM, DFQRM2HM, DFQRM4HM
, DFQRM8HM

Symbol



DFQR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00120	0.00126	0.00126	0.00177
D	input	0.00136	0.00156	0.00156	0.00169
Q	output				
RB	input	0.00294	0.00309	0.00438	0.00433

Power Dissipation (uW/MHz)

DFQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0111	0.0103	0.0111	0.0103	0.0112	0.0104	0.0112	0.0104	0.0113	0.0104	0.0113	0.0104
RB->Q	0.0160	0.0160	0.0161	0.0161	0.0161	0.0161	0.0161	0.0161	0.0162	0.0162	0.0162	0.0162

DFQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0131	0.0123	0.0132	0.0124	0.0133	0.0124	0.0133	0.0125	0.0134	0.0125	0.0134	0.0125
RB->Q	0.0188	0.0188	0.0189	0.0189	0.0190	0.0190	0.0190	0.0190	0.0190	0.0190	0.0191	0.0191

DFQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0874 pF		0.1333 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0196	0.0184	0.0197	0.0187	0.0199	0.0188	0.0200	0.0189	0.0201	0.0189	0.0202	0.0190
RB->Q	0.0278	0.0278	0.0280	0.0280	0.0282	0.0282	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283

DFQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1032 pF		0.1723 pF		0.2633 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0265	0.0254	0.0266	0.0257	0.0269	0.0260	0.0272	0.0261	0.0275	0.0262	0.0276	0.0263
RB->Q	0.0353	0.0353	0.0353	0.0353	0.0356	0.0356	0.0358	0.0358	0.0358	0.0358	0.0359	0.0359

Hidden Power (uW/MHz)

DFQR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0122	0.0134	0.0138	0.0149
CK	F	0.0137	0.0149	0.0149	0.0170
D	R	0.0029	0.0028	0.0028	0.0028
D	F	0.0046	0.0053	0.0052	0.0054
RB	R	-0.0014	-0.0016	-0.0025	-0.0025
RB	F	0.0014	0.0016	0.0025	0.0025

Propagation Delays (ns)

DFQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2659	0.2921	0.2982	0.3122	0.3567	0.3423	0.4462	0.3831	0.5710	0.4370	0.7361	0.5074
RB->Q	--n/a--	0.1261	--n/a--	0.1468	--n/a--	0.1779	--n/a--	0.2192	--n/a--	0.2730	--n/a--	0.3432

DFQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0444 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2465	0.2578	0.2785	0.2766	0.3367	0.3054	0.4270	0.3457	0.5530	0.4001	0.7185	0.4711
RB->Q	--n/a--	0.1226	--n/a--	0.1438	--n/a--	0.1752	--n/a--	0.2174	--n/a--	0.2723	--n/a--	0.3432

DFQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0874 pF		0.1333 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2704	0.2556	0.3030	0.2740	0.3621	0.3019	0.4531	0.3408	0.5807	0.3940	0.7482	0.4638
RB->Q	--n/a--	0.1093	--n/a--	0.1302	--n/a--	0.1603	--n/a--	0.2011	--n/a--	0.2557	--n/a--	0.3258

DFQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1032 pF		0.1723 pF		0.2633 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2758	0.2336	0.3102	0.2545	0.3692	0.2838	0.4603	0.3233	0.5875	0.3758	0.7547	0.4441
RB->Q	--n/a--	0.1295	--n/a--	0.1535	--n/a--	0.1860	--n/a--	0.2281	--n/a--	0.2819	--n/a--	0.3503

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1682	0.1551	0.1620	0.1270
CK	minpwh	0.1157	0.1113	0.1514	0.1651
D	setupD(R)->CK(R)	0.0462	0.0476	0.0577	0.0574
D	setupD(F)->CK(R)	0.0359	0.0109	0.0166	0.0508
D	holdD(R)->CK(R)	-0.0141	-0.0053	-0.0040	-0.0042
D	holdD(F)->CK(R)	0.0368	0.0513	0.0594	0.0335
RB	removalRB(R)->CK(R)	0.2972	0.3265	0.3148	0.3112
RB	recoveryRB(R)->CK(R)	-0.2161	-0.1955	-0.2064	-0.1825
RB	minpwl	0.3288	0.3508	0.3519	0.3595

Sequential Cell

DFQRS

Cell Description

The DFQRS cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB) and asynchronous active-low set (SB). Reset (RB) dominates set (SB). The cell has a single output (Q).

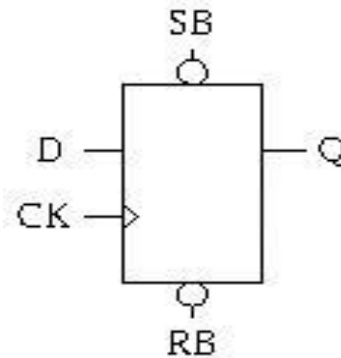
Truth Table

RB	SB	D	CK	Q[n+1]
0	X	X	X	0
1	0	X	X	1
1	1	0	R	0
1	1	1	R	1
1	1	X	F	Q[n]

Cell List

DFQRSM1HM, DFQRSM2HM, DFQRSM4HM
, DFQRSM8HM

Symbol



DFQRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00115	0.00121	0.00117	0.00181
D	input	0.00146	0.00163	0.00176	0.00164
Q	output				
RB	input	0.00359	0.00396	0.00441	0.00437
SB	input	0.00283	0.00294	0.00243	0.00248

Power Dissipation (uW/MHz)

DFQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0145	0.0128	0.0146	0.0128	0.0146	0.0128	0.0147	0.0129	0.0147	0.0129	0.0147	0.0129
RB->Q	0.0127	0.0162	0.0127	0.0162	0.0128	0.0163	0.0128	0.0163	0.0129	0.0163	0.0129	0.0163
SB->Q	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193

DFQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0164	0.0143	0.0164	0.0144	0.0165	0.0145	0.0166	0.0145	0.0166	0.0145	0.0167	0.0146
RB->Q	0.0147	0.0183	0.0148	0.0184	0.0148	0.0185	0.0149	0.0185	0.0149	0.0185	0.0149	0.0185
SB->Q	0.0214	0.0214	0.0214	0.0214	0.0215	0.0215	0.0215	0.0215	0.0216	0.0216	0.0216	0.0216

DFQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0869 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0239	0.0215	0.0240	0.0217	0.0242	0.0219	0.0243	0.0219	0.0244	0.0220	0.0245	0.0220
RB->Q	0.0214	0.0264	0.0217	0.0266	0.0219	0.0267	0.0220	0.0268	0.0220	0.0268	0.0220	0.0268
SB->Q	0.0292	0.0292	0.0292	0.0292	0.0294	0.0294	0.0295	0.0295	0.0296	0.0296	0.0297	0.0297

DFQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0538 pF		0.1030 pF		0.1719 pF		0.2627 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0308	0.0284	0.0308	0.0286	0.0311	0.0289	0.0314	0.0290	0.0316	0.0291	0.0318	0.0292
RB->Q	0.0284	0.0333	0.0288	0.0335	0.0292	0.0338	0.0294	0.0340	0.0295	0.0340	0.0296	0.0341
SB->Q	0.0358	0.0358	0.0358	0.0358	0.0360	0.0360	0.0363	0.0363	0.0365	0.0365	0.0366	0.0366

Hidden Power (uW/MHz)

DFQRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0127	0.0134	0.0140	0.0148
CK	F	0.0154	0.0162	0.0172	0.0182
D	R	0.0022	0.0024	0.0023	0.0022
D	F	0.0045	0.0049	0.0050	0.0049
RB	R	-0.0014	-0.0018	-0.0030	-0.0029
RB	F	0.0014	0.0018	0.0030	0.0030
SB	R	0.0024	0.0026	0.0039	0.0039
SB	F	0.0090	0.0093	0.0101	0.0098

Propagation Delays (ns)

DFQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2746	0.3103	0.3072	0.3305	0.3651	0.3603	0.4552	0.4010	0.5804	0.4541	0.7452	0.5225
RB->Q	0.1037	0.1292	0.1358	0.1495	0.1934	0.1795	0.2832	0.2199	0.4084	0.2728	0.5730	0.3413
SB->Q	0.3532	--n/a--	0.3861	--n/a--	0.4437	--n/a--	0.5335	--n/a--	0.6588	--n/a--	0.8235	--n/a--

DFQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2523	0.2812	0.2842	0.3003	0.3428	0.3291	0.4327	0.3687	0.5592	0.4221	0.7243	0.4912
RB->Q	0.0890	0.1066	0.1207	0.1256	0.1790	0.1545	0.2687	0.1940	0.3950	0.2473	0.5601	0.3164
SB->Q	0.3496	--n/a--	0.3820	--n/a--	0.4403	--n/a--	0.5301	--n/a--	0.6565	--n/a--	0.8217	--n/a--

DFQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0523 pF		0.0869 pF		0.1326 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3061	0.2952	0.3385	0.3140	0.3972	0.3414	0.4887	0.3797	0.6159	0.4312	0.7834	0.4986
RB->Q	0.0745	0.0892	0.1064	0.1078	0.1651	0.1351	0.2564	0.1733	0.3833	0.2248	0.5508	0.2924
SB->Q	0.4048	--n/a--	0.4391	--n/a--	0.4975	--n/a--	0.5888	--n/a--	0.7160	--n/a--	0.8836	--n/a--

DFQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0538 pF		0.1030 pF		0.1719 pF		0.2627 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2965	0.2634	0.3304	0.2847	0.3894	0.3144	0.4804	0.3538	0.6075	0.4056	0.7747	0.4728
RB->Q	0.0848	0.1077	0.1179	0.1292	0.1770	0.1590	0.2680	0.1985	0.3950	0.2504	0.5621	0.3177
SB->Q	0.4197	--n/a--	0.4559	--n/a--	0.5148	--n/a--	0.6055	--n/a--	0.7326	--n/a--	0.8998	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2052	0.1620	0.1668	0.1201
CK	minpwh	0.1239	0.1234	0.1816	0.1931
D	setupD(R)->CK(R)	0.0688	0.0478	0.0405	0.0404
D	setupD(F)->CK(R)	0.0034	0.0111	0.0029	0.0450
D	holdD(R)->CK(R)	-0.0120	-0.0032	-0.0018	-0.0042
D	holdD(F)->CK(R)	0.0472	0.0467	0.0570	0.0234
RB	setupRB(R)->SB(R)	0.0506	0.0512	0.0643	0.0631
RB	removalRB(R)->CK(R)	0.3331	0.3677	0.3589	0.3358
RB	recoveryRB(R)->CK(R)	-0.2261	-0.2084	-0.2461	-0.2038
RB	minpwl	0.3606	0.3848	0.3897	0.3848
RB	holdRB(R)->SB(R)	-0.0483	-0.0425	-0.0134	-0.0076
SB	removalSB(R)->CK(R)	0.2013	0.1894	0.2064	0.1458
SB	recoverySB(R)->CK(R)	-0.1159	-0.0954	-0.1108	-0.0628
SB	minpwl	0.2014	0.1783	0.2047	0.2019

Sequential Cell

DFQS

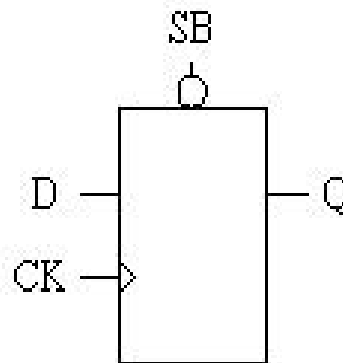
Cell Description

The DFQS cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low set (SB). The cell has a single output (Q).

Truth Table

SB	D	CK	Q[n+1]
0	X	X	1
1	0	R	0
1	1	R	1
1	X	F	Q[n]

Symbol



Cell List

DFQSM1HM, DFQSM2HM, DFQSM4HM
, DFQSM8HM

DFQS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00115	0.00123	0.00123	0.00175
D	input	0.00135	0.00159	0.00159	0.00172
Q	output				
SB	input	0.00298	0.00315	0.00314	0.00323

Power Dissipation (uW/MHz)

DFQSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0143	0.0122	0.0144	0.0122	0.0145	0.0123	0.0145	0.0123	0.0146	0.0123	0.0146	0.0123
SB->Q	0.0179	0.0179	0.0179	0.0179	0.0180	0.0180	0.0180	0.0180	0.0181	0.0181	0.0181	0.0181

DFQSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0162	0.0138	0.0163	0.0139	0.0164	0.0139	0.0164	0.0140	0.0165	0.0140	0.0165	0.0140
SB->Q	0.0200	0.0200	0.0201	0.0201	0.0202	0.0202	0.0203	0.0203	0.0204	0.0204	0.0204	0.0204

DFQSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0876 pF		0.1336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0232	0.0201	0.0233	0.0203	0.0235	0.0204	0.0237	0.0205	0.0238	0.0206	0.0238	0.0206
SB->Q	0.0277	0.0277	0.0278	0.0278	0.0281	0.0281	0.0282	0.0282	0.0282	0.0282	0.0284	0.0284

DFQSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0541 pF		0.1035 pF		0.1729 pF		0.2641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0301	0.0265	0.0302	0.0269	0.0306	0.0272	0.0309	0.0273	0.0311	0.0274	0.0313	0.0275
SB->Q	0.0343	0.0343	0.0345	0.0345	0.0348	0.0348	0.0350	0.0350	0.0352	0.0352	0.0354	0.0354

Hidden Power (uW/MHz)

DFQS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0094	0.0097	0.0097	0.0114
CK	F	0.0128	0.0138	0.0138	0.0166
D	R	0.0019	0.0020	0.0020	0.0021
D	F	0.0038	0.0044	0.0044	0.0045
SB	R	-0.0004	-0.0003	-0.0003	-0.0005
SB	F	0.0027	0.0029	0.0029	0.0031

Propagation Delays (ns)

DFQSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2567	0.2757	0.2876	0.2928	0.3455	0.3202	0.4355	0.3598	0.5613	0.4140	0.7271	0.4852
SB->Q	0.3160	--n/a--	0.3468	--n/a--	0.4045	--n/a--	0.4942	--n/a--	0.6201	--n/a--	0.7860	--n/a--

DFQSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2431	0.2496	0.2743	0.2668	0.3330	0.2944	0.4234	0.3345	0.5504	0.3899	0.7169	0.4624
SB->Q	0.3180	--n/a--	0.3493	--n/a--	0.4078	--n/a--	0.4980	--n/a--	0.6250	--n/a--	0.7915	--n/a--

DFQSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0876 pF		0.1336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2775	0.2565	0.3091	0.2733	0.3677	0.2992	0.4589	0.3370	0.5867	0.3892	0.7545	0.4575
SB->Q	0.3571	--n/a--	0.3895	--n/a--	0.4477	--n/a--	0.5388	--n/a--	0.6666	--n/a--	0.8344	--n/a--

DFQSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0541 pF		0.1035 pF		0.1729 pF		0.2641 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2706	0.2320	0.3028	0.2507	0.3616	0.2781	0.4527	0.3160	0.5804	0.3677	0.7481	0.4351
SB->Q	0.3116	--n/a--	0.3448	--n/a--	0.4033	--n/a--	0.4942	--n/a--	0.6219	--n/a--	0.7895	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1572	0.1421	0.1414	0.1249
CK	minpwh	0.1294	0.1333	0.1783	0.1805
D	setupD(R)->CK(R)	0.0407	0.0462	0.0462	0.0523
D	setupD(F)->CK(R)	0.0056	0.0036	0.0076	0.0435
D	holdD(R)->CK(R)	-0.0058	0.0006	0.0013	-0.0000
D	holdD(F)->CK(R)	0.0367	0.0378	0.0421	0.0164
SB	removalSB(R)->CK(R)	0.1624	0.1653	0.1639	0.1208
SB	recoverySB(R)->CK(R)	-0.1167	-0.1119	-0.1040	-0.0655
SB	minpwl	0.1607	0.1723	0.1931	0.1986

Sequential Cell

DFQZR

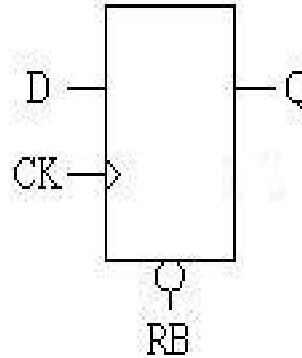
Cell Description

The DFQZR cell is a positive-edge triggered, static D-type flip-flop with synchronous active-low reset (RB). The cell has a single output (Q).

Truth Table

RB	D	CK	Q[n+1]
0	X	R	0
1	0	R	0
1	1	R	1
X	X	F	Q[n]

Symbol



Cell List

DFQZRM1HM, DFQZRM2HM, DFQZRM4HM
, DFQZRM8HM

DFQZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00123	0.00123	0.00123	0.00180
D	input	0.00109	0.00133	0.00133	0.00133
Q	output				
RB	input	0.00128	0.00157	0.00157	0.00157

Power Dissipation (uW/MHz)

DFQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0120	0.0117	0.0121	0.0118	0.0121	0.0118	0.0122	0.0119	0.0122	0.0119	0.0122	0.0119

DFQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0137	0.0134	0.0138	0.0135	0.0139	0.0136	0.0139	0.0136	0.0140	0.0137	0.0140	0.0137

DFQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0521 pF		0.0866 pF		0.1321 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0219	0.0214	0.0221	0.0216	0.0222	0.0217	0.0223	0.0218	0.0223	0.0218	0.0224	0.0218

DFQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1037 pF		0.1732 pF		0.2646 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0328	0.0324	0.0330	0.0326	0.0334	0.0329	0.0336	0.0331	0.0337	0.0331	0.0338	0.0332

Hidden Power (uW/MHz)

DFQZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0092	0.0094	0.0094	0.0106
CK	F	0.0128	0.0131	0.0131	0.0154
D	R	0.0010	0.0010	0.0010	0.0010
D	F	0.0037	0.0045	0.0045	0.0045
RB	R	0.0009	0.0009	0.0010	0.0010
RB	F	0.0040	0.0048	0.0048	0.0048

Propagation Delays (ns)

DFQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2322	0.2550	0.2636	0.2722	0.3220	0.2990	0.4126	0.3376	0.5385	0.3901	0.7038	0.4591

DFQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0449 pF		0.0683 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2157	0.2470	0.2473	0.2645	0.3058	0.2917	0.3962	0.3309	0.5228	0.3850	0.6900	0.4565

DFQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0521 pF		0.0866 pF		0.1321 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2496	0.2582	0.2810	0.2754	0.3398	0.3013	0.4314	0.3383	0.5589	0.3890	0.7269	0.4557

DFQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1037 pF		0.1732 pF		0.2646 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2478	0.2321	0.2807	0.2534	0.3396	0.2822	0.4308	0.3209	0.5585	0.3728	0.7264	0.4405

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1929	0.1791	0.1839	0.1482
CK	minpwh	0.1053	0.0998	0.1377	0.1454
D	setupD(R)->CK(R)	0.0868	0.0717	0.0767	0.0828
D	setupD(F)->CK(R)	0.0916	0.0606	0.0650	0.1035
D	holdD(R)->CK(R)	-0.0542	-0.0450	-0.0434	-0.0448
D	holdD(F)->CK(R)	-0.0269	-0.0097	-0.0017	-0.0323
RB	setupRB(R)->CK(R)	0.0898	0.0746	0.0796	0.0858
RB	setupRB(F)->CK(R)	0.1048	0.0688	0.0744	0.1199
RB	holdRB(R)->CK(R)	-0.0566	-0.0474	-0.0458	-0.0472
RB	holdRB(F)->CK(R)	-0.0282	-0.0089	0.0005	-0.0336

Sequential Cell

DFR

Cell Description

The DFR cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB).

Truth Table

RB	D	CK	Q[n+1]	QB[n+1]
0	X	X	0	1
1	0	R	0	1
1	1	R	1	0
1	X	F	Q[n]	QB[n]

Cell List

DFRM1HM, DFRM2HM, DFRM4HM
, DFRM8HM

DFR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00123	0.00129	0.00131	0.00187
D	input	0.00138	0.00170	0.00170	0.00172
Q	output				
QB	output				
RB	input	0.00287	0.00302	0.00478	0.00476

Power Dissipation (uW/MHz)

DFRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0196	0.0154	0.0197	0.0155	0.0197	0.0155	0.0198	0.0156	0.0198	0.0156	0.0198	0.0156
RB->Q	0.0205	0.0205	0.0205	0.0205	0.0206	0.0206	0.0206	0.0206	0.0207	0.0207	0.0207	0.0207

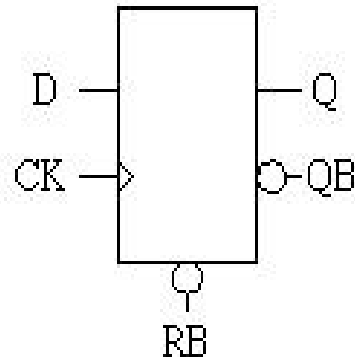
DFRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0223	0.0178	0.0223	0.0179	0.0224	0.0180	0.0225	0.0180	0.0225	0.0180	0.0226	0.0180
RB->Q	0.0235	0.0235	0.0236	0.0236	0.0237	0.0237	0.0237	0.0237	0.0237	0.0237	0.0238	0.0238

DFRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0275 pF		0.0521 pF		0.0867 pF		0.1322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0337	0.0278	0.0337	0.0280	0.0338	0.0281	0.0340	0.0282	0.0340	0.0282	0.0341	0.0283
RB->Q	0.0350	0.0350	0.0351	0.0351	0.0352	0.0352	0.0353	0.0353	0.0353	0.0353	0.0354	0.0354

Symbol



DFRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1023 pF		0.1709 pF		0.2611 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0483	0.0412	0.0483	0.0413	0.0484	0.0415	0.0486	0.0417	0.0488	0.0418	0.0490	0.0418
RB->Q	0.0489	0.0489	0.0490	0.0490	0.0491	0.0491	0.0492	0.0492	0.0493	0.0493	0.0493	0.0493

Hidden Power (uW/MHz)

DFR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0123	0.0129	0.0130	0.0142
CK	F	0.0141	0.0150	0.0150	0.0174
D	R	0.0025	0.0025	0.0025	0.0025
D	F	0.0046	0.0052	0.0052	0.0052
RB	R	-0.0014	-0.0015	-0.0025	-0.0025
RB	F	0.0014	0.0015	0.0025	0.0025

Propagation Delays (ns)

DFRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3084	0.3071	0.3413	0.3272	0.3996	0.3572	0.4905	0.3986	0.6168	0.4530	0.7826	0.5231
CK(R)->QB	0.3943	0.4140	0.4262	0.4370	0.4832	0.4702	0.5721	0.5139	0.6962	0.5695	0.8594	0.6401
RB->Q	--n/a--	0.1239	--n/a--	0.1441	--n/a--	0.1745	--n/a--	0.2163	--n/a--	0.2717	--n/a--	0.3422
RB->QB	0.2433	--n/a--	0.2835	--n/a--	0.3446	--n/a--	0.4342	--n/a--	0.5583	--n/a--	0.7215	--n/a--

DFRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2935	0.2789	0.3262	0.2997	0.3851	0.3319	0.4758	0.3767	0.6029	0.4374	0.7704	0.5167
CK(R)->QB	0.3518	0.3859	0.3833	0.4083	0.4409	0.4411	0.5298	0.4839	0.6550	0.5397	0.8200	0.6115
RB->Q	--n/a--	0.1290	--n/a--	0.1520	--n/a--	0.1863	--n/a--	0.2332	--n/a--	0.2952	--n/a--	0.3746
RB->QB	0.2311	--n/a--	0.2707	--n/a--	0.3327	--n/a--	0.4221	--n/a--	0.5473	--n/a--	0.7123	--n/a--

DFRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0275 pF		0.0521 pF		0.0867 pF		0.1322 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3290	0.2805	0.3624	0.3008	0.4220	0.3313	0.5135	0.3733	0.6417	0.4300	0.8100	0.5039
CK(R)->QB	0.3484	0.4331	0.3801	0.4580	0.4387	0.4930	0.5289	0.5375	0.6554	0.5943	0.8217	0.6664
RB->Q	--n/a--	0.1057	--n/a--	0.1272	--n/a--	0.1589	--n/a--	0.2023	--n/a--	0.2604	--n/a--	0.3346
RB->QB	0.1948	--n/a--	0.2334	--n/a--	0.2976	--n/a--	0.3886	--n/a--	0.5152	--n/a--	0.6814	--n/a--

DFRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1023 pF		0.1709 pF		0.2611 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.3240	0.2627	0.3596	0.2862	0.4188	0.3191	0.5098	0.3627	0.6374	0.4199	0.8049	0.4934
CK(R)->QB	0.3596	0.4799	0.3942	0.5100	0.4529	0.5499	0.5430	0.5980	0.6695	0.6565	0.8357	0.7279
RB->Q	--n/a--	0.1275	--n/a--	0.1523	--n/a--	0.1864	--n/a--	0.2310	--n/a--	0.2895	--n/a--	0.3634
RB->QB	0.2486	--n/a--	0.2901	--n/a--	0.3547	--n/a--	0.4459	--n/a--	0.5724	--n/a--	0.7386	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2244	0.2176	0.2169	0.1901
CK	minpwh	0.1651	0.1668	0.2167	0.2393
D	setupD(R)->CK(R)	0.0906	0.0984	0.0974	0.1089
D	setupD(F)->CK(R)	0.0304	0.0107	0.0198	0.0548
D	holdD(R)->CK(R)	-0.0119	-0.0037	-0.0029	-0.0040
D	holdD(F)->CK(R)	0.0522	0.0637	0.0664	0.0389
RB	removalRB(R)->CK(R)	0.2859	0.3145	0.2936	0.2831
RB	recoveryRB(R)->CK(R)	-0.2267	-0.2204	-0.2132	-0.1748
RB	minpwl	0.3370	0.3579	0.3628	0.3639

Sequential Cell

DFRS

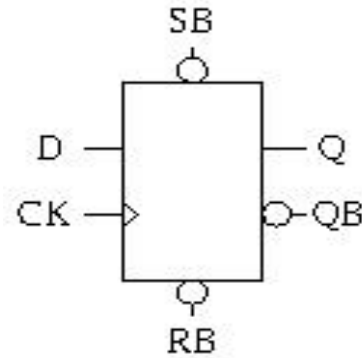
Cell Description

The DFRS cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low reset (RB) and set (SB).

Truth Table

RB	SB	D	CK	Q[n+1]	QB[n+1]
0	1	X	X	0	1
1	0	X	X	1	0
0	0	X	X	0	0
1	1	0	R	0	1
1	1	1	R	1	0
1	1	X	F	Q[n]	QB[n]

Symbol



Cell List

DFRSM1HM, DFRSM2HM, DFRSM4HM
, DFRSM8HM

DFRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00121	0.00125	0.00129	0.00187
D	input	0.00150	0.00172	0.00172	0.00172
Q	output				
QB	output				
RB	input	0.00307	0.00330	0.00507	0.00503
SB	input	0.00267	0.00272	0.00279	0.00278

Power Dissipation (uW/MHz)

DFRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0204	0.0156	0.0204	0.0157	0.0205	0.0157	0.0205	0.0158	0.0206	0.0158	0.0206	0.0158
RB->Q	0.0139	0.0166	0.0140	0.0166	0.0140	0.0167	0.0141	0.0167	0.0141	0.0167	0.0141	0.0167
SB->Q	0.0141	0.0141	0.0141	0.0141	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0143	0.0143
SB->QB	0.0086	0.0188	0.0086	0.0188	0.0087	0.0188	0.0087	0.0188	0.0088	0.0188	0.0088	0.0188

DFRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0230	0.0183	0.0231	0.0184	0.0232	0.0184	0.0232	0.0185	0.0233	0.0185	0.0233	0.0185
RB->Q	0.0162	0.0190	0.0163	0.0191	0.0164	0.0191	0.0164	0.0191	0.0164	0.0192	0.0165	0.0192
SB->Q	0.0159	0.0159	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0161	0.0161	0.0161	0.0161
SB->QB	0.0100	0.0199	0.0101	0.0198	0.0102	0.0198	0.0102	0.0198	0.0103	0.0198	0.0103	0.0198

DFRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0865 pF		0.1319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0340	0.0281	0.0340	0.0283	0.0342	0.0284	0.0343	0.0285	0.0344	0.0285	0.0345	0.0286
RB->Q	0.0242	0.0283	0.0244	0.0285	0.0246	0.0286	0.0247	0.0287	0.0248	0.0287	0.0248	0.0287
SB->Q	0.0240	0.0240	0.0239	0.0239	0.0240	0.0240	0.0241	0.0241	0.0241	0.0241	0.0242	0.0242
SB->QB	0.0144	0.0266	0.0146	0.0259	0.0147	0.0256	0.0149	0.0254	0.0150	0.0252	0.0150	0.0249

DFRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0534 pF		0.1023 pF		0.1708 pF		0.2610 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0483	0.0414	0.0483	0.0415	0.0487	0.0417	0.0489	0.0418	0.0491	0.0419	0.0492	0.0420
RB->Q	0.0342	0.0387	0.0345	0.0388	0.0349	0.0391	0.0350	0.0392	0.0351	0.0393	0.0352	0.0393
SB->Q	0.0354	0.0354	0.0350	0.0350	0.0350	0.0350	0.0350	0.0350	0.0351	0.0351	0.0352	0.0352
SB->QB	0.0216	0.0399	0.0216	0.0369	0.0218	0.0347	0.0221	0.0316	0.0223	0.0273	0.0224	0.0216

Hidden Power (uW/MHz)

DFRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0130	0.0134	0.0135	0.0149
CK	F	0.0150	0.0154	0.0154	0.0180
D	R	0.0019	0.0018	0.0018	0.0018
D	F	0.0043	0.0047	0.0047	0.0047
RB	R	-0.0014	-0.0016	-0.0026	-0.0026
RB	F	0.0014	0.0016	0.0026	0.0026
SB	R	-0.0000	0.0000	0.0001	0.0001
SB	F	0.0027	0.0027	0.0027	0.0028

Propagation Delays (ns)

DFRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2820	0.3316	0.3146	0.3519	0.3727	0.3819	0.4633	0.4230	0.5881	0.4769	0.7535	0.5472
CK(R)->QB	0.4593	0.3802	0.4952	0.4022	0.5541	0.4340	0.6434	0.4766	0.7666	0.5312	0.9298	0.6015
RB->Q	0.0999	0.1227	0.1321	0.1426	0.1900	0.1723	0.2802	0.2129	0.4048	0.2664	0.5701	0.3365
RB->QB	0.3025	--n/a--	0.3515	--n/a--	0.4211	--n/a--	0.5151	--n/a--	0.6394	--n/a--	0.8028	--n/a--
SB->Q	0.4322	--n/a--	0.4653	--n/a--	0.5231	--n/a--	0.6133	--n/a--	0.7380	--n/a--	0.9034	--n/a--
SB->QB	0.1863	0.2596	0.2353	0.2904	0.3049	0.3346	0.3989	0.3912	0.5231	0.4549	0.6865	0.5302

DFRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2697	0.3139	0.3021	0.3346	0.3601	0.3661	0.4505	0.4106	0.5765	0.4710	0.7421	0.5497
CK(R)->QB	0.4130	0.3613	0.4475	0.3844	0.5054	0.4183	0.5945	0.4643	0.7189	0.5251	0.8825	0.6039
RB->Q	0.0893	0.1173	0.1212	0.1388	0.1790	0.1710	0.2690	0.2158	0.3948	0.2761	0.5603	0.3549
RB->QB	0.2549	--n/a--	0.3016	--n/a--	0.3690	--n/a--	0.4612	--n/a--	0.5861	--n/a--	0.7498	--n/a--
SB->Q	0.4476	--n/a--	0.4809	--n/a--	0.5386	--n/a--	0.6286	--n/a--	0.7546	--n/a--	0.9202	--n/a--
SB->QB	0.1453	0.2778	0.1918	0.3129	0.2591	0.3627	0.3512	0.4249	0.4761	0.4946	0.6397	0.5778

DFRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0865 pF		0.1319 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2908	0.3206	0.3234	0.3412	0.3823	0.3714	0.4735	0.4131	0.6008	0.4697	0.7679	0.5435
CK(R)->QB	0.4169	0.4135	0.4522	0.4397	0.5115	0.4758	0.6017	0.5214	0.7278	0.5787	0.8935	0.6510
RB->Q	0.0786	0.1011	0.1105	0.1220	0.1694	0.1526	0.2603	0.1946	0.3873	0.2511	0.5543	0.3249
RB->QB	0.2292	--n/a--	0.2753	--n/a--	0.3458	--n/a--	0.4396	--n/a--	0.5661	--n/a--	0.7319	--n/a--
SB->Q	0.5388	--n/a--	0.5749	--n/a--	0.6337	--n/a--	0.7244	--n/a--	0.8514	--n/a--	1.0185	--n/a--
SB->QB	0.1257	0.3403	0.1712	0.3804	0.2412	0.4349	0.3349	0.5003	0.4615	0.5702	0.6273	0.6495

DFRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0534 pF		0.1023 pF		0.1708 pF		0.2610 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2862	0.2880	0.3206	0.3111	0.3795	0.3432	0.4706	0.3860	0.5978	0.4426	0.7649	0.5160
CK(R)->QB	0.4191	0.4611	0.4589	0.4922	0.5204	0.5331	0.6113	0.5824	0.7376	0.6416	0.9037	0.7136
RB->Q	0.0892	0.1200	0.1227	0.1439	0.1816	0.1769	0.2726	0.2203	0.3995	0.2772	0.5665	0.3507
RB->QB	0.2867	--n/a--	0.3362	--n/a--	0.4086	--n/a--	0.5038	--n/a--	0.6309	--n/a--	0.7970	--n/a--
SB->Q	0.6796	--n/a--	0.7215	--n/a--	0.7813	--n/a--	0.8715	--n/a--	0.9981	--n/a--	1.1649	--n/a--
SB->QB	0.1547	0.4268	0.2039	0.4725	0.2760	0.5326	0.3712	0.6037	0.4983	0.6789	0.6645	0.7585

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1908	0.1716	0.1757	0.1414
CK	minpwh	0.1377	0.1437	0.1822	0.2008
D	setupD(R)->CK(R)	0.0548	0.0542	0.0613	0.0633
D	setupD(F)->CK(R)	0.0165	0.0085	0.0165	0.0648
D	holdD(R)->CK(R)	-0.0102	-0.0060	-0.0047	-0.0077
D	holdD(F)->CK(R)	0.0491	0.0594	0.0658	0.0297
RB	setupRB(R)->SB(R)	0.0418	0.0429	0.0486	0.0472
RB	removalRB(R)->CK(R)	0.3364	0.3598	0.3481	0.3350
RB	recoveryRB(R)->CK(R)	-0.2228	-0.2166	-0.2264	-0.1920
RB	minpwl	0.3749	0.3826	0.3859	0.3875
RB	holdRB(R)->SB(R)	0.0319	0.0351	0.0450	0.0482
SB	setupSB(R)->RB(R)	0.0319	0.0351	0.0450	0.0482
SB	removalSB(R)->CK(R)	0.1899	0.1906	0.1875	0.1263
SB	recoverySB(R)->CK(R)	-0.1099	-0.1002	-0.0906	-0.0403
SB	minpwl	0.2827	0.2964	0.3238	0.3420
SB	holdSB(R)->RB(R)	0.0418	0.0429	0.0486	0.0472

Sequential Cell

DFS

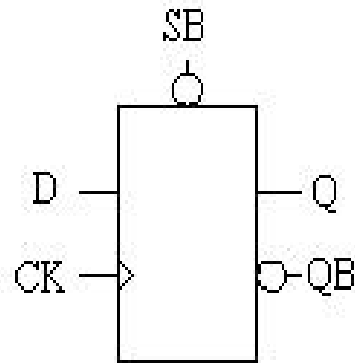
Cell Description

The DFS cell is a positive-edge triggered, static D-type flip-flop with asynchronous active-low set (SB).

