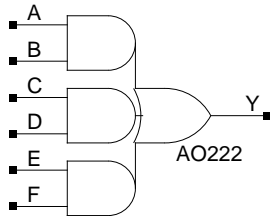
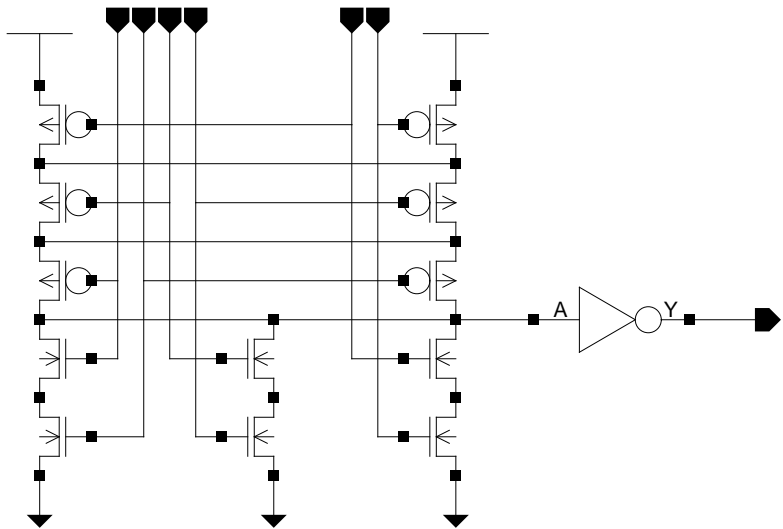


series : TSMC035

function : 3-wide 2-2-2-inputs AND-OR

macro name	AO222	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.564	1.140	1.561	2.105	0.500	0.702	0.938
B	0.022							
C	0.021							
D	0.022							
E	0.023							
F	0.022							
Y								

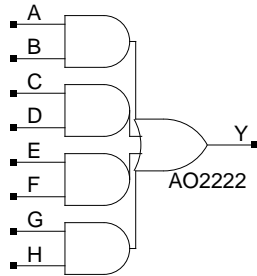
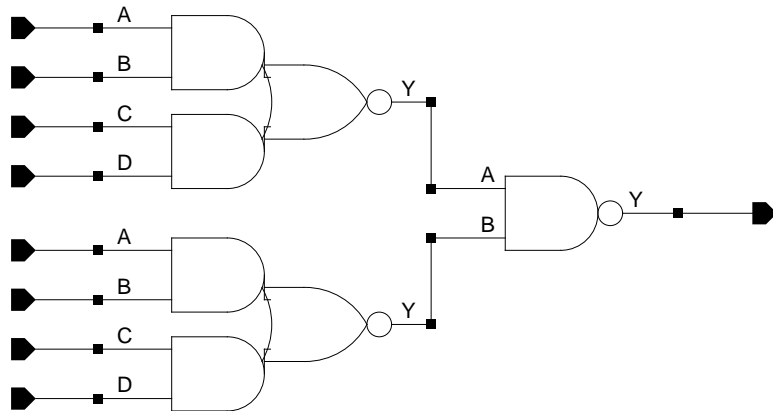
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.261	0.399	0.570	0.203	0.410	0.742
B	=>	Y	0.264	0.396	0.555	0.215	0.433	0.805
C	=>	Y	0.302	0.455	0.667	0.253	0.508	0.941
D	=>	Y	0.297	0.439	0.641	0.256	0.527	1.004
E	=>	Y	0.299	0.478	0.692	0.282	0.549	1.040
F	=>	Y	0.296	0.472	0.667	0.275	0.549	1.096

series : TSMC035

function : 4-wide 2-2-2-2-inputs AND-OR

macro name	AO2222	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.547	1.140	1.561	2.101	0.726	1.068	1.491
B	0.022							
C	0.022							
D	0.023							
E	0.022							
F	0.023							
G	0.024							
H	0.022							
Y								

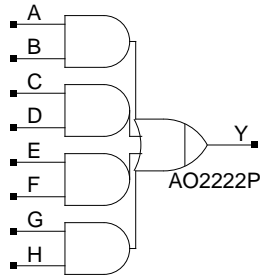
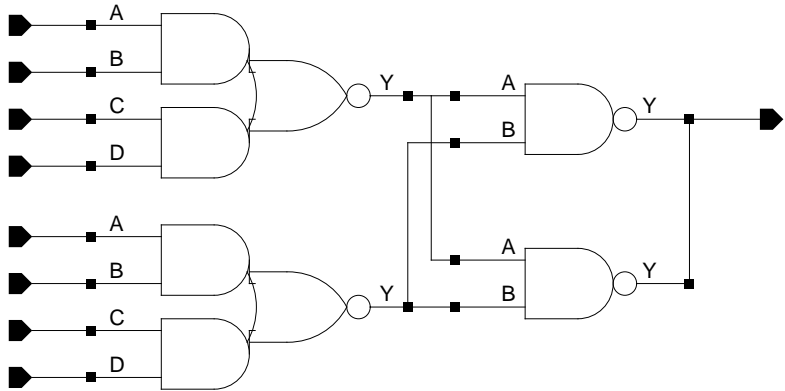
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.206	0.313	0.449	0.190	0.348	0.581
B	=>	Y	0.218	0.321	0.450	0.209	0.381	0.651
C	=>	Y	0.232	0.358	0.513	0.237	0.396	0.659
D	=>	Y	0.236	0.366	0.502	0.244	0.410	0.723
E	=>	Y	0.223	0.340	0.490	0.184	0.334	0.559
F	=>	Y	0.235	0.349	0.488	0.200	0.362	0.625
G	=>	Y	0.249	0.384	0.555	0.226	0.379	0.636
H	=>	Y	0.254	0.394	0.543	0.232	0.389	0.695

series : TSMC035

function : 4-wide 2-2-2-2-inputs AND-OR,powered

macro name	AO2222P	size [um]	22.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	1.129	0.570	0.782	1.054	0.364	0.538	0.755
B	0.023							
C	0.022							
D	0.023							
E	0.022							
F	0.022							
G	0.022							
H	0.022							
Y	0.022							

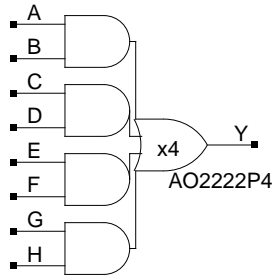
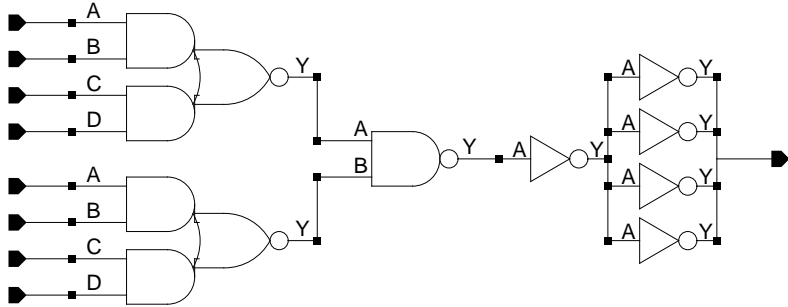
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.247	0.358	0.498	0.223	0.396	0.651
B	=>	Y	0.250	0.358	0.490	0.235	0.422	0.714
C	=>	Y	0.268	0.398	0.555	0.263	0.437	0.727
D	=>	Y	0.266	0.399	0.539	0.265	0.446	0.785
E	=>	Y	0.266	0.388	0.542	0.221	0.386	0.636
F	=>	Y	0.269	0.387	0.531	0.230	0.407	0.695
G	=>	Y	0.285	0.427	0.600	0.257	0.426	0.711
H	=>	Y	0.285	0.429	0.582	0.256	0.430	0.765

series : TSMC035

function : 4-wide 2-2-2-2-inputs AND-OR,x4 powered

macro name	AO2222P4	size [um]	28.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.403	0.285	0.391	0.527	0.128	0.179	0.237
B	0.023							
C	0.025							
D	0.023							
E	0.026							
F	0.023							
G	0.024							
H	0.023							
Y								

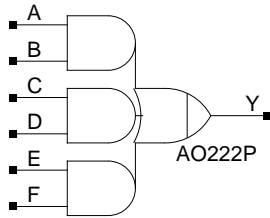
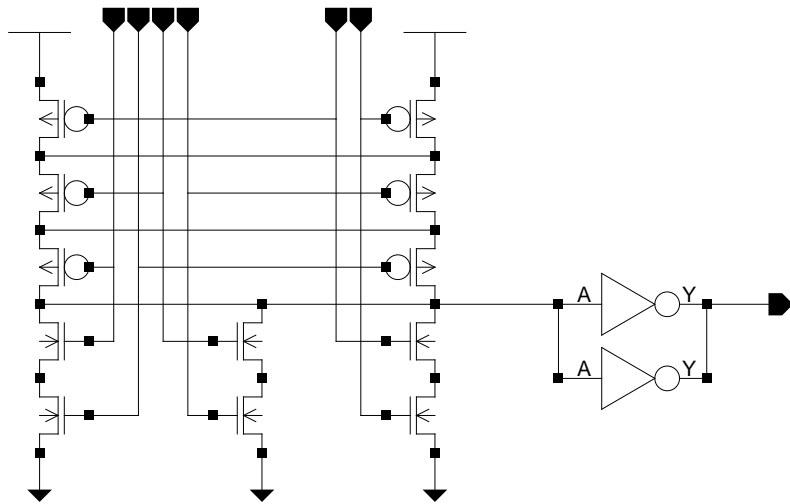
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.335	0.510	0.736	0.344	0.591	0.941
B	=>	Y	0.344	0.517	0.738	0.363	0.624	1.009
C	=>	Y	0.360	0.552	0.799	0.389	0.640	1.018
D	=>	Y	0.365	0.564	0.788	0.398	0.649	1.080
E	=>	Y	0.360	0.550	0.796	0.347	0.590	0.939
F	=>	Y	0.372	0.558	0.790	0.363	0.618	1.006
G	=>	Y	0.383	0.592	0.859	0.389	0.637	1.015
H	=>	Y	0.389	0.604	0.846	0.399	0.644	1.075

series : TSMC035

function : 3-wide 2-2-2-inputs AND-OR,powered

macro name	AO222P	size [um]	15.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	1.158	0.570	0.782	1.057	0.255	0.365	0.498
B	0.023							
C	0.021							
D	0.023							
E	0.023							
F	0.022							
Y	0.022							

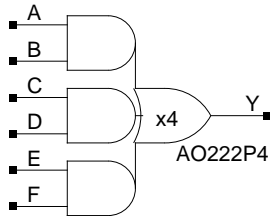
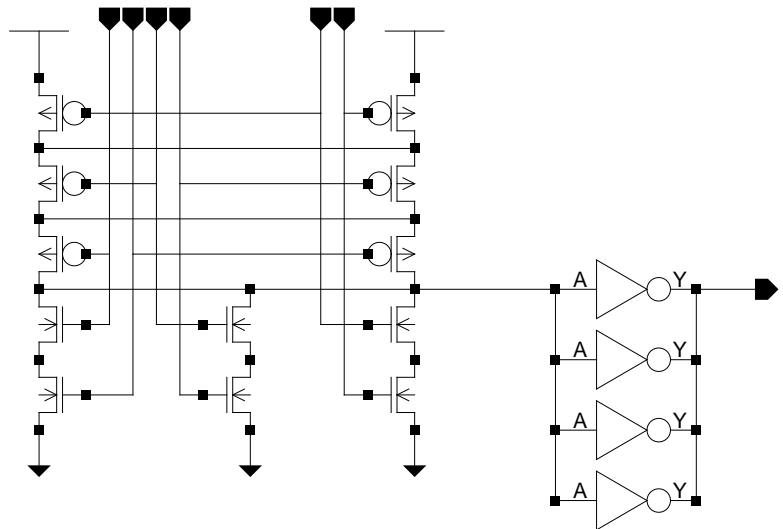
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.304	0.445	0.613	0.234	0.451	0.804
B	=>	Y	0.299	0.433	0.591	0.238	0.468	0.860
C	=>	Y	0.340	0.495	0.704	0.276	0.546	1.009
D	=>	Y	0.330	0.472	0.674	0.274	0.559	1.063
E	=>	Y	0.336	0.518	0.732	0.304	0.586	1.108
F	=>	Y	0.328	0.507	0.703	0.292	0.580	1.157

series : TSMC035

function : 3-wide 2-2-2-inputs AND-OR,x4 powered

macro name	AO222P4	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

**Port Characteristic**

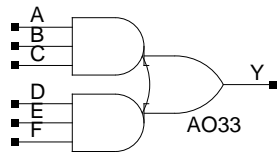
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.278	0.285	0.393	0.535	0.137	0.205	0.293
B	0.023							
C	0.024							
D	0.023							
E	0.024							
F	0.023							
Y								