Truth Table

SB	D	CK	Q[n+1]	QB[n+1]
0	X	X	1	0
1	0	R	0	1
1	1	R	1	0
1	X	F	Q[n]	QB[n]

Symbol



Cell List

DFSM1HM, DFSM2HM, DFSM4HM
, DFSM8HM

DFS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00117	0.00123	0.00126	0.00182
D	input	0.00152	0.00173	0.00170	0.00176
Q	output				
QB	output				
SB	input	0.00323	0.00357	0.00356	0.00354

Power Dissipation (uW/MHz)

DFSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0046 pF		0.0098 pF		0.0181 pF		0.0296 pF		0.0448 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0188	0.0164	0.0189	0.0164	0.0189	0.0165	0.0190	0.0165	0.0190	0.0165	0.0190	0.0165
SB->Q	0.0221	0.0221	0.0221	0.0221	0.0221	0.0221	0.0222	0.0222	0.0222	0.0222	0.0223	0.0223

DFSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0053 pF		0.0118 pF		0.0218 pF		0.0359 pF		0.0545 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0211	0.0185	0.0212	0.0186	0.0213	0.0186	0.0213	0.0187	0.0214	0.0187	0.0214	0.0187
SB->Q	0.0244	0.0244	0.0245	0.0245	0.0245	0.0245	0.0246	0.0246	0.0247	0.0247	0.0247	0.0247

DFSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0096 pF		0.0224 pF		0.0423 pF		0.0703 pF		0.1071 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0288	0.0249	0.0289	0.0250	0.0291	0.0252	0.0292	0.0253	0.0293	0.0253	0.0294	0.0254
SB->Q	0.0325	0.0325	0.0326	0.0326	0.0326	0.0326	0.0328	0.0328	0.0328	0.0328	0.0329	0.0329

DFSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0052 pF		0.0201 pF		0.0485 pF		0.0928 pF		0.1549 pF		0.2367 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0442	0.0396	0.0443	0.0397	0.0446	0.0399	0.0449	0.0401	0.0451	0.0402	0.0452	0.0403
SB->Q	0.0485	0.0485	0.0485	0.0485	0.0486	0.0486	0.0488	0.0488	0.0490	0.0490	0.0491	0.0491

Hidden Power (uW/MHz)

DFS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0096	0.0099	0.0099	0.0116
CK	F	0.0127	0.0135	0.0138	0.0169
D	R	0.0019	0.0021	0.0021	0.0021
D	F	0.0040	0.0045	0.0046	0.0046
SB	R	-0.0005	-0.0005	-0.0005	-0.0005
SB	F	0.0030	0.0034	0.0034	0.0034

Propagation Delays (ns)

DFSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0046 pF		0.0098 pF		0.0181 pF		0.0296 pF		0.0448 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2604	0.2865	0.2895	0.3048	0.3427	0.3330	0.4271	0.3738	0.5436	0.4281	0.6973	0.4990
CK(R)->QB	0.3716	0.3458	0.4058	0.3649	0.4672	0.3933	0.5646	0.4326	0.6992	0.4832	0.8769	0.5487
SB->Q	0.3148	--n/a--	0.3439	--n/a--	0.3968	--n/a--	0.4810	--n/a--	0.5974	--n/a--	0.7512	--n/a--
SB->QB	--n/a--	0.1701	--n/a--	0.1928	--n/a--	0.2269	--n/a--	0.2737	--n/a--	0.3307	--n/a--	0.4005

DFSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0053 pF		0.0118 pF		0.0218 pF		0.0359 pF		0.0545 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2396	0.2804	0.2640	0.2964	0.3113	0.3218	0.3837	0.3557	0.4853	0.4001	0.6190	0.4570
CK(R)->QB	0.3676	0.3129	0.4074	0.3293	0.4845	0.3550	0.6023	0.3889	0.7681	0.4332	0.9866	0.4908
SB->Q	0.2763	--n/a--	0.3008	--n/a--	0.3479	--n/a--	0.4201	--n/a--	0.5216	--n/a--	0.6554	--n/a--
SB->QB	--n/a--	0.1426	--n/a--	0.1620	--n/a--	0.1923	--n/a--	0.2322	--n/a--	0.2823	--n/a--	0.3458

DFSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0096 pF		0.0224 pF		0.0423 pF		0.0703 pF		0.1071 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2682	0.2648	0.2941	0.2803	0.3414	0.3039	0.4148	0.3361	0.5177	0.3792	0.6522	0.4350
CK(R)->QB	0.3581	0.3656	0.4013	0.3866	0.4797	0.4155	0.6005	0.4518	0.7701	0.4974	0.9927	0.5556
SB->Q	0.3354	--n/a--	0.3621	--n/a--	0.4095	--n/a--	0.4821	--n/a--	0.5840	--n/a--	0.7179	--n/a--
SB->QB	--n/a--	0.1666	--n/a--	0.1910	--n/a--	0.2248	--n/a--	0.2677	--n/a--	0.3206	--n/a--	0.3872

DFSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0052 pF		0.0201 pF		0.0485 pF		0.0928 pF		0.1549 pF		0.2367 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2797	0.2524	0.3100	0.2725	0.3630	0.3008	0.4449	0.3377	0.5598	0.3856	0.7104	0.4472
CK(R)->QB	0.3759	0.4320	0.4170	0.4596	0.4845	0.4960	0.5865	0.5400	0.7290	0.5929	0.9164	0.6581
SB->Q	0.4352	--n/a--	0.4679	--n/a--	0.5210	--n/a--	0.6022	--n/a--	0.7161	--n/a--	0.8663	--n/a--
SB->QB	--n/a--	0.2249	--n/a--	0.2554	--n/a--	0.2960	--n/a--	0.3458	--n/a--	0.4055	--n/a--	0.4767

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1599	0.1599	0.1537	0.1304
CK	minpwh	0.1333	0.1300	0.1635	0.1937
D	setupD(R)->CK(R)	0.0497	0.0639	0.0637	0.0567
D	setupD(F)->CK(R)	0.0137	0.0013	0.0064	0.0419
D	holdD(R)->CK(R)	-0.0063	-0.0024	-0.0011	-0.0019
D	holdD(F)->CK(R)	0.0328	0.0395	0.0427	0.0136
SB	removalSB(R)->CK(R)	0.1579	0.1720	0.1714	0.1245
SB	recoverySB(R)->CK(R)	-0.1152	-0.1208	-0.1107	-0.0725
SB	minpwl	0.1778	0.1745	0.1893	0.1986

Sequential Cell

DFZR

Cell Description

The DFZR cell is a positive-edge triggered, static D-type flip-flop with synchronous active-low reset (RB).

Truth Table

RB	D	CK	Q[n+1]	QB[n+1]
0	X	R	0	1
1	0	R	0	1
1	1	R	1	0
X	X	F	Q[n]	QB[n]

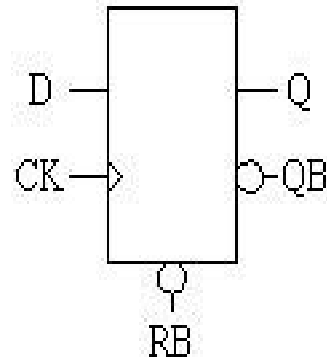
Cell List

DFZRM1HM, DFZRM2HM, DFZRM4HM
, DFZRM8HM

DFZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00123	0.00123	0.00180
D	input	0.00109	0.00133	0.00133	0.00133
Q	output				
QB	output				
RB	input	0.00128	0.00157	0.00157	0.00157

Symbol



Power Dissipation (uW/MHz)

DFZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0159	0.0151	0.0160	0.0152	0.0160	0.0152	0.0160	0.0152	0.0160	0.0152	0.0161	0.0153

DFZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0186	0.0178	0.0187	0.0179	0.0188	0.0180	0.0188	0.0180	0.0188	0.0180	0.0188	0.0180

DFZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0303	0.0292	0.0305	0.0294	0.0306	0.0295	0.0308	0.0296	0.0308	0.0296	0.0309	0.0297

DFZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1727 pF		0.2638 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0493	0.0473	0.0495	0.0476	0.0498	0.0479	0.0501	0.0481	0.0502	0.0481	0.0503	0.0482

Hidden Power (uW/MHz)

DFZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0091	0.0093	0.0092	0.0105
CK	F	0.0127	0.0130	0.0130	0.0154
D	R	0.0010	0.0010	0.0010	0.0010
D	F	0.0037	0.0045	0.0045	0.0045
RB	R	0.0009	0.0009	0.0010	0.0010
RB	F	0.0040	0.0048	0.0048	0.0048

Propagation Delays (ns)

DFZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2348	0.2576	0.2661	0.2748	0.3250	0.3025	0.4151	0.3414	0.5416	0.3947	0.7074	0.4646
CK(R)->QB	0.3097	0.2965	0.3411	0.3157	0.3999	0.3450	0.4902	0.3845	0.6170	0.4377	0.7833	0.5067

DFZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2174	0.2482	0.2483	0.2653	0.3071	0.2929	0.3981	0.3325	0.5247	0.3865	0.6909	0.4574
CK(R)->QB	0.3021	0.2900	0.3333	0.3105	0.3926	0.3411	0.4842	0.3823	0.6114	0.4365	0.7788	0.5068

DFZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2491	0.2581	0.2808	0.2754	0.3405	0.3019	0.4330	0.3393	0.5616	0.3903	0.7308	0.4572
CK(R)->QB	0.3078	0.2990	0.3392	0.3180	0.3982	0.3460	0.4894	0.3846	0.6165	0.4366	0.7837	0.5045

DFZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1034 pF		0.1727 pF		0.2638 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2621	0.2405	0.2950	0.2613	0.3546	0.2909	0.4466	0.3302	0.5750	0.3819	0.7436	0.4490
CK(R)->QB	0.2921	0.3100	0.3238	0.3288	0.3829	0.3564	0.4743	0.3945	0.6022	0.4459	0.7701	0.5131

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.1997	0.1812	0.1846	0.1462
CK	minpwh	0.1119	0.1053	0.1404	0.1646
D	setupD(R)->CK(R)	0.0944	0.0745	0.0778	0.0804
D	setupD(F)->CK(R)	0.0922	0.0616	0.0662	0.1048
D	holdD(R)->CK(R)	-0.0542	-0.0450	-0.0434	-0.0443
D	holdD(F)->CK(R)	-0.0217	-0.0080	-0.0016	-0.0339
RB	setupRB(R)->CK(R)	0.0974	0.0775	0.0812	0.0832
RB	setupRB(F)->CK(R)	0.1059	0.0699	0.0755	0.1211
RB	holdRB(R)->CK(R)	-0.0566	-0.0475	-0.0458	-0.0468
RB	holdRB(F)->CK(R)	-0.0220	-0.0067	0.0009	-0.0353

Sequential Cell

LAC

Cell Description

The LAC cell is an active-low D-type transparent latch. When the enable (GB) is low, data is transferred to the outputs (Q, QB).

Truth Table

GB	D	Q[n+1]	QB[n+1]
0	0	0	1
0	1	1	0
1	X	Q[n]	QB[n]

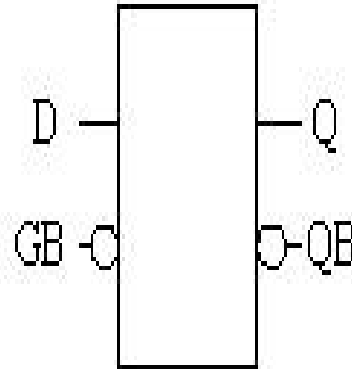
Cell List

LACM0HM, LACM1HM, LACM2HM
, LACM4HM

LAC Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00121	0.00121	0.00121	0.00120
GB	input	0.00121	0.00121	0.00121	0.00121
Q	output				
QB	output				

Symbol



Power Dissipation (uW/MHz)

LACM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0169 pF		0.0276 pF		0.0417 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0129	0.0148	0.0130	0.0148	0.0131	0.0148	0.0131	0.0148	0.0131	0.0148	0.0131	0.0148
GB->Q	0.0132	0.0133	0.0132	0.0133	0.0133	0.0133	0.0133	0.0133	0.0133	0.0133	0.0134	0.0133

LACM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0191 pF		0.0313 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0135	0.0155	0.0136	0.0154	0.0137	0.0154	0.0137	0.0154	0.0138	0.0154	0.0138	0.0154
GB->Q	0.0138	0.0140	0.0138	0.0140	0.0139	0.0140	0.0139	0.0140	0.0140	0.0140	0.0140	0.0140

LACM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0665 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0153	0.0176	0.0154	0.0174	0.0155	0.0174	0.0156	0.0174	0.0157	0.0175	0.0157	0.0175
GB->Q	0.0156	0.0161	0.0156	0.0160	0.0157	0.0160	0.0158	0.0160	0.0159	0.0160	0.0159	0.0160

LACM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0868 pF		0.1323 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0226	0.0267	0.0227	0.0258	0.0229	0.0255	0.0230	0.0254	0.0232	0.0253	0.0232	0.0253
GB->Q	0.0229	0.0251	0.0229	0.0243	0.0231	0.0240	0.0233	0.0239	0.0234	0.0238	0.0234	0.0238

Hidden Power (uW/MHz)

LAC at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0009	-0.0009	-0.0009	-0.0009
D	F	0.0010	0.0010	0.0010	0.0010
GB	R	0.0063	0.0063	0.0063	0.0063
GB	F	0.0086	0.0086	0.0086	0.0086

Propagation Delays (ns)

LACM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0169 pF		0.0276 pF		0.0417 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1160	0.2177	0.1484	0.2455	0.2068	0.2861	0.2971	0.3377	0.4218	0.4005	0.5860	0.4783
D->QB	0.2847	0.1679	0.3156	0.1868	0.3727	0.2165	0.4623	0.2589	0.5864	0.3161	0.7498	0.3912
GB(F)->Q	0.1832	0.2931	0.2156	0.3209	0.2741	0.3615	0.3644	0.4131	0.4891	0.4759	0.6533	0.5537
GB(F)->QB	0.3603	0.2359	0.3911	0.2548	0.4483	0.2845	0.5378	0.3269	0.6620	0.3841	0.8254	0.4592

LACM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0103 pF		0.0191 pF		0.0313 pF		0.0473 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1153	0.2163	0.1484	0.2436	0.2062	0.2819	0.2970	0.3308	0.4221	0.3893	0.5860	0.4603
D->QB	0.2885	0.1680	0.3199	0.1864	0.3763	0.2137	0.4663	0.2527	0.5908	0.3047	0.7539	0.3723
GB(F)->Q	0.1827	0.2917	0.2158	0.3190	0.2736	0.3572	0.3644	0.4062	0.4896	0.4646	0.6534	0.5357
GB(F)->QB	0.3639	0.2361	0.3954	0.2545	0.4518	0.2818	0.5418	0.3209	0.6663	0.3729	0.8294	0.4405

LACM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0665 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1147	0.2243	0.1476	0.2530	0.2066	0.2938	0.2967	0.3441	0.4226	0.4043	0.5874	0.4771
D->QB	0.3014	0.1766	0.3324	0.1956	0.3898	0.2245	0.4789	0.2640	0.6041	0.3170	0.7681	0.3858
GB(F)->Q	0.1825	0.2996	0.2153	0.3282	0.2743	0.3690	0.3644	0.4193	0.4903	0.4795	0.6552	0.5523
GB(F)->QB	0.3768	0.2450	0.4077	0.2641	0.4651	0.2931	0.5543	0.3326	0.6794	0.3856	0.8435	0.4543

LACM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0868 pF		0.1323 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1286	0.2736	0.1658	0.3104	0.2268	0.3596	0.3180	0.4168	0.4445	0.4818	0.6104	0.5577
D->QB	0.3496	0.1839	0.3821	0.2034	0.4400	0.2316	0.5304	0.2703	0.6569	0.3223	0.8230	0.3902
GB(F)->Q	0.1975	0.3480	0.2346	0.3849	0.2957	0.4341	0.3868	0.4913	0.5133	0.5563	0.6793	0.6322
GB(F)->QB	0.4242	0.2532	0.4568	0.2727	0.5147	0.3010	0.6051	0.3397	0.7315	0.3917	0.8977	0.4595

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->GB(R)	0.0637	0.0672	0.0771	0.1130
D	setupD(F)->GB(R)	0.1666	0.1723	0.1845	0.2329
D	holdD(R)->GB(R)	-0.0522	-0.0539	-0.0580	-0.0747
D	holdD(F)->GB(R)	-0.1279	-0.1324	-0.1451	-0.1996
GB	minpwl	0.1300	0.1333	0.1415	0.1717

Sequential Cell

LACQ

Cell Description

The LACQ cell is an active-low D-type transparent latch. When the enable (GB) is low, data is transferred to the output (Q).

Truth Table

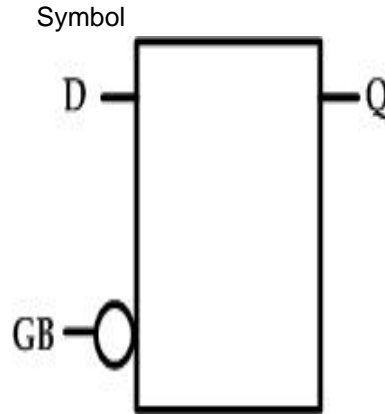
GB	D	Q[n+1]
0	0	0
0	1	1
1	X	Q[n]

Cell List

LACQM0HM, LACQM1HM, LACQM2HM
, LACQM4HM

LACQ Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00121	0.00121	0.00121	0.00120
GB	input	0.00121	0.00121	0.00121	0.00121
Q	output				



Power Dissipation (uW/MHz)

LACQM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0044 pF		0.0093 pF		0.0171 pF		0.0280 pF		0.0424 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0091	0.0117	0.0092	0.0117	0.0092	0.0117	0.0093	0.0117	0.0093	0.0117	0.0093	0.0117
GB->Q	0.0093	0.0103	0.0094	0.0103	0.0094	0.0103	0.0095	0.0103	0.0095	0.0103	0.0095	0.0103

LACQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0094	0.0121	0.0095	0.0121	0.0095	0.0121	0.0096	0.0121	0.0096	0.0121	0.0096	0.0121
GB->Q	0.0096	0.0107	0.0097	0.0106	0.0097	0.0106	0.0098	0.0106	0.0098	0.0106	0.0099	0.0106

LACQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0103	0.0132	0.0104	0.0131	0.0105	0.0130	0.0106	0.0130	0.0106	0.0131	0.0107	0.0131
GB->Q	0.0105	0.0117	0.0106	0.0116	0.0107	0.0116	0.0108	0.0116	0.0108	0.0116	0.0109	0.0116

LACQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0145	0.0198	0.0145	0.0189	0.0147	0.0186	0.0149	0.0184	0.0150	0.0184	0.0151	0.0183
GB->Q	0.0147	0.0183	0.0148	0.0174	0.0149	0.0171	0.0151	0.0169	0.0152	0.0169	0.0153	0.0168

Hidden Power (uW/MHz)

LACQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0009	-0.0009	-0.0009	-0.0009
D	F	0.0010	0.0010	0.0010	0.0010
GB	R	0.0063	0.0063	0.0063	0.0063
GB	F	0.0086	0.0086	0.0086	0.0086

Propagation Delays (ns)

LACQM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0044 pF		0.0093 pF		0.0171 pF		0.0280 pF		0.0424 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1136	0.2180	0.1470	0.2480	0.2043	0.2889	0.2938	0.3412	0.4186	0.4059	0.5832	0.4866
GB(F)->Q	0.1808	0.2935	0.2142	0.3234	0.2715	0.3643	0.3611	0.4166	0.4859	0.4813	0.6505	0.5620

LACQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1132	0.2168	0.1461	0.2453	0.2048	0.2854	0.2948	0.3347	0.4197	0.3945	0.5836	0.4678
GB(F)->Q	0.1805	0.2922	0.2134	0.3207	0.2722	0.3608	0.3622	0.4101	0.4871	0.4699	0.6510	0.5432

LACQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0270 pF		0.0445 pF		0.0676 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1131	0.2251	0.1464	0.2555	0.2052	0.2974	0.2955	0.3485	0.4205	0.4096	0.5853	0.4845
GB(F)->Q	0.1808	0.3004	0.2141	0.3307	0.2729	0.3726	0.3633	0.4237	0.4883	0.4849	0.6531	0.5597

LACQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1286	0.2766	0.1663	0.3159	0.2267	0.3650	0.3172	0.4214	0.4433	0.4866	0.6093	0.5637
GB(F)->Q	0.1975	0.3512	0.2352	0.3904	0.2956	0.4395	0.3861	0.4959	0.5122	0.5611	0.6782	0.6383

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->GB(R)	0.0585	0.0620	0.0717	0.1114
D	setupD(F)->GB(R)	0.1547	0.1593	0.1697	0.2162
D	holdD(R)->GB(R)	-0.0481	-0.0493	-0.0523	-0.0674
D	holdD(F)->GB(R)	-0.1158	-0.1193	-0.1290	-0.1779
GB	minpwl	0.1245	0.1272	0.1349	0.1695

Sequential Cell

LACQRS

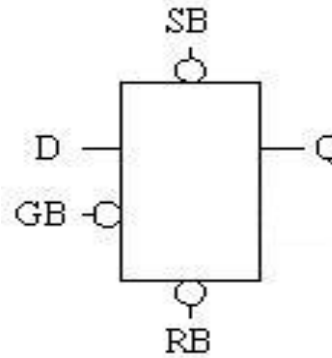
Cell Description

The LACQRS cell is an active-low D-type transparent latch with asynchronous active-low set (SB) and reset (RB), and set dominating reset. When the enable (GB) is low, data is transferred to the output (Q).

Truth Table

SB	RB	GB	D	Q[n+1]
0	X	X	X	1
1	0	X	X	0
1	1	0	0	0
1	1	0	1	1
1	1	1	X	Q[n]

Symbol



Cell List

LACQRSM0HM, LACQRSM1HM, LACQRSM2HM, LACQRSM4HM

LACQRS Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00140	0.00140	0.00151	0.00152
GB	input	0.00256	0.00256	0.00263	0.00313
Q	output				
RB	input	0.00232	0.00232	0.00243	0.00241
SB	input	0.00109	0.00143	0.00193	0.00192

Power Dissipation (uW/MHz)

LACQRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0132	0.0155	0.0133	0.0155	0.0133	0.0156	0.0134	0.0156	0.0134	0.0156	0.0134	0.0156
GB->Q	0.0132	0.0133	0.0132	0.0134	0.0133	0.0134	0.0133	0.0134	0.0134	0.0135	0.0134	0.0135
RB->Q	0.0147	0.0159	0.0147	0.0159	0.0148	0.0160	0.0148	0.0160	0.0148	0.0160	0.0148	0.0160
SB->Q	0.0106	0.0081	0.0107	0.0081	0.0107	0.0082	0.0108	0.0082	0.0108	0.0082	0.0108	0.0082

LACQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0151	0.0170	0.0152	0.0171	0.0152	0.0171	0.0153	0.0171	0.0153	0.0171	0.0153	0.0171
GB->Q	0.0150	0.0148	0.0151	0.0149	0.0152	0.0150	0.0152	0.0150	0.0152	0.0150	0.0153	0.0150
RB->Q	0.0162	0.0173	0.0163	0.0174	0.0163	0.0174	0.0164	0.0174	0.0164	0.0175	0.0164	0.0175
SB->Q	0.0121	0.0091	0.0122	0.0092	0.0122	0.0093	0.0123	0.0093	0.0123	0.0093	0.0123	0.0093

LACQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0678 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0175	0.0192	0.0176	0.0193	0.0177	0.0194	0.0178	0.0194	0.0178	0.0194	0.0178	0.0195
GB->Q	0.0174	0.0167	0.0175	0.0168	0.0176	0.0169	0.0176	0.0169	0.0177	0.0169	0.0177	0.0169
RB->Q	0.0183	0.0193	0.0184	0.0194	0.0185	0.0195	0.0185	0.0195	0.0185	0.0195	0.0185	0.0195
SB->Q	0.0139	0.0105	0.0140	0.0106	0.0141	0.0107	0.0141	0.0107	0.0141	0.0107	0.0142	0.0108

LACQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0881 pF		0.1343 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0218	0.0238	0.0220	0.0240	0.0223	0.0242	0.0224	0.0242	0.0225	0.0243	0.0225	0.0243
GB->Q	0.0216	0.0213	0.0218	0.0215	0.0220	0.0217	0.0222	0.0218	0.0223	0.0218	0.0223	0.0218
RB->Q	0.0229	0.0240	0.0231	0.0242	0.0232	0.0243	0.0233	0.0244	0.0234	0.0244	0.0234	0.0244
SB->Q	0.0182	0.0151	0.0184	0.0153	0.0187	0.0155	0.0188	0.0156	0.0189	0.0157	0.0189	0.0157

Hidden Power (uW/MHz)

LACQRSM at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0001	-0.0001	-0.0001	-0.0001
D	F	0.0019	0.0019	0.0022	0.0022
GB	R	0.0007	0.0007	0.0007	0.0006
GB	F	0.0074	0.0075	0.0079	0.0091
RB	R	0.0007	0.0009	0.0010	0.0010
RB	F	0.0043	0.0043	0.0047	0.0047
SB	R	-0.0005	-0.0008	-0.0011	-0.0011
SB	F	0.0008	0.0013	0.0018	0.0018

Propagation Delays (ns)

LACQRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0385 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.3137	0.4076	0.3434	0.4237	0.4022	0.4508	0.4914	0.4885	0.6171	0.5405	0.7821	0.6085
GB(F)->Q	0.3776	0.3665	0.4073	0.3825	0.4662	0.4096	0.5553	0.4473	0.6810	0.4993	0.8460	0.5673
RB->Q	0.3218	0.2912	0.3515	0.3072	0.4104	0.3342	0.4995	0.3719	0.6253	0.4239	0.7902	0.4919
SB->Q	0.1823	0.1662	0.2120	0.1821	0.2709	0.2092	0.3600	0.2469	0.4858	0.2989	0.6507	0.3669

LACQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2688	0.3804	0.2999	0.3967	0.3583	0.4232	0.4490	0.4619	0.5751	0.5149	0.7417	0.5850
GB(F)->Q	0.3322	0.3387	0.3633	0.3551	0.4217	0.3815	0.5124	0.4202	0.6384	0.4733	0.8050	0.5434
RB->Q	0.2769	0.2582	0.3080	0.2745	0.3664	0.3010	0.4571	0.3396	0.5832	0.3927	0.7498	0.4628
SB->Q	0.1361	0.1295	0.1672	0.1457	0.2256	0.1722	0.3163	0.2108	0.4423	0.2639	0.6089	0.3340

LACQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0678 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2598	0.3356	0.2907	0.3529	0.3495	0.3805	0.4399	0.4196	0.5667	0.4735	0.7338	0.5443
GB(F)->Q	0.3009	0.2990	0.3318	0.3164	0.3907	0.3440	0.4810	0.3831	0.6078	0.4370	0.7748	0.5078
RB->Q	0.2681	0.2273	0.2989	0.2446	0.3577	0.2722	0.4480	0.3113	0.5749	0.3652	0.7420	0.4360
SB->Q	0.1239	0.1242	0.1548	0.1414	0.2137	0.1690	0.3040	0.2081	0.4308	0.2620	0.5978	0.3328

LACQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0529 pF		0.0881 pF		0.1343 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2601	0.3316	0.2915	0.3495	0.3507	0.3769	0.4421	0.4154	0.5705	0.4683	0.7387	0.5375
GB(F)->Q	0.2809	0.2952	0.3123	0.3131	0.3715	0.3405	0.4629	0.3790	0.5912	0.4319	0.7595	0.5012
RB->Q	0.2685	0.2237	0.3000	0.2416	0.3592	0.2689	0.4506	0.3074	0.5789	0.3604	0.7472	0.4296
SB->Q	0.1260	0.1204	0.1574	0.1383	0.2166	0.1656	0.3080	0.2042	0.4363	0.2571	0.6046	0.3263

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->GB(R)	0.1158	0.1098	0.1161	0.1236
D	setupD(F)->GB(R)	0.2623	0.2635	0.2212	0.2235
D	holdD(R)->GB(R)	-0.1075	-0.1020	-0.1073	-0.1099
D	holdD(F)->GB(R)	-0.2566	-0.2578	-0.2148	-0.2159
GB	minpwl	0.1816	0.1745	0.1574	0.1448
RB	removalRB(R)->GB(R)	-0.1142	-0.1092	-0.1143	-0.1169
RB	recoveryRB(R)->GB(R)	0.1228	0.1168	0.1231	0.1305
RB	minpwl	0.1388	0.1371	0.1108	0.1130
SB	setupSB(R)->RB(R)	-0.0323	-0.0431	-0.0539	-0.0452
SB	removalSB(R)->GB(R)	0.0189	0.0335	0.0470	0.0438
SB	recoverySB(R)->GB(R)	-0.0063	-0.0198	-0.0294	-0.0210
SB	minpwl	0.1574	0.1278	0.1261	0.1294
SB	holdSB(R)->RB(R)	0.0445	0.0572	0.0718	0.0681

Sequential Cell

LACRS

Cell Description

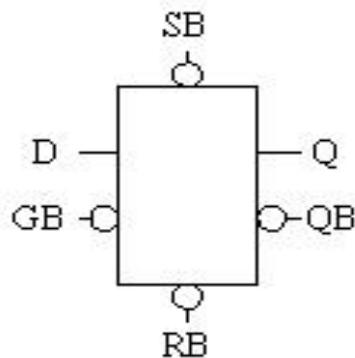
The LACRS cell is an active-low D-type transparent latch with asynchronous active-low set

(SB) and reset (RB), and set dominating reset. When the enable (GB) is low, data is transferred to the outputs (Q, QB).

Truth Table

SB	RB	GB	D	Q[n+1]	QB[n+1]
0	X	X	X	1	0
1	0	X	X	0	1
1	1	0	0	0	1
1	1	0	1	1	0
1	1	1	X	Q[n]	QB[n]

Symbol



Cell List

LACRSM0HM, LACRSM1HM, LACRSM2HM
, LACRSM4HM

LACRS Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00140	0.00140	0.00151	0.00152
GB	input	0.00254	0.00253	0.00262	0.00312
Q	output				
QB	output				
RB	input	0.00235	0.00234	0.00243	0.00243
SB	input	0.00124	0.00161	0.00194	0.00194

Power Dissipation (uW/MHz)

LACRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0162	0.0188	0.0162	0.0189	0.0163	0.0189	0.0163	0.0189	0.0164	0.0189	0.0164	0.0189
GB->Q	0.0161	0.0167	0.0162	0.0167	0.0162	0.0168	0.0163	0.0168	0.0163	0.0168	0.0163	0.0168
RB->Q	0.0179	0.0193	0.0180	0.0193	0.0180	0.0193	0.0180	0.0194	0.0181	0.0194	0.0181	0.0194
SB->Q	0.0136	0.0114	0.0136	0.0115	0.0137	0.0115	0.0137	0.0115	0.0138	0.0115	0.0138	0.0116

LACRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0183	0.0209	0.0184	0.0209	0.0185	0.0210	0.0185	0.0210	0.0186	0.0210	0.0186	0.0210
GB->Q	0.0183	0.0187	0.0184	0.0188	0.0184	0.0188	0.0185	0.0189	0.0185	0.0189	0.0185	0.0189
RB->Q	0.0200	0.0213	0.0200	0.0213	0.0201	0.0214	0.0201	0.0214	0.0201	0.0214	0.0201	0.0214
SB->Q	0.0154	0.0129	0.0154	0.0130	0.0155	0.0130	0.0156	0.0131	0.0156	0.0131	0.0156	0.0131

LACRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0216	0.0239	0.0217	0.0240	0.0218	0.0241	0.0219	0.0241	0.0219	0.0241	0.0219	0.0242
GB->Q	0.0214	0.0214	0.0215	0.0215	0.0216	0.0216	0.0217	0.0216	0.0217	0.0216	0.0218	0.0216
RB->Q	0.0229	0.0241	0.0230	0.0242	0.0231	0.0243	0.0231	0.0243	0.0231	0.0243	0.0231	0.0243
SB->Q	0.0180	0.0151	0.0181	0.0152	0.0182	0.0153	0.0182	0.0153	0.0183	0.0153	0.0183	0.0154

LACRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0288	0.0309	0.0290	0.0310	0.0292	0.0312	0.0293	0.0313	0.0294	0.0313	0.0295	0.0314
GB->Q	0.0286	0.0284	0.0287	0.0285	0.0290	0.0287	0.0291	0.0288	0.0292	0.0288	0.0293	0.0288
RB->Q	0.0299	0.0311	0.0301	0.0313	0.0303	0.0315	0.0305	0.0316	0.0305	0.0316	0.0305	0.0316
SB->Q	0.0252	0.0222	0.0254	0.0224	0.0256	0.0226	0.0258	0.0227	0.0259	0.0227	0.0259	0.0228

Hidden Power (uW/MHz)

LACRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0001	-0.0001	-0.0001	-0.0001
D	F	0.0019	0.0019	0.0022	0.0022
GB	R	0.0007	0.0008	0.0007	0.0006
GB	F	0.0073	0.0074	0.0079	0.0090
RB	R	0.0007	0.0009	0.0010	0.0010
RB	F	0.0043	0.0043	0.0047	0.0047
SB	R	-0.0005	-0.0008	-0.0011	-0.0011
SB	F	0.0008	0.0013	0.0018	0.0018

Propagation Delays (ns)

LACRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0085 pF		0.0155 pF		0.0253 pF		0.0382 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.3424	0.4365	0.3720	0.4534	0.4293	0.4809	0.5181	0.5196	0.6420	0.5718	0.8049	0.6402
D->QB	0.3843	0.2793	0.4183	0.3012	0.4784	0.3346	0.5684	0.3776	0.6935	0.4318	0.8578	0.5001
GB(F)->Q	0.4053	0.3953	0.4348	0.4122	0.4922	0.4397	0.5810	0.4784	0.7049	0.5307	0.8677	0.5990
GB(F)->QB	0.3431	0.3421	0.3772	0.3641	0.4373	0.3976	0.5273	0.4407	0.6524	0.4949	0.8167	0.5632
RB->Q	0.3506	0.3198	0.3801	0.3366	0.4375	0.3641	0.5262	0.4028	0.6502	0.4550	0.8130	0.5233
RB->QB	0.2680	0.2875	0.3015	0.3093	0.3614	0.3427	0.4514	0.3857	0.5765	0.4399	0.7408	0.5083
SB->Q	0.2116	0.1937	0.2412	0.2105	0.2986	0.2380	0.3874	0.2766	0.5113	0.3289	0.6741	0.3972
SB->QB	0.1420	0.1491	0.1755	0.1702	0.2354	0.2028	0.3254	0.2453	0.4505	0.2990	0.6148	0.3671

LACRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2884	0.4025	0.3193	0.4197	0.3775	0.4470	0.4669	0.4860	0.5913	0.5393	0.7559	0.6097
D->QB	0.3620	0.2392	0.3959	0.2595	0.4556	0.2900	0.5458	0.3306	0.6715	0.3841	0.8378	0.4538
GB(F)->Q	0.3507	0.3608	0.3816	0.3779	0.4398	0.4053	0.5292	0.4443	0.6536	0.4976	0.8181	0.5680
GB(F)->QB	0.3203	0.3015	0.3542	0.3219	0.4139	0.3525	0.5042	0.3931	0.6298	0.4465	0.7962	0.5162
RB->Q	0.2965	0.2795	0.3275	0.2966	0.3857	0.3240	0.4750	0.3629	0.5995	0.4162	0.7640	0.4867
RB->QB	0.2393	0.2474	0.2728	0.2676	0.3323	0.2981	0.4226	0.3388	0.5482	0.3922	0.7145	0.4619
SB->Q	0.1552	0.1491	0.1861	0.1662	0.2443	0.1935	0.3337	0.2324	0.4581	0.2857	0.6226	0.3562
SB->QB	0.1090	0.1065	0.1423	0.1259	0.2019	0.1556	0.2921	0.1957	0.4177	0.2488	0.5839	0.3184

LACRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2805	0.3571	0.3113	0.3752	0.3699	0.4038	0.4598	0.4437	0.5859	0.4984	0.7509	0.5698
D->QB	0.3062	0.2313	0.3392	0.2524	0.3988	0.2849	0.4893	0.3296	0.6163	0.3901	0.7827	0.4690
GB(F)->Q	0.3215	0.3206	0.3523	0.3388	0.4109	0.3673	0.5008	0.4073	0.6269	0.4619	0.7920	0.5333
GB(F)->QB	0.2697	0.2722	0.3027	0.2935	0.3623	0.3261	0.4529	0.3707	0.5798	0.4313	0.7462	0.5102
RB->Q	0.2887	0.2471	0.3195	0.2652	0.3781	0.2938	0.4680	0.3337	0.5941	0.3884	0.7592	0.4598
RB->QB	0.1966	0.2395	0.2292	0.2606	0.2888	0.2931	0.3792	0.3378	0.5062	0.3983	0.6726	0.4772
SB->Q	0.1429	0.1423	0.1737	0.1604	0.2323	0.1889	0.3222	0.2288	0.4483	0.2835	0.6134	0.3549
SB->QB	0.0920	0.0942	0.1244	0.1144	0.1839	0.1461	0.2743	0.1903	0.4012	0.2506	0.5676	0.3295

LACRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2933	0.3611	0.3246	0.3793	0.3831	0.4065	0.4738	0.4447	0.6007	0.4968	0.7673	0.5650
D->QB	0.3152	0.2419	0.3514	0.2664	0.4118	0.3012	0.5034	0.3470	0.6316	0.4071	0.7997	0.4848
GB(F)->Q	0.3137	0.3247	0.3450	0.3429	0.4035	0.3701	0.4942	0.4083	0.6211	0.4604	0.7878	0.5286
GB(F)->QB	0.2788	0.2622	0.3150	0.2869	0.3754	0.3218	0.4671	0.3675	0.5952	0.4276	0.7634	0.5054
RB->Q	0.3017	0.2504	0.3330	0.2686	0.3915	0.2957	0.4822	0.3340	0.6091	0.3861	0.7758	0.4543
RB->QB	0.2051	0.2503	0.2406	0.2749	0.3008	0.3097	0.3925	0.3554	0.5206	0.4155	0.6887	0.4932
SB->Q	0.1568	0.1442	0.1881	0.1623	0.2466	0.1895	0.3373	0.2277	0.4643	0.2798	0.6309	0.3480
SB->QB	0.0990	0.1063	0.1343	0.1299	0.1945	0.1639	0.2862	0.2092	0.4143	0.2690	0.5824	0.3466

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->GB(R)	0.1341	0.1249	0.1304	0.1426
D	setupD(F)->GB(R)	0.2715	0.2711	0.2288	0.2381
D	holdD(R)->GB(R)	-0.1127	-0.1055	-0.1112	-0.1173
D	holdD(F)->GB(R)	-0.2648	-0.2650	-0.2215	-0.2285
GB	minpwl	0.2003	0.1887	0.1723	0.1657
RB	removalRB(R)->GB(R)	-0.1192	-0.1125	-0.1182	-0.1247
RB	recoveryRB(R)->GB(R)	0.1407	0.1314	0.1370	0.1495
RB	minpwl	0.1454	0.1426	0.1151	0.1223
SB	setupSB(R)->RB(R)	-0.0228	-0.0360	-0.0463	-0.0329
SB	removalSB(R)->GB(R)	0.0087	0.0258	0.0393	0.0305
SB	recoverySB(R)->GB(R)	0.0041	-0.0115	-0.0217	-0.0076
SB	minpwl	0.2069	0.1646	0.1585	0.1558
SB	holdSB(R)->RB(R)	0.0350	0.0502	0.0643	0.0556

Sequential Cell

LAGCECS

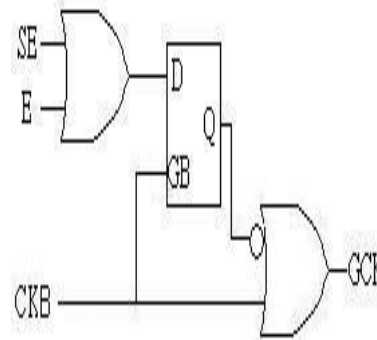
Cell Description

The LAGCECS cell is a negative-edge triggered clock-gating latch. The negative-edge clock (CKB) is qualified by the latched enable signals (SE) and (E) to create the gated negative-edge clock (GCK).