**AC Characteristic**

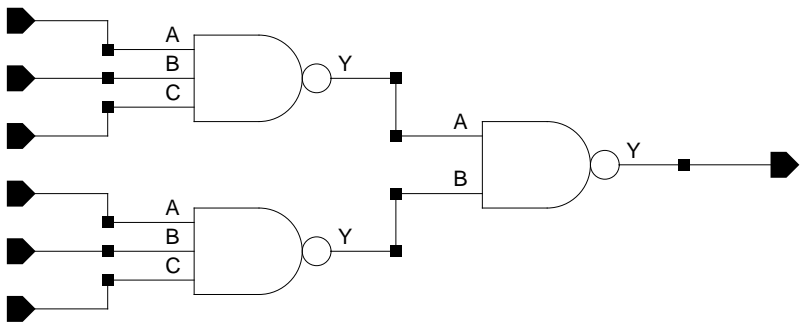
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.390	0.545	0.731	0.307	0.576	1.015
B	=>	Y	0.373	0.522	0.699	0.304	0.585	1.064
C	=>	Y	0.420	0.589	0.815	0.347	0.673	1.230
D	=>	Y	0.400	0.559	0.779	0.336	0.679	1.278
E	=>	Y	0.416	0.613	0.848	0.373	0.712	1.330
F	=>	Y	0.400	0.596	0.816	0.353	0.701	1.373

macro name	AO33	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.548	1.141	1.561	2.100	0.726	1.066	1.488
B	0.019							
C	0.019							
D	0.019							
E	0.021							
F	0.019							
Y								

AC Characteristic

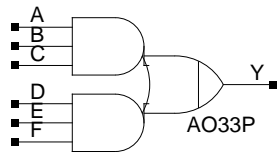
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.232	0.340	0.449	0.217	0.296	0.434
B	=>	Y	0.249	0.338	0.473	0.239	0.353	0.491
C	=>	Y	0.252	0.344	0.480	0.246	0.367	0.527
D	=>	Y	0.248	0.342	0.491	0.212	0.314	0.428
E	=>	Y	0.266	0.367	0.513	0.230	0.340	0.483
F	=>	Y	0.269	0.374	0.520	0.236	0.352	0.515

series : TSMC035

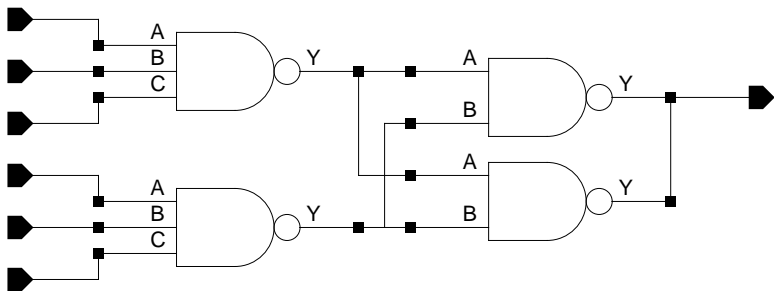
function : 2-wide 3-3-inputs AND-OR,powered

macro name	AO33P	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	1.132	0.570	0.782	1.054	0.364	0.535	0.749
B	0.019							
C	0.020							
D	0.019							
E	0.021							
F	0.019							
Y	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.274	0.390	0.513	0.253	0.347	0.499
B	=>	Y	0.283	0.382	0.528	0.268	0.393	0.548
C	=>	Y	0.281	0.383	0.530	0.270	0.403	0.579
D	=>	Y	0.294	0.398	0.560	0.250	0.364	0.495
E	=>	Y	0.304	0.415	0.573	0.261	0.383	0.543
F	=>	Y	0.302	0.416	0.575	0.262	0.391	0.571

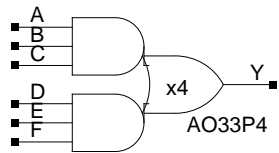


series : TSMC035

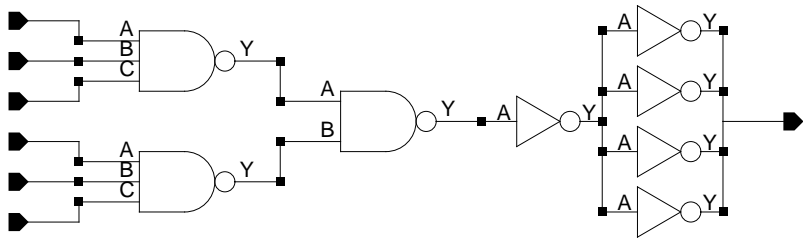
function : 2-wide 3-3-inputs AND-OR,x4 powered

macro name	AO33P4	size [um]	22.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.404	0.285	0.391	0.527	0.128	0.179	0.237
B	0.023							
C	0.021							
D	0.019							
E	0.019							
F	0.021							
Y								

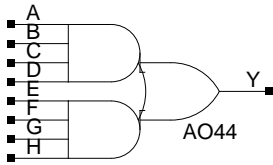
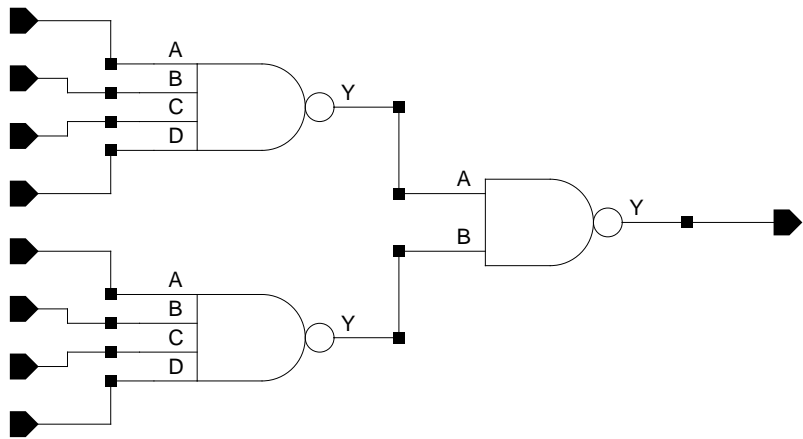
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.365	0.552	0.744	0.377	0.538	0.806
B	=>	Y	0.378	0.539	0.766	0.398	0.603	0.862
C	=>	Y	0.381	0.544	0.773	0.405	0.617	0.898
D	=>	Y	0.378	0.541	0.787	0.371	0.567	0.795
E	=>	Y	0.397	0.567	0.807	0.389	0.591	0.853
F	=>	Y	0.399	0.575	0.814	0.398	0.603	0.886

series : TSMC035

function : 2-wide 4-4-inputs AND-OR

macro name	AO44	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.548	1.141	1.561	2.101	0.726	1.067	1.489
B	0.022							
C	0.019							
D	0.020							
E	0.019							
F	0.020							
G	0.021							
H	0.019							
Y								

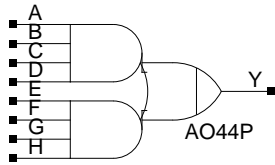
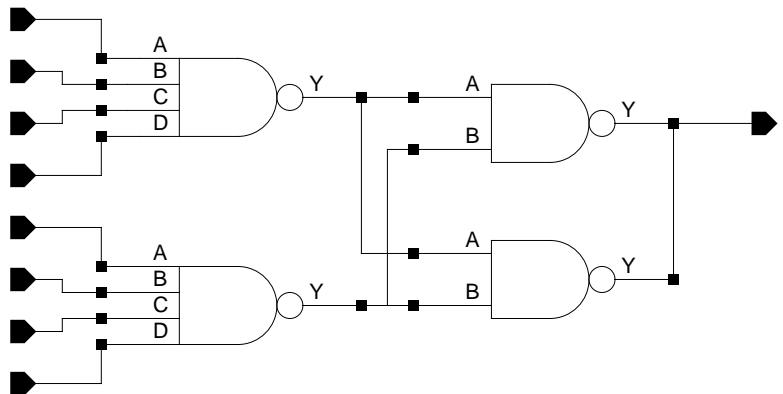
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.253	0.367	0.499	0.230	0.318	0.456
B	=>	Y	0.276	0.385	0.537	0.255	0.368	0.517
C	=>	Y	0.287	0.395	0.562	0.267	0.396	0.558
D	=>	Y	0.292	0.407	0.579	0.265	0.400	0.582
E	=>	Y	0.272	0.399	0.544	0.225	0.310	0.452
F	=>	Y	0.296	0.406	0.582	0.246	0.367	0.510
G	=>	Y	0.307	0.428	0.607	0.256	0.380	0.547
H	=>	Y	0.312	0.440	0.625	0.252	0.383	0.566

series : TSMC035

function : 2-wide 4-4-inputs AND-OR, powered

macro name	AO44P	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	1.123	0.570	0.783	1.056	0.364	0.536	0.750
B	0.021							
C	0.020							
D	0.019							
E	0.019							
F	0.019							
G	0.019							
H	0.019							
Y	0.019							

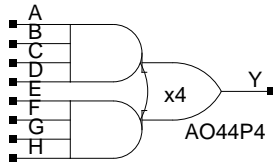
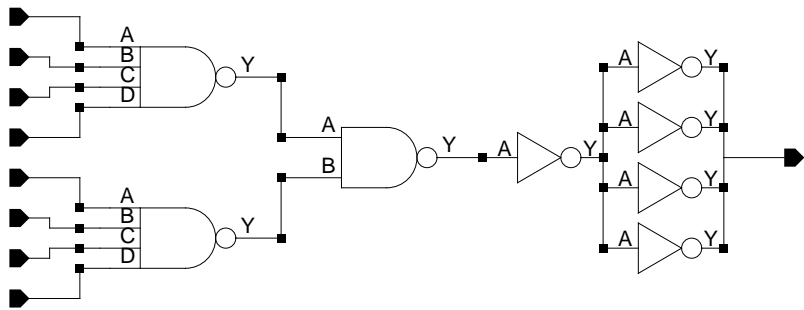
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.299	0.425	0.571	0.266	0.368	0.521
B	=>	Y	0.315	0.428	0.601	0.285	0.418	0.574
C	=>	Y	0.322	0.441	0.621	0.292	0.433	0.612
D	=>	Y	0.320	0.450	0.634	0.289	0.434	0.633
E	=>	Y	0.321	0.461	0.622	0.264	0.362	0.519
F	=>	Y	0.339	0.461	0.652	0.278	0.412	0.569
G	=>	Y	0.344	0.478	0.673	0.284	0.420	0.603
H	=>	Y	0.346	0.487	0.688	0.276	0.419	0.620

series : TSMC035

function : 2-wide 4-4-inputs AND-OR,x4 powered

macro name	AO44P4	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.404	0.285	0.391	0.527	0.128	0.179	0.237
B	0.019							
C	0.021							
D	0.020							
E	0.019							
F	0.020							
G	0.021							
H	0.020							
Y								

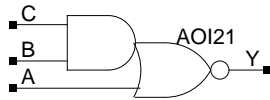
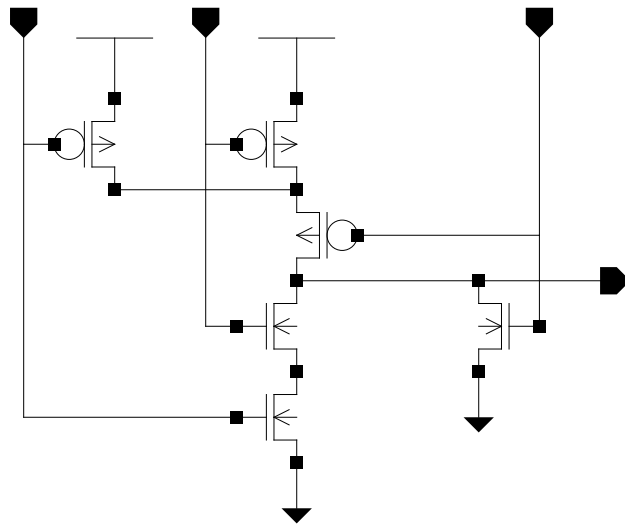
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.386	0.571	0.794	0.390	0.570	0.829
B	=>	Y	0.406	0.574	0.831	0.416	0.632	0.889
C	=>	Y	0.417	0.595	0.856	0.427	0.647	0.929
D	=>	Y	0.421	0.607	0.871	0.422	0.649	0.954
E	=>	Y	0.400	0.601	0.838	0.383	0.558	0.818
F	=>	Y	0.425	0.604	0.873	0.404	0.622	0.880
G	=>	Y	0.434	0.629	0.900	0.418	0.632	0.918
H	=>	Y	0.440	0.640	0.916	0.414	0.633	0.937

series : TSMC035

function : 2-wide 2-1-inputs AND-NOR

macro name	AOI21	size [um]	6.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

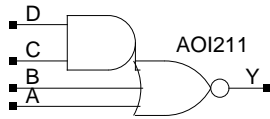
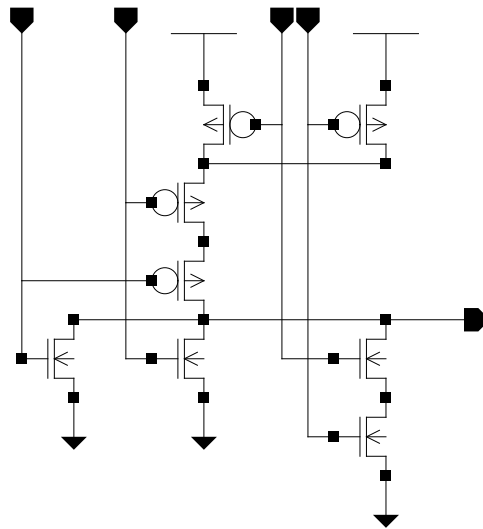
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.247	1.608	2.643	4.164	0.497	0.878	1.487
B	0.022							
C	0.022							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.128	0.218	0.355	0.140	0.201	0.268
B	=>	Y	0.169	0.219	0.323	0.165	0.243	0.314
C	=>	Y	0.179	0.248	0.379	0.159	0.225	0.294

macro name	AOI211	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.134	2.600	4.114	6.258	0.497	0.879	1.490
B	0.023							
C	0.022							
D	0.022							
Y								

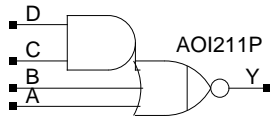
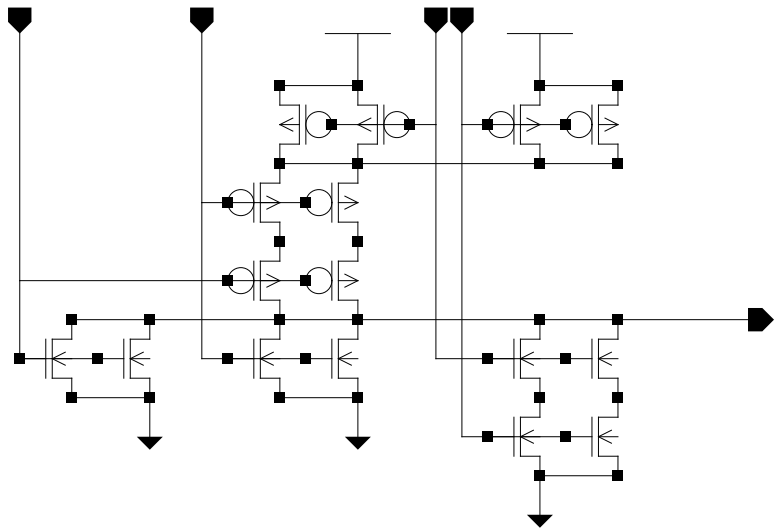
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.145	0.255	0.436	0.171	0.237	0.303
B	=>	Y	0.147	0.272	0.499	0.164	0.237	0.309
C	=>	Y	0.191	0.285	0.460	0.189	0.266	0.344
D	=>	Y	0.228	0.370	0.555	0.183	0.253	0.322

series : TSMC035

function : 3-wide 2-1-1-inputs AND-NOR,powered

macro name	AOI211P	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.048	0.307	1.301	2.060	3.132	0.249	0.441	0.748
B	0.047							
C	0.045							
D	0.043							
Y								

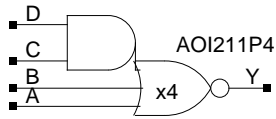
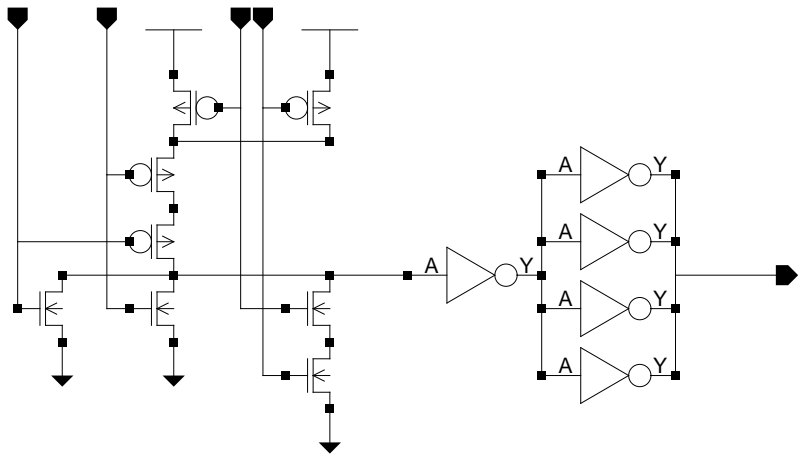
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.131	0.232	0.395	0.128	0.189	0.250
B	=>	Y	0.137	0.250	0.454	0.123	0.193	0.262
C	=>	Y	0.182	0.262	0.411	0.144	0.217	0.295
D	=>	Y	0.209	0.313	0.509	0.148	0.215	0.283

series : TSMC035

function : 3-wide 2-1-1-inputs AND-NOR,x4 powered

macro name	AOI211P4	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.400	0.285	0.390	0.526	0.128	0.179	0.237
B	0.024							
C	0.023							
D	0.022							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.318	0.562	0.915	0.315	0.457	0.653
B	=>	Y	0.325	0.575	0.975	0.319	0.473	0.669
C	=>	Y	0.390	0.586	0.918	0.364	0.544	0.741
D	=>	Y	0.412	0.648	1.028	0.372	0.537	0.732

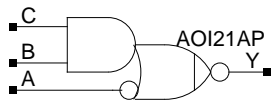


series : TSMC035

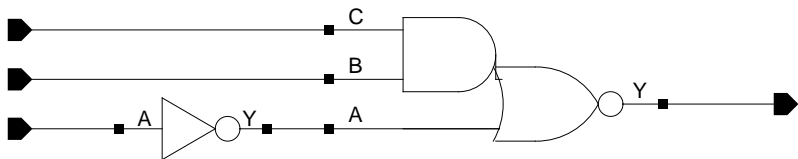
function : 2-wide 2-1-inputs AND-NOR

macro name	AOI21A	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.016	0.240	1.609	2.643	4.166	0.498	0.879	1.486
B	0.022							
C	0.026							
Y								

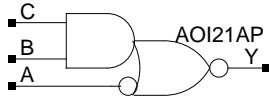
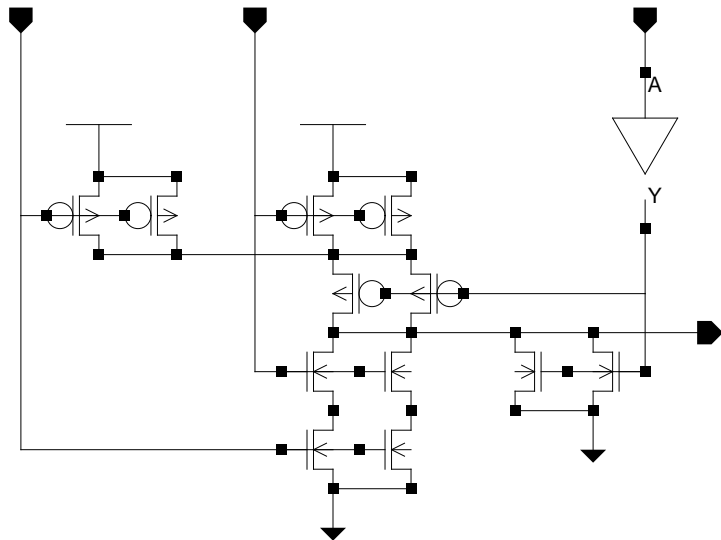
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.195	0.304	0.489	0.179	0.264	0.356
B	=>	Y	0.170	0.221	0.326	0.165	0.243	0.314
C	=>	Y	0.179	0.250	0.382	0.159	0.225	0.294

series : TSMC035

function : 2-wide 2-1-inputs AND-NOR,powered

macro name	AOI21AP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.018	0.527	0.806	1.324	2.085	0.250	0.441	0.745
B	0.049							
C	0.044							
Y								

**AC Characteristic**

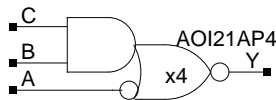
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.224	0.331	0.504	0.212	0.310	0.420
B	=>	Y	0.149	0.188	0.271	0.120	0.190	0.257
C	=>	Y	0.166	0.225	0.334	0.122	0.184	0.248

series : TSMC035

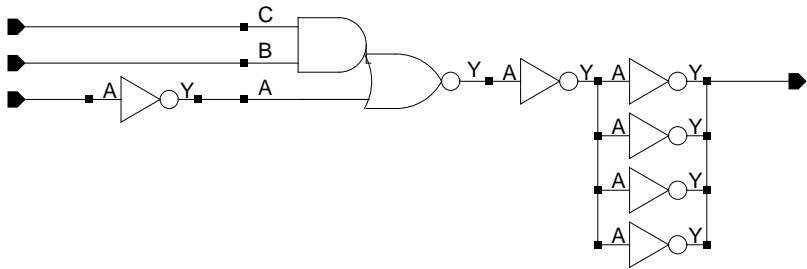
function : 2-wide 2-1-inputs AND-NOR,x4 powered

macro name	AOI21AP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.015	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.024							
C	0.023							
Y								

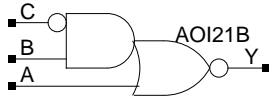
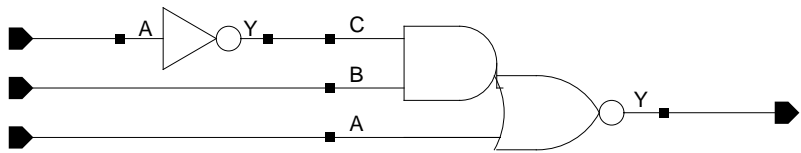
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.341	0.550	0.884	0.325	0.498	0.711
B	=>	Y	0.334	0.483	0.712	0.337	0.500	0.695
C	=>	Y	0.349	0.522	0.780	0.344	0.494	0.689

series : TSMC035

function : 2-wide 2-1-inputs AND-NOR

macro name	AOI21B	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.240	1.611	2.644	4.164	0.497	0.878	1.487
B	0.022							
C	0.015							
Y								

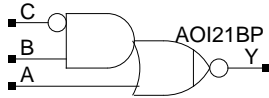
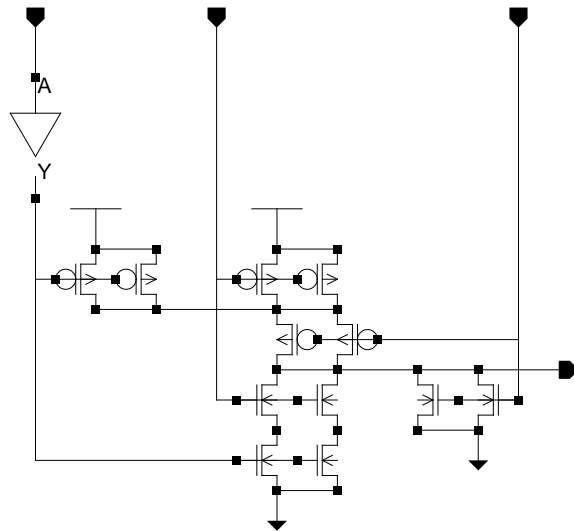
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.128	0.218	0.355	0.141	0.201	0.269
B	=>	Y	0.169	0.219	0.323	0.165	0.243	0.314
C	=>	Y	0.263	0.388	0.576	0.195	0.291	0.404

series : TSMC035

function : 2-wide 2-1-inputs AND-NOR,powered

macro name	AOI21BP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	0.529	0.805	1.323	2.085	0.249	0.440	0.746
B	0.046							
C	0.017							
Y								

**AC Characteristic**

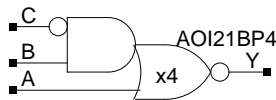
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.102	0.185	0.304	0.093	0.147	0.206
B	=>	Y	0.148	0.187	0.268	0.120	0.190	0.257
C	=>	Y	0.292	0.411	0.594	0.228	0.338	0.469

series : TSMC035

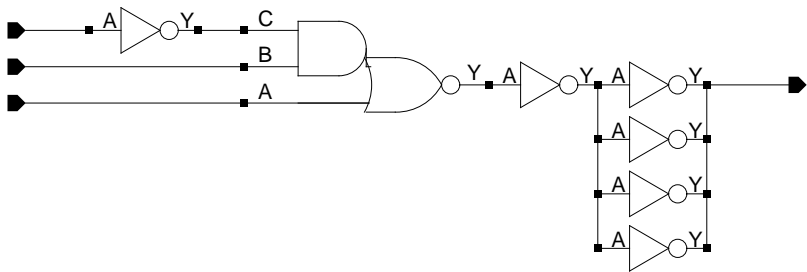
function : 2-wide 2-1-inputs AND-NOR,x4 powered

macro name	AOI21BP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	2.404	0.285	0.391	0.526	0.128	0.179	0.237
B	0.024							
C	0.015							
Y								