Truth Table

CKB	E	SE	Q[n+1]	GCK[n+1]
0	X	X	Q[n]	Q[n]'
1	0	0	0	1
1	X	1	1	1
1	1	X	1	1

Symbol



Cell List

LAGCECSM2HM, LAGCECSM3HM, LAGCECSM4HM
, LAGCECSM6HM, LAGCECSM8HM
, LAGCECSM12HM, LAGCECSM16HM
, LAGCECSM20HM

LAGCECS Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CKB	input	0.00325	0.00332	0.00335	0.00452	0.00499	0.00676	0.00833	0.01010
E	input	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174
GCK	output								
SE	input	0.00167	0.00167	0.00167	0.00167	0.00167	0.00167	0.00167	0.00167

Power Dissipation (uW/MHz)

LAGCECSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0271 pF	0.0448 pF	0.0681 pF
edge	rise	fall	rise	fall	rise	fall
CKB->GCK	-0.0025	0.0178	-0.0025	0.0179	-0.0024	0.0180

LAGCECSM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF	0.0093 pF	0.0217 pF	0.0411 pF	0.0682 pF	0.1038 pF
edge	rise	fall	rise	fall	rise	fall
CKB->GCK	-0.0016	0.0193	-0.0014	0.0195	-0.0014	0.0196

LAGCECSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0119 pF	0.0281 pF	0.0534 pF	0.0888 pF	0.1355 pF
edge	rise	fall	rise	fall	rise	fall
CKB->GCK	-0.0004	0.0208	-0.0001	0.0209	0.0000	0.0210

LAGCECSM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF	0.0173 pF	0.0415 pF	0.0793 pF	0.1322 pF	0.2019 pF
edge	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0022	0.0261	0.0025	0.0264	0.0027	0.0266

LAGCECSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0047	0.0300	0.0052	0.0303	0.0054	0.0306	0.0055	0.0307	0.0055	0.0309	0.0055	0.0309

LAGCECSM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0334 pF		0.0815 pF		0.1564 pF		0.2616 pF		0.4000 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0102	0.0399	0.0108	0.0404	0.0112	0.0408	0.0113	0.0411	0.0114	0.0412	0.0114	0.0413

LAGCECSM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0440 pF		0.1080 pF		0.2076 pF		0.3474 pF		0.5314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0154	0.0489	0.0162	0.0496	0.0167	0.0502	0.0169	0.0505	0.0169	0.0507	0.0169	0.0507

LAGCECSM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0547 pF		0.1345 pF		0.2589 pF		0.4334 pF		0.6630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0209	0.0590	0.0219	0.0599	0.0226	0.0606	0.0228	0.0610	0.0229	0.0611	0.0229	0.0613

Hidden Power (uW/MHz)

LAGCECS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CKB	R	0.0157	0.0163	0.0163	0.0168	0.0172	0.0182	0.0191	0.0201
CKB	F	0.0111	0.0112	0.0112	0.0121	0.0127	0.0140	0.0153	0.0167
E	R	0.0023	0.0024	0.0024	0.0027	0.0029	0.0033	0.0037	0.0041
E	F	0.0048	0.0050	0.0050	0.0054	0.0055	0.0060	0.0065	0.0071
SE	R	0.0021	0.0023	0.0023	0.0026	0.0027	0.0031	0.0035	0.0040
SE	F	0.0057	0.0059	0.0059	0.0064	0.0064	0.0070	0.0075	0.0080

Propagation Delays (ns)

LAGCECSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0636	0.1221	0.0943	0.1529	0.1529	0.2028	0.2439	0.2748	0.3719	0.3742	0.5399	0.5048

LAGCECSM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0093 pF		0.0217 pF		0.0411 pF		0.0682 pF		0.1038 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0610	0.1316	0.0920	0.1659	0.1513	0.2197	0.2437	0.2964	0.3731	0.4013	0.5424	0.5387

LAGCECSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0281 pF		0.0534 pF		0.0888 pF		0.1355 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0634	0.1397	0.0952	0.1752	0.1545	0.2278	0.2467	0.3009	0.3759	0.3998	0.5458	0.5294

LAGCECSM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0173 pF		0.0415 pF		0.0793 pF		0.1322 pF		0.2019 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0587	0.1279	0.0905	0.1628	0.1498	0.2151	0.2421	0.2892	0.3716	0.3902	0.5416	0.5229

LAGCECSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0548 pF		0.1049 pF		0.1752 pF		0.2677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0575	0.1221	0.0893	0.1564	0.1489	0.2080	0.2412	0.2806	0.3710	0.3800	0.5412	0.5103

LAGCECSM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0334 pF		0.0815 pF		0.1564 pF		0.2616 pF		0.4000 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0573	0.1234	0.0893	0.1586	0.1488	0.2109	0.2412	0.2843	0.3711	0.3849	0.5415	0.5166

LAGCECSM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0105 pF		0.0440 pF		0.1080 pF		0.2076 pF		0.3474 pF		0.5314 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0560	0.1211	0.0879	0.1566	0.1475	0.2094	0.2399	0.2841	0.3697	0.3865	0.5402	0.5207

LAGCECSM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0129 pF		0.0547 pF		0.1345 pF		0.2589 pF		0.4334 pF		0.6630 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->GCK	0.0564	0.1214	0.0883	0.1563	0.1479	0.2077	0.2404	0.2797	0.3702	0.3781	0.5408	0.5070

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)							
		M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CKB	minpwh	0.2588	0.2444	0.2457	0.2581	0.2608	0.2746	0.2869	0.3000
E	setupE(R)->CKB(F)	0.1753	0.1611	0.1628	0.1745	0.1770	0.1905	0.2035	0.2169
E	setupE(F)->CKB(F)	0.1445	0.1411	0.1417	0.1492	0.1565	0.1744	0.2009	0.2199
E	holdE(R)->CKB(F)	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324
E	holdE(F)->CKB(F)	-0.1422	-0.1385	-0.1385	-0.1385	-0.1389	-0.1389	-0.1389	-0.1389
SE	setupSE(R)->CKB(F)	0.1819	0.1677	0.1693	0.1811	0.1839	0.1975	0.2104	0.2235
SE	setupSE(F)->CKB(F)	0.1534	0.1496	0.1503	0.1581	0.1654	0.1833	0.2098	0.2288
SE	holdSE(R)->CKB(F)	0.0321	0.0327	0.0327	0.0326	0.0326	0.0325	0.0325	0.0325
SE	holdSE(F)->CKB(F)	-0.1512	-0.1475	-0.1475	-0.1475	-0.1474	-0.1475	-0.1475	-0.1475

Sequential Cell

LAGCE

Cell Description

The LAGCE cell is a positive-edge triggered clock-gating latch. The positive-edge clock (CK) is qualified by the latched enable signal (E) to create the gated positive-edge clock (GCK).

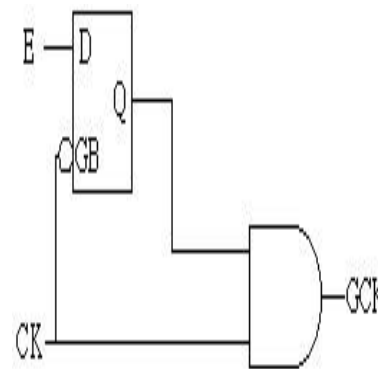
Truth Table

CK	E	Q[n+1]	GCK[n+1]
1	X	Q[n]	Q[n]
0	0	0	0
0	1	1	0

Cell List

LAGCEM2HM, LAGCEM3HM, LAGCEM4HM
, LAGCEM6HM, LAGCEM8HM
, LAGCEM12HM, LAGCEM16HM
, LAGCEM20HM

Symbol



LAGCE Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	input	0.00141	0.00160	0.00177	0.00257	0.00310	0.00449	0.00587	0.00733
E	input	0.00145	0.00169	0.00193	0.00281	0.00331	0.00486	0.00642	0.00776
GCK	output								

Power Dissipation (uW/MHz)

LAGCEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF	0.0036 pF	0.0076 pF	0.0137 pF	0.0223 pF	0.0335 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0116	0.0039	0.0116	0.0039	0.0115	0.0038

LAGCEM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF	0.0051 pF	0.0112 pF	0.0207 pF	0.0341 pF	0.0516 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0140	0.0052	0.0141	0.0052	0.0140	0.0051

LAGCEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0143 pF	0.0267 pF	0.0442 pF	0.0671 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0157	0.0060	0.0157	0.0060	0.0156	0.0060

LAGCEM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF	0.0087 pF	0.0202 pF	0.0380 pF	0.0631 pF	0.0960 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0226	0.0097	0.0226	0.0097	0.0225	0.0097

LAGCEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF	0.0115 pF	0.0270 pF	0.0512 pF	0.0851 pF	0.1298 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0289	0.0134	0.0290	0.0135	0.0288	0.0133

LAGCEM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0169 pF		0.0406 pF		0.0775 pF		0.1293 pF		0.1975 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0419	0.0195	0.0418	0.0195	0.0416	0.0193	0.0413	0.0191	0.0412	0.0189	0.0410	0.0186

LAGCEM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0537 pF		0.1028 pF		0.1716 pF		0.2622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0530	0.0256	0.0529	0.0255	0.0527	0.0253	0.0523	0.0249	0.0519	0.0246	0.0518	0.0244

LAGCEM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0069 pF		0.0275 pF		0.0668 pF		0.1280 pF		0.2140 pF		0.3271 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0628	0.0312	0.0626	0.0311	0.0623	0.0307	0.0619	0.0303	0.0615	0.0299	0.0611	0.0296

Hidden Power (uW/MHz)

LAGCE at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	R	0.0068	0.0078	0.0085	0.0108	0.0124	0.0179	0.0219	0.0262
CK	F	0.0165	0.0188	0.0202	0.0266	0.0311	0.0452	0.0552	0.0650
E	R	0.0031	0.0033	0.0035	0.0047	0.0051	0.0076	0.0088	0.0091
E	F	0.0056	0.0066	0.0073	0.0120	0.0141	0.0211	0.0264	0.0300

Propagation Delays (ns)

LAGCEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0016 pF		0.0036 pF		0.0076 pF		0.0137 pF		0.0223 pF		0.0335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1224	0.1562	0.1543	0.1752	0.2140	0.2086	0.3018	0.2547	0.4250	0.3170	0.5852	0.3970

LAGCEM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0051 pF		0.0112 pF		0.0207 pF		0.0341 pF		0.0516 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1138	0.1523	0.1490	0.1755	0.2096	0.2141	0.2995	0.2697	0.4251	0.3460	0.5889	0.4450

LAGCEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1086	0.1392	0.1459	0.1635	0.2076	0.2037	0.2983	0.2627	0.4248	0.3444	0.5902	0.4509

LAGCEM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0027 pF		0.0087 pF		0.0202 pF		0.0380 pF		0.0631 pF		0.0960 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0989	0.1342	0.1361	0.1569	0.2009	0.1947	0.2934	0.2491	0.4205	0.3241	0.5864	0.4220

LAGCEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0033 pF		0.0115 pF		0.0270 pF		0.0512 pF		0.0851 pF		0.1298 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0994	0.1253	0.1375	0.1475	0.2022	0.1843	0.2953	0.2382	0.4220	0.3122	0.5881	0.4093

LAGCEM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0045 pF		0.0169 pF		0.0406 pF		0.0775 pF		0.1293 pF		0.1975 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0946	0.1276	0.1328	0.1512	0.2003	0.1908	0.2967	0.2488	0.4260	0.3288	0.5935	0.4337

LAGCEM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0537 pF		0.1028 pF		0.1716 pF		0.2622 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0932	0.1229	0.1319	0.1460	0.2002	0.1846	0.2980	0.2413	0.4283	0.3194	0.5964	0.4218

LAGCEM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0069 pF		0.0275 pF		0.0668 pF		0.1280 pF		0.2140 pF		0.3271 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0927	0.1210	0.1324	0.1440	0.2013	0.1825	0.2995	0.2388	0.4304	0.3168	0.5988	0.4189

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)							
		M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	minpwl	0.1846	0.1592	0.1448	0.1400	0.1352	0.1325	0.1228	0.1173
E	setupE(R)->CK(R)	0.0844	0.0645	0.0641	0.0625	0.0647	0.0636	0.0568	0.0502
E	setupE(F)->CK(R)	0.0863	0.0570	0.0319	0.0499	0.0601	0.0374	0.0411	0.0428
E	holdE(R)->CK(R)	-0.0586	-0.0459	-0.0462	-0.0434	-0.0457	-0.0455	-0.0409	-0.0363
E	holdE(F)->CK(R)	0.0316	0.0359	0.0421	0.0329	0.0214	0.0222	0.0136	0.0112

Sequential Cell

LAGCES

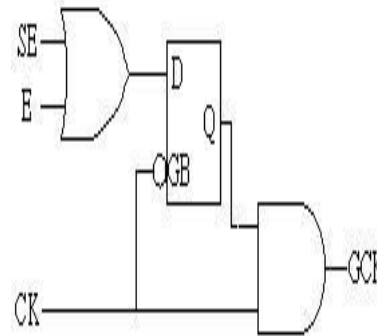
Cell Description

The LAGCES cell is a positive-edge triggered clock-gating latch. The positive-edge clock (CK) is qualified by the latched enable signals (SE) and (E) to create the gated positive-edge clock (GCK).

Truth Table

CK	E	SE	Q[n+1]	GCK[n+1]
1	X	X	Q[n]	Q[n]
0	0	0	0	0
0	X	1	1	0
0	1	X	1	0

Symbol



Cell List

LAGCESM2HM, LAGCESM3HM, LAGCESM4HM
, LAGCESM6HM, LAGCESM8HM
, LAGCESM12HM, LAGCESM16HM
, LAGCESM20HM

LAGCES Pin direction and Cap

Pin	in/out	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	input	0.00281	0.00290	0.00290	0.00289	0.00290	0.00424	0.00476	0.00559
E	input	0.00184	0.00183	0.00183	0.00183	0.00183	0.00183	0.00183	0.00183
GCK	output								
SE	input	0.00172	0.00171	0.00171	0.00171	0.00171	0.00171	0.00171	0.00171

Power Dissipation (uW/MHz)

LAGCESM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0272 pF	0.0449 pF	0.0682 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0130	0.0014	0.0130	0.0015	0.0131	0.0015

LAGCESM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF	0.0092 pF	0.0213 pF	0.0402 pF	0.0668 pF	0.1017 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0149	0.0020	0.0150	0.0022	0.0152	0.0023

LAGCESM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0119 pF	0.0280 pF	0.0532 pF	0.0885 pF	0.1349 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0160	0.0029	0.0162	0.0032	0.0163	0.0033

LAGCESM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF	0.0172 pF	0.0413 pF	0.0788 pF	0.1315 pF	0.2008 pF
edge	rise	fall	rise	fall	rise	fall
CK->GCK	0.0189	0.0062	0.0192	0.0065	0.0195	0.0067

LAGCESM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0218	0.0086	0.0222	0.0090	0.0225	0.0093	0.0227	0.0095	0.0228	0.0096	0.0228	0.0096

LAGCESM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1561 pF		0.2610 pF		0.3991 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0295	0.0160	0.0300	0.0165	0.0305	0.0170	0.0308	0.0173	0.0309	0.0174	0.0310	0.0175

LAGCESM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0106 pF		0.0443 pF		0.1086 pF		0.2089 pF		0.3495 pF		0.5345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0354	0.0218	0.0360	0.0225	0.0367	0.0231	0.0370	0.0235	0.0372	0.0236	0.0373	0.0237

LAGCESM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0130 pF		0.0549 pF		0.1351 pF		0.2599 pF		0.4351 pF		0.6656 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0430	0.0289	0.0438	0.0297	0.0447	0.0305	0.0451	0.0309	0.0453	0.0311	0.0454	0.0312

Hidden Power (uW/MHz)

LAGCES at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	R	0.0057	0.0055	0.0055	0.0055	0.0055	0.0047	0.0040	0.0031
CK	F	0.0174	0.0188	0.0189	0.0189	0.0188	0.0205	0.0214	0.0237
E	R	0.0015	0.0018	0.0018	0.0018	0.0018	0.0021	0.0021	0.0026
E	F	0.0040	0.0042	0.0042	0.0042	0.0042	0.0044	0.0046	0.0049
SE	R	0.0014	0.0017	0.0017	0.0017	0.0017	0.0019	0.0020	0.0024
SE	F	0.0049	0.0051	0.0051	0.0051	0.0051	0.0054	0.0056	0.0058

Propagation Delays (ns)

LAGCESM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0272 pF		0.0449 pF		0.0682 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0870	0.0913	0.1186	0.1177	0.1773	0.1644	0.2689	0.2361	0.3963	0.3357	0.5640	0.4667

LAGCESM3HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0028 pF		0.0092 pF		0.0213 pF		0.0402 pF		0.0668 pF		0.1017 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0853	0.0886	0.1183	0.1173	0.1775	0.1662	0.2693	0.2410	0.3983	0.3461	0.5676	0.4838

LAGCESM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1349 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0872	0.0927	0.1209	0.1231	0.1802	0.1742	0.2723	0.2523	0.4010	0.3614	0.5703	0.5046

LAGCESM6HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0046 pF		0.0172 pF		0.0413 pF		0.0788 pF		0.1315 pF		0.2008 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.0979	0.1032	0.1330	0.1336	0.1930	0.1828	0.2850	0.2564	0.4140	0.3599	0.5834	0.4936

LAGCESM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0226 pF		0.0546 pF		0.1046 pF		0.1747 pF		0.2669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1077	0.1139	0.1445	0.1459	0.2050	0.1954	0.2973	0.2685	0.4263	0.3700	0.5958	0.5015

LAGCESM12HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0082 pF		0.0333 pF		0.0813 pF		0.1561 pF		0.2610 pF		0.3991 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1053	0.1157	0.1420	0.1475	0.2026	0.1962	0.2949	0.2672	0.4240	0.3659	0.5938	0.4936

LAGCESM16HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0106 pF		0.0443 pF		0.1086 pF		0.2089 pF		0.3495 pF		0.5345 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1032	0.1107	0.1400	0.1426	0.2005	0.1913	0.2929	0.2629	0.4220	0.3627	0.5917	0.4916

LAGCESM20HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0130 pF		0.0549 pF		0.1351 pF		0.2599 pF		0.4351 pF		0.6656 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->GCK	0.1086	0.1123	0.1460	0.1441	0.2069	0.1926	0.2992	0.2630	0.4284	0.3616	0.5982	0.4888

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)							
		M2HM	M3HM	M4HM	M6HM	M8HM	M12HM	M16HM	M20HM
CK	minpwl	0.1997	0.1977	0.1984	0.2004	0.2018	0.2224	0.2327	0.2684
E	setupE(R)->CK(R)	0.1590	0.1545	0.1554	0.1569	0.1583	0.1796	0.1903	0.2253
E	setupE(F)->CK(R)	0.0978	0.0965	0.0994	0.0994	0.0976	0.1049	0.1080	0.1108
E	holdE(R)->CK(R)	-0.0447	-0.0460	-0.0460	-0.0460	-0.0460	-0.0477	-0.0487	-0.0516
E	holdE(F)->CK(R)	-0.0946	-0.0920	-0.0920	-0.0893	-0.0842	-0.0874	-0.0888	-0.0881
SE	setupSE(R)->CK(R)	0.1660	0.1614	0.1625	0.1639	0.1648	0.1867	0.1974	0.2323
SE	setupSE(F)->CK(R)	0.1064	0.1054	0.1083	0.1083	0.1066	0.1138	0.1170	0.1196
SE	holdSE(R)->CK(R)	-0.0533	-0.0542	-0.0542	-0.0542	-0.0542	-0.0568	-0.0579	-0.0611
SE	holdSE(F)->CK(R)	-0.1035	-0.1008	-0.1008	-0.0981	-0.0931	-0.0963	-0.0976	-0.0970

Sequential Cell

LA

Cell Description

The LA cell is an active-high D-type transparent latch. When the enable (G) is high, data is transferred to the outputs (Q, QB).

Truth Table

G	D	Q[n+1]	QB[n+1]
1	0	0	1
1	1	1	0
0	X	Q[n]	QB[n]

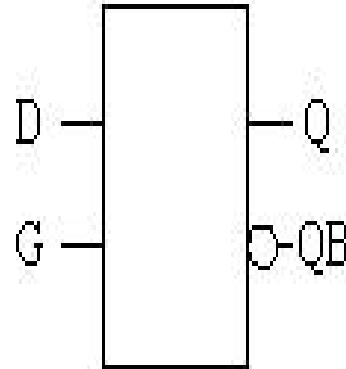
Cell List

LAM0HM, LAM1HM, LAM2HM
, LAM4HM

LA Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00125	0.00125	0.00125	0.00124
G	input	0.00124	0.00124	0.00124	0.00124
Q	output				
QB	output				

Symbol



Power Dissipation (uW/MHz)

LAM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0169 pF		0.0277 pF		0.0419 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0131	0.0143	0.0131	0.0143	0.0132	0.0143	0.0132	0.0144	0.0132	0.0144	0.0133	0.0144
G->Q	0.0136	0.0123	0.0137	0.0123	0.0137	0.0123	0.0137	0.0123	0.0138	0.0124	0.0138	0.0124

LAM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0136	0.0150	0.0137	0.0150	0.0138	0.0150	0.0138	0.0150	0.0139	0.0150	0.0139	0.0150
G->Q	0.0142	0.0129	0.0142	0.0129	0.0143	0.0130	0.0144	0.0130	0.0144	0.0130	0.0144	0.0130

LAM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0155	0.0169	0.0155	0.0169	0.0156	0.0169	0.0157	0.0169	0.0158	0.0169	0.0158	0.0169
G->Q	0.0160	0.0149	0.0160	0.0149	0.0161	0.0149	0.0162	0.0149	0.0163	0.0149	0.0163	0.0149

LAM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0225	0.0254	0.0225	0.0248	0.0226	0.0247	0.0228	0.0246	0.0229	0.0246	0.0230	0.0246
G->Q	0.0230	0.0234	0.0230	0.0228	0.0231	0.0227	0.0232	0.0226	0.0233	0.0226	0.0234	0.0226

Hidden Power (uW/MHz)

LA at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0010	-0.0010	-0.0010	-0.0010
D	F	0.0012	0.0012	0.0012	0.0012
G	R	0.0059	0.0059	0.0059	0.0059
G	F	0.0083	0.0083	0.0083	0.0083

Propagation Delays (ns)

LAM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0043 pF		0.0092 pF		0.0169 pF		0.0277 pF		0.0419 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1242	0.1833	0.1568	0.2086	0.2153	0.2462	0.3053	0.2950	0.4307	0.3564	0.5954	0.4335
D->QB	0.2480	0.1764	0.2788	0.1952	0.3360	0.2248	0.4255	0.2672	0.5508	0.3249	0.7154	0.4006
G(R)->Q	0.2005	0.1926	0.2330	0.2179	0.2914	0.2554	0.3814	0.3042	0.5068	0.3656	0.6715	0.4427
G(R)->QB	0.2574	0.2533	0.2882	0.2721	0.3454	0.3018	0.4349	0.3442	0.5602	0.4020	0.7248	0.4776

LAM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1237	0.1818	0.1571	0.2066	0.2160	0.2425	0.3055	0.2880	0.4312	0.3447	0.5954	0.4147
D->QB	0.2511	0.1766	0.2825	0.1950	0.3399	0.2228	0.4289	0.2613	0.5544	0.3137	0.7185	0.3817
G(R)->Q	0.2000	0.1911	0.2333	0.2159	0.2921	0.2517	0.3815	0.2972	0.5072	0.3539	0.6715	0.4240
G(R)->QB	0.2605	0.2535	0.2919	0.2719	0.3494	0.2996	0.4383	0.3382	0.5638	0.3906	0.7279	0.4587

LAM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0440 pF		0.0668 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1236	0.1884	0.1568	0.2144	0.2167	0.2524	0.3066	0.2996	0.4327	0.3577	0.5977	0.4292
D->QB	0.2619	0.1858	0.2926	0.2048	0.3508	0.2341	0.4399	0.2736	0.5658	0.3269	0.7306	0.3960
G(R)->Q	0.1999	0.1977	0.2331	0.2237	0.2928	0.2617	0.3827	0.3088	0.5088	0.3670	0.6738	0.4385
G(R)->QB	0.2713	0.2627	0.3021	0.2818	0.3603	0.3111	0.4494	0.3506	0.5753	0.4039	0.7401	0.4729

LAM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1396	0.2280	0.1779	0.2612	0.2396	0.3060	0.3310	0.3589	0.4579	0.4205	0.6242	0.4939
D->QB	0.2996	0.1951	0.3317	0.2146	0.3897	0.2427	0.4801	0.2814	0.6070	0.3336	0.7734	0.4015
G(R)->Q	0.2161	0.2376	0.2543	0.2709	0.3159	0.3156	0.4073	0.3686	0.5341	0.4302	0.7005	0.5035
G(R)->QB	0.3093	0.2718	0.3414	0.2913	0.3994	0.3196	0.4899	0.3583	0.6167	0.4104	0.7832	0.4784

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->G(F)	0.0005	0.0036	0.0148	0.0496
D	setupD(F)->G(F)	0.1706	0.1741	0.1809	0.2176
D	holdD(R)->G(F)	0.0099	0.0082	0.0034	-0.0148
D	holdD(F)->G(F)	-0.1171	-0.1210	-0.1313	-0.1754
G	minpwh	0.0860	0.0888	0.0976	0.1272

Sequential Cell

LAQ

Cell Description

The LAQ cell is an active-high D-type transparent latch. When the enable (G) is high, data is transferred to the output (Q).

Truth Table

G	D	Q[n+1]
1	0	0
1	1	1
0	X	Q[n]

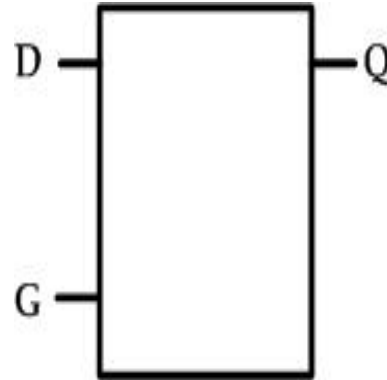
Cell List

LAQM0HM, LAQM1HM, LAQM2HM
, LAQM4HM

LAQ Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00125	0.00125	0.00125	0.00133
G	input	0.00124	0.00124	0.00124	0.00124
Q	output				

Symbol



Power Dissipation (uW/MHz)

LAQM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF	0.0044 pF	0.0094 pF	0.0171 pF	0.0281 pF	0.0424 pF
edge	rise	fall	rise	fall	rise	fall
D->Q	0.0092	0.0113	0.0092	0.0113	0.0093	0.0113
G->Q	0.0097	0.0093	0.0098	0.0093	0.0099	0.0093

LAQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0105 pF	0.0194 pF	0.0318 pF	0.0482 pF
edge	rise	fall	rise	fall	rise	fall
D->Q	0.0095	0.0116	0.0095	0.0116	0.0096	0.0117
G->Q	0.0100	0.0096	0.0100	0.0096	0.0101	0.0097

LAQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0270 pF	0.0446 pF	0.0677 pF
edge	rise	fall	rise	fall	rise	fall
D->Q	0.0105	0.0127	0.0106	0.0126	0.0107	0.0126
G->Q	0.0111	0.0106	0.0111	0.0106	0.0112	0.0106

LAQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0277 pF	0.0526 pF	0.0876 pF	0.1335 pF
edge	rise	fall	rise	fall	rise	fall
D->Q	0.0142	0.0184	0.0142	0.0179	0.0144	0.0177
G->Q	0.0147	0.0164	0.0147	0.0159	0.0149	0.0157

Hidden Power (uW/MHz)

LAQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0010	-0.0010	-0.0010	-0.0010
D	F	0.0012	0.0012	0.0012	0.0012
G	R	0.0059	0.0059	0.0059	0.0060
G	F	0.0083	0.0083	0.0083	0.0083

Propagation Delays (ns)

LAQM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0044 pF		0.0094 pF		0.0171 pF		0.0281 pF		0.0424 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1227	0.1843	0.1564	0.2113	0.2151	0.2498	0.3035	0.2986	0.4294	0.3619	0.5929	0.4410
G(R)->Q	0.1990	0.1935	0.2326	0.2206	0.2912	0.2590	0.3797	0.3079	0.5056	0.3711	0.6691	0.4502

LAQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1223	0.1826	0.1555	0.2084	0.2145	0.2452	0.3045	0.2917	0.4294	0.3494	0.5943	0.4218
G(R)->Q	0.1986	0.1919	0.2318	0.2176	0.2907	0.2545	0.3806	0.3010	0.5055	0.3586	0.6705	0.4311

LAQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1233	0.1903	0.1570	0.2176	0.2166	0.2564	0.3062	0.3040	0.4318	0.3632	0.5964	0.4366
G(R)->Q	0.1996	0.1997	0.2332	0.2269	0.2928	0.2657	0.3824	0.3133	0.5079	0.3725	0.6725	0.4459

LAQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0277 pF		0.0526 pF		0.0876 pF		0.1335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.1400	0.2306	0.1790	0.2661	0.2401	0.3108	0.3308	0.3630	0.4574	0.4251	0.6231	0.4994
G(R)->Q	0.2176	0.2403	0.2566	0.2757	0.3176	0.3205	0.4082	0.3727	0.5348	0.4348	0.7005	0.5091

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->G(F)	-0.0071	-0.0042	0.0035	0.0318
D	setupD(F)->G(F)	0.1684	0.1723	0.1798	0.2182
D	holdD(R)->G(F)	0.0151	0.0134	0.0098	-0.0057
D	holdD(F)->G(F)	-0.1081	-0.1109	-0.1189	-0.1577
G	minpwh	0.0800	0.0822	0.0877	0.1108

Sequential Cell

LAQRS

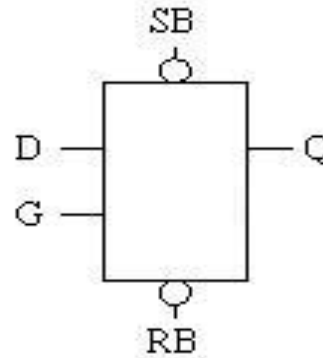
Cell Description

The LAQRS cell is an active-high D-type transparent latch with asynchronous active-low set (SB) and reset (RB), and set dominating reset. When the enable (G) is high, data is transferred to the output (Q).

Truth Table

SB	RB	G	D	Q[n+1]
0	X	X	X	1
1	0	X	X	0
1	1	1	0	0
1	1	1	1	1
1	1	0	X	Q[n]

Symbol



Cell List

LAQRSM0HM, LAQRSM1HM, LAQRSM2HM
, LAQRSM4HM

LAQRS Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00140	0.00140	0.00150	0.00150
G	input	0.00246	0.00245	0.00267	0.00264
Q	output				
RB	input	0.00226	0.00227	0.00242	0.00241
SB	input	0.00138	0.00147	0.00181	0.00175

Power Dissipation (uW/MHz)

LAQRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0386 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0130	0.0163	0.0130	0.0164	0.0131	0.0164	0.0131	0.0164	0.0132	0.0164	0.0132	0.0164
G->Q	0.0133	0.0150	0.0133	0.0151	0.0134	0.0151	0.0134	0.0151	0.0135	0.0151	0.0135	0.0151
RB->Q	0.0143	0.0159	0.0144	0.0159	0.0144	0.0160	0.0145	0.0160	0.0145	0.0160	0.0145	0.0160
SB->Q	0.0111	0.0086	0.0112	0.0087	0.0112	0.0087	0.0113	0.0087	0.0113	0.0087	0.0113	0.0087

LAQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0142	0.0175	0.0143	0.0175	0.0144	0.0176	0.0144	0.0176	0.0144	0.0176	0.0144	0.0176
G->Q	0.0145	0.0161	0.0146	0.0162	0.0147	0.0163	0.0147	0.0163	0.0147	0.0163	0.0147	0.0163
RB->Q	0.0155	0.0170	0.0156	0.0171	0.0156	0.0171	0.0156	0.0171	0.0156	0.0171	0.0157	0.0171
SB->Q	0.0121	0.0095	0.0122	0.0096	0.0123	0.0096	0.0123	0.0097	0.0123	0.0097	0.0124	0.0097

LAQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0167	0.0199	0.0168	0.0200	0.0169	0.0201	0.0170	0.0201	0.0170	0.0201	0.0170	0.0201
G->Q	0.0171	0.0181	0.0172	0.0182	0.0173	0.0183	0.0173	0.0183	0.0174	0.0183	0.0174	0.0183
RB->Q	0.0176	0.0191	0.0177	0.0192	0.0178	0.0193	0.0178	0.0193	0.0178	0.0193	0.0179	0.0194
SB->Q	0.0140	0.0108	0.0141	0.0109	0.0142	0.0110	0.0143	0.0110	0.0143	0.0110	0.0143	0.0110

LAQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0195	0.0230	0.0197	0.0232	0.0199	0.0233	0.0201	0.0234	0.0201	0.0234	0.0202	0.0235
G->Q	0.0198	0.0213	0.0201	0.0214	0.0203	0.0216	0.0204	0.0217	0.0205	0.0217	0.0205	0.0217
RB->Q	0.0206	0.0223	0.0208	0.0225	0.0210	0.0226	0.0211	0.0227	0.0211	0.0227	0.0212	0.0228
SB->Q	0.0169	0.0140	0.0172	0.0142	0.0174	0.0144	0.0175	0.0145	0.0176	0.0145	0.0176	0.0146

Hidden Power (uW/MHz)

LAQRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0002	-0.0002	-0.0002	-0.0002
D	F	0.0019	0.0019	0.0022	0.0022
G	R	0.0017	0.0017	0.0019	0.0018
G	F	0.0061	0.0061	0.0065	0.0064
RB	R	0.0009	0.0010	0.0011	0.0011
RB	F	0.0041	0.0041	0.0046	0.0045
SB	R	-0.0007	-0.0008	-0.0010	-0.0011
SB	F	0.0011	0.0013	0.0018	0.0018

Propagation Delays (ns)

LAQRSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0086 pF		0.0156 pF		0.0255 pF		0.0386 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2784	0.3870	0.3081	0.4031	0.3669	0.4302	0.4559	0.4679	0.5816	0.5196	0.7477	0.5878
G(R)->Q	0.2601	0.3890	0.2898	0.4051	0.3486	0.4322	0.4377	0.4698	0.5633	0.5216	0.7294	0.5898
RB->Q	0.2854	0.2739	0.3151	0.2899	0.3739	0.3171	0.4630	0.3547	0.5886	0.4065	0.7547	0.4747
SB->Q	0.1560	0.1489	0.1857	0.1649	0.2445	0.1921	0.3336	0.2297	0.4592	0.2814	0.6253	0.3496

LAQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2598	0.3736	0.2897	0.3896	0.3489	0.4166	0.4393	0.4552	0.5650	0.5081	0.7320	0.5783
G(R)->Q	0.2414	0.3753	0.2713	0.3912	0.3305	0.4183	0.4209	0.4569	0.5465	0.5098	0.7135	0.5800
RB->Q	0.2668	0.2579	0.2967	0.2738	0.3559	0.3008	0.4463	0.3394	0.5720	0.3923	0.7390	0.4625
SB->Q	0.1363	0.1307	0.1663	0.1466	0.2255	0.1737	0.3159	0.2123	0.4415	0.2651	0.6085	0.3353

LAQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0680 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2356	0.3398	0.2664	0.3574	0.3251	0.3853	0.4160	0.4250	0.5425	0.4792	0.7100	0.5507
G(R)->Q	0.2182	0.3331	0.2490	0.3506	0.3077	0.3785	0.3986	0.4183	0.5251	0.4725	0.6925	0.5440
RB->Q	0.2416	0.2279	0.2725	0.2455	0.3312	0.2734	0.4220	0.3130	0.5485	0.3672	0.7160	0.4387
SB->Q	0.1241	0.1243	0.1549	0.1419	0.2136	0.1698	0.3044	0.2095	0.4310	0.2636	0.5984	0.3351

LAQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0882 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2432	0.3501	0.2749	0.3711	0.3339	0.4024	0.4255	0.4459	0.5536	0.5050	0.7215	0.5821
G(R)->Q	0.2247	0.3455	0.2564	0.3664	0.3154	0.3977	0.4070	0.4412	0.5350	0.5003	0.7030	0.5774
RB->Q	0.2499	0.2373	0.2816	0.2582	0.3406	0.2895	0.4322	0.3330	0.5602	0.3921	0.7282	0.4692
SB->Q	0.1270	0.1358	0.1587	0.1568	0.2178	0.1881	0.3093	0.2316	0.4373	0.2906	0.6053	0.3677

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		MOHM	M1HM	M2HM	M4HM
D	setupD(R)->G(F)	0.1276	0.1278	0.1156	0.1236
D	setupD(F)->G(F)	0.1970	0.2011	0.1814	0.1837
D	holdD(R)->G(F)	-0.1215	-0.1206	-0.1070	-0.1113
D	holdD(F)->G(F)	-0.1905	-0.1938	-0.1736	-0.1748
G	minpwh	0.1080	0.1080	0.0970	0.1036
RB	removalRB(R)->G(F)	-0.1271	-0.1266	-0.1118	-0.1170
RB	recoveryRB(R)->G(F)	0.1331	0.1334	0.1199	0.1287
RB	minpwl	0.1327	0.1344	0.1102	0.1108
SB	setupSB(R)->RB(R)	-0.0422	-0.0436	-0.0550	-0.0473
SB	removalSB(R)->G(F)	0.1091	0.1133	0.1116	0.1050
SB	recoverySB(R)->G(F)	-0.0958	-0.0983	-0.0933	-0.0834
SB	minpwl	0.1322	0.1261	0.1267	0.1223
SB	holdSB(R)->RB(R)	0.0541	0.0577	0.0728	0.0681

Sequential Cell

LARS

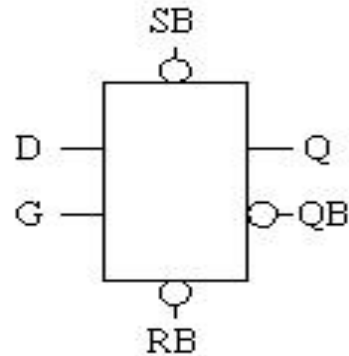
Cell Description

The LARS cell is an active-high D-type transparent latch with asynchronous active-low set (SB) and reset (RB), and set dominating reset. When the enable (G) is high, data is transferred to the outputs (Q, QB).

Truth Table

SB	RB	G	D	Q[n+1]	QB[n+1]
0	X	X	X	1	0
1	0	X	X	0	1
1	1	1	0	0	1
1	1	1	1	1	0
1	1	0	X	Q[n]	QB[n]

Symbol



Cell List

LARSM0HM, LARSM1HM, LARSM2HM
, LARSM4HM

LARS Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM
D	input	0.00140	0.00140	0.00150	0.00150
G	input	0.00246	0.00246	0.00267	0.00264
Q	output				
QB	output				
RB	input	0.00227	0.00227	0.00242	0.00241
SB	input	0.00130	0.00146	0.00177	0.00171

Power Dissipation (uW/MHz)

LARSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0086 pF		0.0157 pF		0.0256 pF		0.0387 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0158	0.0197	0.0158	0.0198	0.0159	0.0198	0.0159	0.0198	0.0160	0.0199	0.0160	0.0199
G->Q	0.0161	0.0184	0.0162	0.0185	0.0162	0.0185	0.0163	0.0185	0.0163	0.0185	0.0163	0.0186
RB->Q	0.0176	0.0193	0.0176	0.0194	0.0177	0.0194	0.0177	0.0194	0.0177	0.0194	0.0177	0.0195
SB->Q	0.0139	0.0119	0.0139	0.0119	0.0140	0.0120	0.0140	0.0120	0.0141	0.0121	0.0141	0.0121

LARSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0175	0.0212	0.0176	0.0212	0.0176	0.0213	0.0177	0.0213	0.0177	0.0213	0.0177	0.0213
G->Q	0.0178	0.0199	0.0179	0.0199	0.0179	0.0200	0.0180	0.0200	0.0180	0.0200	0.0180	0.0200
RB->Q	0.0191	0.0207	0.0191	0.0208	0.0192	0.0209	0.0192	0.0209	0.0192	0.0209	0.0193	0.0209
SB->Q	0.0154	0.0131	0.0155	0.0132	0.0156	0.0133	0.0156	0.0133	0.0157	0.0133	0.0157	0.0133

LARSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0207	0.0247	0.0207	0.0247	0.0209	0.0248	0.0209	0.0249	0.0210	0.0249	0.0210	0.0249
G->Q	0.0210	0.0229	0.0211	0.0229	0.0212	0.0230	0.0213	0.0231	0.0213	0.0231	0.0214	0.0231
RB->Q	0.0222	0.0240	0.0223	0.0241	0.0223	0.0241	0.0224	0.0242	0.0224	0.0242	0.0224	0.0242
SB->Q	0.0180	0.0154	0.0181	0.0155	0.0182	0.0156	0.0183	0.0156	0.0183	0.0156	0.0183	0.0156

LARSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.0265	0.0304	0.0267	0.0305	0.0269	0.0307	0.0270	0.0307	0.0271	0.0308	0.0272	0.0308
G->Q	0.0269	0.0286	0.0271	0.0287	0.0273	0.0289	0.0274	0.0290	0.0275	0.0290	0.0275	0.0291
RB->Q	0.0280	0.0298	0.0282	0.0299	0.0283	0.0301	0.0284	0.0301	0.0285	0.0302	0.0285	0.0302
SB->Q	0.0240	0.0214	0.0242	0.0216	0.0244	0.0217	0.0245	0.0218	0.0246	0.0219	0.0247	0.0219

Hidden Power (uW/MHz)

LARS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M0HM	M1HM	M2HM	M4HM
D	R	-0.0002	-0.0002	-0.0002	-0.0002
D	F	0.0019	0.0019	0.0022	0.0022
G	R	0.0017	0.0017	0.0019	0.0018
G	F	0.0061	0.0061	0.0065	0.0064
RB	R	0.0009	0.0010	0.0011	0.0011
RB	F	0.0040	0.0041	0.0046	0.0045
SB	R	-0.0006	-0.0008	-0.0010	-0.0011
SB	F	0.0011	0.0013	0.0018	0.0018

Propagation Delays (ns)

LARSM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0041 pF		0.0086 pF		0.0157 pF		0.0256 pF		0.0387 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.3010	0.4101	0.3317	0.4276	0.3887	0.4551	0.4781	0.4942	0.6025	0.5470	0.7668	0.6164
D->QB	0.3572	0.2389	0.3905	0.2587	0.4487	0.2886	0.5388	0.3293	0.6638	0.3822	0.8289	0.4508
G(R)->Q	0.2828	0.4121	0.3135	0.4296	0.3705	0.4570	0.4600	0.4962	0.5844	0.5489	0.7487	0.6184
G(R)->QB	0.3591	0.2206	0.3924	0.2405	0.4507	0.2706	0.5408	0.3113	0.6658	0.3642	0.8309	0.4328
RB->Q	0.3080	0.2960	0.3387	0.3135	0.3957	0.3409	0.4851	0.3801	0.6096	0.4329	0.7739	0.5023
RB->QB	0.2435	0.2459	0.2763	0.2657	0.3345	0.2956	0.4246	0.3364	0.5496	0.3893	0.7147	0.4578
SB->Q	0.1777	0.1697	0.2084	0.1872	0.2655	0.2146	0.3549	0.2537	0.4794	0.3065	0.6436	0.3759
SB->QB	0.1174	0.1164	0.1500	0.1353	0.2082	0.1644	0.2982	0.2045	0.4232	0.2570	0.5882	0.3253

LARSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0195 pF		0.0320 pF		0.0485 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2801	0.3954	0.3097	0.4119	0.3684	0.4398	0.4580	0.4791	0.5835	0.5333	0.7486	0.6045
D->QB	0.3540	0.2299	0.3864	0.2494	0.4464	0.2803	0.5365	0.3213	0.6626	0.3754	0.8288	0.4458
G(R)->Q	0.2617	0.3971	0.2914	0.4136	0.3501	0.4414	0.4397	0.4808	0.5651	0.5349	0.7302	0.6061
G(R)->QB	0.3556	0.2114	0.3881	0.2311	0.4481	0.2621	0.5382	0.3031	0.6643	0.3572	0.8305	0.4276
RB->Q	0.2871	0.2780	0.3167	0.2944	0.3754	0.3223	0.4650	0.3616	0.5905	0.4157	0.7556	0.4869
RB->QB	0.2368	0.2369	0.2688	0.2564	0.3286	0.2874	0.4188	0.3283	0.5448	0.3824	0.7110	0.4529
SB->Q	0.1555	0.1490	0.1852	0.1654	0.2439	0.1932	0.3335	0.2325	0.4589	0.2866	0.6240	0.3578
SB->QB	0.1080	0.1058	0.1397	0.1245	0.1995	0.1545	0.2896	0.1949	0.4156	0.2487	0.5818	0.3190

LARSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2559	0.3616	0.2866	0.3799	0.3450	0.4087	0.4353	0.4491	0.5610	0.5038	0.7262	0.5755
D->QB	0.3077	0.2049	0.3407	0.2259	0.4002	0.2583	0.4913	0.3032	0.6179	0.3636	0.7848	0.4427
G(R)->Q	0.2385	0.3549	0.2692	0.3732	0.3277	0.4020	0.4180	0.4424	0.5437	0.4971	0.7089	0.5688
G(R)->QB	0.3010	0.1875	0.3340	0.2086	0.3935	0.2411	0.4846	0.2860	0.6113	0.3464	0.7781	0.4255
RB->Q	0.2619	0.2479	0.2926	0.2663	0.3510	0.2950	0.4414	0.3354	0.5671	0.3901	0.7323	0.4618
RB->QB	0.1945	0.2110	0.2270	0.2319	0.2864	0.2643	0.3775	0.3092	0.5041	0.3696	0.6709	0.4487
SB->Q	0.1433	0.1427	0.1740	0.1610	0.2324	0.1898	0.3227	0.2302	0.4484	0.2849	0.6136	0.3566
SB->QB	0.0896	0.0929	0.1219	0.1130	0.1812	0.1446	0.2722	0.1890	0.3988	0.2492	0.5655	0.3282

LARSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0524 pF		0.0871 pF		0.1328 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
D->Q	0.2785	0.3850	0.3102	0.4063	0.3688	0.4377	0.4596	0.4808	0.5863	0.5387	0.7530	0.6143
D->QB	0.3193	0.2162	0.3555	0.2393	0.4158	0.2723	0.5075	0.3166	0.6350	0.3747	0.8027	0.4500
G(R)->Q	0.2600	0.3804	0.2917	0.4016	0.3504	0.4331	0.4412	0.4762	0.5679	0.5340	0.7346	0.6096
G(R)->QB	0.3146	0.1975	0.3508	0.2208	0.4113	0.2540	0.5030	0.2982	0.6305	0.3563	0.7981	0.4317
RB->Q	0.2852	0.2690	0.3169	0.2902	0.3755	0.3216	0.4664	0.3647	0.5931	0.4226	0.7597	0.4982
RB->QB	0.2040	0.2228	0.2395	0.2459	0.2997	0.2790	0.3914	0.3232	0.5189	0.3813	0.6866	0.4567
SB->Q	0.1603	0.1651	0.1920	0.1864	0.2506	0.2177	0.3415	0.2608	0.4681	0.3186	0.6348	0.3943
SB->QB	0.1004	0.0992	0.1356	0.1213	0.1958	0.1536	0.2875	0.1974	0.4149	0.2552	0.5826	0.3304

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M0HM	M1HM	M2HM	M4HM
D	setupD(R)->G(F)	0.1422	0.1426	0.1275	0.1404
D	setupD(F)->G(F)	0.2043	0.2094	0.1882	0.1983
D	holdD(R)->G(F)	-0.1253	-0.1249	-0.1102	-0.1184
D	holdD(F)->G(F)	-0.1970	-0.2017	-0.1797	-0.1876
G	minpwh	0.1223	0.1228	0.1086	0.1206
RB	removalRB(R)->G(F)	-0.1312	-0.1304	-0.1151	-0.1236
RB	recoveryRB(R)->G(F)	0.1477	0.1481	0.1322	0.1456
RB	minpwl	0.1382	0.1404	0.1146	0.1195
SB	setupSB(R)->RB(R)	-0.0344	-0.0359	-0.0475	-0.0320
SB	removalSB(R)->G(F)	0.1010	0.1052	0.1042	0.0900
SB	recoverySB(R)->G(F)	-0.0870	-0.0891	-0.0853	-0.0665
SB	minpwl	0.1701	0.1629	0.1591	0.1459
SB	holdSB(R)->RB(R)	0.0465	0.0500	0.0656	0.0537

Sequential Cell

SDFC

Cell Description

The SDFC cell is a negative-edge triggered, static D-type flip-flop with scan input (SD) and active-high scan enable (SE).

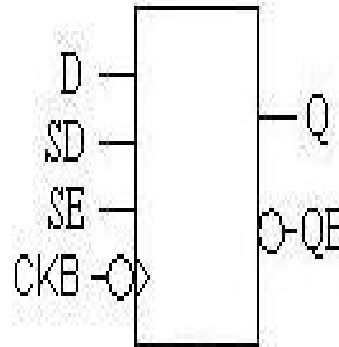
Truth Table

SE	D	SD	CKB	Q[n+1]	QB[n+1]
0	0	X	F	0	1
0	1	X	F	1	0
1	X	0	F	0	1
1	X	1	F	1	0
X	X	X	R	Q[n]	QB[n]

Cell List

SDFCM1HM, SDFCM2HM, SDFCM4HM
, SDFCM8HM

Symbol



SDFC Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00093	0.00112	0.00145	0.00132
D	input	0.00133	0.00183	0.00183	0.00175
Q	output				
QB	output				
SD	input	0.00103	0.00103	0.00103	0.00102
SE	input	0.00254	0.00249	0.00253	0.00250

Power Dissipation (uW/MHz)

SDFCM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0207	0.0160	0.0207	0.0161	0.0208	0.0161	0.0209	0.0162	0.0209	0.0162	0.0209	0.0162

SDFCM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0223	0.0178	0.0224	0.0179	0.0225	0.0180	0.0226	0.0180	0.0226	0.0180	0.0226	0.0181

SDFCM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0877 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0333	0.0284	0.0334	0.0285	0.0336	0.0287	0.0338	0.0288	0.0339	0.0288	0.0340	0.0289

SDFCM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1722 pF		0.2631 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0494	0.0438	0.0495	0.0440	0.0498	0.0444	0.0501	0.0445	0.0503	0.0446	0.0504	0.0447

Hidden Power (uW/MHz)

SDFC at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0083	0.0083	0.0089	0.0094
CKB	F	0.0112	0.0115	0.0129	0.0128
D	R	0.0015	0.0037	0.0037	0.0036
D	F	0.0043	0.0092	0.0092	0.0089
SD	R	0.0016	0.0015	0.0015	0.0015
SD	F	0.0052	0.0049	0.0050	0.0048
SE	R	0.0027	0.0030	0.0030	0.0029
SE	F	0.0100	0.0090	0.0090	0.0089

Propagation Delays (ns)

SDFCM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3695	0.3059	0.4006	0.3219	0.4590	0.3481	0.5487	0.3861	0.6747	0.4387	0.8400	0.5075
CKB(F)->QB	0.3888	0.4705	0.4209	0.4932	0.4792	0.5262	0.5687	0.5690	0.6947	0.6240	0.8601	0.6936

SDFCM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3080	0.2460	0.3391	0.2629	0.3976	0.2898	0.4878	0.3285	0.6145	0.3816	0.7809	0.4511
CKB(F)->QB	0.3142	0.3952	0.3457	0.4173	0.4039	0.4493	0.4938	0.4911	0.6204	0.5458	0.7866	0.6157

SDFCM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0877 pF		0.1337 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3219	0.2593	0.3539	0.2765	0.4131	0.3031	0.5046	0.3412	0.6328	0.3934	0.8010	0.4619
CKB(F)->QB	0.3110	0.3768	0.3427	0.3967	0.4017	0.4255	0.4929	0.4648	0.6208	0.5174	0.7886	0.5860

SDFCM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1031 pF		0.1722 pF		0.2631 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3394	0.2656	0.3731	0.2869	0.4327	0.3178	0.5246	0.3597	0.6533	0.4161	0.8224	0.4899
CKB(F)->QB	0.3132	0.3866	0.3449	0.4066	0.4037	0.4363	0.4946	0.4779	0.6219	0.5348	0.7893	0.6092

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2316	0.1789	0.2107	0.2277
CKB	minpwh	0.1146	0.1675	0.1682	0.1668
D	setupD(R)->CKB(F)	-0.0696	0.0040	0.0167	0.0282
D	setupD(F)->CKB(F)	0.2027	0.1194	0.1171	0.1328
D	holdD(R)->CKB(F)	0.1198	0.0546	0.0509	0.0399
D	holdD(F)->CKB(F)	-0.1599	-0.0659	-0.0533	-0.0670
SD	setupSD(R)->CKB(F)	0.0361	0.0948	0.1092	0.1302
SD	setupSD(F)->CKB(F)	0.3446	0.3426	0.3427	0.3480
SD	holdSD(R)->CKB(F)	0.0601	0.0249	0.0189	0.0074
SD	holdSD(F)->CKB(F)	-0.2807	-0.2642	-0.2566	-0.2564
SE	setupSE(R)->CKB(F)	0.3521	0.3478	0.3466	0.3532
SE	setupSE(F)->CKB(F)	-0.0044	0.0358	0.0457	0.0549
SE	holdSE(R)->CKB(F)	-0.2906	-0.2702	-0.2618	-0.2629
SE	holdSE(F)->CKB(F)	0.0554	0.0243	0.0229	0.0138

Sequential Cell

SDFCQ

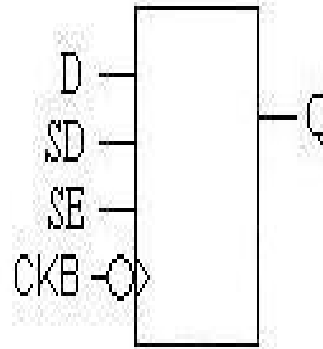
Cell Description

The SDFCQ cell is a negative-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE). The cell has a single output (Q).

Truth Table

SE	D	SD	CKB	Q[n+1]
0	0	X	F	0
0	1	X	F	1
1	X	0	F	0
1	X	1	F	1
X	X	X	R	Q[n]

Symbol



Cell List

SDFCQM1HM, SDFCQM2HM, SDFCQM4HM
, SDFCQM8HM

SDFCQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00093	0.00112	0.00145	0.00132
D	input	0.00133	0.00183	0.00183	0.00175
Q	output				
SD	input	0.00103	0.00103	0.00103	0.00102
SE	input	0.00254	0.00249	0.00253	0.00250

Power Dissipation (uW/MHz)

SDFCQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0321 pF		0.0486 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0165	0.0127	0.0166	0.0128	0.0166	0.0128	0.0167	0.0128	0.0167	0.0128	0.0167	0.0129

SDFCQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0175	0.0136	0.0175	0.0138	0.0176	0.0138	0.0177	0.0138	0.0178	0.0139	0.0178	0.0139

SDFCQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0249	0.0210	0.0251	0.0212	0.0253	0.0214	0.0254	0.0214	0.0255	0.0215	0.0256	0.0215

SDFCQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1032 pF		0.1723 pF		0.2633 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0336	0.0296	0.0337	0.0299	0.0340	0.0302	0.0343	0.0303	0.0345	0.0304	0.0346	0.0304

Hidden Power (uW/MHz)

SDFCQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0083	0.0083	0.0089	0.0094
CKB	F	0.0112	0.0115	0.0129	0.0128
D	R	0.0015	0.0037	0.0037	0.0036
D	F	0.0043	0.0092	0.0092	0.0089
SD	R	0.0016	0.0015	0.0015	0.0015
SD	F	0.0052	0.0049	0.0050	0.0048
SE	R	0.0027	0.0030	0.0030	0.0029
SE	F	0.0100	0.0090	0.0090	0.0089

Propagation Delays (ns)

SDFCQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0195 pF		0.0321 pF		0.0486 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3699	0.3070	0.4008	0.3232	0.4588	0.3500	0.5486	0.3892	0.6754	0.4436	0.8413	0.5147

SDFCQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3079	0.2472	0.3394	0.2648	0.3978	0.2926	0.4879	0.3323	0.6147	0.3874	0.7814	0.4596

SDFCQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0532 pF		0.0885 pF		0.1350 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3220	0.2602	0.3540	0.2780	0.4128	0.3049	0.5041	0.3438	0.6318	0.3973	0.7997	0.4676

SDFCQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1032 pF		0.1723 pF		0.2633 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.3397	0.2667	0.3734	0.2886	0.4320	0.3191	0.5229	0.3611	0.6502	0.4180	0.8175	0.4926

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2277	0.1750	0.2058	0.2184
CKB	minpwh	0.1125	0.1640	0.1675	0.1668
D	setupD(R)->CKB(F)	-0.0735	0.0013	0.0161	0.0282
D	setupD(F)->CKB(F)	0.2027	0.1194	0.1170	0.1323
D	holdD(R)->CKB(F)	0.1198	0.0545	0.0509	0.0398
D	holdD(F)->CKB(F)	-0.1609	-0.0675	-0.0539	-0.0674
SD	setupSD(R)->CKB(F)	0.0311	0.0919	0.1086	0.1302
SD	setupSD(F)->CKB(F)	0.3442	0.3422	0.3426	0.3480
SD	holdSD(R)->CKB(F)	0.0601	0.0249	0.0188	0.0074
SD	holdSD(F)->CKB(F)	-0.2823	-0.2653	-0.2571	-0.2564
SE	setupSE(R)->CKB(F)	0.3516	0.3473	0.3466	0.3531
SE	setupSE(F)->CKB(F)	-0.0084	0.0330	0.0451	0.0548
SE	holdSE(R)->CKB(F)	-0.2917	-0.2713	-0.2624	-0.2629
SE	holdSE(F)->CKB(F)	0.0553	0.0243	0.0229	0.0138

Sequential Cell

SDFCQRS

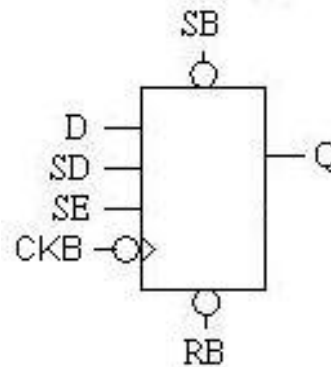
Cell Description

The SDFCQRS cell is a negative-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low reset (RB) and set (SB). Reset (RB) dominates set (SB). The cell has a single output (Q).

Truth Table

RB	SB	SE	D	SD	CKB	Q[n+1]
0	X	X	X	X	X	0
1	0	X	X	X	X	1
1	1	0	0	X	F	0
1	1	0	1	X	F	1
1	1	1	X	0	F	0
1	1	1	X	1	F	1
1	1	X	X	X	R	Q[n]

Symbol



Cell List

SDFCQRSM1HM, SDFCQRSM2HM, SDFCQRSM4HM, SDFCQRSM8HM

SDFCQRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00097	0.00118	0.00118	0.00133
D	input	0.00140	0.00194	0.00193	0.00183
Q	output				
RB	input	0.00348	0.00349	0.00347	0.00459
SB	input	0.00275	0.00327	0.00359	0.00356
SD	input	0.00104	0.00103	0.00103	0.00098
SE	input	0.00262	0.00259	0.00259	0.00254

Power Dissipation (uW/MHz)

SDFCQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0174	0.0157	0.0175	0.0158	0.0175	0.0158	0.0176	0.0158	0.0176	0.0159	0.0176	0.0159
RB->Q	0.0129	0.0163	0.0130	0.0163	0.0130	0.0164	0.0130	0.0164	0.0131	0.0164	0.0131	0.0164
SB->Q	0.0202	0.0202	0.0203	0.0203	0.0203	0.0203	0.0204	0.0204	0.0204	0.0204	0.0204	0.0204

SDFCQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0202	0.0180	0.0203	0.0181	0.0203	0.0182	0.0204	0.0182	0.0204	0.0182	0.0205	0.0182
RB->Q	0.0146	0.0184	0.0147	0.0185	0.0148	0.0186	0.0149	0.0186	0.0149	0.0186	0.0149	0.0186
SB->Q	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0223	0.0223	0.0224	0.0224	0.0224	0.0224

SDFCQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0242	0.0217	0.0242	0.0218	0.0243	0.0219	0.0244	0.0220	0.0245	0.0220	0.0245	0.0221
RB->Q	0.0181	0.0218	0.0182	0.0219	0.0184	0.0221	0.0185	0.0221	0.0186	0.0222	0.0186	0.0222
SB->Q	0.0256	0.0256	0.0256	0.0256	0.0257	0.0257	0.0258	0.0258	0.0259	0.0259	0.0260	0.0260

SDFCQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1025 pF		0.1711 pF		0.2614 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0351	0.0320	0.0348	0.0321	0.0350	0.0323	0.0352	0.0324	0.0354	0.0325	0.0355	0.0326
RB->Q	0.0259	0.0308	0.0262	0.0311	0.0266	0.0314	0.0268	0.0315	0.0270	0.0316	0.0270	0.0316
SB->Q	0.0364	0.0364	0.0362	0.0362	0.0365	0.0365	0.0367	0.0367	0.0369	0.0369	0.0371	0.0371

Hidden Power (uW/MHz)

SDFCQRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0137	0.0125	0.0125	0.0130
CKB	F	0.0161	0.0164	0.0165	0.0170
D	R	0.0011	0.0034	0.0034	0.0032
D	F	0.0037	0.0089	0.0089	0.0085
RB	R	-0.0016	-0.0016	-0.0016	-0.0024
RB	F	0.0021	0.0021	0.0021	0.0033
SB	R	0.0033	0.0033	0.0032	0.0034
SB	F	0.0087	0.0094	0.0100	0.0111
SD	R	0.0013	0.0012	0.0012	0.0012
SD	F	0.0043	0.0040	0.0040	0.0038
SE	R	0.0023	0.0027	0.0027	0.0026
SE	F	0.0092	0.0090	0.0090	0.0088

Propagation Delays (ns)

SDFCQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0317 pF		0.0480 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4266	0.3437	0.4605	0.3624	0.5192	0.3911	0.6084	0.4311	0.7333	0.4852	0.8972	0.5556
RB->Q	0.1132	0.0933	0.1461	0.1111	0.2043	0.1390	0.2931	0.1783	0.4180	0.2321	0.5818	0.3024
SB->Q	0.3504	--n/a--	0.3840	--n/a--	0.4423	--n/a--	0.5311	--n/a--	0.6559	--n/a--	0.8198	--n/a--

SDFCQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0674 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4037	0.3181	0.4390	0.3399	0.4983	0.3730	0.5874	0.4182	0.7122	0.4789	0.8768	0.5583
RB->Q	0.1204	0.1046	0.1545	0.1254	0.2129	0.1574	0.3016	0.2018	0.4263	0.2623	0.5908	0.3416
SB->Q	0.3654	--n/a--	0.4002	--n/a--	0.4588	--n/a--	0.5475	--n/a--	0.6722	--n/a--	0.8367	--n/a--

SDFCQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4160	0.3310	0.4565	0.3568	0.5194	0.3927	0.6118	0.4393	0.7406	0.5002	0.9097	0.5787
RB->Q	0.1299	0.1174	0.1687	0.1419	0.2303	0.1765	0.3224	0.2224	0.4512	0.2830	0.6203	0.3613
SB->Q	0.3767	--n/a--	0.4162	--n/a--	0.4780	--n/a--	0.5700	--n/a--	0.6988	--n/a--	0.8679	--n/a--

SDFCQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1025 pF		0.1711 pF		0.2614 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4394	0.3452	0.4780	0.3692	0.5388	0.4025	0.6294	0.4463	0.7557	0.5037	0.9218	0.5780
RB->Q	0.1065	0.1041	0.1425	0.1270	0.2021	0.1593	0.2927	0.2026	0.4190	0.2598	0.5850	0.3340
SB->Q	0.4003	--n/a--	0.4382	--n/a--	0.4983	--n/a--	0.5887	--n/a--	0.7150	--n/a--	0.8810	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2442	0.2393	0.2530	0.3063
CKB	minpwh	0.1709	0.2073	0.2148	0.1922
D	setupD(R)->CKB(F)	-0.0190	0.0317	0.0417	0.0505
D	setupD(F)->CKB(F)	0.2257	0.1263	0.1284	0.1433
D	holdD(R)->CKB(F)	0.0933	0.0523	0.0533	0.0474
D	holdD(F)->CKB(F)	-0.1898	-0.0852	-0.0811	-0.0820
RB	setupRB(R)->SB(R)	-0.0415	-0.0017	0.0186	-0.0026
RB	removalRB(R)->CKB(F)	0.4176	0.3830	0.3824	0.3614
RB	recoveryRB(R)->CKB(F)	-0.3635	-0.3157	-0.3021	-0.3108
RB	minpwl	0.1690	0.1443	0.1525	0.1338
RB	holdRB(R)->SB(R)	0.0565	0.0126	-0.0049	0.0212
SB	removalSB(R)->CKB(F)	0.1701	0.1355	0.1356	0.1221
SB	recoverySB(R)->CKB(F)	-0.1377	-0.1007	-0.0950	-0.0759
SB	minpwl	0.2645	0.2442	0.2074	0.2217
SD	setupSD(R)->CKB(F)	0.0900	0.1300	0.1392	0.1570
SD	setupSD(F)->CKB(F)	0.3501	0.3396	0.3425	0.3989
SD	holdSD(R)->CKB(F)	0.0285	0.0146	0.0168	0.0107
SD	holdSD(F)->CKB(F)	-0.3036	-0.2809	-0.2765	-0.3078
SE	setupSE(R)->CKB(F)	0.3591	0.3434	0.3463	0.4005
SE	setupSE(F)->CKB(F)	0.0446	0.0597	0.0693	0.0746
SE	holdSE(R)->CKB(F)	-0.3125	-0.2848	-0.2809	-0.3094
SE	holdSE(F)->CKB(F)	0.0285	0.0243	0.0254	0.0227

Sequential Cell

SDFCRS

Cell Description

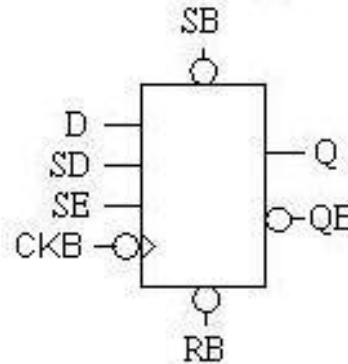
The SDFCRS cell is a negative-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), asynchronous active-low set (SB) and asynchronous active-low reset (RB).