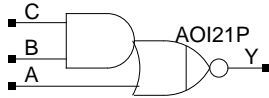
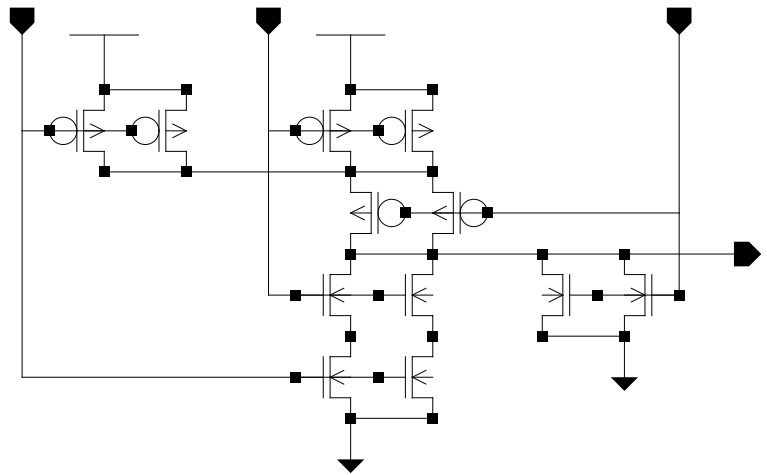
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.264	0.467	0.748	0.286	0.424	0.621
B	=>	Y	0.333	0.482	0.710	0.336	0.499	0.694
C	=>	Y	0.432	0.649	0.969	0.363	0.560	0.799

series : TSMC035

function : 2-wide 2-1-inputs AND-NOR,powered

macro name	AOI21P	size [um]	10.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	0.529	0.805	1.323	2.085	0.249	0.440	0.745
B	0.043							
C	0.044							
Y								

**AC Characteristic**

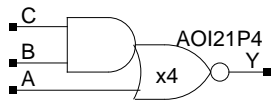
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.102	0.185	0.304	0.093	0.147	0.206
B	=>	Y	0.148	0.187	0.268	0.120	0.191	0.257
C	=>	Y	0.165	0.223	0.330	0.122	0.184	0.249

series : TSMC035

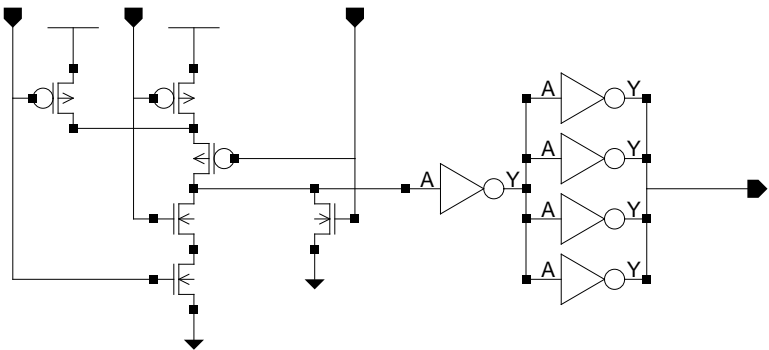
function : 2-wide 2-1-inputs AND-NOR,x4 powered

macro name	AOI21P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	2.404	0.285	0.391	0.526	0.128	0.179	0.237
B	0.024							
C	0.023							
Y								

AC Characteristic

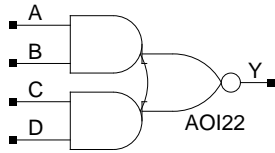
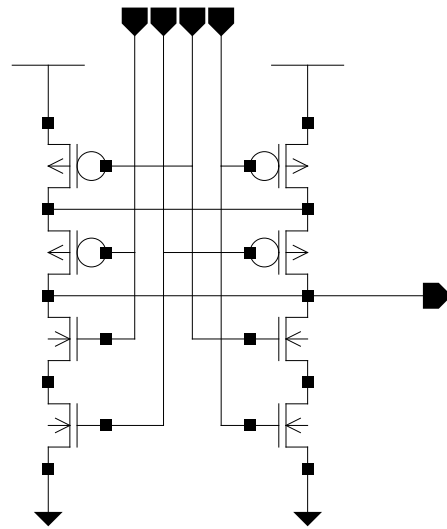
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.264	0.468	0.748	0.286	0.425	0.621
B	=>	Y	0.333	0.482	0.710	0.336	0.500	0.694
C	=>	Y	0.349	0.521	0.778	0.343	0.494	0.689



series : TSMC035

function : 2-wide 2-2-inputs AND-NOR

macro name	AOI22	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.226	1.608	2.643	4.165	0.725	1.066	1.488
B	0.022							
C	0.022							
D	0.023							
Y								

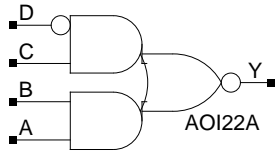
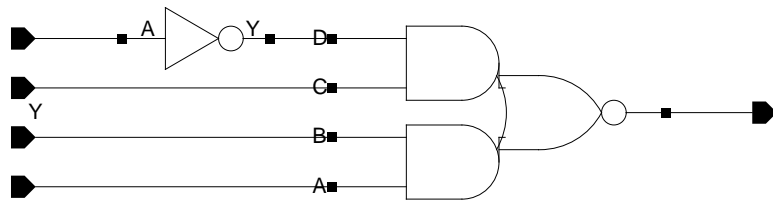
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.133	0.221	0.346	0.154	0.220	0.293
B	=>	Y	0.144	0.248	0.405	0.152	0.208	0.276
C	=>	Y	0.169	0.255	0.422	0.159	0.254	0.353
D	=>	Y	0.172	0.275	0.478	0.151	0.236	0.328

series : TSMC035

function : 2-wide 2-2-inputs AND-NOR

macro name	AOI22A	size [um]	10.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.216	1.607	2.642	4.165	0.725	1.066	1.488
B	0.022							
C	0.024							
D	0.016							
Y								

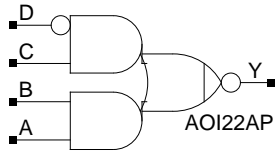
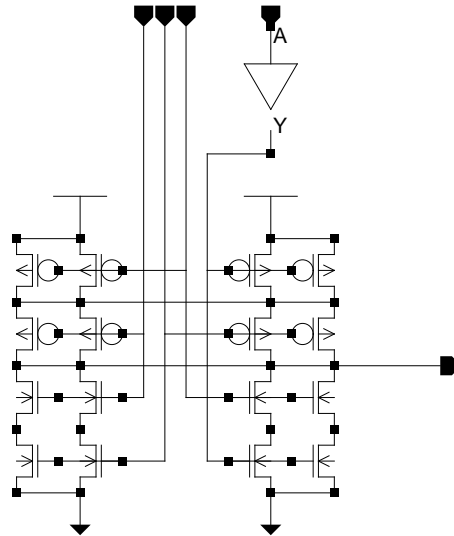
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.144	0.240	0.379	0.164	0.232	0.308
B	=>	Y	0.154	0.266	0.437	0.159	0.219	0.290
C	=>	Y	0.180	0.274	0.456	0.168	0.265	0.367
D	=>	Y	0.257	0.425	0.706	0.200	0.309	0.444

series : TSMC035

function : 2-wide 2-2-inputs AND-NOR,powered

macro name	AOI22AP	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	0.475	0.803	1.323	2.086	0.363	0.534	0.747
B	0.050							
C	0.051							
D	0.016							
Y								

**AC Characteristic**

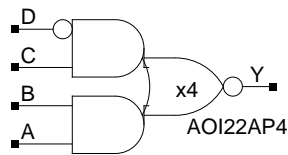
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.123	0.218	0.347	0.121	0.186	0.261
B	=>	Y	0.141	0.249	0.409	0.125	0.185	0.255
C	=>	Y	0.161	0.248	0.409	0.128	0.222	0.324
D	=>	Y	0.291	0.454	0.728	0.235	0.361	0.517

series : TSMC035

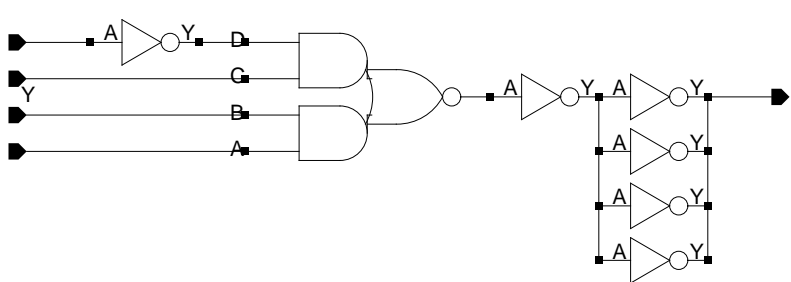
function : 2-wide 2-2-inputs AND-NOR,x4 powered

macro name	AOI22AP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.024							
C	0.024							
D	0.016							
Y								

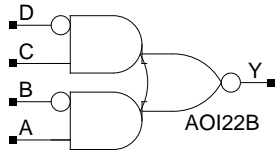
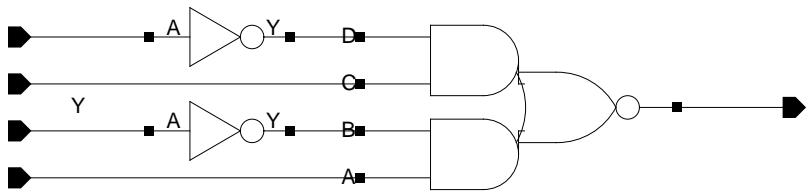
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.268	0.470	0.738	0.303	0.458	0.680
B	=>	Y	0.287	0.504	0.813	0.314	0.465	0.677
C	=>	Y	0.316	0.518	0.817	0.330	0.505	0.746
D	=>	Y	0.409	0.667	1.084	0.369	0.582	0.848

series : TSMC035

function : 2-wide 2-2-inputs AND-NOR

macro name	AOI22B	size [um]	12.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.223	1.608	2.643	4.165	0.725	1.066	1.488
B	0.016							
C	0.022							
D	0.016							
Y								

**AC Characteristic**

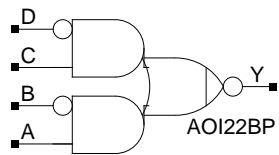
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.133	0.220	0.345	0.154	0.220	0.292
B	=>	Y	0.214	0.336	0.544	0.183	0.272	0.374
C	=>	Y	0.169	0.255	0.424	0.159	0.254	0.352
D	=>	Y	0.251	0.411	0.680	0.197	0.305	0.437

series : TSMC035

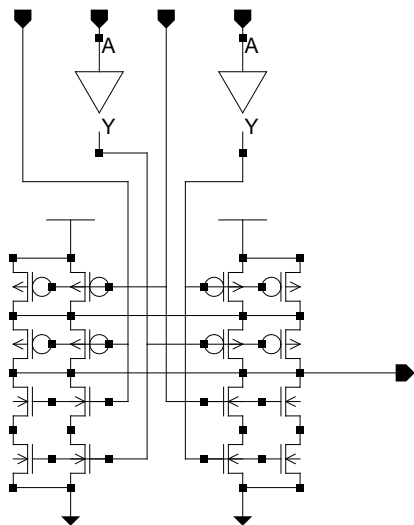
function : 2-wide 2-2-inputs AND-NOR,powered

macro name	AOI22BP	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

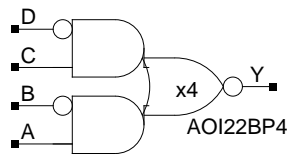
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.048	0.473	0.805	1.324	2.086	0.363	0.534	0.747
B	0.015							
C	0.045							
D	0.016							
Y								

AC Characteristic

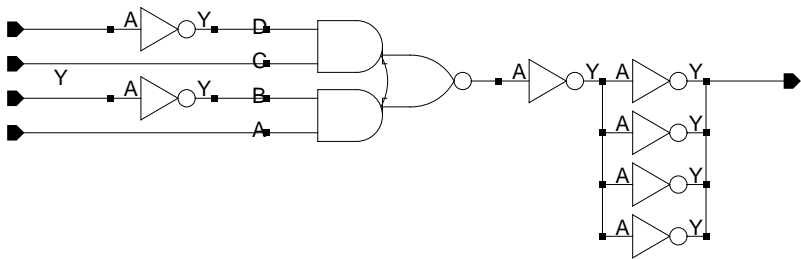
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.124	0.218	0.348	0.121	0.186	0.262
B	=>	Y	0.265	0.399	0.620	0.231	0.339	0.466
C	=>	Y	0.161	0.249	0.414	0.128	0.222	0.324
D	=>	Y	0.294	0.460	0.740	0.237	0.364	0.521

macro name	AOI22BP4	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.015							
C	0.025							
D	0.016							
Y								