Truth Table

RB	SB	SE	D	SD	CKB	Q[n+1]	QB[n+1]
0	1	X	X	X	X	0	1
1	0	X	X	X	X	1	0
0	0	X	X	X	X	0	0
1	1	0	0	X	F	0	1
1	1	0	1	X	F	1	0
1	1	1	X	0	F	0	1
1	1	1	X	1	F	1	0
1	1	X	X	X	R	Q[n]	QB[n]

Symbol



Cell List

SDFCRSM1HM, SDFCRSM2HM, SDFCRSM4HM
, SDFCRSM8HM

SDFCRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CKB	input	0.00097	0.00118	0.00118	0.00133
D	input	0.00140	0.00194	0.00193	0.00183
Q	output				
QB	output				
RB	input	0.00349	0.00350	0.00349	0.00459
SB	input	0.00274	0.00325	0.00355	0.00350
SD	input	0.00104	0.00103	0.00103	0.00098
SE	input	0.00262	0.00259	0.00259	0.00254

Power Dissipation (uW/MHz)

SDFCRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0189 pF		0.0311 pF		0.0470 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0236	0.0197	0.0237	0.0197	0.0237	0.0197	0.0238	0.0198	0.0238	0.0198	0.0238	0.0198
RB->Q	0.0149	0.0186	0.0149	0.0186	0.0150	0.0187	0.0150	0.0187	0.0150	0.0187	0.0150	0.0187
SB->Q	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
SB->QB	0.0099	0.0206	0.0099	0.0206	0.0100	0.0206	0.0100	0.0206	0.0100	0.0206	0.0101	0.0206

SDFCRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0267	0.0228	0.0267	0.0229	0.0267	0.0229	0.0268	0.0230	0.0268	0.0230	0.0269	0.0230
RB->Q	0.0169	0.0211	0.0170	0.0212	0.0170	0.0213	0.0171	0.0213	0.0171	0.0213	0.0172	0.0213
SB->Q	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138	0.0138
SB->QB	0.0107	0.0222	0.0108	0.0222	0.0109	0.0223	0.0110	0.0223	0.0111	0.0223	0.0111	0.0223

SDFCRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0337	0.0298	0.0336	0.0298	0.0337	0.0299	0.0338	0.0300	0.0339	0.0301	0.0340	0.0301
RB->Q	0.0219	0.0263	0.0220	0.0264	0.0222	0.0265	0.0223	0.0266	0.0224	0.0267	0.0224	0.0267
SB->Q	0.0170	0.0170	0.0170	0.0170	0.0171	0.0171	0.0171	0.0171	0.0172	0.0172	0.0172	0.0172
SB->QB	0.0137	0.0259	0.0139	0.0260	0.0141	0.0261	0.0142	0.0262	0.0143	0.0263	0.0144	0.0265

SDFCRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0533 pF		0.1019 pF		0.1702 pF		0.2601 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB->Q	0.0525	0.0470	0.0524	0.0470	0.0526	0.0471	0.0528	0.0473	0.0529	0.0474	0.0531	0.0475
RB->Q	0.0332	0.0388	0.0335	0.0390	0.0339	0.0393	0.0340	0.0395	0.0342	0.0395	0.0342	0.0396
SB->Q	0.0273	0.0273	0.0271	0.0271	0.0273	0.0273	0.0274	0.0274	0.0275	0.0275	0.0276	0.0276
SB->QB	0.0212	0.0369	0.0213	0.0364	0.0216	0.0365	0.0219	0.0365	0.0221	0.0367	0.0222	0.0368

Hidden Power (uW/MHz)

SDFCRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CKB	R	0.0137	0.0125	0.0125	0.0130
CKB	F	0.0161	0.0165	0.0165	0.0170
D	R	0.0011	0.0034	0.0034	0.0032
D	F	0.0037	0.0089	0.0089	0.0085
RB	R	-0.0016	-0.0016	-0.0016	-0.0024
RB	F	0.0021	0.0021	0.0021	0.0033
SB	R	-0.0001	-0.0002	-0.0006	-0.0008
SB	F	0.0029	0.0032	0.0038	0.0037
SD	R	0.0013	0.0012	0.0012	0.0012
SD	F	0.0043	0.0040	0.0040	0.0038
SE	R	0.0023	0.0027	0.0027	0.0026
SE	F	0.0092	0.0090	0.0090	0.0088

Propagation Delays (ns)
SDFCRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0047 pF		0.0103 pF		0.0189 pF		0.0311 pF		0.0470 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4328	0.3467	0.4661	0.3647	0.5248	0.3929	0.6134	0.4314	0.7386	0.4838	0.9014	0.5512
CKB(F)->QB	0.4852	0.5754	0.5212	0.6000	0.5816	0.6361	0.6702	0.6811	0.7949	0.7376	0.9572	0.8070
RB->Q	0.1178	0.0960	0.1504	0.1132	0.2087	0.1407	0.2970	0.1787	0.4220	0.2305	0.5846	0.2977
RB->QB	0.2342	--n/a--	0.2700	--n/a--	0.3305	--n/a--	0.4191	--n/a--	0.5438	--n/a--	0.7061	--n/a--
SB->Q	0.3564	--n/a--	0.3895	--n/a--	0.4478	--n/a--	0.5359	--n/a--	0.6607	--n/a--	0.8232	--n/a--
SB->QB	0.1571	0.1719	0.1932	0.1960	0.2538	0.2314	0.3425	0.2761	0.4673	0.3323	0.6297	0.4008

SDFCRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4071	0.3194	0.4424	0.3407	0.5020	0.3731	0.5919	0.4175	0.7177	0.4768	0.8828	0.5537
CKB(F)->QB	0.4065	0.5348	0.4393	0.5598	0.4975	0.5963	0.5866	0.6437	0.7118	0.7045	0.8765	0.7820
RB->Q	0.1230	0.1058	0.1571	0.1263	0.2159	0.1578	0.3054	0.2014	0.4308	0.2601	0.5959	0.3368
RB->QB	0.1932	--n/a--	0.2260	--n/a--	0.2841	--n/a--	0.3733	--n/a--	0.4984	--n/a--	0.6631	--n/a--
SB->Q	0.3690	--n/a--	0.4038	--n/a--	0.4626	--n/a--	0.5518	--n/a--	0.6769	--n/a--	0.8418	--n/a--
SB->QB	0.1063	0.1471	0.1391	0.1713	0.1972	0.2068	0.2865	0.2536	0.4117	0.3144	0.5764	0.3922

SDFCRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0276 pF		0.0523 pF		0.0870 pF		0.1327 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4201	0.3332	0.4605	0.3584	0.5236	0.3937	0.6163	0.4397	0.7451	0.4993	0.9143	0.5755
CKB(F)->QB	0.4180	0.5222	0.4525	0.5468	0.5119	0.5814	0.6025	0.6265	0.7296	0.6856	0.8967	0.7617
RB->Q	0.1334	0.1197	0.1722	0.1440	0.2342	0.1784	0.3262	0.2234	0.4548	0.2823	0.6239	0.3584
RB->QB	0.2046	--n/a--	0.2391	--n/a--	0.2984	--n/a--	0.3891	--n/a--	0.5161	--n/a--	0.6833	--n/a--
SB->Q	0.3812	--n/a--	0.4208	--n/a--	0.4830	--n/a--	0.5749	--n/a--	0.7032	--n/a--	0.8721	--n/a--
SB->QB	0.0959	0.1157	0.1301	0.1392	0.1894	0.1727	0.2801	0.2173	0.4071	0.2762	0.5743	0.3528

SDFCRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0220 pF		0.0533 pF		0.1019 pF		0.1702 pF		0.2601 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CKB(F)->Q	0.4426	0.3469	0.4814	0.3708	0.5426	0.4040	0.6336	0.4473	0.7608	0.5043	0.9279	0.5778
CKB(F)->QB	0.4622	0.5796	0.5003	0.6079	0.5610	0.6463	0.6511	0.6940	0.7771	0.7539	0.9428	0.8290
RB->Q	0.1086	0.1057	0.1450	0.1287	0.2051	0.1611	0.2959	0.2038	0.4229	0.2604	0.5899	0.3337
RB->QB	0.2204	--n/a--	0.2583	--n/a--	0.3190	--n/a--	0.4092	--n/a--	0.5352	--n/a--	0.7008	--n/a--
SB->Q	0.4036	--n/a--	0.4417	--n/a--	0.5024	--n/a--	0.5930	--n/a--	0.7199	--n/a--	0.8868	--n/a--
SB->QB	0.1219	0.1481	0.1596	0.1755	0.2203	0.2128	0.3105	0.2599	0.4366	0.3195	0.6022	0.3948

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CKB	minpwl	0.2612	0.2552	0.2711	0.3271
CKB	minpwh	0.1736	0.2073	0.2148	0.1929
D	setupD(R)->CKB(F)	-0.0158	0.0316	0.0411	0.0505
D	setupD(F)->CKB(F)	0.2257	0.1263	0.1280	0.1433
D	holdD(R)->CKB(F)	0.0933	0.0523	0.0533	0.0474
D	holdD(F)->CKB(F)	-0.1887	-0.0847	-0.0807	-0.0813
RB	setupRB(R)->SB(R)	-0.0689	-0.0170	0.0042	-0.0366
RB	removalRB(R)->CKB(F)	0.4175	0.3825	0.3824	0.3613
RB	recoveryRB(R)->CKB(F)	-0.3600	-0.3164	-0.3028	-0.3108
RB	minpwl	0.2030	0.1662	0.1640	0.1893
RB	holdRB(R)->SB(R)	0.1013	0.0429	0.0330	0.0842
SB	setupSB(R)->RB(R)	0.1013	0.0429	0.0330	0.0842
SB	removalSB(R)->CKB(F)	0.1702	0.1355	0.1356	0.1221
SB	recoverySB(R)->CKB(F)	-0.1377	-0.1003	-0.0955	-0.0763
SB	minpwl	0.3694	0.3211	0.2563	0.3107
SB	holdSB(R)->RB(R)	-0.0689	-0.0170	0.0042	-0.0366
SD	setupSD(R)->CKB(F)	0.0933	0.1300	0.1391	0.1570
SD	setupSD(F)->CKB(F)	0.3501	0.3396	0.3424	0.3989
SD	holdSD(R)->CKB(F)	0.0284	0.0146	0.0168	0.0103
SD	holdSD(F)->CKB(F)	-0.3024	-0.2808	-0.2765	-0.3068
SE	setupSE(R)->CKB(F)	0.3591	0.3434	0.3463	0.4005
SE	setupSE(F)->CKB(F)	0.0475	0.0592	0.0688	0.0750
SE	holdSE(R)->CKB(F)	-0.3113	-0.2848	-0.2809	-0.3089
SE	holdSE(F)->CKB(F)	0.0285	0.0243	0.0254	0.0227

Sequential Cell

SDFE

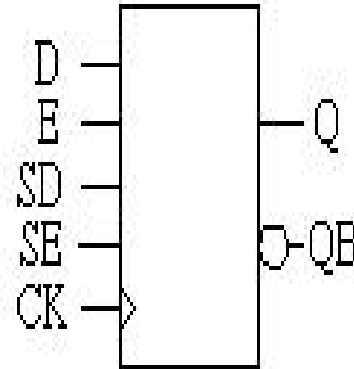
Cell Description

The SDFE cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and synchronous active-high enable (E).

Truth Table

SE	E	D	SD	CK	Q[n+1]	QB[n+1]
0	0	X	X	R	Q[n]	QB[n]
0	1	0	X	R	0	1
0	1	1	X	R	1	0
1	X	X	0	R	0	1
1	X	X	1	R	1	0
X	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFEM1HM, SDFEM2HM, SDFEM4HM, SDFEM8HM

SDFE Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00144	0.00155	0.00144	0.00200
D	input	0.00101	0.00102	0.00102	0.00100
E	input	0.00251	0.00253	0.00253	0.00253
Q	output				
QB	output				
SD	input	0.00115	0.00119	0.00119	0.00124
SE	input	0.00226	0.00227	0.00227	0.00219

Power Dissipation (uW/MHz)

SDFEM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0105 pF	0.0193 pF	0.0318 pF	0.0481 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0188	0.0177	0.0188	0.0177	0.0189	0.0178

SDFEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0270 pF	0.0446 pF	0.0677 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0210	0.0197	0.0210	0.0197	0.0211	0.0198

SDFEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0117 pF	0.0277 pF	0.0526 pF	0.0875 pF	0.1335 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0274	0.0266	0.0274	0.0263	0.0275	0.0264

SDFEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF	0.0225 pF	0.0544 pF	0.1042 pF	0.1740 pF	0.2659 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0421	0.0415	0.0423	0.0409	0.0424	0.0408

Hidden Power (uW/MHz)

SDFE at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0086	0.0088	0.0088	0.0103
CK	F	0.0130	0.0131	0.0131	0.0161
D	R	0.0020	0.0020	0.0020	0.0025
D	F	0.0046	0.0046	0.0046	0.0049
E	R	0.0013	0.0013	0.0013	0.0012
E	F	0.0071	0.0071	0.0071	0.0071
SD	R	0.0050	0.0051	0.0051	0.0063
SD	F	0.0077	0.0079	0.0079	0.0087
SE	R	0.0031	0.0031	0.0031	0.0042
SE	F	0.0074	0.0074	0.0074	0.0079

Propagation Delays (ns)

SDFEM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2250	0.1884	0.2592	0.2135	0.3180	0.2505	0.4074	0.2981	0.5335	0.3579	0.6974	0.4310
CK(R)->QB	0.2816	0.3235	0.3135	0.3461	0.3715	0.3792	0.4603	0.4222	0.5863	0.4785	0.7502	0.5495

SDFEM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2226	0.1938	0.2570	0.2202	0.3164	0.2589	0.4063	0.3080	0.5321	0.3689	0.6967	0.4433
CK(R)->QB	0.2877	0.3252	0.3199	0.3488	0.3782	0.3830	0.4677	0.4271	0.5933	0.4839	0.7578	0.5559

SDFEM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1335 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2287	0.2156	0.2663	0.2458	0.3272	0.2877	0.4180	0.3391	0.5445	0.4013	0.7106	0.4761
CK(R)->QB	0.3329	0.3587	0.3681	0.3859	0.4269	0.4230	0.5170	0.4690	0.6431	0.5262	0.8090	0.5975

SDFEM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0225 pF		0.0544 pF		0.1042 pF		0.1740 pF		0.2659 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.1981	0.2004	0.2373	0.2306	0.2988	0.2707	0.3905	0.3199	0.5184	0.3798	0.6864	0.4528
CK(R)->QB	0.3562	0.4168	0.3959	0.4519	0.4565	0.4976	0.5477	0.5517	0.6752	0.6148	0.8428	0.6897

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.3315	0.3391	0.3480	0.3782
CK	minpwh	0.1113	0.1146	0.1322	0.1816
D	setupD(R)->CK(R)	0.2344	0.2352	0.2426	0.3566
D	setupD(F)->CK(R)	0.2832	0.2846	0.2868	0.2636
D	holdD(R)->CK(R)	-0.1152	-0.1061	-0.1001	-0.2220
D	holdD(F)->CK(R)	-0.2270	-0.2242	-0.2219	-0.2143
E	setupE(R)->CK(R)	0.2281	0.2287	0.2359	0.3494
E	setupE(F)->CK(R)	0.2505	0.2506	0.2493	0.2449
E	holdE(R)->CK(R)	-0.2171	-0.2158	-0.2192	-0.3290
E	holdE(F)->CK(R)	-0.2468	-0.2468	-0.2446	-0.2351
SD	setupSD(R)->CK(R)	0.3540	0.3614	0.3700	0.4234
SD	setupSD(F)->CK(R)	0.2622	0.2499	0.2526	0.2563
SD	holdSD(R)->CK(R)	-0.1723	-0.1642	-0.1548	-0.2596
SD	holdSD(F)->CK(R)	-0.2001	-0.1862	-0.1840	-0.1992
SE	setupSE(R)->CK(R)	0.1653	0.1568	0.1590	0.1605
SE	setupSE(F)->CK(R)	0.1958	0.2008	0.2082	0.3181
SE	holdSE(R)->CK(R)	-0.1060	-0.0954	-0.0932	-0.1057
SE	holdSE(F)->CK(R)	-0.0742	-0.0697	-0.0637	-0.1810

Sequential Cell

SDFEQ

Cell Description

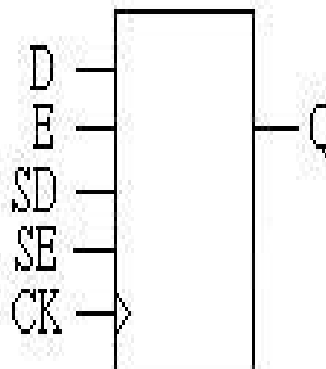
The SDFEQ cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), and synchronous active-high enable (E). The cell has a single output (Q).

Truth Table

SE	E	D	SD	CK	Q[n+1]
0	0	X	X	R	Q[n]
0	1	0	X	R	0
0	1	1	X	R	1
1	X	X	0	R	0
1	X	X	1	R	1
X	X	X	X	F	Q[n]

Symbol



Cell List

SDFEQM1HM, SDFEQM2HM, SDFEQM4HM
, SDFEQM8HM

SDFEQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00127	0.00126	0.00144	0.00200
D	input	0.00099	0.00101	0.00101	0.00101
E	input	0.00251	0.00253	0.00253	0.00253
Q	output				
SD	input	0.00117	0.00117	0.00117	0.00124
SE	input	0.00225	0.00224	0.00220	0.00218

Power Dissipation (uW/MHz)

SDFEQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0105 pF	0.0193 pF	0.0316 pF	0.0479 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0153	0.0140	0.0153	0.0140	0.0154	0.0141

SDFEQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0144 pF	0.0269 pF	0.0445 pF	0.0675 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0162	0.0150	0.0162	0.0150	0.0163	0.0151

SDFEQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0278 pF	0.0528 pF	0.0879 pF	0.1341 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0203	0.0195	0.0203	0.0194	0.0204	0.0194

SDFEQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF	0.0236 pF	0.0571 pF	0.1094 pF	0.1827 pF	0.2791 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0267	0.0270	0.0266	0.0264	0.0271	0.0265

Hidden Power (uW/MHz)

SDFEQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0089	0.0089	0.0088	0.0103
CK	F	0.0129	0.0129	0.0129	0.0162
D	R	0.0020	0.0020	0.0020	0.0025
D	F	0.0046	0.0046	0.0046	0.0050
E	R	0.0013	0.0013	0.0012	0.0012
E	F	0.0071	0.0071	0.0071	0.0071
SD	R	0.0051	0.0051	0.0051	0.0063
SD	F	0.0078	0.0078	0.0078	0.0087
SE	R	0.0031	0.0031	0.0032	0.0042
SE	F	0.0074	0.0074	0.0073	0.0078

Propagation Delays (ns)

SDFEQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2252	0.1840	0.2590	0.2084	0.3176	0.2446	0.4068	0.2914	0.5309	0.3499	0.6949	0.4228

SDFEQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0269 pF		0.0445 pF		0.0675 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2213	0.1889	0.2555	0.2149	0.3139	0.2525	0.4037	0.3009	0.5295	0.3614	0.6934	0.4353

SDFEQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0879 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2306	0.2176	0.2674	0.2472	0.3272	0.2885	0.4172	0.3401	0.5428	0.4030	0.7075	0.4790

SDFEQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF		0.0236 pF		0.0571 pF		0.1094 pF		0.1827 pF		0.2791 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.1961	0.2037	0.2355	0.2362	0.2964	0.2794	0.3873	0.3330	0.5135	0.3982	0.6790	0.4784

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.3274	0.3336	0.3466	0.3769
CK	minpwh	0.1130	0.1157	0.1294	0.1184
D	setupD(R)->CK(R)	0.2320	0.2335	0.2729	0.3554
D	setupD(F)->CK(R)	0.2849	0.2847	0.2834	0.2625
D	holdD(R)->CK(R)	-0.1142	-0.1050	-0.1155	-0.2220
D	holdD(F)->CK(R)	-0.2282	-0.2242	-0.2186	-0.2142
E	setupE(R)->CK(R)	0.2255	0.2270	0.2657	0.3483
E	setupE(F)->CK(R)	0.2511	0.2506	0.2460	0.2449
E	holdE(R)->CK(R)	-0.2171	-0.2149	-0.2484	-0.3274
E	holdE(F)->CK(R)	-0.2485	-0.2473	-0.2412	-0.2351
SD	setupSD(R)->CK(R)	0.3524	0.3586	0.3654	0.4222
SD	setupSD(F)->CK(R)	0.2650	0.2677	0.2676	0.2553
SD	holdSD(R)->CK(R)	-0.1719	-0.1626	-0.1519	-0.2601
SD	holdSD(F)->CK(R)	-0.2024	-0.2006	-0.1956	-0.1986
SE	setupSE(R)->CK(R)	0.1680	0.1708	0.1702	0.1594
SE	setupSE(F)->CK(R)	0.1938	0.1987	0.2386	0.3169
SE	holdSE(R)->CK(R)	-0.1082	-0.1060	-0.1009	-0.1055
SE	holdSE(F)->CK(R)	-0.0738	-0.0682	-0.0784	-0.1815

Sequential Cell

SDFEQR

Cell Description

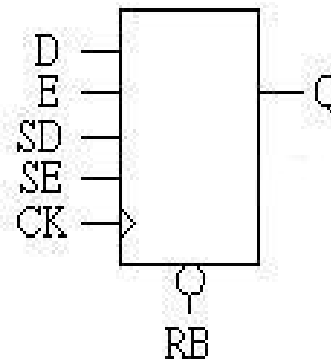
The SDFEQR cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), synchronous active-high enable (E), and asynchronous active-low reset (RB). The cell has a single output (Q).

Truth Table

RB	SE	E	D	SD	CK	Q[n+1]
0	X	X	X	X	X	0
1	0	0	X	X	R	Q[n]
1	0	1	0	X	R	0
1	0	1	1	X	R	1
1	1	X	X	0	R	0
1	1	X	X	1	R	1
1	X	X	X	X	F	Q[n]

Symbol



Cell List

SDFEQRM1HM, SDFEQRM2HM, SDFEQRM4HM
, SDFEQRM8HM

SDFEQR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00129	0.00128	0.00120	0.00219
D	input	0.00134	0.00137	0.00140	0.00131
E	input	0.00294	0.00293	0.00297	0.00300
Q	output				
RB	input	0.00257	0.00294	0.00299	0.00468
SD	input	0.00107	0.00107	0.00108	0.00109
SE	input	0.00251	0.00251	0.00262	0.00261

Power Dissipation (uW/MHz)

SDFEQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0151	0.0140	0.0151	0.0141	0.0152	0.0141	0.0152	0.0142	0.0153	0.0142	0.0153	0.0142
RB->Q	0.0215	0.0215	0.0215	0.0215	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216	0.0216

SDFEQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0169	0.0157	0.0170	0.0158	0.0171	0.0159	0.0172	0.0159	0.0172	0.0159	0.0173	0.0159
RB->Q	0.0237	0.0237	0.0238	0.0238	0.0238	0.0238	0.0239	0.0239	0.0239	0.0239	0.0239	0.0239

SDFEQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0873 pF		0.1332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0198	0.0187	0.0199	0.0188	0.0201	0.0189	0.0203	0.0190	0.0204	0.0191	0.0204	0.0191
RB->Q	0.0266	0.0266	0.0267	0.0267	0.0268	0.0268	0.0269	0.0269	0.0269	0.0269	0.0270	0.0270

SDFEQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0522 pF		0.0999 pF		0.1668 pF		0.2549 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0311	0.0294	0.0312	0.0296	0.0315	0.0299	0.0318	0.0301	0.0321	0.0301	0.0322	0.0302
RB->Q	0.0393	0.0393	0.0395	0.0395	0.0398	0.0398	0.0399	0.0399	0.0400	0.0400	0.0400	0.0400

Hidden Power (uW/MHz)

SDFEQR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0123	0.0124	0.0122	0.0143
CK	F	0.0176	0.0176	0.0172	0.0207
D	R	0.0004	0.0004	0.0004	0.0006
D	F	0.0034	0.0034	0.0034	0.0033
E	R	0.0015	0.0015	0.0014	0.0015
E	F	0.0080	0.0081	0.0081	0.0081
RB	R	-0.0014	-0.0018	-0.0018	-0.0030
RB	F	0.0014	0.0018	0.0018	0.0030
SD	R	0.0029	0.0029	0.0027	0.0028
SD	F	0.0066	0.0066	0.0066	0.0066
SE	R	0.0035	0.0035	0.0034	0.0035
SE	F	0.0113	0.0113	0.0114	0.0114

Propagation Delays (ns)

SDFEQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2471	0.2804	0.2797	0.3005	0.3380	0.3306	0.4275	0.3714	0.5533	0.4255	0.7187	0.4956
RB->Q	--n/a--	0.1240	--n/a--	0.1443	--n/a--	0.1747	--n/a--	0.2161	--n/a--	0.2711	--n/a--	0.3414

SDFEQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2396	0.2644	0.2717	0.2834	0.3298	0.3123	0.4202	0.3526	0.5464	0.4068	0.7130	0.4779
RB->Q	--n/a--	0.1044	--n/a--	0.1236	--n/a--	0.1527	--n/a--	0.1938	--n/a--	0.2492	--n/a--	0.3206

SDFEQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0525 pF		0.0873 pF		0.1332 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2497	0.2731	0.2834	0.2949	0.3430	0.3262	0.4341	0.3673	0.5612	0.4211	0.7286	0.4907
RB->Q	--n/a--	0.1151	--n/a--	0.1372	--n/a--	0.1687	--n/a--	0.2105	--n/a--	0.2652	--n/a--	0.3349

SDFEQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0056 pF		0.0216 pF		0.0522 pF		0.0999 pF		0.1668 pF		0.2549 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2548	0.2331	0.2882	0.2534	0.3472	0.2823	0.4383	0.3210	0.5655	0.3722	0.7328	0.4385
RB->Q	--n/a--	0.1049	--n/a--	0.1256	--n/a--	0.1548	--n/a--	0.1940	--n/a--	0.2462	--n/a--	0.3131

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2361	0.2437	0.2519	0.2341
CK	minpwh	0.1047	0.1097	0.1190	0.1465
D	setupD(R)->CK(R)	0.1670	0.1711	0.1890	0.2084
D	setupD(F)->CK(R)	0.3480	0.3531	0.3639	0.4255
D	holdD(R)->CK(R)	-0.1136	-0.1096	-0.1138	-0.1092
D	holdD(F)->CK(R)	-0.1570	-0.1430	-0.1255	-0.1620
E	setupE(R)->CK(R)	0.1701	0.1739	0.1937	0.2145
E	setupE(F)->CK(R)	0.2506	0.2487	0.2399	0.2894
E	holdE(R)->CK(R)	-0.1453	-0.1430	-0.1529	-0.1725
E	holdE(F)->CK(R)	-0.1877	-0.1670	-0.1372	-0.1727
RB	removalRB(R)->CK(R)	0.3004	0.2977	0.2922	0.2734
RB	recoveryRB(R)->CK(R)	-0.2016	-0.1939	-0.1786	-0.1622
RB	minpwl	0.3288	0.3288	0.3321	0.3436
SD	setupSD(R)->CK(R)	0.2472	0.2561	0.2651	0.2829
SD	setupSD(F)->CK(R)	0.7767	0.7873	0.7801	0.8344
SD	holdSD(R)->CK(R)	-0.1741	-0.1725	-0.1695	-0.1599
SD	holdSD(F)->CK(R)	-0.3894	-0.3555	-0.2980	-0.3416
SE	setupSE(R)->CK(R)	0.7754	0.7864	0.7676	0.8207
SE	setupSE(F)->CK(R)	0.2515	0.2563	0.2677	0.2886
SE	holdSE(R)->CK(R)	-0.3881	-0.3542	-0.2856	-0.3275
SE	holdSE(F)->CK(R)	-0.1978	-0.1945	-0.1931	-0.1898

Sequential Cell

SDFEQZR

Cell Description

The SDFEQZR cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), synchronous active-high enable (E), and synchronous active-low reset (RB), and Scan enable (SE) dominates reset (RB). The cell has a single output (Q).

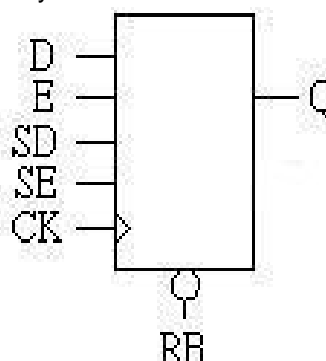
Truth Table

SE	RB	E	D	SD	CK	Q[n+1]
0	0	X	X	X	R	0
0	1	0	X	X	R	Q[n]
0	1	1	0	X	R	0
0	1	1	1	X	R	1
1	X	X	X	0	R	0
1	X	X	X	1	R	1
X	X	X	X	X	F	Q[n]

Cell List

SDFEQZRM1HM, SDFEQZRM2HM, SDFEQZRM4HM
, SDFEQZRM8HM

Symbol



SDFEQZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00122	0.00126	0.00126	0.00184
D	input	0.00113	0.00131	0.00131	0.00129
E	input	0.00273	0.00260	0.00258	0.00257
Q	output				
RB	input	0.00113	0.00183	0.00183	0.00178
SD	input	0.00132	0.00108	0.00108	0.00108
SE	input	0.00243	0.00256	0.00256	0.00255

Power Dissipation (uW/MHz)

SDFEQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0046 pF		0.0100 pF		0.0183 pF		0.0300 pF		0.0454 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0108	0.0106	0.0108	0.0106	0.0108	0.0106	0.0108	0.0107	0.0109	0.0107	0.0109	0.0107

SDFEQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0201	0.0172	0.0202	0.0172	0.0203	0.0173	0.0204	0.0174	0.0204	0.0174	0.0204	0.0174

SDFEQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0286 pF		0.0542 pF		0.0903 pF		0.1377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0236	0.0203	0.0237	0.0205	0.0239	0.0206	0.0240	0.0207	0.0241	0.0208	0.0241	0.0208

SDFEQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF		0.0237 pF		0.0573 pF		0.1098 pF		0.1834 pF		0.2803 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0317	0.0281	0.0320	0.0285	0.0324	0.0288	0.0326	0.0290	0.0328	0.0291	0.0328	0.0291

Hidden Power (uW/MHz)

SDFEQZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0089	0.0077	0.0077	0.0089
CK	F	0.0127	0.0110	0.0110	0.0133
D	R	0.0018	0.0035	0.0035	0.0034
D	F	0.0031	0.0059	0.0059	0.0058
E	R	0.0011	0.0027	0.0027	0.0027
E	F	0.0076	0.0084	0.0084	0.0083
RB	R	0.0015	0.0039	0.0039	0.0039
RB	F	0.0071	0.0133	0.0133	0.0131
SD	R	0.0058	0.0019	0.0019	0.0019
SD	F	0.0075	0.0049	0.0049	0.0049
SE	R	0.0035	0.0026	0.0026	0.0026
SE	F	0.0085	0.0084	0.0084	0.0084

Propagation Delays (ns)

SDFEQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0046 pF		0.0100 pF		0.0183 pF		0.0300 pF		0.0454 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2402	0.1871	0.2691	0.2051	0.3244	0.2349	0.4090	0.2755	0.5279	0.3284	0.6840	0.3955

SDFEQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2041	0.2228	0.2356	0.2403	0.2940	0.2680	0.3851	0.3084	0.5116	0.3637	0.6785	0.4362

SDFEQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0035 pF		0.0121 pF		0.0286 pF		0.0542 pF		0.0903 pF		0.1377 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2078	0.2327	0.2391	0.2520	0.2978	0.2813	0.3883	0.3222	0.5156	0.3780	0.6826	0.4506

SDFEQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0060 pF		0.0237 pF		0.0573 pF		0.1098 pF		0.1834 pF		0.2803 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2148	0.2004	0.2469	0.2210	0.3055	0.2520	0.3968	0.2967	0.5244	0.3584	0.6923	0.4392

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.3013	0.2128	0.2231	0.1984
CK	minpwh	0.2991	0.0976	0.1014	0.1327
D	setupD(R)->CK(R)	0.2614	0.2386	0.2482	0.2590
D	setupD(F)->CK(R)	0.3132	0.2940	0.2958	0.3223
D	holdD(R)->CK(R)	-0.1538	-0.1975	-0.1968	-0.1970
D	holdD(F)->CK(R)	-0.2616	-0.2262	-0.2184	-0.2264
E	setupE(R)->CK(R)	0.2686	0.2430	0.2522	0.2632
E	setupE(F)->CK(R)	0.2862	0.3114	0.3113	0.3156
E	holdE(R)->CK(R)	-0.2603	-0.2220	-0.2220	-0.2365
E	holdE(F)->CK(R)	-0.2840	-0.2916	-0.2839	-0.2873
RB	setupRB(R)->CK(R)	0.2863	0.2555	0.2651	0.2768
RB	setupRB(F)->CK(R)	0.2611	0.2369	0.2391	0.2666
RB	holdRB(R)->CK(R)	-0.1812	-0.2161	-0.2149	-0.2163
RB	holdRB(F)->CK(R)	-0.2044	-0.1647	-0.1570	-0.1661
SD	setupSD(R)->CK(R)	0.3162	0.1587	0.1691	0.1854
SD	setupSD(F)->CK(R)	0.2428	0.4853	0.4882	0.4981
SD	holdSD(R)->CK(R)	-0.1546	-0.1050	-0.1039	-0.1042
SD	holdSD(F)->CK(R)	-0.1878	-0.2743	-0.2454	-0.2479
SE	setupSE(R)->CK(R)	0.1531	0.4715	0.4744	0.4877
SE	setupSE(F)->CK(R)	0.1760	0.1327	0.1424	0.1478
SE	holdSE(R)->CK(R)	-0.1004	-0.2647	-0.2359	-0.2418
SE	holdSE(F)->CK(R)	-0.0676	-0.0914	-0.0904	-0.0848

Sequential Cell

SDFER

Cell Description

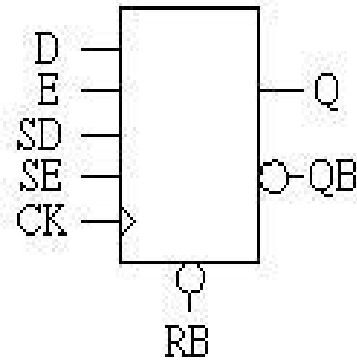
The SDFER cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), synchronous active-high enable (E), and asynchronous active-low reset (RB).

Truth Table

RB	SE	E	D	SD	CK	Q[n+1]	QB[n+1]
0	X	X	X	X	X	0	1
1	0	0	X	X	R	Q[n]	QB[n]
1	0	1	0	X	R	0	1
1	0	1	1	X	R	1	0
1	1	X	X	0	R	0	1
1	1	X	X	1	R	1	0
1	X	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFERM1HM, SDFERM2HM, SDFERM4HM
, SDFERM8HM

SDFER Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00120	0.00120	0.00120	0.00208
D	input	0.00133	0.00134	0.00134	0.00131
E	input	0.00297	0.00297	0.00297	0.00299
Q	output				
QB	output				
RB	input	0.00266	0.00299	0.00299	0.00471
SD	input	0.00107	0.00107	0.00108	0.00109
SE	input	0.00248	0.00250	0.00261	0.00262

Power Dissipation (uW/MHz)

SDFERM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0050 pF		0.0111 pF		0.0204 pF		0.0336 pF		0.0509 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0207	0.0175	0.0207	0.0175	0.0207	0.0176	0.0208	0.0176	0.0208	0.0176	0.0209	0.0176
RB->Q	0.0249	0.0249	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250

SDFERM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0232	0.0198	0.0233	0.0198	0.0233	0.0199	0.0234	0.0199	0.0234	0.0199	0.0235	0.0200
RB->Q	0.0277	0.0277	0.0277	0.0277	0.0278	0.0278	0.0278	0.0278	0.0278	0.0278	0.0278	0.0278

SDFERM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0302	0.0269	0.0303	0.0270	0.0305	0.0271	0.0306	0.0272	0.0307	0.0273	0.0308	0.0273
RB->Q	0.0348	0.0348	0.0349	0.0349	0.0350	0.0350	0.0350	0.0350	0.0351	0.0351	0.0351	0.0351

SDFERM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0054 pF		0.0207 pF		0.0501 pF		0.0958 pF		0.1600 pF		0.2444 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0493	0.0433	0.0490	0.0435	0.0487	0.0437	0.0488	0.0439	0.0489	0.0440	0.0490	0.0440
RB->Q	0.0532	0.0532	0.0534	0.0534	0.0537	0.0537	0.0538	0.0538	0.0539	0.0539	0.0539	0.0539

Hidden Power (uW/MHz)

SDFER at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0121	0.0122	0.0122	0.0143
CK	F	0.0171	0.0172	0.0172	0.0204
D	R	0.0005	0.0005	0.0005	0.0006
D	F	0.0032	0.0033	0.0033	0.0033
E	R	0.0014	0.0014	0.0014	0.0015
E	F	0.0081	0.0081	0.0081	0.0081
RB	R	-0.0014	-0.0018	-0.0018	-0.0030
RB	F	0.0014	0.0018	0.0018	0.0030
SD	R	0.0027	0.0027	0.0027	0.0029
SD	F	0.0065	0.0066	0.0066	0.0066
SE	R	0.0035	0.0035	0.0034	0.0035
SE	F	0.0111	0.0111	0.0113	0.0114

Propagation Delays (ns)

SDFERM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0050 pF		0.0111 pF		0.0204 pF		0.0336 pF		0.0509 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2529	0.2798	0.2865	0.2998	0.3502	0.3313	0.4466	0.3738	0.5829	0.4308	0.7610	0.5040
CK(R)->QB	0.3720	0.3672	0.4018	0.3902	0.4569	0.4248	0.5397	0.4678	0.6569	0.5222	0.8102	0.5897
RB->Q	--n/a--	0.1273	--n/a--	0.1477	--n/a--	0.1798	--n/a--	0.2227	--n/a--	0.2806	--n/a--	0.3545
RB->QB	0.2552	--n/a--	0.2939	--n/a--	0.3552	--n/a--	0.4397	--n/a--	0.5572	--n/a--	0.7108	--n/a--

SDFERM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0142 pF		0.0265 pF		0.0438 pF		0.0666 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2440	0.2604	0.2753	0.2785	0.3336	0.3066	0.4236	0.3458	0.5497	0.3988	0.7154	0.4677
CK(R)->QB	0.3553	0.3704	0.3881	0.3960	0.4466	0.4325	0.5367	0.4783	0.6631	0.5353	0.8294	0.6062
RB->Q	--n/a--	0.1035	--n/a--	0.1219	--n/a--	0.1504	--n/a--	0.1899	--n/a--	0.2438	--n/a--	0.3135
RB->QB	0.2355	--n/a--	0.2791	--n/a--	0.3453	--n/a--	0.4371	--n/a--	0.5637	--n/a--	0.7303	--n/a--

SDFERM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0119 pF		0.0280 pF		0.0531 pF		0.0884 pF		0.1348 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2522	0.2756	0.2868	0.2979	0.3469	0.3294	0.4396	0.3710	0.5693	0.4255	0.7394	0.4952
CK(R)->QB	0.3617	0.3918	0.3944	0.4203	0.4518	0.4590	0.5405	0.5069	0.6650	0.5662	0.8284	0.6395
RB->Q	--n/a--	0.1180	--n/a--	0.1407	--n/a--	0.1725	--n/a--	0.2146	--n/a--	0.2699	--n/a--	0.3398
RB->QB	0.2273	--n/a--	0.2673	--n/a--	0.3292	--n/a--	0.4185	--n/a--	0.5430	--n/a--	0.7063	--n/a--

SDFERM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0054 pF		0.0207 pF		0.0501 pF		0.0958 pF		0.1600 pF		0.2444 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2538	0.2308	0.2872	0.2505	0.3463	0.2784	0.4376	0.3152	0.5654	0.3636	0.7332	0.4260
CK(R)->QB	0.3452	0.4541	0.3809	0.4862	0.4401	0.5289	0.5304	0.5794	0.6570	0.6388	0.8232	0.7090
RB->Q	--n/a--	0.1039	--n/a--	0.1240	--n/a--	0.1521	--n/a--	0.1892	--n/a--	0.2381	--n/a--	0.3016
RB->QB	0.2474	--n/a--	0.2907	--n/a--	0.3577	--n/a--	0.4497	--n/a--	0.5764	--n/a--	0.7425	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2375	0.2416	0.2519	0.2478
CK	minpwh	0.1119	0.1173	0.1272	0.1536
D	setupD(R)->CK(R)	0.1817	0.1898	0.2004	0.2187
D	setupD(F)->CK(R)	0.3760	0.3841	0.3767	0.4274
D	holdD(R)->CK(R)	-0.1200	-0.1206	-0.1201	-0.1146
D	holdD(F)->CK(R)	-0.1617	-0.1543	-0.1314	-0.1644
E	setupE(R)->CK(R)	0.1878	0.1968	0.2077	0.2260
E	setupE(F)->CK(R)	0.2495	0.2474	0.2405	0.2918
E	holdE(R)->CK(R)	-0.1585	-0.1642	-0.1648	-0.1828
E	holdE(F)->CK(R)	-0.1761	-0.1655	-0.1377	-0.1766
RB	removalRB(R)->CK(R)	0.2961	0.2939	0.2940	0.2756
RB	recoveryRB(R)->CK(R)	-0.1930	-0.1949	-0.1792	-0.1621
RB	minpwl	0.3348	0.3337	0.3337	0.3469
SD	setupSD(R)->CK(R)	0.2486	0.2531	0.2641	0.2824
SD	setupSD(F)->CK(R)	0.7643	0.7743	0.7780	0.8355
SD	holdSD(R)->CK(R)	-0.1716	-0.1694	-0.1683	-0.1594
SD	holdSD(F)->CK(R)	-0.3573	-0.3362	-0.2979	-0.3465
SE	setupSE(R)->CK(R)	0.7581	0.7664	0.7627	0.8203
SE	setupSE(F)->CK(R)	0.2738	0.2839	0.2842	0.3020
SE	holdSE(R)->CK(R)	-0.3522	-0.3288	-0.2823	-0.3309
SE	holdSE(F)->CK(R)	-0.2124	-0.2159	-0.2047	-0.1991

Sequential Cell

SDFEZR

Cell Description

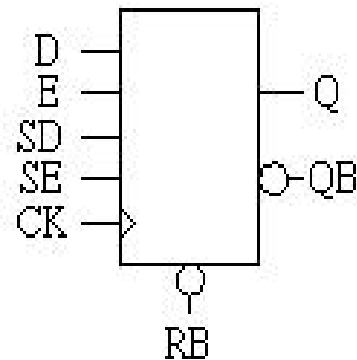
The SDFEZR cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), synchronous active-high enable (E) and synchronous active low reset (RB). Scan enable (SE) dominates reset (RB) and enable (E).

Truth Table

SE	RB	E	D	SD	CK	Q[n+1]	QB[n+1]
0	0	X	X	X	R	0	1
0	1	0	X	X	R	Q[n]	QB[n]
0	1	1	0	X	R	0	1
0	1	1	1	X	R	1	0
1	X	X	X	0	R	0	1
1	X	X	X	1	R	1	0
X	X	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFEZRM1HM, SDFEZRM2HM, SDFEZRM4HM
, SDFEZRM8HM

SDFEZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00128	0.00122	0.00122	0.00183
D	input	0.00116	0.00125	0.00125	0.00125
E	input	0.00240	0.00252	0.00252	0.00252
Q	output				
QB	output				
RB	input	0.00105	0.00165	0.00165	0.00161
SD	input	0.00113	0.00109	0.00109	0.00108
SE	input	0.00282	0.00254	0.00254	0.00255

Power Dissipation (uW/MHz)

SDFEZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0243	0.0193	0.0244	0.0193	0.0244	0.0194	0.0245	0.0194	0.0245	0.0194	0.0245	0.0194

SDFEZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0285	0.0245	0.0285	0.0246	0.0286	0.0246	0.0287	0.0247	0.0287	0.0247	0.0287	0.0247

SDFEZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0881 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0343	0.0306	0.0344	0.0307	0.0346	0.0309	0.0347	0.0310	0.0348	0.0310	0.0348	0.0310

SDFEZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1033 pF		0.1726 pF		0.2637 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0505	0.0465	0.0507	0.0468	0.0510	0.0471	0.0513	0.0473	0.0514	0.0474	0.0515	0.0474

Hidden Power (uW/MHz)

SDFEZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0086	0.0078	0.0078	0.0088
CK	F	0.0112	0.0112	0.0112	0.0133
D	R	0.0025	0.0034	0.0034	0.0033
D	F	0.0044	0.0060	0.0060	0.0060
E	R	0.0019	0.0027	0.0027	0.0027
E	F	0.0077	0.0083	0.0083	0.0083
RB	R	0.0034	0.0038	0.0038	0.0038
RB	F	0.0088	0.0135	0.0135	0.0133
SD	R	0.0020	0.0019	0.0019	0.0019
SD	F	0.0051	0.0049	0.0049	0.0048
SE	R	0.0024	0.0026	0.0026	0.0025
SE	F	0.0101	0.0084	0.0084	0.0083

Propagation Delays (ns)

SDFEZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0315 pF		0.0477 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2233	0.2388	0.2545	0.2550	0.3123	0.2809	0.4026	0.3191	0.5283	0.3711	0.6936	0.4392
CK(R)->QB	0.3283	0.3442	0.3609	0.3690	0.4185	0.4042	0.5085	0.4491	0.6341	0.5051	0.7993	0.5750

SDFEZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2164	0.2326	0.2476	0.2487	0.3065	0.2748	0.3971	0.3123	0.5242	0.3634	0.6908	0.4298
CK(R)->QB	0.3164	0.3158	0.3481	0.3383	0.4064	0.3713	0.4959	0.4138	0.6215	0.4682	0.7862	0.5369

SDFEZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0279 pF		0.0530 pF		0.0881 pF		0.1344 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2143	0.2417	0.2461	0.2613	0.3054	0.2908	0.3972	0.3316	0.5249	0.3856	0.6930	0.4560
CK(R)->QB	0.3129	0.2970	0.3449	0.3197	0.4034	0.3524	0.4940	0.3954	0.6201	0.4511	0.7864	0.5230

SDFEZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0540 pF		0.1033 pF		0.1726 pF		0.2637 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2241	0.2148	0.2569	0.2359	0.3168	0.2669	0.4089	0.3092	0.5379	0.3660	0.7073	0.4401
CK(R)->QB	0.2698	0.2813	0.3018	0.3027	0.3605	0.3337	0.4513	0.3763	0.5786	0.4339	0.7457	0.5091

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2121	0.2107	0.2190	0.1929
CK	minpwh	0.1113	0.0992	0.1025	0.1366
D	setupD(R)->CK(R)	0.2591	0.2397	0.2472	0.2558
D	setupD(F)->CK(R)	0.3733	0.2900	0.2918	0.3241
D	holdD(R)->CK(R)	-0.2203	-0.1979	-0.1973	-0.1972
D	holdD(F)->CK(R)	-0.2520	-0.2226	-0.2171	-0.2288
E	setupE(R)->CK(R)	0.2653	0.2435	0.2514	0.2603
E	setupE(F)->CK(R)	0.3359	0.3101	0.3105	0.3213
E	holdE(R)->CK(R)	-0.2456	-0.2220	-0.2220	-0.2341
E	holdE(F)->CK(R)	-0.2965	-0.2893	-0.2844	-0.2930
RB	setupRB(R)->CK(R)	0.2806	0.2558	0.2638	0.2734
RB	setupRB(F)->CK(R)	0.3855	0.2340	0.2361	0.2679
RB	holdRB(R)->CK(R)	-0.2462	-0.2160	-0.2154	-0.2162
RB	holdRB(F)->CK(R)	-0.2573	-0.1629	-0.1558	-0.1683
SD	setupSD(R)->CK(R)	0.1744	0.1594	0.1680	0.1810
SD	setupSD(F)->CK(R)	0.4976	0.4834	0.4858	0.4952
SD	holdSD(R)->CK(R)	-0.1168	-0.1050	-0.1044	-0.1036
SD	holdSD(F)->CK(R)	-0.2725	-0.2639	-0.2418	-0.2447
SE	setupSE(R)->CK(R)	0.5024	0.4673	0.4702	0.4802
SE	setupSE(F)->CK(R)	0.1665	0.1326	0.1405	0.1449
SE	holdSE(R)->CK(R)	-0.2791	-0.2521	-0.2304	-0.2340
SE	holdSE(F)->CK(R)	-0.1277	-0.0907	-0.0902	-0.0857

Sequential Cell

SDF

Cell Description

The SDF cell is a positive-edge triggered, static D-type flip-flop with scan input (SD) and active-high scan enable (SE).

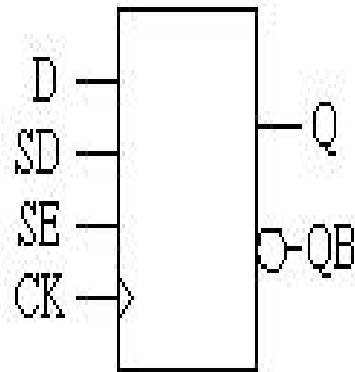
Truth Table

SE	D	SD	CK	Q[n+1]	QB[n+1]
0	0	X	R	0	1
0	1	X	R	1	0
1	X	0	R	0	1
1	X	1	R	1	0
X	X	X	F	Q[n]	QB[n]

Cell List

SDFM1HM, SDFM2HM, SDFM4HM
, SDFM8HM

Symbol



SDF Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00133	0.00143	0.00143	0.00195
D	input	0.00121	0.00191	0.00191	0.00187
Q	output				
QB	output				
SD	input	0.00125	0.00123	0.00123	0.00123
SE	input	0.00247	0.00263	0.00263	0.00265

Power Dissipation (uW/MHz)

SDFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0053 pF		0.0118 pF		0.0219 pF		0.0360 pF		0.0545 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0209	0.0171	0.0210	0.0171	0.0210	0.0171	0.0211	0.0172	0.0211	0.0172	0.0211	0.0172

SDFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0054 pF		0.0118 pF		0.0219 pF		0.0360 pF		0.0546 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0216	0.0178	0.0217	0.0179	0.0218	0.0179	0.0218	0.0179	0.0219	0.0180	0.0219	0.0180

SDFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0097 pF		0.0225 pF		0.0426 pF		0.0707 pF		0.1078 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0316	0.0282	0.0317	0.0284	0.0319	0.0285	0.0320	0.0285	0.0321	0.0285	0.0322	0.0285

SDFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0048 pF		0.0182 pF		0.0437 pF		0.0835 pF		0.1393 pF		0.2128 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0490	0.0445	0.0492	0.0447	0.0494	0.0449	0.0497	0.0450	0.0499	0.0450	0.0501	0.0451

Hidden Power (uW/MHz)

SDF at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0093	0.0096	0.0096	0.0105
CK	F	0.0115	0.0119	0.0119	0.0140
D	R	0.0015	0.0035	0.0035	0.0035
D	F	0.0045	0.0101	0.0101	0.0100
SD	R	0.0015	0.0015	0.0015	0.0015
SD	F	0.0054	0.0053	0.0054	0.0054
SE	R	0.0031	0.0032	0.0032	0.0032
SE	F	0.0094	0.0095	0.0095	0.0096

Propagation Delays (ns)

SDFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0053 pF		0.0118 pF		0.0219 pF		0.0360 pF		0.0545 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2735	0.2570	0.3128	0.2742	0.3895	0.3040	0.5078	0.3476	0.6723	0.4075	0.8878	0.4857
CK(R)->QB	0.3310	0.3484	0.3567	0.3696	0.4046	0.4036	0.4780	0.4500	0.5802	0.5112	0.7139	0.5901

SDFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0020 pF		0.0054 pF		0.0118 pF		0.0219 pF		0.0360 pF		0.0546 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2548	0.2393	0.2954	0.2533	0.3712	0.2757	0.4898	0.3079	0.6544	0.3510	0.8711	0.4074
CK(R)->QB	0.2988	0.3251	0.3242	0.3431	0.3712	0.3698	0.4448	0.4055	0.5469	0.4509	0.6813	0.5085

SDFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0029 pF		0.0097 pF		0.0225 pF		0.0426 pF		0.0707 pF		0.1078 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2859	0.2411	0.3278	0.2553	0.4056	0.2770	0.5266	0.3078	0.6949	0.3492	0.9169	0.4035
CK(R)->QB	0.2897	0.3424	0.3156	0.3601	0.3632	0.3858	0.4372	0.4199	0.5402	0.4637	0.6758	0.5197

SDFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0048 pF		0.0182 pF		0.0437 pF		0.0835 pF		0.1393 pF		0.2128 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2890	0.2174	0.3321	0.2347	0.4115	0.2593	0.5337	0.2920	0.7040	0.3344	0.9281	0.3893
CK(R)->QB	0.2678	0.3392	0.2936	0.3564	0.3412	0.3815	0.4149	0.4148	0.5178	0.4582	0.6531	0.5137

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2320	0.2251	0.2251	0.1908
CK	minpwh	0.1371	0.1261	0.1690	0.1871
D	setupD(R)->CK(R)	0.1257	0.1047	0.1037	0.1101
D	setupD(F)->CK(R)	0.2676	0.1172	0.1216	0.1606
D	holdD(R)->CK(R)	-0.0819	-0.0582	-0.0570	-0.0561
D	holdD(F)->CK(R)	-0.1246	-0.0503	-0.0474	-0.0687
SD	setupSD(R)->CK(R)	0.1348	0.1482	0.1487	0.1530
SD	setupSD(F)->CK(R)	0.3618	0.3325	0.3404	0.3830
SD	holdSD(R)->CK(R)	-0.0891	-0.0902	-0.0884	-0.0844
SD	holdSD(F)->CK(R)	-0.1710	-0.1477	-0.1385	-0.1881
SE	setupSE(R)->CK(R)	0.3534	0.3308	0.3387	0.3795
SE	setupSE(F)->CK(R)	0.1881	0.1364	0.1355	0.1425
SE	holdSE(R)->CK(R)	-0.1641	-0.1487	-0.1398	-0.1872
SE	holdSE(F)->CK(R)	-0.1432	-0.0894	-0.0878	-0.0876

Sequential Cell

SDFM

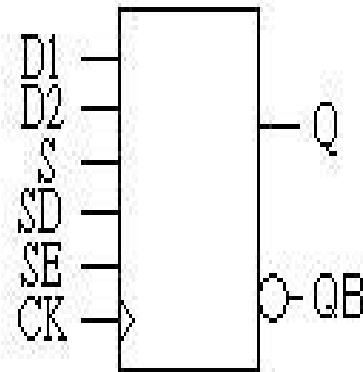
Cell Description

The SDFM cell is a positive-edge triggered, static D-type flip-flop with a two-to-one data select control (S) for the data inputs (D1, D2), scan input (SD), and active-high scan enable (SE).

Truth Table

SE	S	D1	D2	SD	CK	Q[n+1]	QB[n+1]
0	0	X	0	X	R	0	1
0	0	X	1	X	R	1	0
0	1	0	X	X	R	0	1
0	1	1	X	X	R	1	0
1	X	X	X	0	R	0	1
1	X	X	X	1	R	1	0
X	X	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFMM1HM, SDFMM2HM, SDFMM4HM
, SDFMM8HM

SDFM Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00124	0.00124	0.00180
D1	input	0.00169	0.00170	0.00170	0.00170
D2	input	0.00148	0.00150	0.00150	0.00150
Q	output				
QB	output				
S	input	0.00241	0.00243	0.00243	0.00243
SD	input	0.00106	0.00106	0.00106	0.00106
SE	input	0.00265	0.00265	0.00265	0.00265

Power Dissipation (uW/MHz)

SDFMM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0159	0.0162	0.0159	0.0162	0.0160	0.0162	0.0160	0.0163	0.0160	0.0163	0.0161	0.0163

SDFMM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0439 pF		0.0667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0174	0.0179	0.0175	0.0178	0.0176	0.0178	0.0176	0.0179	0.0177	0.0179	0.0177	0.0179

SDFMM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0261	0.0274	0.0261	0.0271	0.0263	0.0270	0.0264	0.0270	0.0265	0.0270	0.0266	0.0270

SDFMM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0229 pF		0.0555 pF		0.1063 pF		0.1775 pF		0.2713 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0400	0.0441	0.0401	0.0425	0.0403	0.0418	0.0406	0.0416	0.0408	0.0415	0.0410	0.0415

Hidden Power (uW/MHz)

SDFM at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0119	0.0119	0.0118	0.0124
CK	F	0.0158	0.0158	0.0160	0.0176
D1	R	0.0009	0.0009	0.0009	0.0011
D1	F	0.0033	0.0033	0.0033	0.0035
D2	R	0.0012	0.0013	0.0012	0.0015
D2	F	0.0033	0.0033	0.0033	0.0036
S	R	0.0024	0.0024	0.0024	0.0026
S	F	0.0088	0.0088	0.0088	0.0090
SD	R	0.0030	0.0030	0.0029	0.0034
SD	F	0.0071	0.0071	0.0071	0.0076
SE	R	0.0044	0.0044	0.0043	0.0049
SE	F	0.0112	0.0112	0.0112	0.0117

Propagation Delays (ns)

SDFMM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2507	0.2318	0.2828	0.2574	0.3414	0.2946	0.4321	0.3423	0.5579	0.4010	0.7228	0.4732
CK(R)->QB	0.3336	0.3523	0.3659	0.3751	0.4236	0.4084	0.5132	0.4520	0.6376	0.5077	0.8011	0.5787

SDFMM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0266 pF		0.0439 pF		0.0667 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2481	0.2377	0.2796	0.2646	0.3375	0.3039	0.4255	0.3527	0.5486	0.4128	0.7105	0.4864
CK(R)->QB	0.3413	0.3370	0.3745	0.3589	0.4346	0.3912	0.5262	0.4333	0.6548	0.4884	0.8241	0.5592

SDFMM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1346 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2694	0.2708	0.3052	0.3031	0.3659	0.3474	0.4571	0.4009	0.5837	0.4642	0.7499	0.5401
CK(R)->QB	0.3544	0.3471	0.3865	0.3688	0.4449	0.4004	0.5349	0.4425	0.6607	0.4981	0.8260	0.5700

SDFMM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0059 pF		0.0229 pF		0.0555 pF		0.1063 pF		0.1775 pF		0.2713 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2331	0.2716	0.2666	0.3065	0.3227	0.3530	0.4078	0.4086	0.5261	0.4733	0.6815	0.5497
CK(R)->QB	0.3747	0.3221	0.4115	0.3460	0.4745	0.3789	0.5721	0.4215	0.7088	0.4764	0.8887	0.5469

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2265	0.2265	0.2272	0.1723
CK	minpwh	0.1146	0.1162	0.1278	0.1349
D1	setupD1(R)->CK(R)	0.1510	0.1429	0.1434	0.1525
D1	setupD1(F)->CK(R)	0.3139	0.3201	0.3185	0.3483
D1	holdD1(R)->CK(R)	-0.1321	-0.1230	-0.1219	-0.1326
D1	holdD1(F)->CK(R)	-0.1901	-0.1900	-0.1839	-0.2291
D2	setupD2(R)->CK(R)	0.1771	0.1683	0.1688	0.1769
D2	setupD2(F)->CK(R)	0.4452	0.4550	0.4532	0.4861
D2	holdD2(R)->CK(R)	-0.1552	-0.1455	-0.1445	-0.1541
D2	holdD2(F)->CK(R)	-0.2988	-0.3006	-0.2928	-0.3472
S	setupS(R)->CK(R)	0.1518	0.1436	0.1441	0.1533
S	setupS(F)->CK(R)	0.3881	0.3960	0.3944	0.4273
S	holdS(R)->CK(R)	-0.1322	-0.1232	-0.1220	-0.1329
S	holdS(F)->CK(R)	-0.2262	-0.2251	-0.2168	-0.2715
SD	setupSD(R)->CK(R)	0.1643	0.1671	0.1676	0.1745
SD	setupSD(F)->CK(R)	0.4991	0.5102	0.5085	0.5422
SD	holdSD(R)->CK(R)	-0.1404	-0.1415	-0.1404	-0.1489
SD	holdSD(F)->CK(R)	-0.3323	-0.3345	-0.3245	-0.3888
SE	setupSE(R)->CK(R)	0.4947	0.5069	0.5051	0.5389
SE	setupSE(F)->CK(R)	0.2363	0.2289	0.2298	0.2390
SE	holdSE(R)->CK(R)	-0.3298	-0.3330	-0.3230	-0.3869
SE	holdSE(F)->CK(R)	-0.2139	-0.2055	-0.2049	-0.2157

Sequential Cell

SDFMQ

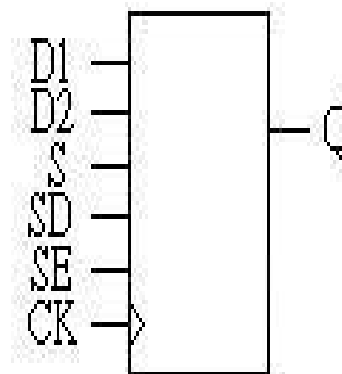
Cell Description

The SDFMQ cell is a positive-edge triggered, static D-type flip-flop with a two-to-one data select control (S) for the data inputs (D1, D2), scan input (SD), and active-high scan enable (SE). The cell has a single output (Q).

Truth Table

SE	S	D1	D2	SD	CK	Q[n+1]
0	0	X	0	X	R	0
0	0	X	1	X	R	1
0	1	0	X	X	R	0
0	1	1	X	X	R	1
1	X	X	X	0	R	0
1	X	X	X	1	R	1
X	X	X	X	X	F	Q[n]

Symbol



Cell List

SDFMQM1HM, SDFMQM2HM, SDFMQM4HM, SDFMQM8HM

SDFMQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00124	0.00124	0.00180
D1	input	0.00169	0.00170	0.00170	0.00170
D2	input	0.00148	0.00150	0.00150	0.00150
Q	output				
S	input	0.00241	0.00243	0.00243	0.00243
SD	input	0.00106	0.00106	0.00106	0.00106
SE	input	0.00265	0.00265	0.00265	0.00265

Power Dissipation (uW/MHz)

SDFMQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0109	0.0127	0.0109	0.0127	0.0110	0.0127	0.0111	0.0128	0.0111	0.0128	0.0111	0.0128

SDFMQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0117	0.0136	0.0118	0.0136	0.0118	0.0136	0.0119	0.0136	0.0120	0.0136	0.0120	0.0137

SDFMQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0879 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0173	0.0196	0.0173	0.0192	0.0175	0.0192	0.0176	0.0192	0.0177	0.0192	0.0178	0.0192

SDFMQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0063 pF		0.0248 pF		0.0602 pF		0.1153 pF		0.1927 pF		0.2945 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0266	0.0310	0.0267	0.0292	0.0271	0.0286	0.0273	0.0285	0.0275	0.0284	0.0277	0.0284

Hidden Power (uW/MHz)

SDFMQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0119	0.0119	0.0118	0.0124
CK	F	0.0157	0.0157	0.0160	0.0177
D1	R	0.0009	0.0009	0.0009	0.0011
D1	F	0.0033	0.0033	0.0033	0.0035
D2	R	0.0012	0.0013	0.0012	0.0015
D2	F	0.0033	0.0033	0.0033	0.0036
S	R	0.0024	0.0024	0.0024	0.0026
S	F	0.0088	0.0088	0.0088	0.0090
SD	R	0.0030	0.0030	0.0029	0.0034
SD	F	0.0071	0.0071	0.0071	0.0076
SE	R	0.0044	0.0044	0.0043	0.0049
SE	F	0.0112	0.0112	0.0112	0.0117

Propagation Delays (ns)

SDFMQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0318 pF		0.0481 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2482	0.2283	0.2804	0.2543	0.3392	0.2918	0.4287	0.3387	0.5553	0.3974	0.7202	0.4692

SDFMQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0273 pF		0.0451 pF		0.0685 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2458	0.2341	0.2789	0.2627	0.3376	0.3024	0.4282	0.3521	0.5547	0.4129	0.7208	0.4879

SDFMQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0879 pF		0.1341 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2693	0.2715	0.3054	0.3047	0.3654	0.3490	0.4558	0.4017	0.5819	0.4645	0.7477	0.5401

SDFMQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0063 pF		0.0248 pF		0.0602 pF		0.1153 pF		0.1927 pF		0.2945 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2340	0.2754	0.2700	0.3140	0.3302	0.3643	0.4211	0.4226	0.5483	0.4915	0.7153	0.5739

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2251	0.2258	0.2272	0.1723
CK	minpwh	0.1119	0.1130	0.1239	0.1311
D1	setupD1(R)->CK(R)	0.1505	0.1424	0.1434	0.1525
D1	setupD1(F)->CK(R)	0.3150	0.3209	0.3185	0.3478
D1	holdD1(R)->CK(R)	-0.1322	-0.1231	-0.1219	-0.1327
D1	holdD1(F)->CK(R)	-0.1922	-0.1912	-0.1839	-0.2291
D2	setupD2(R)->CK(R)	0.1764	0.1678	0.1688	0.1769
D2	setupD2(F)->CK(R)	0.4458	0.4555	0.4532	0.4856
D2	holdD2(R)->CK(R)	-0.1553	-0.1456	-0.1445	-0.1542
D2	holdD2(F)->CK(R)	-0.3015	-0.3028	-0.2928	-0.3471
S	setupS(R)->CK(R)	0.1508	0.1432	0.1441	0.1533
S	setupS(F)->CK(R)	0.3887	0.3968	0.3944	0.4268
S	holdS(R)->CK(R)	-0.1322	-0.1232	-0.1220	-0.1333
S	holdS(F)->CK(R)	-0.2286	-0.2269	-0.2168	-0.2715
SD	setupSD(R)->CK(R)	0.1638	0.1667	0.1676	0.1745
SD	setupSD(F)->CK(R)	0.4999	0.5108	0.5083	0.5417
SD	holdSD(R)->CK(R)	-0.1404	-0.1415	-0.1404	-0.1490
SD	holdSD(F)->CK(R)	-0.3356	-0.3371	-0.3245	-0.3884
SE	setupSE(R)->CK(R)	0.4958	0.5076	0.5050	0.5383
SE	setupSE(F)->CK(R)	0.2358	0.2289	0.2298	0.2390
SE	holdSE(R)->CK(R)	-0.3331	-0.3353	-0.3230	-0.3869
SE	holdSE(F)->CK(R)	-0.2139	-0.2060	-0.2049	-0.2157

Sequential Cell

SDFQ

Cell Description

The SDFQ cell is a positive-edge triggered, static D-type flip-flop with scan input (SD) and active-high scan enable (SE). The cell has a single output (Q).

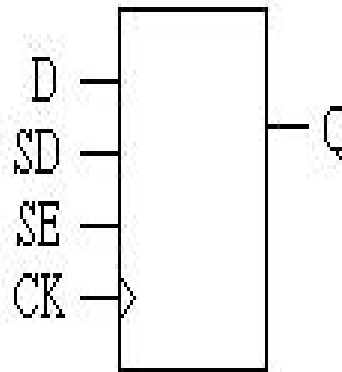
Truth Table

SE	D	SD	CK	Q[n+1]
0	0	X	R	0
0	1	X	R	1
1	X	0	R	0
1	X	1	R	1
X	X	X	F	Q[n]

Cell List

SDFQM1HM, SDFQM2HM, SDFQM4HM
, SDFQM8HM

Symbol



SDFQ Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00124	0.00139	0.00139	0.00195
D	input	0.00124	0.00187	0.00187	0.00187
Q	output				
SD	input	0.00111	0.00122	0.00122	0.00122
SE	input	0.00276	0.00247	0.00247	0.00247

Power Dissipation (uW/MHz)

SDFQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0089	0.0092	0.0090	0.0092	0.0090	0.0093	0.0090	0.0093	0.0091	0.0093	0.0091	0.0093

SDFQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0119	0.0122	0.0120	0.0123	0.0121	0.0123	0.0122	0.0124	0.0122	0.0124	0.0123	0.0124

SDFQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0190	0.0182	0.0192	0.0184	0.0194	0.0186	0.0195	0.0186	0.0196	0.0187	0.0197	0.0187

SDFQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1035 pF		0.1729 pF		0.2642 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0222	0.0228	0.0223	0.0229	0.0227	0.0231	0.0230	0.0233	0.0232	0.0234	0.0233	0.0234

Hidden Power (uW/MHz)

SDFQ at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0092	0.0088	0.0088	0.0101
CK	F	0.0121	0.0116	0.0116	0.0141
D	R	0.0029	0.0034	0.0034	0.0034
D	F	0.0059	0.0090	0.0090	0.0090
SD	R	0.0032	0.0014	0.0014	0.0014
SD	F	0.0067	0.0050	0.0050	0.0050
SE	R	0.0044	0.0032	0.0032	0.0032
SE	F	0.0116	0.0092	0.0092	0.0092

Propagation Delays (ns)

SDFQM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2081	0.2015	0.2405	0.2275	0.2993	0.2651	0.3890	0.3119	0.5140	0.3696	0.6795	0.4415

SDFQM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0147 pF		0.0274 pF		0.0453 pF		0.0688 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2297	0.2296	0.2609	0.2466	0.3195	0.2739	0.4099	0.3137	0.5369	0.3690	0.7035	0.4415

SDFQM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0875 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2623	0.2331	0.2935	0.2494	0.3524	0.2751	0.4437	0.3126	0.5713	0.3646	0.7389	0.4328

SDFQM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1035 pF		0.1729 pF		0.2642 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2399	0.2282	0.2727	0.2506	0.3313	0.2813	0.4222	0.3217	0.5498	0.3747	0.7174	0.4432

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2032	0.2148	0.2190	0.1956
CK	minpwh	0.0948	0.1124	0.1563	0.1322
D	setupD(R)->CK(R)	0.1240	0.0991	0.1024	0.1138
D	setupD(F)->CK(R)	0.1848	0.1213	0.1258	0.1559
D	holdD(R)->CK(R)	-0.0685	-0.0564	-0.0546	-0.0542
D	holdD(F)->CK(R)	-0.1617	-0.0574	-0.0506	-0.0652
SD	setupSD(R)->CK(R)	0.1783	0.1473	0.1516	0.1612
SD	setupSD(F)->CK(R)	0.3825	0.3086	0.3166	0.3538
SD	holdSD(R)->CK(R)	-0.1202	-0.0920	-0.0897	-0.0862
SD	holdSD(F)->CK(R)	-0.3531	-0.1477	-0.1293	-0.1707
SE	setupSE(R)->CK(R)	0.3820	0.3125	0.3200	0.3573
SE	setupSE(F)->CK(R)	0.1879	0.1351	0.1383	0.1499
SE	holdSE(R)->CK(R)	-0.3537	-0.1543	-0.1359	-0.1773
SE	holdSE(F)->CK(R)	-0.1315	-0.0919	-0.0897	-0.0894

Sequential Cell

SDFQR

Cell Description

The SDFQR cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low reset (RB). The cell has a single output (Q).

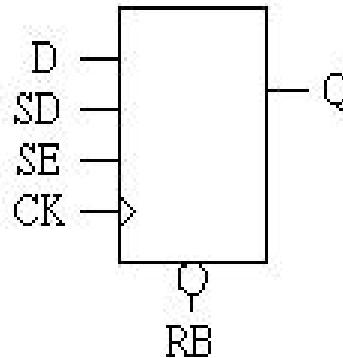
Truth Table

RB	SE	D	SD	CK	Q[n+1]
0	X	X	X	X	0
1	0	0	X	R	0
1	0	1	X	R	1
1	1	X	0	R	0
1	1	X	1	R	1
1	X	X	X	F	Q[n]

Cell List

SDFQRM1HM, SDFQRM2HM, SDFQRM4HM
, SDFQRM8HM

Symbol



SDFQR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00114	0.00114	0.00141	0.00190
D	input	0.00141	0.00141	0.00172	0.00178
Q	output				
RB	input	0.00252	0.00252	0.00420	0.00420
SD	input	0.00097	0.00097	0.00104	0.00104
SE	input	0.00260	0.00260	0.00271	0.00272

Power Dissipation (uW/MHz)

SDFQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0104 pF	0.0191 pF	0.0314 pF	0.0475 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0113	0.0109	0.0113	0.0109	0.0114	0.0110
RB->Q	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160

SDFQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0143 pF	0.0267 pF	0.0442 pF	0.0671 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0121	0.0117	0.0122	0.0117	0.0123	0.0118
RB->Q	0.0167	0.0167	0.0168	0.0168	0.0169	0.0169

SDFQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF	0.0105 pF	0.0245 pF	0.0465 pF	0.0772 pF	0.1177 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0217	0.0187	0.0218	0.0188	0.0219	0.0190
RB->Q	0.0267	0.0267	0.0269	0.0269	0.0270	0.0270

SDFQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0229 pF		0.0553 pF		0.1059 pF		0.1769 pF		0.2703 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0272	0.0253	0.0273	0.0255	0.0276	0.0258	0.0279	0.0259	0.0281	0.0261	0.0283	0.0261
RB->Q	0.0336	0.0336	0.0339	0.0339	0.0342	0.0342	0.0343	0.0343	0.0344	0.0344	0.0345	0.0345

Hidden Power (uW/MHz)

SDFQR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0129	0.0129	0.0121	0.0135
CK	F	0.0133	0.0133	0.0139	0.0164
D	R	0.0014	0.0014	0.0060	0.0059
D	F	0.0040	0.0040	0.0108	0.0110
RB	R	-0.0014	-0.0014	-0.0030	-0.0030
RB	F	0.0014	0.0014	0.0030	0.0030
SD	R	0.0016	0.0016	0.0025	0.0025
SD	F	0.0046	0.0046	0.0043	0.0043
SE	R	0.0025	0.0025	0.0032	0.0032
SE	F	0.0096	0.0096	0.0093	0.0093

Propagation Delays (ns)

SDFQRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0314 pF		0.0475 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2796	0.2757	0.3123	0.2957	0.3701	0.3254	0.4590	0.3657	0.5844	0.4196	0.7483	0.4892
RB->Q	--n/a--	0.1264	--n/a--	0.1470	--n/a--	0.1776	--n/a--	0.2187	--n/a--	0.2728	--n/a--	0.3422

SDFQRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0442 pF		0.0671 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2796	0.2793	0.3128	0.3006	0.3705	0.3315	0.4602	0.3731	0.5863	0.4283	0.7511	0.4992
RB->Q	--n/a--	0.1299	--n/a--	0.1518	--n/a--	0.1837	--n/a--	0.2260	--n/a--	0.2811	--n/a--	0.3517

SDFQRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0031 pF		0.0105 pF		0.0245 pF		0.0465 pF		0.0772 pF		0.1177 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2789	0.2658	0.3111	0.2826	0.3696	0.3075	0.4609	0.3425	0.5877	0.3895	0.7547	0.4510
RB->Q	--n/a--	0.0879	--n/a--	0.1048	--n/a--	0.1302	--n/a--	0.1657	--n/a--	0.2138	--n/a--	0.2760

SDFQRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0229 pF		0.0553 pF		0.1059 pF		0.1769 pF		0.2703 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2667	0.2296	0.3010	0.2512	0.3598	0.2812	0.4508	0.3217	0.5780	0.3755	0.7452	0.4454
RB->Q	--n/a--	0.1036	--n/a--	0.1255	--n/a--	0.1560	--n/a--	0.1971	--n/a--	0.2519	--n/a--	0.3223

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2155	0.2224	0.2162	0.1860
CK	minpwh	0.1250	0.1283	0.1706	0.1767
D	setupD(R)->CK(R)	0.0804	0.0863	0.1080	0.1098
D	setupD(F)->CK(R)	0.2242	0.2261	0.1366	0.1660
D	holdD(R)->CK(R)	-0.0506	-0.0501	-0.0641	-0.0607
D	holdD(F)->CK(R)	-0.0956	-0.0895	-0.0596	-0.0766
RB	removalRB(R)->CK(R)	0.2558	0.2558	0.2797	0.2684
RB	recoveryRB(R)->CK(R)	-0.2112	-0.2005	-0.2135	-0.1762
RB	minpwl	0.2865	0.2865	0.3211	0.3222
SD	setupSD(R)->CK(R)	0.1646	0.1721	0.1753	0.1761
SD	setupSD(F)->CK(R)	0.4390	0.4413	0.3196	0.3600
SD	holdSD(R)->CK(R)	-0.1136	-0.1130	-0.1108	-0.1026
SD	holdSD(F)->CK(R)	-0.2194	-0.2061	-0.1385	-0.1885
SE	setupSE(R)->CK(R)	0.4421	0.4438	0.3222	0.3622
SE	setupSE(F)->CK(R)	0.1401	0.1463	0.1285	0.1303
SE	holdSE(R)->CK(R)	-0.2232	-0.2097	-0.1417	-0.1913
SE	holdSE(F)->CK(R)	-0.1094	-0.1092	-0.0835	-0.0802

Sequential Cell

SDFQRS

Cell Description

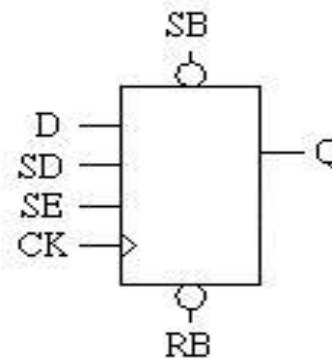
The SDFQRS cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), and asynchronous active-low reset (RB) and set (SB). Reset (RB) dominates set (SB). The cell has a single output (Q).