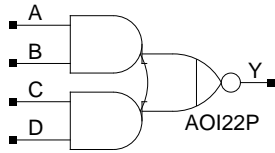
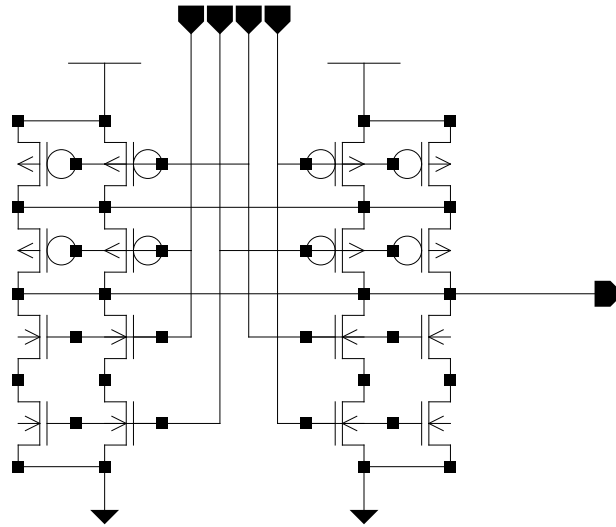
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.268	0.471	0.740	0.304	0.459	0.682
B	=>	Y	0.366	0.589	0.949	0.345	0.535	0.775
C	=>	Y	0.317	0.519	0.820	0.331	0.506	0.747
D	=>	Y	0.408	0.665	1.084	0.368	0.578	0.844

series : TSMC035

function : 2-wide 2-2-inputs AND-NOR,powered

macro name	AOI22P	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.050	0.475	0.805	1.324	2.086	0.363	0.534	0.746
B	0.046							
C	0.049							
D	0.045							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.124	0.219	0.348	0.121	0.187	0.262
B	=>	Y	0.141	0.250	0.411	0.126	0.185	0.256
C	=>	Y	0.161	0.248	0.410	0.128	0.223	0.325
D	=>	Y	0.170	0.273	0.467	0.126	0.213	0.307

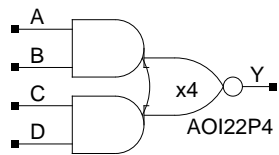


series : TSMC035

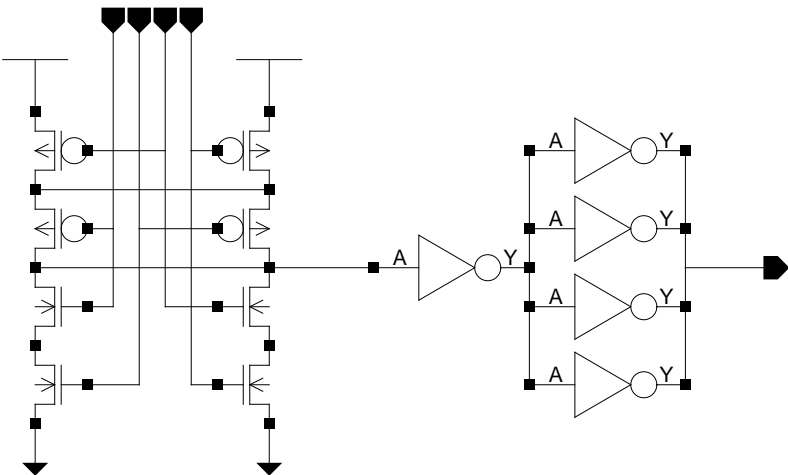
function : 2-wide 2-2-inputs AND-NOR,x4 powered

macro name	AOI22P4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

Port Characteristic

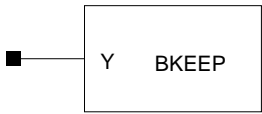
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.023							
C	0.024							
D	0.024							
Y								

AC Characteristic

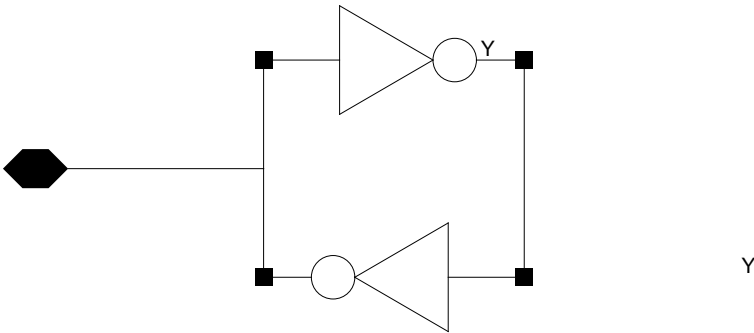
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.269	0.472	0.741	0.305	0.461	0.682
B	=>	Y	0.288	0.506	0.815	0.316	0.467	0.679
C	=>	Y	0.317	0.519	0.819	0.331	0.506	0.747
D	=>	Y	0.325	0.532	0.885	0.336	0.516	0.735

macro name	BKEEP	size [um]	6.000 x 15.000
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Symbol



Schematic



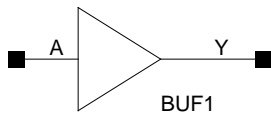
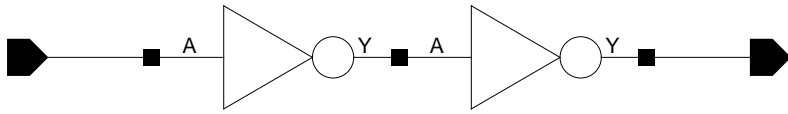
Truth Table

Y	Y
X	-

series : TSMC035

function : Non-inverting buffer

macro name	BUF1	size [um]	4.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	Y
0	0
1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.023	0.571	1.141	1.560	2.099	0.498	0.690	0.911

**AC Characteristic**

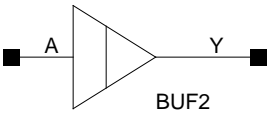
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.169	0.221	0.311	0.157	0.230	0.302

series : TSMC035

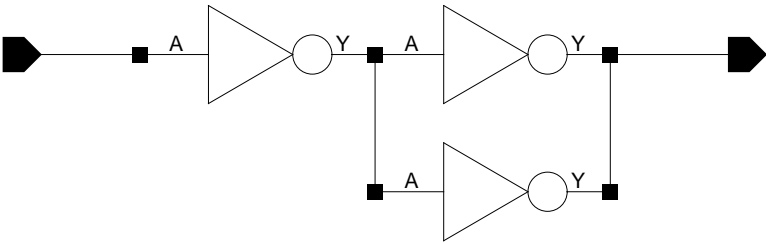
function : Non-inverting buffer x 2

macro name	BUF2	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.022	1.189	0.571	0.781	1.050	0.250	0.347	0.459

AC Characteristic

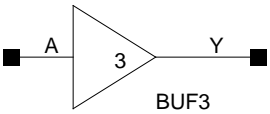
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.187	0.242	0.330	0.178	0.256	0.341

series : TSMC035

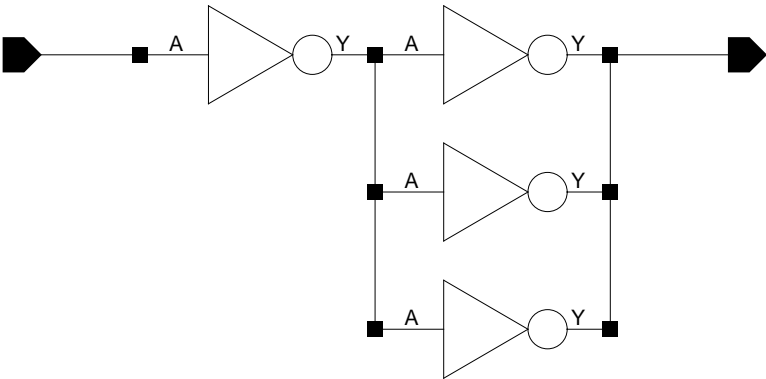
function : Non-inverting buffer x 3

macro name	BUF3	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	0
1	1

Port Characteristic

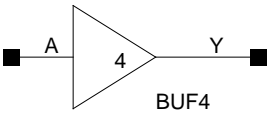
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.023	1.792	0.381	0.521	0.701	0.169	0.234	0.310

AC Characteristic

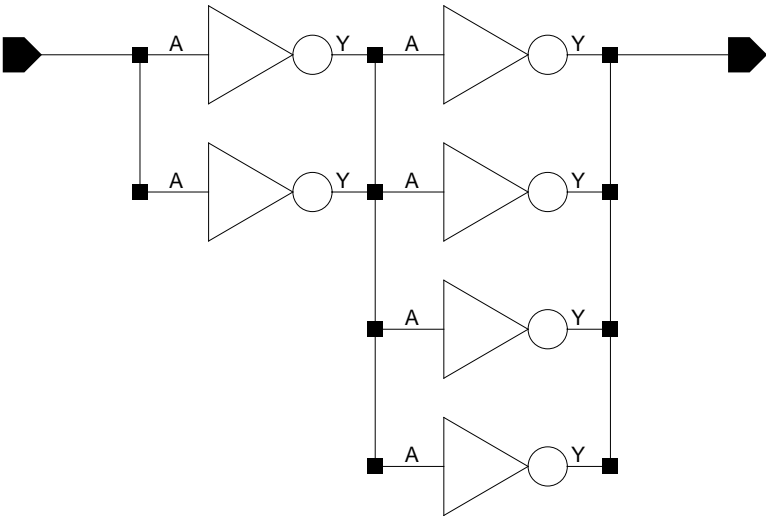
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.220	0.285	0.382	0.206	0.296	0.397

macro name	BUF4	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.045	2.410	0.286	0.391	0.526	0.126	0.175	0.232

AC Characteristic

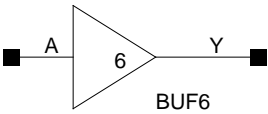
delay time from pin to pin		tpdr0 [nsec]			tpdf0 [nsec]		
		min	typ	max	min	typ	max
A	=> Y	0.173	0.226	0.306	0.161	0.233	0.307

series : TSMC035

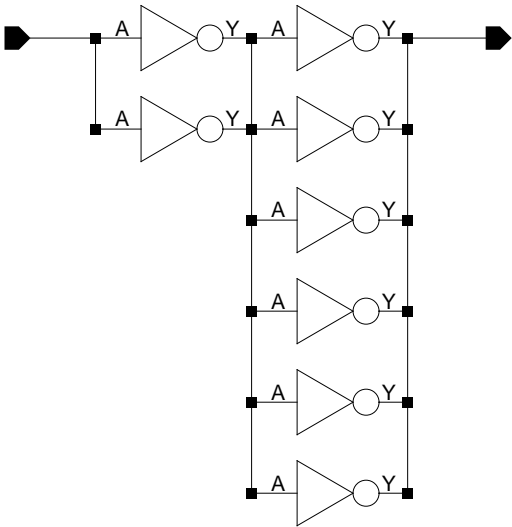
function : Non-inverting buffer x 6

macro name	BUF6	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.044	3.626	0.191	0.261	0.351	0.086	0.120	0.159

AC Characteristic

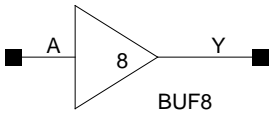
delay time from pin to pin		tpdr0 [nsec]			tpdf0 [nsec]		
		min	typ	max	min	typ	max
A	=> Y	0.207	0.266	0.354	0.190	0.272	0.361

series : TSMC035

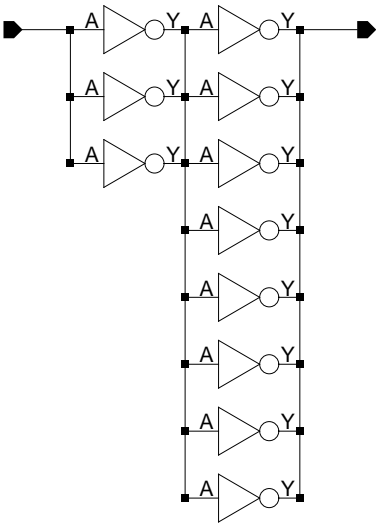
function : Non-inverting buffer x 8

macro name	BUF8	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.066	4.851	0.143	0.196	0.264	0.065	0.091	0.121

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.200	0.258	0.345	0.182	0.260	0.346

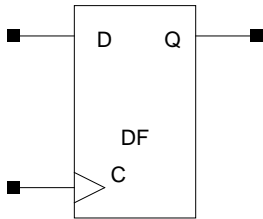


series : TSMC035

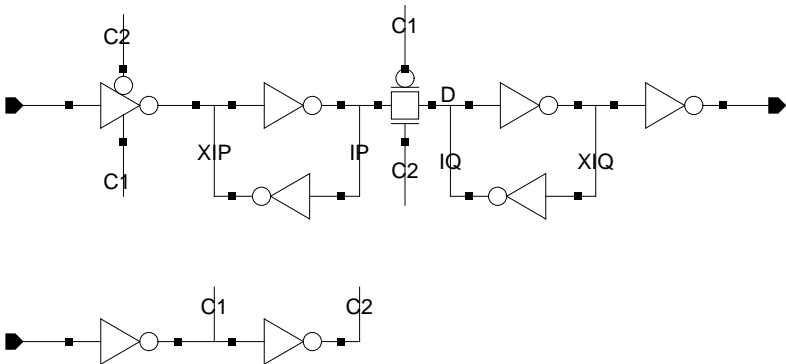
function : D-flip flop

macro name	DF	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.021	0.572	1.140	1.560	2.099	0.498	0.691	0.912
D	0.017							
Q								

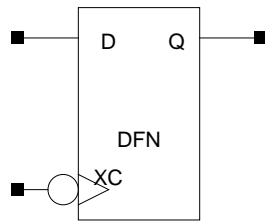
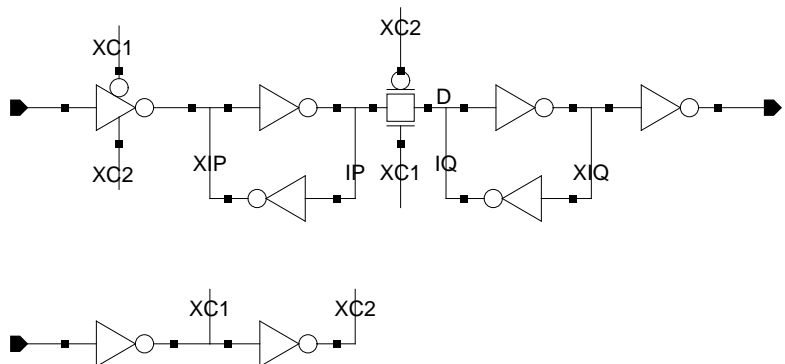
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.351	0.523	0.743	0.346	0.511	0.727
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.172	0.344	0.383
D	<=	C				0.052	0.162	0.094
C	(low)					0.350	0.632	0.782
C	(high)					0.351	0.627	0.743

series : TSMC035

function : D-flip flop with negative clock XC

macro name	DFN	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.572	1.140	1.560	2.099	0.498	0.691	0.912
Q								
XC	0.018							

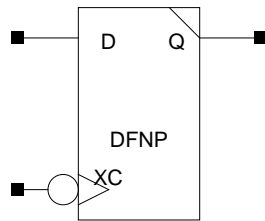
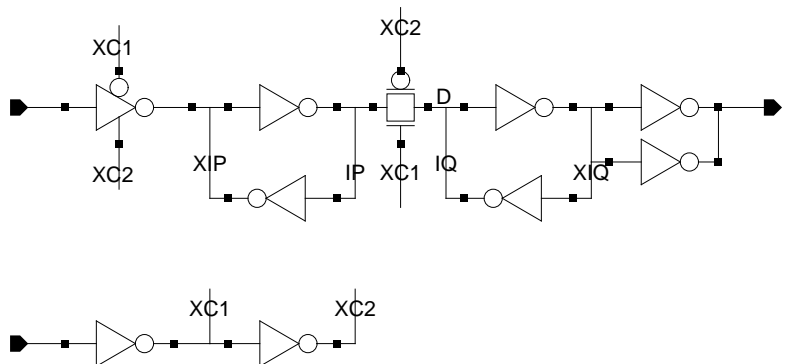
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.343	0.514	0.758	0.309	0.463	0.682
D	<=	XC	setup time			0.133	0.314	0.328
D	<=	XC	hold time			0.024	0.125	0.083
XC		(low)	minimum pulse width			0.343	0.616	0.758
XC		(high)	minimum pulse width			0.317	0.550	0.644

series : TSMC035

function : D-flip flop with negative clock XC,powered

macro name	DFNP	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.189	0.570	0.780	1.051	0.251	0.349	0.461
Q								
XC	0.018							

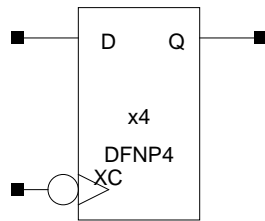
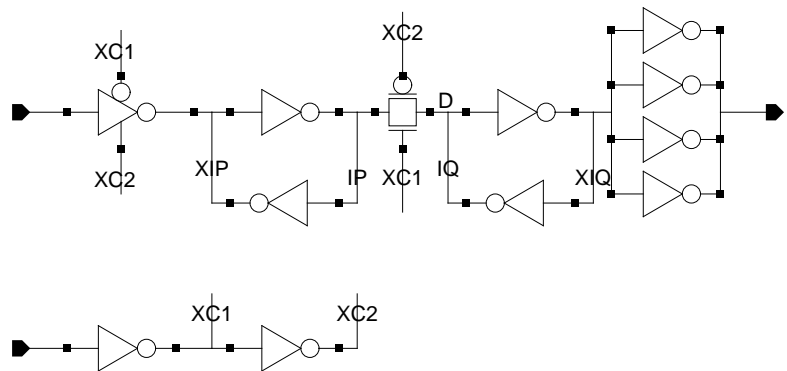
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.365	0.545	0.800	0.330	0.497	0.732
D	<=	XC	setup time hold time minimum pulse width minimum pulse width			0.133	0.313	0.327
D	<=	XC				0.024	0.125	0.083
XC	(low)					0.365	0.654	0.800
XC	(high)					0.318	0.551	0.645

series : TSMC035

function : D-flip flop with negative clock XC,x4 powered

macro name	DFNP4	size [um]	22.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.400	0.285	0.390	0.527	0.130	0.182	0.242
Q								
XC	0.018							

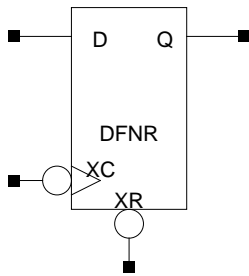
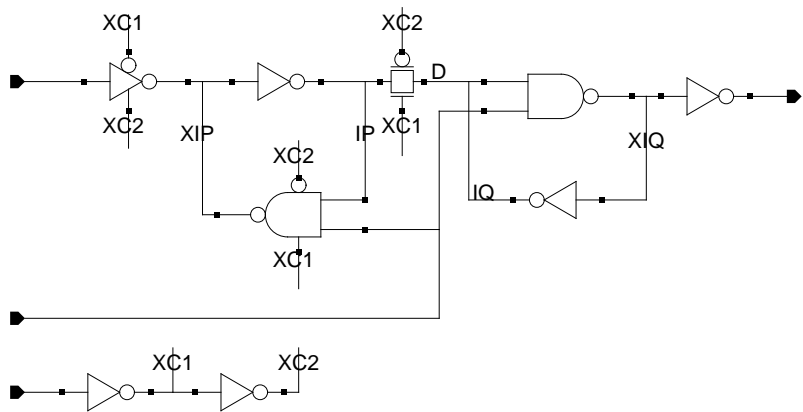
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.417	0.617	0.897	0.379	0.574	0.844
D	<=	XC	setup time hold time minimum pulse width minimum pulse width			0.132	0.312	0.326
D	<=	XC				0.025	0.127	0.085
XC		(low)				0.417	0.740	0.897
XC		(high)				0.320	0.552	0.646

series : TSMC035

function : D-flip flop with low reset XR,negative clock XC

macro name	DFNR	size [um]	24.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	Q
X	X	0	0
X	0->1	1	hold
0	1->0	1	0
1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.570	1.140	1.560	2.099	0.498	0.692	0.914
Q								
XC	0.020							
XR	0.041							

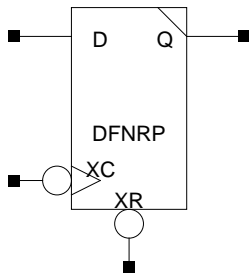
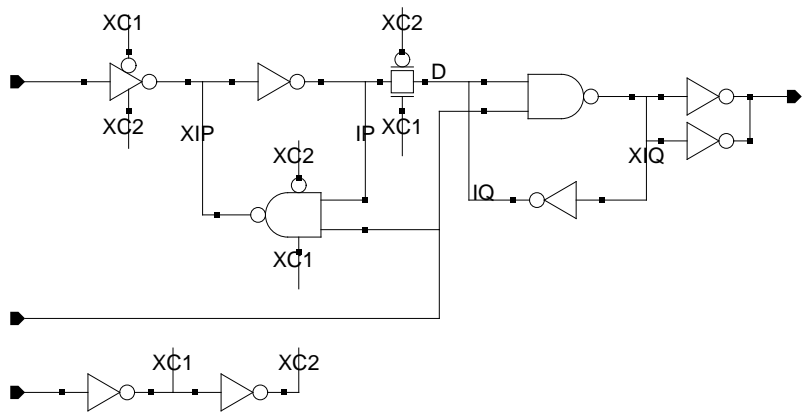
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.415	0.626	0.901	0.328	0.500	0.717
XR	=>	Q				0.203	0.292	0.415
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.415	0.751	0.901
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.485	0.925	1.162

series : TSMC035

function : D-flip flop with low reset XR,negative clock XC,powered

macro name	DFNRP	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	Q
X	X	0	0
X	0->1	1	hold
0	1->0	1	0
1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.185	0.570	0.781	1.051	0.251	0.350	0.463
Q								
XC	0.018							
XR	0.036							

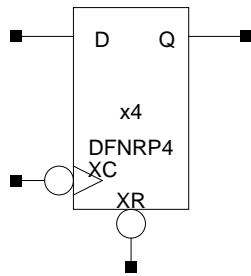
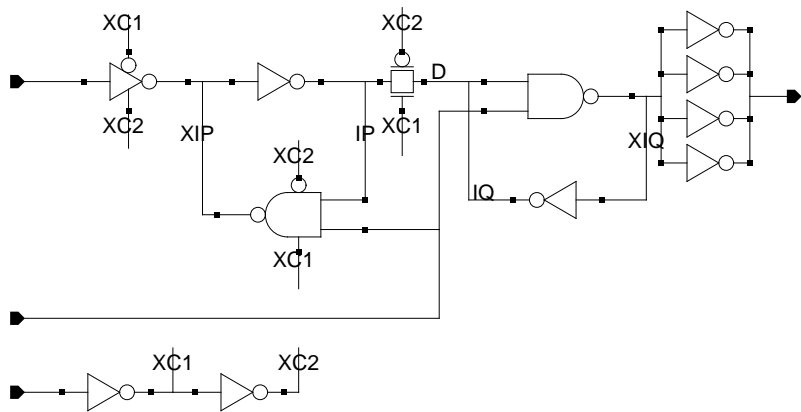
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.443	0.669	0.957	0.346	0.531	0.761
XR	=>	Q				0.226	0.324	0.461
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.443	0.802	0.957
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.538	1.019	1.275

series : TSMC035

function : D-flip flop with low reset XR,negative clock XC,x4 powered

macro name	DFNRP4	size [um]	28.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	Q
X	X	0	0
X	0->1	1	hold
0	1->0	1	0
1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.362	0.285	0.391	0.529	0.129	0.182	0.244
Q								
XC	0.018							
XR	0.037							