Truth Table

RB	SB	SE	D	SD	CK	Q[n+1]
0	X	X	X	X	X	0
1	0	X	X	X	X	1
1	1	0	0	X	R	0
1	1	0	1	X	R	1
1	1	1	X	0	R	0
1	1	1	X	1	R	1
1	1	X	X	X	F	Q[n]

Symbol



Cell List

SDFQRSM1HM, SDFQRSM2HM, SDFQRSM4HM
, SDFQRSM8HM

SDFQRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00109	0.00120	0.00120	0.00178
D	input	0.00154	0.00184	0.00184	0.00179
Q	output				
RB	input	0.00384	0.00351	0.00349	0.00483
SB	input	0.00302	0.00300	0.00300	0.00315
SD	input	0.00108	0.00107	0.00107	0.00108
SE	input	0.00277	0.00265	0.00266	0.00265

Power Dissipation (uW/MHz)

SDFQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0194 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0168	0.0138	0.0169	0.0138	0.0169	0.0139	0.0170	0.0139	0.0170	0.0139	0.0170	0.0140
RB->Q	0.0115	0.0146	0.0115	0.0147	0.0116	0.0147	0.0116	0.0147	0.0116	0.0148	0.0116	0.0148
SB->Q	0.0209	0.0209	0.0209	0.0209	0.0210	0.0210	0.0210	0.0210	0.0211	0.0211	0.0211	0.0211

SDFQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0178	0.0149	0.0179	0.0149	0.0180	0.0150	0.0181	0.0150	0.0181	0.0151	0.0181	0.0151
RB->Q	0.0124	0.0157	0.0125	0.0158	0.0126	0.0159	0.0127	0.0159	0.0127	0.0159	0.0127	0.0159
SB->Q	0.0218	0.0218	0.0219	0.0219	0.0220	0.0220	0.0221	0.0221	0.0221	0.0221	0.0222	0.0222

SDFQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0207	0.0183	0.0208	0.0183	0.0211	0.0184	0.0212	0.0185	0.0213	0.0185	0.0214	0.0185
RB->Q	0.0155	0.0191	0.0157	0.0192	0.0159	0.0193	0.0160	0.0194	0.0161	0.0194	0.0161	0.0194
SB->Q	0.0248	0.0248	0.0248	0.0248	0.0251	0.0251	0.0252	0.0252	0.0253	0.0253	0.0254	0.0254

SDFQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1037 pF		0.1732 pF		0.2647 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0309	0.0282	0.0311	0.0282	0.0315	0.0284	0.0318	0.0285	0.0320	0.0286	0.0321	0.0287
RB->Q	0.0233	0.0282	0.0236	0.0283	0.0240	0.0286	0.0243	0.0288	0.0244	0.0288	0.0244	0.0289
SB->Q	0.0352	0.0352	0.0353	0.0353	0.0355	0.0355	0.0358	0.0358	0.0360	0.0360	0.0361	0.0361

Hidden Power (uW/MHz)

SDFQRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0128	0.0129	0.0129	0.0139
CK	F	0.0158	0.0152	0.0152	0.0174
D	R	0.0013	0.0033	0.0033	0.0033
D	F	0.0042	0.0093	0.0093	0.0092
RB	R	-0.0011	-0.0011	-0.0011	-0.0018
RB	F	0.0018	0.0018	0.0018	0.0028
SB	R	0.0026	0.0026	0.0026	0.0030
SB	F	0.0099	0.0099	0.0100	0.0112
SD	R	0.0015	0.0014	0.0014	0.0013
SD	F	0.0047	0.0045	0.0045	0.0045
SE	R	0.0025	0.0031	0.0031	0.0030
SE	F	0.0098	0.0093	0.0093	0.0092

Propagation Delays (ns)

SDFQRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0106 pF		0.0194 pF		0.0319 pF		0.0484 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2559	0.3078	0.2863	0.3265	0.3456	0.3566	0.4350	0.3970	0.5613	0.4517	0.7278	0.5228
RB->Q	0.0783	0.1059	0.1085	0.1239	0.1675	0.1532	0.2565	0.1928	0.3827	0.2469	0.5491	0.3178
SB->Q	0.3672	--n/a--	0.3978	--n/a--	0.4570	--n/a--	0.5461	--n/a--	0.6725	--n/a--	0.8390	--n/a--

SDFQRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0271 pF		0.0448 pF		0.0681 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2478	0.3030	0.2793	0.3240	0.3381	0.3554	0.4287	0.3977	0.5554	0.4536	0.7219	0.5258
RB->Q	0.0775	0.1117	0.1087	0.1319	0.1671	0.1624	0.2574	0.2038	0.3840	0.2591	0.5504	0.3310
SB->Q	0.3693	--n/a--	0.4014	--n/a--	0.4599	--n/a--	0.5503	--n/a--	0.6770	--n/a--	0.8435	--n/a--

SDFQRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0280 pF		0.0531 pF		0.0883 pF		0.1347 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2553	0.3221	0.2887	0.3470	0.3483	0.3816	0.4396	0.4255	0.5671	0.4815	0.7347	0.5526
RB->Q	0.0823	0.1309	0.1152	0.1550	0.1745	0.1887	0.2656	0.2317	0.3929	0.2869	0.5605	0.3577
SB->Q	0.3812	--n/a--	0.4157	--n/a--	0.4751	--n/a--	0.5661	--n/a--	0.6934	--n/a--	0.8611	--n/a--

SDFQRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1037 pF		0.1732 pF		0.2647 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2798	0.2837	0.3149	0.3089	0.3742	0.3435	0.4655	0.3886	0.5930	0.4477	0.7607	0.5238
RB->Q	0.0827	0.1169	0.1166	0.1415	0.1758	0.1755	0.2668	0.2201	0.3943	0.2788	0.5619	0.3547
SB->Q	0.4469	--n/a--	0.4839	--n/a--	0.5435	--n/a--	0.6344	--n/a--	0.7619	--n/a--	0.9295	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2478	0.2382	0.2498	0.2059
CK	minpwh	0.1201	0.1245	0.1327	0.1789
D	setupD(R)->CK(R)	0.0908	0.1003	0.1117	0.1111
D	setupD(F)->CK(R)	0.1610	0.1059	0.1071	0.1436
D	holdD(R)->CK(R)	-0.0636	-0.0631	-0.0626	-0.0649
D	holdD(F)->CK(R)	-0.0861	-0.0600	-0.0550	-0.0720
RB	setupRB(R)->SB(R)	0.0526	0.0507	0.0507	0.0456
RB	removalRB(R)->CK(R)	0.3087	0.2990	0.3015	0.2763
RB	recoveryRB(R)->CK(R)	-0.2365	-0.2138	-0.1994	-0.2000
RB	minpwl	0.3255	0.3266	0.3271	0.3359
RB	holdRB(R)->SB(R)	-0.0503	-0.0410	-0.0135	0.0101
SB	removalSB(R)->CK(R)	0.1872	0.1739	0.1739	0.1182
SB	recoverySB(R)->CK(R)	-0.1291	-0.1102	-0.1062	-0.0554
SB	minpwl	0.1750	0.1761	0.1761	0.1854
SD	setupSD(R)->CK(R)	0.1769	0.1951	0.2068	0.2003
SD	setupSD(F)->CK(R)	0.3170	0.3164	0.3192	0.3599
SD	holdSD(R)->CK(R)	-0.1358	-0.1397	-0.1387	-0.1321
SD	holdSD(F)->CK(R)	-0.1901	-0.1849	-0.1710	-0.2025
SE	setupSE(R)->CK(R)	0.3233	0.3213	0.3241	0.3634
SE	setupSE(F)->CK(R)	0.1573	0.1321	0.1427	0.1398
SE	holdSE(R)->CK(R)	-0.1965	-0.1898	-0.1761	-0.2065
SE	holdSE(F)->CK(R)	-0.1302	-0.0947	-0.0935	-0.0936

Sequential Cell

SDFQRX

Cell Description

The SDFQRX cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low reset (RB). The cell has a single output (Q).

Truth Table

RB	SE	D	SD	CK	Q[n+1]
0	X	X	X	X	0
1	0	0	X	R	0
1	0	1	X	R	1
1	1	X	0	R	0
1	1	X	1	R	1
1	X	X	X	F	Q[n]

Cell List

SDFQRXM2HM

SDFQRX Pin direction and Cap

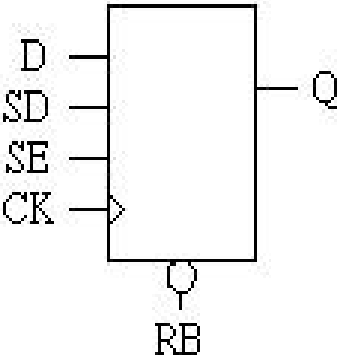
Pin	in/out	M2HM
CK	input	0.00142
D	input	0.00172
Q	output	
RB	input	0.00243
SD	input	0.00104
SE	input	0.00271

Power Dissipation (uW/MHz)

SDFQRXM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0140 pF		0.0261 pF		0.0430 pF		0.0653 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0132	0.0120	0.0133	0.0122	0.0134	0.0123	0.0134	0.0123	0.0135	0.0123	0.0135	0.0123
RB->Q	0.0182	0.0182	0.0182	0.0182	0.0183	0.0183	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184

Symbol



Hidden Power (uW/MHz)

SDFQRX at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M2HM
CK	R	0.0120
CK	F	0.0141
D	R	0.0059
D	F	0.0108
RB	R	-0.0017
RB	F	0.0018
SD	R	0.0024
SD	F	0.0043
SE	R	0.0032
SE	F	0.0093

Propagation Delays (ns)

SDFQRXM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0062 pF		0.0140 pF		0.0261 pF		0.0430 pF		0.0653 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2455	0.2527	0.2770	0.2709	0.3358	0.2992	0.4260	0.3385	0.5517	0.3915	0.7173	0.4609
RB->Q	--n/a--	0.1026	--n/a--	0.1212	--n/a--	0.1503	--n/a--	0.1907	--n/a--	0.2444	--n/a--	0.3138

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)
		M2HM
CK	minpwl	0.2155
CK	minpwh	0.1234
D	setupD(R)->CK(R)	0.1077
D	setupD(F)->CK(R)	0.1373
D	holdD(R)->CK(R)	-0.0648
D	holdD(F)->CK(R)	-0.0701
RB	removalRB(R)->CK(R)	0.2886
RB	recoveryRB(R)->CK(R)	-0.1965
RB	minpwl	0.3200
SD	setupSD(R)->CK(R)	0.1738
SD	setupSD(F)->CK(R)	0.3195
SD	holdSD(R)->CK(R)	-0.1125
SD	holdSD(F)->CK(R)	-0.1649
SE	setupSE(R)->CK(R)	0.3218
SE	setupSE(F)->CK(R)	0.1280
SE	holdSE(R)->CK(R)	-0.1677
SE	holdSE(F)->CK(R)	-0.0846

Sequential Cell

SDFQS

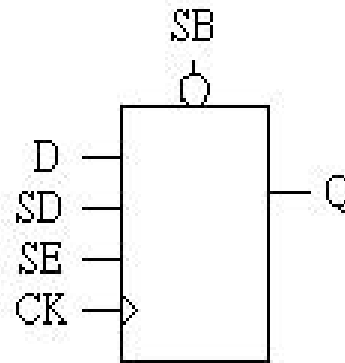
Cell Description

The SDFQS cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low set (SB). The cell has a single output (Q).

Truth Table

SB	SE	D	SD	CK	Q[n+1]
0	X	X	X	X	1
1	0	0	X	R	0
1	0	1	X	R	1
1	1	X	0	R	0
1	1	X	1	R	1
1	X	X	X	F	Q[n]

Symbol



Cell List

SDFQSM1HM, SDFQSM2HM, SDFQSM4HM
, SDFQSM8HM

SDFQS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00104	0.00118	0.00117	0.00169
D	input	0.00150	0.00189	0.00185	0.00186
Q	output				
SB	input	0.00301	0.00293	0.00300	0.00257
SD	input	0.00104	0.00102	0.00103	0.00103
SE	input	0.00259	0.00247	0.00254	0.00245

Power Dissipation (uW/MHz)

SDFQSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF	0.0049 pF	0.0106 pF	0.0196 pF	0.0321 pF	0.0486 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0160	0.0133	0.0160	0.0134	0.0161	0.0134
SB->Q	0.0201	0.0201	0.0202	0.0202	0.0202	0.0202

SDFQSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0065 pF	0.0146 pF	0.0272 pF	0.0450 pF	0.0684 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0167	0.0140	0.0168	0.0141	0.0169	0.0142
SB->Q	0.0208	0.0208	0.0208	0.0208	0.0209	0.0209

SDFQSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0118 pF	0.0278 pF	0.0527 pF	0.0877 pF	0.1338 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0233	0.0202	0.0235	0.0204	0.0237	0.0206
SB->Q	0.0289	0.0289	0.0290	0.0290	0.0291	0.0291

SDFQSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1038 pF		0.1733 pF		0.2648 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0284	0.0267	0.0287	0.0270	0.0291	0.0273	0.0294	0.0275	0.0296	0.0276	0.0297	0.0277
SB->Q	0.0349	0.0349	0.0349	0.0349	0.0352	0.0352	0.0355	0.0355	0.0357	0.0357	0.0359	0.0359

Hidden Power (uW/MHz)

SDFQS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0108	0.0108	0.0110	0.0092
CK	F	0.0147	0.0146	0.0146	0.0153
D	R	0.0014	0.0033	0.0035	0.0038
D	F	0.0043	0.0089	0.0091	0.0093
SB	R	-0.0005	-0.0007	-0.0005	-0.0002
SB	F	0.0036	0.0035	0.0035	0.0040
SD	R	0.0016	0.0014	0.0015	0.0019
SD	F	0.0049	0.0045	0.0046	0.0048
SE	R	0.0026	0.0030	0.0029	0.0035
SE	F	0.0097	0.0088	0.0090	0.0092

Propagation Delays (ns)

SDFQSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0049 pF		0.0106 pF		0.0196 pF		0.0321 pF		0.0486 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2397	0.2522	0.2705	0.2683	0.3285	0.2949	0.4194	0.3345	0.5451	0.3886	0.7110	0.4597
SB->Q	0.2729	--n/a--	0.3036	--n/a--	0.3613	--n/a--	0.4522	--n/a--	0.5780	--n/a--	0.7439	--n/a--

SDFQSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0065 pF		0.0146 pF		0.0272 pF		0.0450 pF		0.0684 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2337	0.2353	0.2652	0.2528	0.3236	0.2804	0.4138	0.3202	0.5408	0.3753	0.7077	0.4476
SB->Q	0.2709	--n/a--	0.3024	--n/a--	0.3605	--n/a--	0.4507	--n/a--	0.5777	--n/a--	0.7446	--n/a--

SDFQSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0877 pF		0.1338 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2451	0.2294	0.2766	0.2461	0.3356	0.2721	0.4269	0.3097	0.5549	0.3618	0.7232	0.4302
SB->Q	0.3796	--n/a--	0.4128	--n/a--	0.4715	--n/a--	0.5625	--n/a--	0.6905	--n/a--	0.8589	--n/a--

SDFQSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0542 pF		0.1038 pF		0.1733 pF		0.2648 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2235	0.2082	0.2555	0.2271	0.3145	0.2543	0.4060	0.2924	0.5340	0.3441	0.7023	0.4118
SB->Q	0.3773	--n/a--	0.4116	--n/a--	0.4701	--n/a--	0.5613	--n/a--	0.6892	--n/a--	0.8575	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2492	0.2354	0.2361	0.2272
CK	minpwh	0.1141	0.1179	0.1421	0.1382
D	setupD(R)->CK(R)	0.0816	0.0832	0.0886	0.1299
D	setupD(F)->CK(R)	0.1757	0.1155	0.1180	0.1764
D	holdD(R)->CK(R)	-0.0579	-0.0549	-0.0541	-0.0595
D	holdD(F)->CK(R)	-0.0957	-0.0637	-0.0578	-0.0862
SB	removalSB(R)->CK(R)	0.1662	0.1398	0.1391	0.0907
SB	recoverySB(R)->CK(R)	-0.1254	-0.0962	-0.0876	-0.0371
SB	minpwl	0.1481	0.1443	0.1640	0.1783
SD	setupSD(R)->CK(R)	0.1721	0.1785	0.1778	0.2158
SD	setupSD(F)->CK(R)	0.3414	0.3324	0.3502	0.4132
SD	holdSD(R)->CK(R)	-0.1336	-0.1312	-0.1224	-0.1214
SD	holdSD(F)->CK(R)	-0.2073	-0.1996	-0.1872	-0.2473
SE	setupSE(R)->CK(R)	0.3465	0.3356	0.3517	0.4174
SE	setupSE(F)->CK(R)	0.1463	0.1130	0.1185	0.1623
SE	holdSE(R)->CK(R)	-0.2144	-0.2065	-0.1923	-0.2553
SE	holdSE(F)->CK(R)	-0.1223	-0.0844	-0.0834	-0.0920

Sequential Cell

SDFQZR

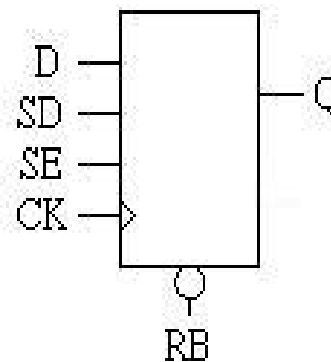
Cell Description

The SDFQZR cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and synchronous active-low reset (RB). Scan enable (SE) dominates reset (RB). The cell has a single output (Q).

Truth Table

SE	RB	D	SD	CK	Q[n+1]
0	0	X	X	R	0
0	1	0	X	R	0
0	1	1	X	R	1
1	X	X	0	R	0
1	X	X	1	R	1
X	X	X	X	F	Q[n]

Symbol



Cell List

SDFQZRM1HM, SDFQZRM2HM, SDFQZRM4HM
, SDFQZRM8HM

SDFQZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00115	0.00131	0.00131	0.00188
D	input	0.00115	0.00163	0.00163	0.00163
Q	output				
RB	input	0.00102	0.00139	0.00139	0.00139
SD	input	0.00119	0.00125	0.00125	0.00125
SE	input	0.00263	0.00293	0.00293	0.00293

Power Dissipation (uW/MHz)

SDFQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0100	0.0093	0.0100	0.0093	0.0101	0.0094	0.0101	0.0094	0.0101	0.0094	0.0101	0.0094

SDFQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0110	0.0103	0.0111	0.0104	0.0111	0.0104	0.0112	0.0105	0.0112	0.0105	0.0112	0.0105

SDFQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0876 pF		0.1336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0160	0.0164	0.0159	0.0161	0.0159	0.0160	0.0160	0.0161	0.0160	0.0161	0.0161	0.0161

SDFQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2643 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0245	0.0260	0.0244	0.0257	0.0245	0.0257	0.0247	0.0258	0.0249	0.0259	0.0250	0.0259

Hidden Power (uW/MHz)

SDFQZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0099	0.0098	0.0098	0.0135
CK	F	0.0136	0.0139	0.0140	0.0181
D	R	0.0033	0.0035	0.0035	0.0039
D	F	0.0063	0.0079	0.0079	0.0085
RB	R	0.0035	0.0036	0.0036	0.0041
RB	F	0.0060	0.0073	0.0072	0.0078
SD	R	0.0058	0.0058	0.0058	0.0068
SD	F	0.0084	0.0087	0.0087	0.0099
SE	R	0.0071	0.0073	0.0073	0.0083
SE	F	0.0117	0.0125	0.0125	0.0136

Propagation Delays (ns)

SDFQZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0318 pF		0.0482 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2356	0.1922	0.2675	0.2149	0.3258	0.2493	0.4158	0.2946	0.5407	0.3518	0.7057	0.4241

SDFQZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2146	0.1779	0.2471	0.2025	0.3060	0.2389	0.3956	0.2853	0.5213	0.3439	0.6861	0.4170

SDFQZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0527 pF		0.0876 pF		0.1336 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2258	0.2153	0.2627	0.2477	0.3229	0.2900	0.4132	0.3406	0.5394	0.4015	0.7056	0.4755

SDFQZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0224 pF		0.0541 pF		0.1036 pF		0.1730 pF		0.2643 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.1812	0.1771	0.2171	0.2065	0.2768	0.2454	0.3678	0.2929	0.4951	0.3510	0.6623	0.4223

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2045	0.1675	0.1702	0.1647
CK	minpwh	0.1146	0.1036	0.1124	0.0871
D	setupD(R)->CK(R)	0.1414	0.1273	0.1323	0.1769
D	setupD(F)->CK(R)	0.2225	0.1886	0.1891	0.2111
D	holdD(R)->CK(R)	-0.1022	-0.0840	-0.0810	-0.1018
D	holdD(F)->CK(R)	-0.1967	-0.1562	-0.1532	-0.1599
RB	setupRB(R)->CK(R)	0.1388	0.1250	0.1296	0.1747
RB	setupRB(F)->CK(R)	0.2143	0.1805	0.1810	0.2029
RB	holdRB(R)->CK(R)	-0.1002	-0.0819	-0.0789	-0.0996
RB	holdRB(F)->CK(R)	-0.1886	-0.1481	-0.1451	-0.1517
SD	setupSD(R)->CK(R)	0.1177	0.1453	0.1499	0.1950
SD	setupSD(F)->CK(R)	0.2478	0.2383	0.2388	0.2618
SD	holdSD(R)->CK(R)	-0.0791	-0.1004	-0.0970	-0.1183
SD	holdSD(F)->CK(R)	-0.2203	-0.2037	-0.2006	-0.2072
SE	setupSE(R)->CK(R)	0.2578	0.2476	0.2481	0.2710
SE	setupSE(F)->CK(R)	0.1594	0.1454	0.1500	0.1950
SE	holdSE(R)->CK(R)	-0.2315	-0.2141	-0.2111	-0.2178
SE	holdSE(F)->CK(R)	-0.1207	-0.1022	-0.0988	-0.1201

Sequential Cell

SDFR

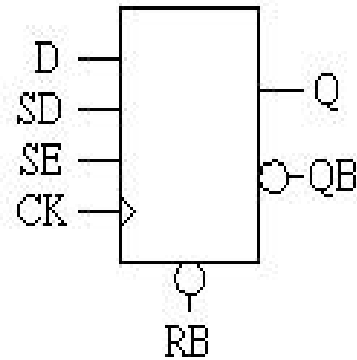
Cell Description

The SDFR cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low reset (RB).

Truth Table

RB	SE	D	SD	CK	Q[n+1]	QB[n+1]
0	X	X	X	X	0	1
1	0	0	X	R	0	1
1	0	1	X	R	1	0
1	1	X	0	R	0	1
1	1	X	1	R	1	0
1	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFRM1HM, SDFRM2HM, SDFRM4HM
, SDFRM8HM

SDFR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00111	0.00122	0.00122	0.00182
D	input	0.00154	0.00185	0.00185	0.00185
Q	output				
QB	output				
RB	input	0.00264	0.00260	0.00455	0.00447
SD	input	0.00109	0.00107	0.00107	0.00107
SE	input	0.00273	0.00265	0.00265	0.00265

Power Dissipation (uW/MHz)

SDFRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0104 pF	0.0192 pF	0.0314 pF	0.0476 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0197	0.0153	0.0197	0.0154	0.0198	0.0154
RB->Q	0.0215	0.0215	0.0215	0.0215	0.0215	0.0215

SDFRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0143 pF	0.0268 pF	0.0442 pF	0.0672 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0212	0.0170	0.0213	0.0171	0.0214	0.0171
RB->Q	0.0231	0.0231	0.0232	0.0232	0.0232	0.0232

SDFRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0117 pF	0.0277 pF	0.0526 pF	0.0874 pF	0.1334 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0329	0.0279	0.0330	0.0281	0.0332	0.0282
RB->Q	0.0355	0.0355	0.0357	0.0357	0.0359	0.0359

SDFRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0538 pF		0.1030 pF		0.1719 pF		0.2627 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0487	0.0439	0.0489	0.0440	0.0490	0.0444	0.0493	0.0445	0.0496	0.0445	0.0497	0.0446
RB->Q	0.0516	0.0516	0.0518	0.0518	0.0520	0.0520	0.0522	0.0522	0.0523	0.0523	0.0523	0.0523

Hidden Power (uW/MHz)

SDFR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0134	0.0135	0.0138	0.0148
CK	F	0.0147	0.0145	0.0144	0.0169
D	R	0.0016	0.0036	0.0036	0.0036
D	F	0.0047	0.0096	0.0096	0.0096
RB	R	-0.0015	-0.0015	-0.0030	-0.0030
RB	F	0.0015	0.0015	0.0030	0.0030
SD	R	0.0018	0.0017	0.0017	0.0017
SD	F	0.0053	0.0050	0.0050	0.0050
SE	R	0.0029	0.0034	0.0034	0.0034
SE	F	0.0102	0.0095	0.0095	0.0095

Propagation Delays (ns)

SDFRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0314 pF		0.0476 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2642	0.2697	0.2960	0.2868	0.3542	0.3136	0.4449	0.3523	0.5699	0.4043	0.7356	0.4727
CK(R)->QB	0.3529	0.3587	0.3852	0.3810	0.4428	0.4131	0.5329	0.4555	0.6575	0.5093	0.8228	0.5784
RB->Q	--n/a--	0.1225	--n/a--	0.1419	--n/a--	0.1712	--n/a--	0.2119	--n/a--	0.2657	--n/a--	0.3349
RB->QB	0.2455	--n/a--	0.2873	--n/a--	0.3500	--n/a--	0.4408	--n/a--	0.5655	--n/a--	0.7308	--n/a--

SDFRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0268 pF		0.0442 pF		0.0672 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2466	0.2612	0.2786	0.2806	0.3368	0.3108	0.4279	0.3545	0.5541	0.4133	0.7207	0.4906
CK(R)->QB	0.3311	0.3321	0.3628	0.3551	0.4203	0.3886	0.5108	0.4342	0.6367	0.4939	0.8029	0.5715
RB->Q	--n/a--	0.1273	--n/a--	0.1494	--n/a--	0.1824	--n/a--	0.2287	--n/a--	0.2890	--n/a--	0.3663
RB->QB	0.2279	--n/a--	0.2677	--n/a--	0.3290	--n/a--	0.4200	--n/a--	0.5458	--n/a--	0.7120	--n/a--

SDFRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0277 pF		0.0526 pF		0.0874 pF		0.1334 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2722	0.2691	0.3048	0.2891	0.3643	0.3194	0.4560	0.3622	0.5836	0.4199	0.7520	0.4959
CK(R)->QB	0.3305	0.3470	0.3622	0.3699	0.4212	0.4031	0.5124	0.4474	0.6395	0.5059	0.8075	0.5822
RB->Q	--n/a--	0.0908	--n/a--	0.1110	--n/a--	0.1416	--n/a--	0.1853	--n/a--	0.2441	--n/a--	0.3202
RB->QB	0.1693	--n/a--	0.2072	--n/a--	0.2711	--n/a--	0.3630	--n/a--	0.4901	--n/a--	0.6580	--n/a--

SDFRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0538 pF		0.1030 pF		0.1719 pF		0.2627 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2734	0.2408	0.3086	0.2641	0.3690	0.2972	0.4612	0.3407	0.5895	0.3976	0.7582	0.4714
CK(R)->QB	0.2930	0.3327	0.3246	0.3539	0.3835	0.3847	0.4745	0.4269	0.6017	0.4838	0.7691	0.5582
RB->Q	--n/a--	0.1125	--n/a--	0.1366	--n/a--	0.1705	--n/a--	0.2149	--n/a--	0.2719	--n/a--	0.3454
RB->QB	0.1738	--n/a--	0.2085	--n/a--	0.2695	--n/a--	0.3607	--n/a--	0.4879	--n/a--	0.6553	--n/a--

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2341	0.2148	0.2169	0.1805
CK	minpwh	0.1289	0.1250	0.1596	0.1745
D	setupD(R)->CK(R)	0.0822	0.0822	0.0838	0.0867
D	setupD(F)->CK(R)	0.1854	0.1200	0.1244	0.1581
D	holdD(R)->CK(R)	-0.0583	-0.0566	-0.0554	-0.0545
D	holdD(F)->CK(R)	-0.0755	-0.0537	-0.0491	-0.0689
RB	removalRB(R)->CK(R)	0.2938	0.2907	0.2807	0.2661
RB	recoveryRB(R)->CK(R)	-0.2217	-0.2003	-0.2112	-0.1788
RB	minpwl	0.3134	0.3227	0.3162	0.3156
SD	setupSD(R)->CK(R)	0.1647	0.1723	0.1754	0.1769
SD	setupSD(F)->CK(R)	0.3546	0.3480	0.3549	0.3934
SD	holdSD(R)->CK(R)	-0.1239	-0.1260	-0.1232	-0.1181
SD	holdSD(F)->CK(R)	-0.1684	-0.1679	-0.1535	-0.2044
SE	setupSE(R)->CK(R)	0.3609	0.3530	0.3594	0.3984
SE	setupSE(F)->CK(R)	0.1488	0.1149	0.1161	0.1191
SE	holdSE(R)->CK(R)	-0.1753	-0.1729	-0.1591	-0.2096
SE	holdSE(F)->CK(R)	-0.1238	-0.0883	-0.0867	-0.0864

Sequential Cell

SDFRS

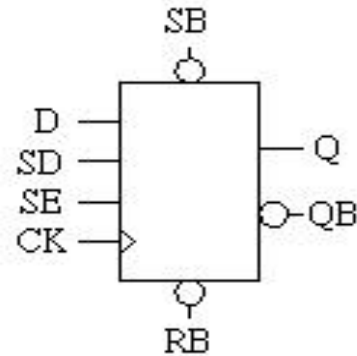
Cell Description

The SDFRS cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low reset (RB) and set (SB).