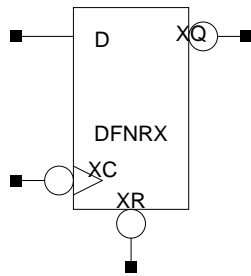
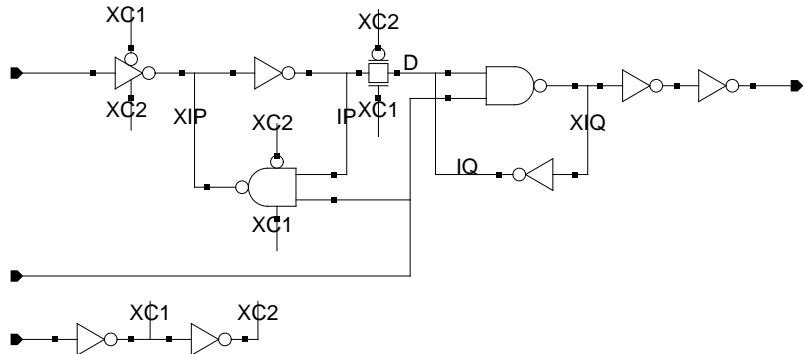
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.511	0.767	1.095	0.396	0.608	0.876
XR	=>	Q				0.284	0.407	0.580
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.511	0.920	1.095
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.638	1.203	1.497

series : TSMC035

function : D-flip flop,inverted out with low reset XR,negative clock XC

macro name	DFNRX	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

**Port Characteristic**

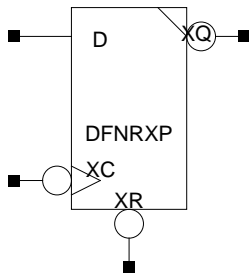
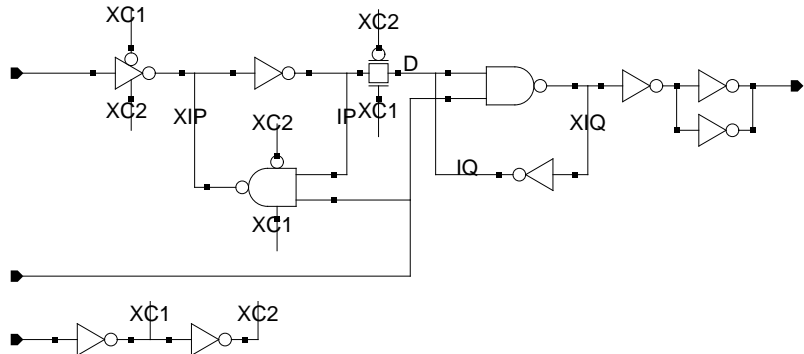
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
D	0.017	0.571	1.140	1.560	2.099	0.497	0.691	0.911							
XC	0.021														
XQ															
XR									0.039						

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.380	0.583	0.836	0.453	0.689	1.000
XR	=>	XQ	0.260	0.377	0.536			
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.453	0.827	1.000
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.488	0.928	1.165



macro name	DFNRXP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

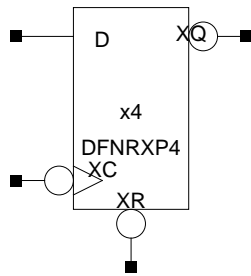
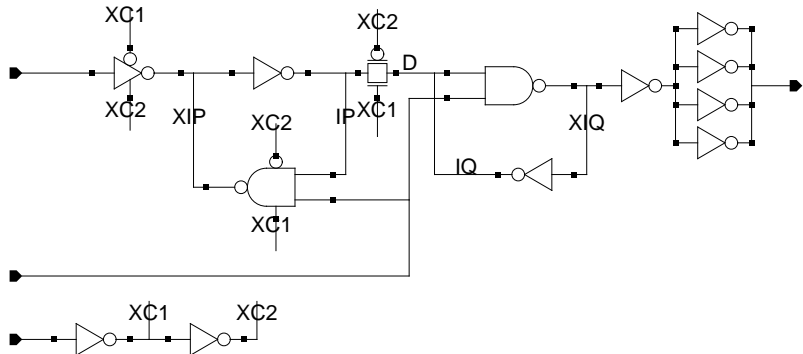
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
D	0.017	1.188	0.570	0.780	1.050	0.250	0.347	0.459							
XC	0.018														
XQ															
XR									0.038						

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.393	0.603	0.861	0.470	0.713	1.036
XR	=>	XQ	0.277	0.399	0.564			
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.470	0.855	1.036
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.486	0.925	1.162

macro name	DFNRXP4	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
D	0.017	2.402	0.285	0.391	0.527	0.128	0.179	0.237							
XC	0.018														
XQ															
XR									0.038						

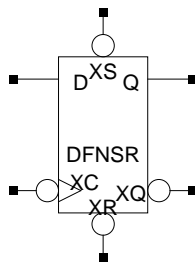
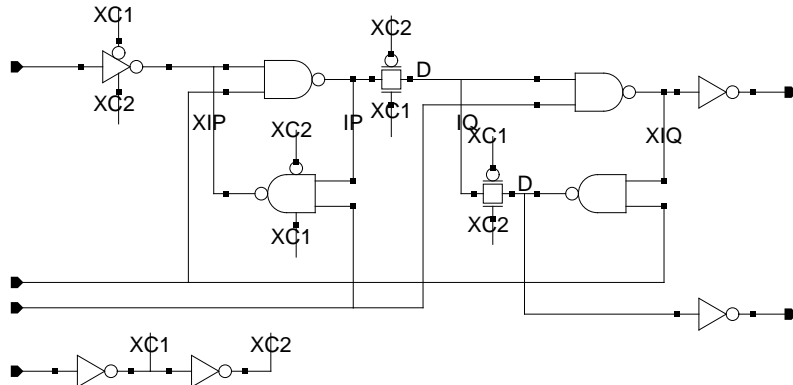
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.436	0.659	0.938	0.507	0.774	1.123
XR	=>	XQ	0.323	0.461	0.645			
D	<=	XC	setup time			0.079	0.248	0.268
D	<=	XC	hold time			0.078	0.199	0.137
XR	<=	XC	release time			-0.165	-0.179	-0.281
XR	<=	XC	removable time			0.201	0.354	0.400
XC		(low)	minimum pulse width			0.507	0.929	1.123
XC		(high)	minimum pulse width			0.364	0.631	0.757
XR		(low)	minimum pulse width			0.486	0.927	1.163

series : TSMC035

function : D-flip flop with low reset XR,low set XS,negative clock XC

macro name	DFNSR	size [um]	31.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0->1	1	1	hold	hold
0	1->0	1	1	0	1
1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.568	1.141	1.563	2.106	0.498	0.692	0.916
Q								
XC	0.019	0.569	1.140	1.562	2.105	0.498	0.694	0.920
XQ								
XR	0.036							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.439	0.674	0.973	0.408	0.620	0.880
XR	=>	Q	0.252	0.332	0.444	0.210	0.317	0.457
XS	=>	Q	0.398	0.636	0.955			
XC	=>	XQ	0.509	0.776	1.116	0.515	0.800	1.168
XR	=>	XQ	0.323	0.538	0.850			
XS	=>	XQ	0.209	0.348	0.561	0.242	0.389	0.604
D	<=	XC	setup time			0.111	0.303	0.334
D	<=	XC	hold time			0.088	0.228	0.167
XR	<=	XC	release time			-0.023	0.094	0.059
XR	<=	XC	removable time			0.070	0.201	0.085
XS	<=	XC	release time			0.030	0.125	0.049
XS	<=	XC	removable time			0.079	0.238	0.178
XS	<=	XR	recovery time			0.147	0.325	0.293
XR	<=	XS	recovery time			0.114	0.248	0.181

**series : TSMC035**

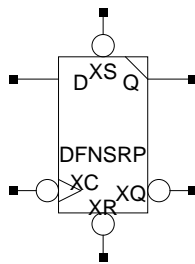
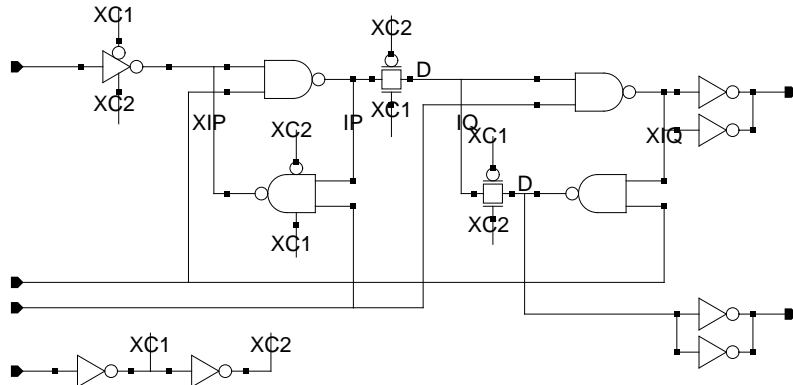
**function : D-flip flop with low reset XR,low set XS,negative clock XC**

XC	(low)	minimum pulse width	0.515	0.960	1.168
XC	(high)	minimum pulse width	0.427	0.732	0.882
XR	(low)	minimum pulse width	0.398	0.731	0.918
XS	(low)	minimum pulse width	0.454	0.803	0.955

series : TSMC035

function : D-flip flop with low reset XR,low set XS,negative clock XC,powered

macro name	DFNSRP	size [um]	34.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0->1	1	1	hold	hold
0	1->0	1	1	0	1
1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.019	1.177	0.571	0.782	1.055	0.252	0.351	0.465
Q								
XC	0.019	1.175	0.571	0.781	1.054	0.251	0.352	0.472
XQ								
XR	0.041							
XS	0.039							

**AC Characteristic**

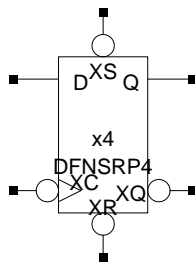
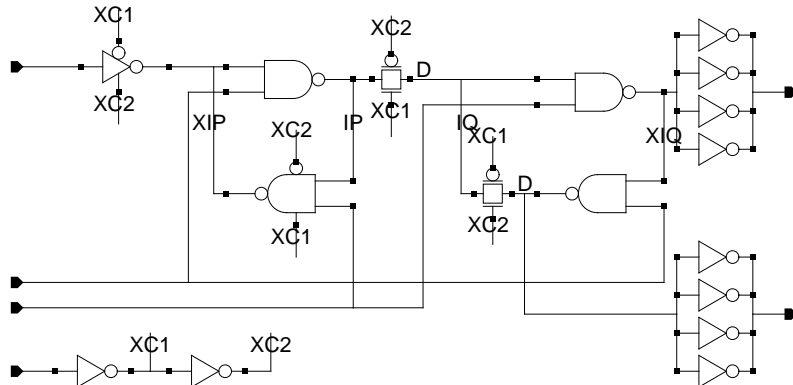
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.465	0.717	1.026	0.430	0.650	0.927
XR	=>	Q	0.286	0.375	0.495	0.232	0.348	0.499
XS	=>	Q	0.426	0.714	1.112			
XC	=>	XQ	0.581	0.883	1.268	0.575	0.893	1.303
XR	=>	XQ	0.404	0.648	0.996			
XS	=>	XQ	0.245	0.386	0.597	0.266	0.416	0.632
D	<=	XC	setup time			0.110	0.303	0.334
D	<=	XC	hold time			0.088	0.229	0.168
XR	<=	XC	release time			-0.023	0.093	0.058
XR	<=	XC	removable time			0.071	0.201	0.086
XS	<=	XC	release time			0.030	0.125	0.049
XS	<=	XC	removable time			0.079	0.238	0.178
XS	<=	XR	recovery time			0.173	0.334	0.273
XR	<=	XS	recovery time			0.149	0.299	0.232

**series : TSMC035**

**function : D-flip flop with low reset XR,low set XS,negative clock XC,powered**

XC	(low)	minimum pulse width	0.581	1.072	1.303
XC	(high)	minimum pulse width	0.427	0.734	0.882
XR	(low)	minimum pulse width	0.474	0.840	0.996
XS	(low)	minimum pulse width	0.533	0.940	1.112

macro name	DFNSRP4	size [um]	40.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0->1	1	1	hold	hold
0	1->0	1	1	0	1
1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.331	0.283	0.391	0.532	0.130	0.184	0.246
Q								
XC	0.020	2.302	0.283	0.390	0.532	0.129	0.186	0.256
XQ								
XR	0.037							
XS	0.034							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.530	0.807	1.152	0.481	0.729	1.042
XR	=>	Q	0.358	0.467	0.616	0.287	0.427	0.612
XS	=>	Q	0.487	0.877	1.443			
XC	=>	XQ	0.737	1.115	1.596	0.700	1.086	1.588
XR	=>	XQ	0.549	0.872	1.316			
XS	=>	XQ	0.319	0.477	0.710	0.325	0.495	0.739
D	<=	XC	setup time			0.110	0.303	0.334
D	<=	XC	hold time			0.088	0.228	0.167
XR	<=	XC	release time			-0.023	0.094	0.059
XR	<=	XC	removable time			0.070	0.201	0.085
XS	<=	XC	release time			0.031	0.126	0.051
XS	<=	XC	removable time			0.078	0.238	0.178
XS	<=	XR	recovery time			0.238	0.438	0.356
XR	<=	XS	recovery time			0.220	0.411	0.353