Truth Table

RB	SB	SE	D	SD	CK	Q[n+1]	QB[n+1]
0	1	X	X	X	X	0	1
1	0	X	X	X	X	1	0
0	0	X	X	X	X	0	0
1	1	0	0	X	R	0	1
1	1	0	1	X	R	1	0
1	1	1	X	0	R	0	1
1	1	1	X	1	R	1	0
1	1	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFRSM1HM, SDFRSM2HM, SDFRSM4HM
, SDFRSM8HM

SDFRS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00109	0.00121	0.00121	0.00184
D	input	0.00154	0.00184	0.00184	0.00184
Q	output				
QB	output				
RB	input	0.00366	0.00353	0.00352	0.00490
SB	input	0.00308	0.00318	0.00358	0.00368
SD	input	0.00108	0.00107	0.00107	0.00107
SE	input	0.00277	0.00265	0.00265	0.00265

Power Dissipation (uW/MHz)

SDFRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0210	0.0173	0.0211	0.0173	0.0211	0.0173	0.0212	0.0174	0.0213	0.0174	0.0213	0.0174
RB->Q	0.0134	0.0165	0.0135	0.0166	0.0135	0.0166	0.0136	0.0166	0.0136	0.0166	0.0136	0.0166
SB->Q	0.0115	0.0115	0.0116	0.0116	0.0116	0.0116	0.0117	0.0117	0.0117	0.0117	0.0118	0.0118
SB->QB	0.0087	0.0204	0.0088	0.0204	0.0088	0.0204	0.0089	0.0204	0.0089	0.0204	0.0089	0.0204

SDFRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0236	0.0196	0.0237	0.0196	0.0238	0.0197	0.0238	0.0197	0.0239	0.0197	0.0239	0.0197
RB->Q	0.0153	0.0184	0.0155	0.0185	0.0155	0.0185	0.0155	0.0186	0.0156	0.0186	0.0156	0.0186
SB->Q	0.0127	0.0127	0.0128	0.0128	0.0129	0.0129	0.0129	0.0129	0.0130	0.0130	0.0130	0.0130
SB->QB	0.0094	0.0213	0.0095	0.0213	0.0096	0.0213	0.0097	0.0213	0.0098	0.0214	0.0098	0.0214

SDFRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0866 pF		0.1320 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0311	0.0275	0.0313	0.0274	0.0315	0.0274	0.0316	0.0275	0.0317	0.0275	0.0318	0.0275
RB->Q	0.0205	0.0244	0.0206	0.0244	0.0208	0.0244	0.0209	0.0245	0.0209	0.0245	0.0209	0.0245
SB->Q	0.0162	0.0162	0.0162	0.0162	0.0164	0.0164	0.0165	0.0165	0.0165	0.0165	0.0166	0.0166
SB->QB	0.0124	0.0260	0.0127	0.0261	0.0129	0.0261	0.0131	0.0262	0.0132	0.0264	0.0132	0.0265

SDFRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1024 pF		0.1710 pF		0.2612 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0505	0.0454	0.0507	0.0453	0.0511	0.0454	0.0514	0.0455	0.0516	0.0456	0.0517	0.0457
RB->Q	0.0324	0.0377	0.0327	0.0378	0.0330	0.0380	0.0333	0.0381	0.0333	0.0382	0.0334	0.0382
SB->Q	0.0267	0.0267	0.0267	0.0267	0.0270	0.0270	0.0272	0.0272	0.0274	0.0274	0.0275	0.0275
SB->QB	0.0202	0.0378	0.0204	0.0372	0.0208	0.0371	0.0211	0.0370	0.0213	0.0369	0.0215	0.0368

Hidden Power (uW/MHz)

SDFRS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0128	0.0129	0.0129	0.0140
CK	F	0.0158	0.0152	0.0152	0.0176
D	R	0.0013	0.0033	0.0033	0.0033
D	F	0.0042	0.0093	0.0093	0.0093
RB	R	-0.0010	-0.0011	-0.0011	-0.0017
RB	F	0.0017	0.0017	0.0017	0.0029
SB	R	-0.0003	-0.0003	-0.0007	-0.0006
SB	F	0.0034	0.0035	0.0040	0.0039
SD	R	0.0015	0.0014	0.0014	0.0014
SD	F	0.0047	0.0045	0.0045	0.0045
SE	R	0.0025	0.0031	0.0031	0.0031
SE	F	0.0098	0.0093	0.0093	0.0093

Propagation Delays (ns)
SDFRSM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2617	0.2996	0.2935	0.3159	0.3524	0.3401	0.4426	0.3719	0.5681	0.4132	0.7339	0.4664
CK(R)->QB	0.4197	0.3976	0.4547	0.4230	0.5141	0.4595	0.6033	0.5056	0.7273	0.5631	0.8912	0.6353
RB->Q	0.0860	0.1007	0.1176	0.1164	0.1762	0.1399	0.2661	0.1710	0.3913	0.2116	0.5569	0.2643
RB->QB	0.2562	--n/a--	0.3028	--n/a--	0.3710	--n/a--	0.4631	--n/a--	0.5875	--n/a--	0.7515	--n/a--
SB->Q	0.3909	--n/a--	0.4232	--n/a--	0.4816	--n/a--	0.5715	--n/a--	0.6967	--n/a--	0.8625	--n/a--
SB->QB	0.1658	0.2354	0.2124	0.2651	0.2804	0.3084	0.3724	0.3630	0.4967	0.4262	0.6607	0.5020

SDFRSM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0144 pF		0.0268 pF		0.0443 pF		0.0673 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2590	0.3042	0.2911	0.3248	0.3499	0.3554	0.4403	0.3967	0.5672	0.4511	0.7336	0.5209
CK(R)->QB	0.3932	0.3707	0.4266	0.3947	0.4849	0.4290	0.5740	0.4732	0.6991	0.5300	0.8631	0.6020
RB->Q	0.0894	0.1162	0.1211	0.1360	0.1795	0.1658	0.2695	0.2061	0.3962	0.2598	0.5625	0.3293
RB->QB	0.2300	--n/a--	0.2736	--n/a--	0.3391	--n/a--	0.4298	--n/a--	0.5550	--n/a--	0.7190	--n/a--
SB->Q	0.3580	--n/a--	0.3905	--n/a--	0.4489	--n/a--	0.5390	--n/a--	0.6657	--n/a--	0.8321	--n/a--
SB->QB	0.1285	0.1957	0.1719	0.2233	0.2372	0.2636	0.3277	0.3158	0.4528	0.3788	0.6168	0.4542

SDFRSM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0116 pF		0.0274 pF		0.0520 pF		0.0866 pF		0.1320 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2699	0.3287	0.3046	0.3543	0.3646	0.3893	0.4563	0.4333	0.5843	0.4881	0.7519	0.5561
CK(R)->QB	0.4149	0.3667	0.4487	0.3897	0.5077	0.4220	0.5981	0.4637	0.7249	0.5173	0.8909	0.5854
RB->Q	0.0976	0.1400	0.1315	0.1646	0.1909	0.1983	0.2821	0.2408	0.4099	0.2946	0.5775	0.3623
RB->QB	0.2402	--n/a--	0.2808	--n/a--	0.3445	--n/a--	0.4356	--n/a--	0.5623	--n/a--	0.7284	--n/a--
SB->Q	0.3248	--n/a--	0.3598	--n/a--	0.4193	--n/a--	0.5103	--n/a--	0.6380	--n/a--	0.8054	--n/a--
SB->QB	0.1015	0.1459	0.1414	0.1710	0.2051	0.2065	0.2962	0.2529	0.4229	0.3116	0.5890	0.3823

SDFRSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0221 pF		0.0535 pF		0.1024 pF		0.1710 pF		0.2612 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2808	0.2849	0.3154	0.3090	0.3749	0.3417	0.4664	0.3832	0.5942	0.4362	0.7618	0.5032
CK(R)->QB	0.3970	0.4201	0.4342	0.4480	0.4943	0.4852	0.5849	0.5306	0.7116	0.5863	0.8779	0.6552
RB->Q	0.0841	0.1223	0.1176	0.1456	0.1769	0.1775	0.2681	0.2183	0.3956	0.2706	0.5631	0.3372
RB->QB	0.2494	--n/a--	0.2941	--n/a--	0.3630	--n/a--	0.4564	--n/a--	0.5833	--n/a--	0.7495	--n/a--
SB->Q	0.4074	--n/a--	0.4432	--n/a--	0.5026	--n/a--	0.5936	--n/a--	0.7210	--n/a--	0.8885	--n/a--
SB->QB	0.1252	0.1943	0.1696	0.2245	0.2386	0.2652	0.3320	0.3156	0.4590	0.3775	0.6253	0.4501

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2505	0.2389	0.2478	0.2073
CK	minpwh	0.1228	0.1294	0.1415	0.1854
D	setupD(R)->CK(R)	0.0934	0.1009	0.1101	0.1060
D	setupD(F)->CK(R)	0.1627	0.1059	0.1070	0.1440
D	holdD(R)->CK(R)	-0.0635	-0.0631	-0.0631	-0.0615
D	holdD(F)->CK(R)	-0.0850	-0.0600	-0.0560	-0.0741
RB	setupRB(R)->SB(R)	0.0526	0.0512	0.0511	0.0499
RB	removalRB(R)->CK(R)	0.3099	0.2994	0.2994	0.2749
RB	recoveryRB(R)->CK(R)	-0.2287	-0.2107	-0.1990	-0.1997
RB	minpwl	0.3387	0.3376	0.3282	0.3337
RB	holdRB(R)->SB(R)	0.0315	0.0297	0.0229	0.0447
SB	setupSB(R)->RB(R)	0.0315	0.0297	0.0229	0.0447
SB	removalSB(R)->CK(R)	0.1873	0.1735	0.1735	0.1210
SB	recoverySB(R)->CK(R)	-0.1247	-0.1107	-0.1080	-0.0592
SB	minpwl	0.1805	0.1800	0.1767	0.2091
SB	holdSB(R)->RB(R)	0.0526	0.0512	0.0511	0.0499
SD	setupSD(R)->CK(R)	0.1798	0.1957	0.2051	0.2026
SD	setupSD(F)->CK(R)	0.3203	0.3164	0.3186	0.3728
SD	holdSD(R)->CK(R)	-0.1353	-0.1397	-0.1391	-0.1334
SD	holdSD(F)->CK(R)	-0.1879	-0.1849	-0.1736	-0.2168
SE	setupSE(R)->CK(R)	0.3262	0.3213	0.3231	0.3778
SE	setupSE(F)->CK(R)	0.1600	0.1331	0.1423	0.1384
SE	holdSE(R)->CK(R)	-0.1943	-0.1894	-0.1782	-0.2219
SE	holdSE(F)->CK(R)	-0.1297	-0.0947	-0.0947	-0.0938

Sequential Cell

SDFS

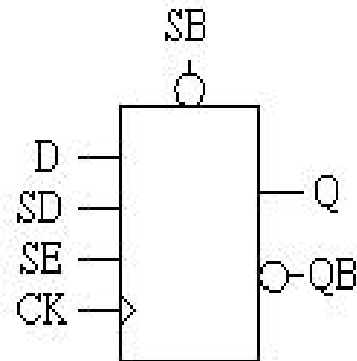
Cell Description

The SDFS cell is a positive-edge triggered, static D-type flip-flop with scan input (SD), active-high scan enable (SE), and asynchronous active-low set (SB).

Truth Table

SB	SE	D	SD	CK	Q[n+1]	QB[n+1]
0	X	X	X	X	1	0
1	0	0	X	R	0	1
1	0	1	X	R	1	0
1	1	X	0	R	0	1
1	1	X	1	R	1	0
1	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFS1HM, SDFS2HM, SDFS4HM, SDFS8HM

SDFS Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00109	0.00114	0.00124	0.00167
D	input	0.00152	0.00186	0.00184	0.00171
Q	output				
QB	output				
SB	input	0.00334	0.00345	0.00395	0.00301
SD	input	0.00108	0.00107	0.00107	0.00102
SE	input	0.00277	0.00267	0.00265	0.00242

Power Dissipation (uW/MHz)

SDFS1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF	0.0048 pF	0.0105 pF	0.0194 pF	0.0319 pF	0.0483 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0214	0.0170	0.0215	0.0171	0.0215	0.0171
SB->Q	0.0256	0.0256	0.0256	0.0256	0.0257	0.0257

SDFS2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0064 pF	0.0145 pF	0.0270 pF	0.0447 pF	0.0679 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0233	0.0188	0.0234	0.0189	0.0235	0.0189
SB->Q	0.0271	0.0271	0.0271	0.0271	0.0272	0.0272

SDFS4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0117 pF	0.0275 pF	0.0522 pF	0.0869 pF	0.1325 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0354	0.0301	0.0355	0.0303	0.0357	0.0304
SB->Q	0.0391	0.0391	0.0392	0.0392	0.0394	0.0394

SDFS8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1052 pF		0.1758 pF		0.2686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK->Q	0.0469	0.0412	0.0472	0.0416	0.0476	0.0419	0.0479	0.0421	0.0481	0.0422	0.0482	0.0422
SB->Q	0.0531	0.0531	0.0531	0.0531	0.0534	0.0534	0.0536	0.0536	0.0538	0.0538	0.0540	0.0540

Hidden Power (uW/MHz)

SDFS at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0106	0.0108	0.0108	0.0097
CK	F	0.0146	0.0143	0.0145	0.0152
D	R	0.0013	0.0033	0.0033	0.0038
D	F	0.0043	0.0091	0.0092	0.0089
SB	R	-0.0005	-0.0005	-0.0008	-0.0006
SB	F	0.0034	0.0036	0.0041	0.0048
SD	R	0.0015	0.0014	0.0014	0.0019
SD	F	0.0049	0.0045	0.0046	0.0047
SE	R	0.0026	0.0030	0.0030	0.0035
SE	F	0.0099	0.0091	0.0092	0.0091

Propagation Delays (ns)

SDFS1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0019 pF		0.0048 pF		0.0105 pF		0.0194 pF		0.0319 pF		0.0483 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2456	0.2510	0.2753	0.2663	0.3332	0.2925	0.4231	0.3312	0.5488	0.3847	0.7135	0.4545
CK(R)->QB	0.3563	0.3674	0.3892	0.3905	0.4482	0.4255	0.5383	0.4706	0.6644	0.5280	0.8294	0.6001
SB->Q	0.3741	--n/a--	0.4038	--n/a--	0.4614	--n/a--	0.5510	--n/a--	0.6767	--n/a--	0.8414	--n/a--
SB->QB	--n/a--	0.2302	--n/a--	0.2578	--n/a--	0.3002	--n/a--	0.3541	--n/a--	0.4177	--n/a--	0.4945

SDFS2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0447 pF		0.0679 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2301	0.2315	0.2610	0.2485	0.3199	0.2759	0.4101	0.3153	0.5373	0.3699	0.7037	0.4410
CK(R)->QB	0.3166	0.3394	0.3496	0.3629	0.4086	0.3972	0.4984	0.4413	0.6249	0.4985	0.7904	0.5711
SB->Q	0.3362	--n/a--	0.3671	--n/a--	0.4256	--n/a--	0.5156	--n/a--	0.6427	--n/a--	0.8092	--n/a--
SB->QB	--n/a--	0.1940	--n/a--	0.2214	--n/a--	0.2619	--n/a--	0.3138	--n/a--	0.3766	--n/a--	0.4530

SDFS4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2576	0.2346	0.2893	0.2516	0.3483	0.2774	0.4399	0.3146	0.5682	0.3658	0.7365	0.4327
CK(R)->QB	0.3137	0.3555	0.3476	0.3791	0.4065	0.4117	0.4972	0.4538	0.6242	0.5078	0.7910	0.5763
SB->Q	0.3235	--n/a--	0.3560	--n/a--	0.4145	--n/a--	0.5058	--n/a--	0.6339	--n/a--	0.8020	--n/a--
SB->QB	--n/a--	0.1615	--n/a--	0.1884	--n/a--	0.2257	--n/a--	0.2740	--n/a--	0.3339	--n/a--	0.4064

SDFSM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0227 pF		0.0550 pF		0.1052 pF		0.1758 pF		0.2686 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2298	0.2093	0.2616	0.2296	0.3199	0.2597	0.4100	0.3022	0.5364	0.3604	0.7023	0.4366
CK(R)->QB	0.3029	0.3542	0.3397	0.3826	0.4004	0.4210	0.4924	0.4696	0.6212	0.5315	0.7903	0.6098
SB->Q	0.3775	--n/a--	0.4114	--n/a--	0.4693	--n/a--	0.5591	--n/a--	0.6853	--n/a--	0.8512	--n/a--
SB->QB	--n/a--	0.1886	--n/a--	0.2203	--n/a--	0.2636	--n/a--	0.3188	--n/a--	0.3868	--n/a--	0.4692

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2519	0.2320	0.2313	0.2327
CK	minpwh	0.1206	0.1184	0.1552	0.1481
D	setupD(R)->CK(R)	0.0857	0.0883	0.0869	0.1289
D	setupD(F)->CK(R)	0.1814	0.1182	0.1242	0.1998
D	holdD(R)->CK(R)	-0.0596	-0.0576	-0.0560	-0.0626
D	holdD(F)->CK(R)	-0.0960	-0.0663	-0.0641	-0.0957
SB	removalSB(R)->CK(R)	0.1585	0.1356	0.1342	0.0865
SB	recoverySB(R)->CK(R)	-0.1183	-0.0925	-0.0845	-0.0295
SB	minpwl	0.1591	0.1574	0.1629	0.1838
SD	setupSD(R)->CK(R)	0.1827	0.1770	0.1784	0.2201
SD	setupSD(F)->CK(R)	0.3461	0.3371	0.3490	0.4060
SD	holdSD(R)->CK(R)	-0.1400	-0.1277	-0.1269	-0.1266
SD	holdSD(F)->CK(R)	-0.2063	-0.2031	-0.1943	-0.2343
SE	setupSE(R)->CK(R)	0.3530	0.3416	0.3539	0.4104
SE	setupSE(F)->CK(R)	0.1523	0.1198	0.1189	0.1594
SE	holdSE(R)->CK(R)	-0.2152	-0.2117	-0.2030	-0.2419
SE	holdSE(F)->CK(R)	-0.1261	-0.0891	-0.0877	-0.0932

Sequential Cell

SDFZR

Cell Description

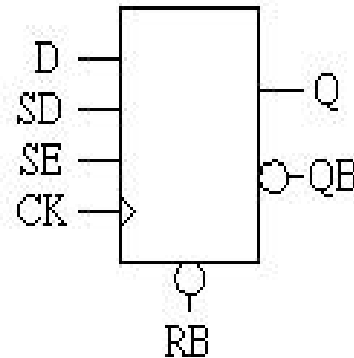
The SDFZR cell is a positive-edge triggered, static D-type flip-flop with scan input

(SD), active-high scan enable (SE), and synchronous active-low reset (RB). Scan enable (SE) dominates reset (RB).

Truth Table

SE	RB	D	SD	CK	Q[n+1]	QB[n+1]
0	0	X	X	R	0	1
0	1	0	X	R	0	1
0	1	1	X	R	1	0
1	1	X	0	R	0	1
1	1	X	1	R	1	0
X	X	X	X	F	Q[n]	QB[n]

Symbol



Cell List

SDFZRM1HM, SDFZRM2HM, SDFZRM4HM
, SDFZRM8HM

SDFZR Pin direction and Cap

Pin	in/out	M1HM	M2HM	M4HM	M8HM
CK	input	0.00115	0.00132	0.00131	0.00189
D	input	0.00115	0.00163	0.00163	0.00163
Q	output				
QB	output				
RB	input	0.00102	0.00139	0.00139	0.00139
SD	input	0.00119	0.00125	0.00125	0.00125
SE	input	0.00263	0.00293	0.00293	0.00293

Power Dissipation (uW/MHz)

SDFZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF	0.0048 pF	0.0104 pF	0.0191 pF	0.0313 pF	0.0474 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0140	0.0128	0.0140	0.0129	0.0140	0.0129

SDFZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF	0.0063 pF	0.0143 pF	0.0267 pF	0.0440 pF	0.0669 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0156	0.0145	0.0156	0.0146	0.0157	0.0146

SDFZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF	0.0117 pF	0.0275 pF	0.0521 pF	0.0868 pF	0.1323 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0240	0.0237	0.0238	0.0234	0.0239	0.0234

SDFZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF	0.0222 pF	0.0537 pF	0.1027 pF	0.1715 pF	0.2621 pF
edge	rise	fall	rise	fall	rise	fall
CK->Q	0.0399	0.0401	0.0397	0.0397	0.0399	0.0398

Hidden Power (uW/MHz)

SDFZR at input slew = 0.03 ns , 25 degree C, 1.5V, typical Process

Pin	R/F	M1HM	M2HM	M4HM	M8HM
CK	R	0.0099	0.0098	0.0098	0.0134
CK	F	0.0135	0.0139	0.0140	0.0181
D	R	0.0033	0.0035	0.0035	0.0039
D	F	0.0063	0.0079	0.0079	0.0085
RB	R	0.0035	0.0036	0.0036	0.0041
RB	F	0.0060	0.0073	0.0072	0.0078
SD	R	0.0058	0.0058	0.0058	0.0068
SD	F	0.0084	0.0087	0.0087	0.0099
SE	R	0.0071	0.0073	0.0073	0.0083
SE	F	0.0117	0.0125	0.0125	0.0136

Propagation Delays (ns)

SDFZRM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0191 pF		0.0313 pF		0.0474 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2368	0.1921	0.2691	0.2143	0.3270	0.2474	0.4165	0.2914	0.5415	0.3471	0.7061	0.4170
CK(R)->QB	0.2811	0.3308	0.3133	0.3528	0.3709	0.3846	0.4598	0.4262	0.5843	0.4798	0.7485	0.5484

SDFZRM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0063 pF		0.0143 pF		0.0267 pF		0.0440 pF		0.0669 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2144	0.1760	0.2466	0.1994	0.3054	0.2349	0.3958	0.2808	0.5212	0.3379	0.6870	0.4093
CK(R)->QB	0.2557	0.2984	0.2867	0.3195	0.3450	0.3510	0.4349	0.3924	0.5601	0.4461	0.7257	0.5157

SDFZRM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0521 pF		0.0868 pF		0.1323 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.2255	0.2131	0.2621	0.2437	0.3228	0.2857	0.4139	0.3365	0.5415	0.3970	0.7086	0.4696
CK(R)->QB	0.2836	0.2835	0.3154	0.3032	0.3735	0.3316	0.4637	0.3704	0.5906	0.4226	0.7568	0.4905

SDFZRM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0222 pF		0.0537 pF		0.1027 pF		0.1715 pF		0.2621 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
CK(R)->Q	0.1812	0.1760	0.2167	0.2041	0.2766	0.2423	0.3681	0.2897	0.4957	0.3475	0.6635	0.4180
CK(R)->QB	0.2680	0.2674	0.3017	0.2908	0.3602	0.3227	0.4506	0.3636	0.5775	0.4162	0.7444	0.4837

Timing Constraint at input slews= (0.03ns, 0.03ns), 25 degree C, 1.5V, typical Process

Pin	Constraint	Unit(ns)			
		M1HM	M2HM	M4HM	M8HM
CK	minpwl	0.2039	0.1675	0.1702	0.1647
CK	minpwh	0.1162	0.1069	0.1168	0.0899
D	setupD(R)->CK(R)	0.1431	0.1284	0.1323	0.1773
D	setupD(F)->CK(R)	0.2231	0.1887	0.1891	0.2115
D	holdD(R)->CK(R)	-0.1023	-0.0840	-0.0810	-0.1018
D	holdD(F)->CK(R)	-0.1967	-0.1562	-0.1532	-0.1599
RB	setupRB(R)->CK(R)	0.1406	0.1261	0.1297	0.1747
RB	setupRB(F)->CK(R)	0.2144	0.1805	0.1810	0.2033
RB	holdRB(R)->CK(R)	-0.1002	-0.0818	-0.0789	-0.0996
RB	holdRB(F)->CK(R)	-0.1881	-0.1480	-0.1451	-0.1517
SD	setupSD(R)->CK(R)	0.1194	0.1460	0.1500	0.1951
SD	setupSD(F)->CK(R)	0.2479	0.2384	0.2388	0.2618
SD	holdSD(R)->CK(R)	-0.0795	-0.1004	-0.0970	-0.1179
SD	holdSD(F)->CK(R)	-0.2203	-0.2035	-0.2006	-0.2073
SE	setupSE(R)->CK(R)	0.2583	0.2480	0.2480	0.2710
SE	setupSE(F)->CK(R)	0.1612	0.1460	0.1500	0.1950
SE	holdSE(R)->CK(R)	-0.2310	-0.2140	-0.2111	-0.2178
SE	holdSE(F)->CK(R)	-0.1208	-0.1022	-0.0988	-0.1200

Arithmetic Cell

ADF

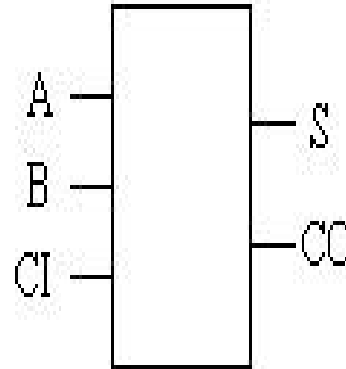
Cell Description

The ADF cell provides the arithmetic sum (S) and carryout (CO) of two operands (A, B) with carry in (CI).

Truth Table

CI	A	B	S	CO
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

Symbol



Cell List

ADFM0HM, ADFM1HM, ADFM2HM
, ADFM4HM, ADFM8HM

ADF Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A	input	0.00516	0.00526	0.00560	0.00623	0.00598
B	input	0.00516	0.00525	0.00552	0.00624	0.00627
CI	input	0.00361	0.00365	0.00383	0.00440	0.00421
CO	output					
S	output					

Power Dissipation (uW/MHz)

ADFM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0153 pF		0.0249 pF		0.0376 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0126	0.0121	0.0126	0.0121	0.0126	0.0121	0.0127	0.0121	0.0127	0.0122	0.0127	0.0122
B->S	0.0126	0.0123	0.0126	0.0123	0.0127	0.0123	0.0127	0.0123	0.0128	0.0123	0.0128	0.0123
CI->S	0.0122	0.0119	0.0123	0.0119	0.0123	0.0119	0.0123	0.0120	0.0124	0.0120	0.0124	0.0120

ADFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0133	0.0128	0.0133	0.0128	0.0134	0.0128	0.0134	0.0129	0.0134	0.0129	0.0135	0.0129
B->S	0.0133	0.0130	0.0134	0.0130	0.0134	0.0130	0.0135	0.0130	0.0135	0.0130	0.0135	0.0130
CI->S	0.0129	0.0126	0.0129	0.0126	0.0130	0.0126	0.0130	0.0126	0.0131	0.0126	0.0131	0.0126

ADFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0147	0.0145	0.0148	0.0144	0.0149	0.0145	0.0150	0.0145	0.0150	0.0145	0.0151	0.0145
B->S	0.0149	0.0146	0.0149	0.0146	0.0150	0.0146	0.0151	0.0146	0.0151	0.0147	0.0152	0.0147
CI->S	0.0144	0.0142	0.0145	0.0142	0.0145	0.0142	0.0146	0.0142	0.0146	0.0142	0.0147	0.0142

ADFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0205	0.0210	0.0206	0.0207	0.0208	0.0207	0.0209	0.0207	0.0210	0.0208	0.0211	0.0208
B->S	0.0205	0.0212	0.0206	0.0210	0.0208	0.0209	0.0210	0.0210	0.0211	0.0210	0.0212	0.0210
CI->S	0.0200	0.0207	0.0201	0.0204	0.0203	0.0204	0.0204	0.0204	0.0205	0.0205	0.0206	0.0205

ADFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0224 pF		0.0543 pF		0.1040 pF		0.1737 pF		0.2654 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0318	0.0343	0.0316	0.0326	0.0317	0.0319	0.0319	0.0317	0.0321	0.0316	0.0322	0.0316
B->S	0.0318	0.0346	0.0317	0.0329	0.0318	0.0321	0.0319	0.0319	0.0321	0.0319	0.0323	0.0318
CI->S	0.0314	0.0340	0.0312	0.0323	0.0313	0.0316	0.0315	0.0314	0.0317	0.0313	0.0318	0.0313

Propagation Delays (ns)

ADFM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0153 pF		0.0249 pF		0.0376 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1389	0.2474	0.1714	0.2736	0.2296	0.3120	0.3194	0.3608	0.4430	0.4189	0.6057	0.4890
A->S	0.3412	0.2602	0.3728	0.2814	0.4301	0.3140	0.5190	0.3567	0.6424	0.4102	0.8053	0.4774
B->CO	0.1404	0.2494	0.1725	0.2756	0.2303	0.3139	0.3199	0.3627	0.4432	0.4209	0.6057	0.4910
B->S	0.3451	0.2528	0.3767	0.2767	0.4340	0.3125	0.5229	0.3585	0.6462	0.4149	0.8092	0.4842
CI->CO	0.1282	0.2056	0.1603	0.2310	0.2181	0.2688	0.3077	0.3175	0.4310	0.3755	0.5934	0.4456
CI->S	0.3035	0.2491	0.3345	0.2704	0.3916	0.3030	0.4806	0.3457	0.6040	0.3992	0.7670	0.4665

ADFM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0104 pF		0.0192 pF		0.0316 pF		0.0478 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1300	0.2401	0.1642	0.2685	0.2233	0.3082	0.3146	0.3585	0.4421	0.4193	0.6078	0.4919
A->S	0.3320	0.2588	0.3651	0.2826	0.4223	0.3170	0.5112	0.3618	0.6360	0.4185	0.7989	0.4887
B->CO	0.1315	0.2421	0.1653	0.2705	0.2240	0.3101	0.3151	0.3604	0.4424	0.4212	0.6079	0.4938
B->S	0.3357	0.2560	0.3688	0.2827	0.4261	0.3206	0.5150	0.3691	0.6398	0.4288	0.8026	0.5011
CI->CO	0.1199	0.2000	0.1537	0.2276	0.2124	0.2668	0.3035	0.3170	0.4307	0.3777	0.5962	0.4503
CI->S	0.2961	0.2482	0.3283	0.2720	0.3853	0.3064	0.4742	0.3512	0.5991	0.4079	0.7620	0.4782

ADFM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0143 pF		0.0267 pF		0.0441 pF		0.0670 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1217	0.2184	0.1556	0.2466	0.2144	0.2857	0.3051	0.3356	0.4312	0.3963	0.5965	0.4703
A->S	0.3100	0.2774	0.3439	0.3073	0.4020	0.3490	0.4918	0.4008	0.6173	0.4634	0.7823	0.5389
B->CO	0.1229	0.2210	0.1564	0.2492	0.2148	0.2882	0.3053	0.3381	0.4312	0.3989	0.5963	0.4729
B->S	0.3149	0.2853	0.3477	0.3152	0.4055	0.3567	0.4953	0.4084	0.6210	0.4708	0.7860	0.5462
CI->CO	0.1123	0.1851	0.1458	0.2128	0.2042	0.2517	0.2947	0.3017	0.4206	0.3626	0.5857	0.4367
CI->S	0.2801	0.2634	0.3131	0.2932	0.3709	0.3348	0.4606	0.3865	0.5862	0.4489	0.7513	0.5243

ADFM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0117 pF		0.0275 pF		0.0522 pF		0.0869 pF		0.1325 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1172	0.2660	0.1525	0.2997	0.2123	0.3444	0.3037	0.3984	0.4310	0.4621	0.5976	0.5370
A->S	0.3715	0.2617	0.4081	0.2896	0.4677	0.3275	0.5585	0.3745	0.6857	0.4324	0.8526	0.5034
B->CO	0.1176	0.2680	0.1528	0.3017	0.2126	0.3463	0.3039	0.4003	0.4312	0.4640	0.5978	0.5389
B->S	0.3752	0.2654	0.4119	0.2970	0.4715	0.3392	0.5623	0.3906	0.6895	0.4522	0.8564	0.5261
CI->CO	0.1070	0.1826	0.1419	0.2118	0.2013	0.2515	0.2924	0.3011	0.4195	0.3610	0.5859	0.4332
CI->S	0.2871	0.2530	0.3223	0.2809	0.3817	0.3188	0.4727	0.3658	0.6001	0.4237	0.7672	0.4948

ADFM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0058 pF		0.0224 pF		0.0543 pF		0.1040 pF		0.1737 pF		0.2654 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1493	0.2601	0.1888	0.2945	0.2514	0.3398	0.3443	0.3938	0.4736	0.4577	0.6432	0.5333
A->S	0.4237	0.3545	0.4647	0.3878	0.5272	0.4319	0.6196	0.4844	0.7484	0.5468	0.9176	0.6211
B->CO	0.1496	0.2627	0.1891	0.2971	0.2516	0.3425	0.3443	0.3964	0.4735	0.4603	0.6430	0.5359
B->S	0.4258	0.3464	0.4681	0.3792	0.5314	0.4228	0.6237	0.4750	0.7523	0.5371	0.9213	0.6112
CI->CO	0.1387	0.2236	0.1781	0.2571	0.2406	0.3015	0.3334	0.3548	0.4625	0.4182	0.6320	0.4936
CI->S	0.4009	0.3446	0.4420	0.3779	0.5045	0.4219	0.5969	0.4746	0.7257	0.5369	0.8949	0.6112

Arithmetic Cell

ADH

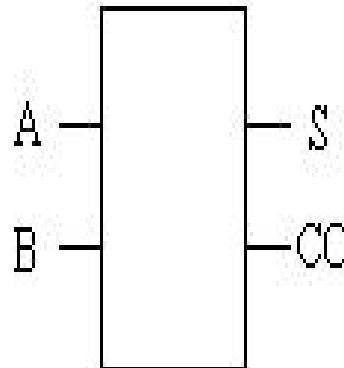
Cell Description

The ADH cell provides the arithmetic sum (S) and carry out (CO) of two operands (A, B).

Truth Table

A	B	S	CO
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

Symbol



Cell List

ADHM0HM, ADHM1HM, ADHM2HM
, ADHM4HM, ADHM8HM

ADH Pin direction and Cap

Pin	in/out	M0HM	M1HM	M2HM	M4HM	M8HM
A	input	0.00239	0.00244	0.00250	0.00387	0.00394
B	input	0.00277	0.00282	0.00289	0.00420	0.00430
CO	output					
S	output					

Power Dissipation (uW/MHz)

ADHM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0091	0.0086	0.0092	0.0086	0.0092	0.0087	0.0093	0.0087	0.0093	0.0087	0.0093	0.0087
B->S	0.0095	0.0086	0.0095	0.0086	0.0096	0.0086	0.0096	0.0086	0.0097	0.0087	0.0097	0.0087

ADHM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0097	0.0092	0.0097	0.0092	0.0098	0.0092	0.0098	0.0093	0.0099	0.0093	0.0099	0.0093
B->S	0.0101	0.0092	0.0102	0.0092	0.0102	0.0092	0.0103	0.0092	0.0103	0.0093	0.0104	0.0093

ADHM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0110	0.0106	0.0112	0.0106	0.0113	0.0107	0.0114	0.0107	0.0114	0.0107	0.0114	0.0107
B->S	0.0116	0.0106	0.0117	0.0106	0.0118	0.0106	0.0118	0.0107	0.0119	0.0107	0.0119	0.0107

ADHM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0181	0.0170	0.0182	0.0171	0.0185	0.0173	0.0186	0.0173	0.0187	0.0173	0.0187	0.0173
B->S	0.0190	0.0169	0.0192	0.0170	0.0194	0.0171	0.0196	0.0173	0.0197	0.0173	0.0197	0.0174

ADHM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1033 pF		0.1724 pF		0.2635 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->S	0.0275	0.0277	0.0277	0.0273	0.0281	0.0273	0.0284	0.0274	0.0285	0.0275	0.0287	0.0275
B->S	0.0284	0.0278	0.0286	0.0272	0.0290	0.0273	0.0293	0.0273	0.0295	0.0274	0.0296	0.0275

Propagation Delays (ns)

ADHM0HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0017 pF		0.0040 pF		0.0084 pF		0.0154 pF		0.0251 pF		0.0379 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.1077	0.1310	0.1387	0.1505	0.1960	0.1806	0.2857	0.2220	0.4093	0.2742	0.5723	0.3408
A->S	0.2060	0.1592	0.2364	0.1760	0.2932	0.2030	0.3829	0.2416	0.5068	0.2933	0.6702	0.3610
B->CO	0.1110	0.1426	0.1420	0.1626	0.1993	0.1933	0.2890	0.2348	0.4126	0.2871	0.5756	0.3537
B->S	0.2091	0.1698	0.2394	0.1899	0.2961	0.2207	0.3857	0.2626	0.5096	0.3164	0.6728	0.3851

ADHM1HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0018 pF		0.0048 pF		0.0105 pF		0.0193 pF		0.0316 pF		0.0479 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.0989	0.1271	0.1313	0.1484	0.1904	0.1802	0.2803	0.2224	0.4053	0.2763	0.5708	0.3455
A->S	0.2013	0.1594	0.2331	0.1816	0.2919	0.2146	0.3818	0.2578	0.5070	0.3135	0.6729	0.3849
B->CO	0.1021	0.1390	0.1345	0.1607	0.1936	0.1931	0.2835	0.2355	0.4085	0.2894	0.5740	0.3587
B->S	0.2048	0.1713	0.2366	0.1936	0.2952	0.2265	0.3851	0.2697	0.5103	0.3254	0.6761	0.3968

ADHM2HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0022 pF		0.0064 pF		0.0145 pF		0.0270 pF		0.0446 pF		0.0677 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.0926	0.1228	0.1249	0.1445	0.1842	0.1769	0.2745	0.2197	0.4010	0.2751	0.5668	0.3455
A->S	0.1999	0.1684	0.2319	0.1923	0.2909	0.2272	0.3810	0.2722	0.5076	0.3297	0.6735	0.4024
B->CO	0.0958	0.1344	0.1281	0.1566	0.1874	0.1895	0.2776	0.2326	0.4041	0.2880	0.5699	0.3585
B->S	0.2038	0.1803	0.2357	0.2042	0.2946	0.2391	0.3846	0.2840	0.5111	0.3416	0.6769	0.4143

ADHM4HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0034 pF		0.0118 pF		0.0278 pF		0.0528 pF		0.0878 pF		0.1339 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.0813	0.1101	0.1143	0.1321	0.1736	0.1634	0.2649	0.2052	0.3922	0.2593	0.5597	0.3285
A->S	0.1859	0.1543	0.2191	0.1794	0.2783	0.2141	0.3699	0.2587	0.4976	0.3150	0.6657	0.3863
B->CO	0.0847	0.1221	0.1177	0.1447	0.1770	0.1765	0.2683	0.2187	0.3956	0.2728	0.5630	0.3421
B->S	0.1907	0.1664	0.2237	0.1915	0.2828	0.2262	0.3742	0.2707	0.5019	0.3271	0.6699	0.3983

ADHM8HM at input slew= 0.03 ns, 25 degree C, 1.5V typical process

output load	0.0057 pF		0.0223 pF		0.0539 pF		0.1033 pF		0.1724 pF		0.2635 pF	
edge	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall	rise	fall
A->CO	0.0928	0.1233	0.1276	0.1486	0.1871	0.1833	0.2785	0.2290	0.4057	0.2883	0.5730	0.3639
A->S	0.2318	0.1989	0.2688	0.2256	0.3288	0.2619	0.4202	0.3086	0.5476	0.3683	0.7153	0.4447
B->CO	0.0961	0.1334	0.1310	0.1591	0.1905	0.1943	0.2819	0.2404	0.4091	0.2997	0.5764	0.3754
B->S	0.2344	0.2122	0.2710	0.2437	0.3309	0.2857	0.4221	0.3376	0.5494	0.4013	0.7171	0.4801