**series : TSMC035**

**function : D-flip flop with low reset XR,low set XS,negative clock XC,x4 powered**

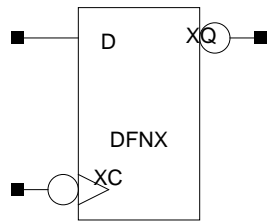
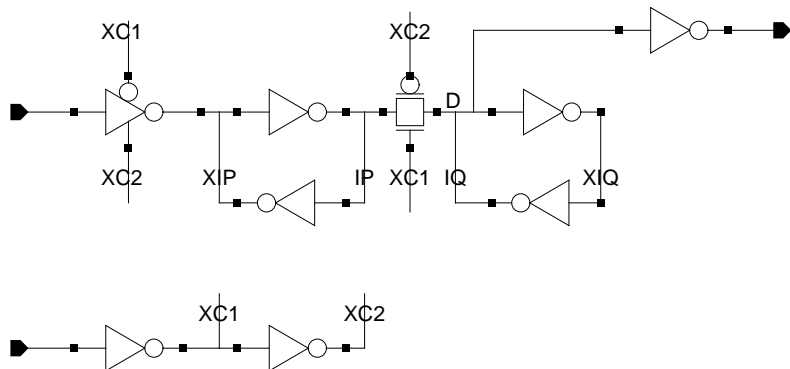
XC	(low)	minimum pulse width	0.737	1.338	1.596
XC	(high)	minimum pulse width	0.427	0.733	0.882
XR	(low)	minimum pulse width	0.631	1.115	1.316
XS	(low)	minimum pulse width	0.693	1.222	1.443



series : TSMC035

function : D-flip flop with negative clock XC,inverted out

macro name	DFNX	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.100	0.501	0.697	0.921
XC	0.017							
XQ								

**AC Characteristic**

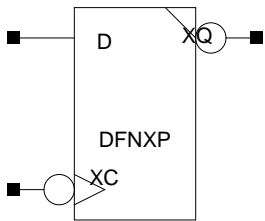
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.282	0.414	0.600	0.314	0.474	0.713
D	<=	XC	setup time hold time minimum pulse width minimum pulse width			0.132	0.313	0.327
D	<=	XC				0.024	0.125	0.083
XC		(low)				0.314	0.569	0.713
XC		(high)				0.318	0.550	0.644

series : TSMC035

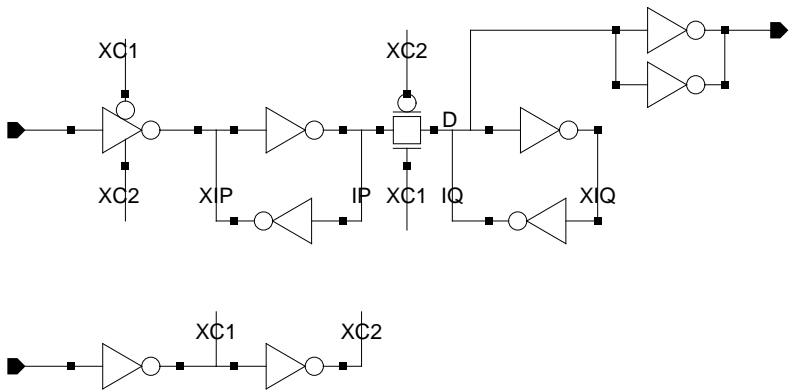
function : D-flip flop with negative clock XC,inverted out,powered

macro name	DFNXP	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.186	0.571	0.781	1.052	0.257	0.359	0.477
XC	0.017							
XQ								

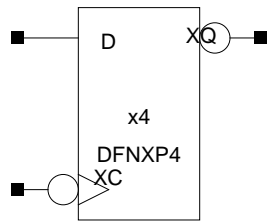
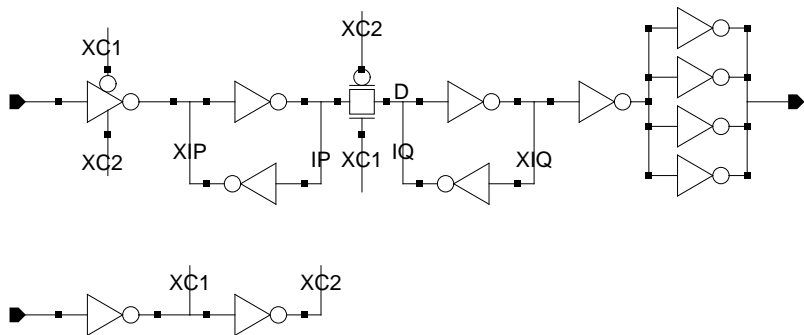
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.309	0.445	0.639	0.320	0.483	0.729
D	<=	XC	setup time			0.131	0.313	0.326
D	<=	XC	hold time			0.024	0.125	0.083
XC		(low)	minimum pulse width			0.320	0.580	0.729
XC		(high)	minimum pulse width			0.318	0.551	0.643

series : TSMC035

function : D-flip flop with negative clock XC,inverted out,x4 powered

macro name	DFNXP4	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.406	0.285	0.391	0.526	0.128	0.179	0.237
XC	0.023							
XQ								

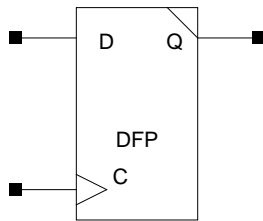
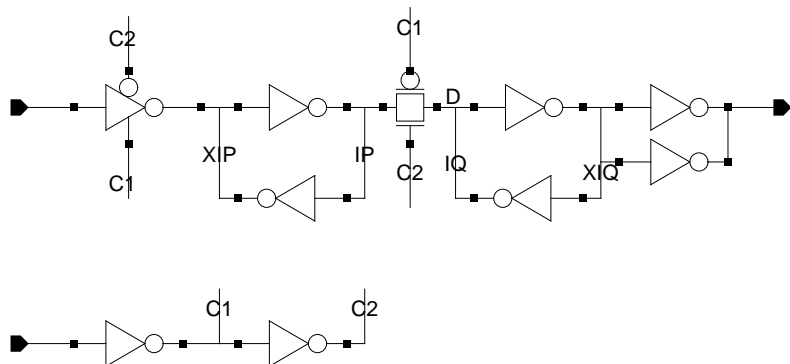
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.381	0.567	0.826	0.434	0.652	0.966
D	<=	XC	setup time			0.144	0.328	0.350
D	<=	XC	hold time			0.020	0.111	0.065
XC		(low)	minimum pulse width			0.434	0.782	0.966
XC		(high)	minimum pulse width			0.286	0.515	0.616

series : TSMC035

function : D-flip flop,powered

macro name	DFP	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	1.189	0.570	0.780	1.050	0.251	0.349	0.461
D	0.017							
Q								

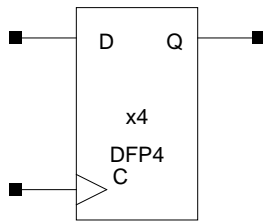
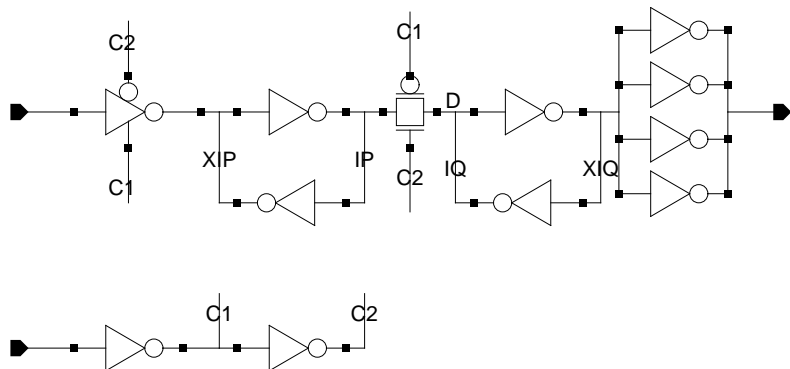
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.374	0.555	0.786	0.368	0.544	0.777
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.172	0.344	0.383
D	<=	C				0.052	0.163	0.094
C		(low)				0.350	0.632	0.782
C		(high)				0.374	0.666	0.786

series : TSMC035

function : D-flip flop,x4 powered

macro name	DFP4	size [um]	22.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.017	2.400	0.285	0.390	0.526	0.130	0.182	0.242
D	0.017							
Q								

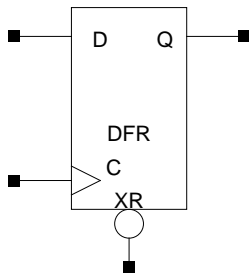
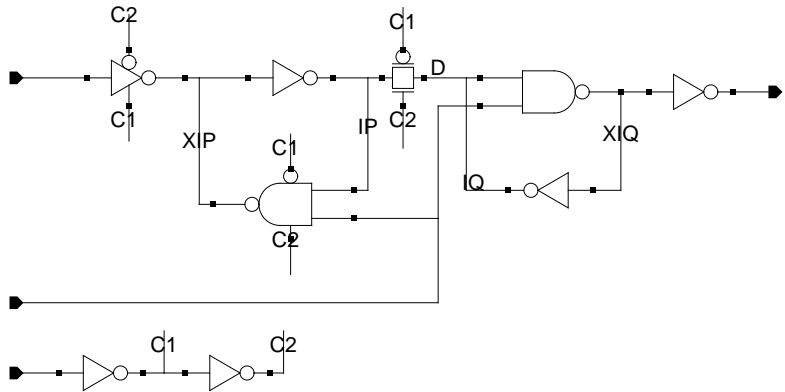
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.423	0.626	0.881	0.417	0.621	0.889
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.171	0.343	0.382
D	<=	C				0.054	0.164	0.096
C		(low)				0.351	0.634	0.784
C		(high)				0.423	0.751	0.889

series : TSMC035

function : D-flip flop with low reset XR

macro name	DFR	size [um]	24.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	Q
X	X	0	0
1->0	X	1	hold
0->1	0	1	0
0->1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.022	0.570	1.140	1.560	2.099	0.498	0.692	0.914
D	0.017							
Q								
XR	0.045							

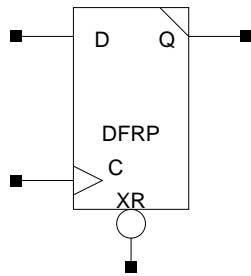
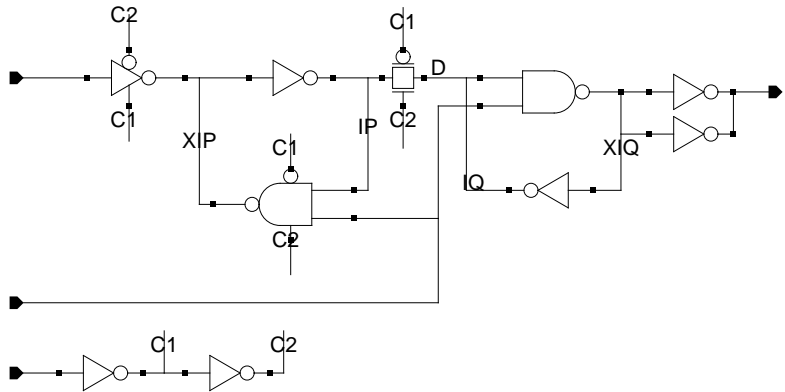
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.411	0.607	0.863	0.382	0.554	0.788
XR	=>	Q				0.203	0.292	0.415
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.411	0.729	0.863
XR		(low)	minimum pulse width			0.485	0.925	1.162

series : TSMC035

function : D-flip flop with low reset XR,powered

macro name	DFRP	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	Q
X	X	0	0
1->0	X	1	hold
0->1	0	1	0
0->1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.022	1.185	0.570	0.781	1.051	0.251	0.350	0.463
D	0.017							
Q								
XR	0.036							

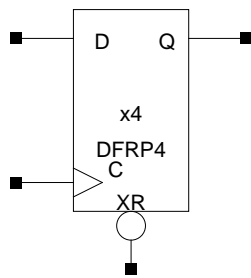
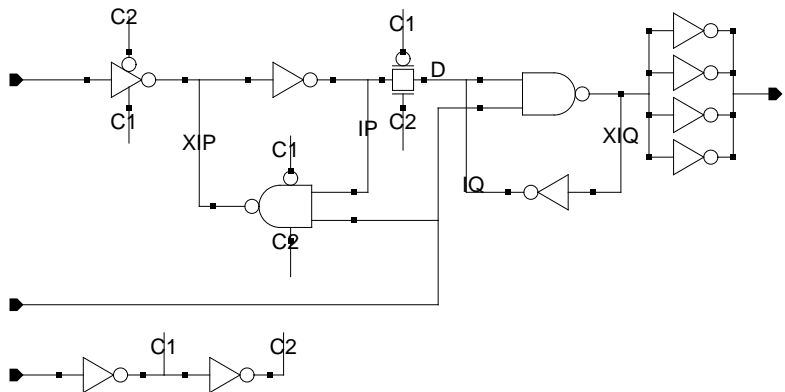
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.441	0.650	0.920	0.400	0.583	0.832
XR	=>	Q				0.226	0.324	0.461
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.441	0.780	0.920
XR		(low)	minimum pulse width			0.538	1.019	1.275

series : TSMC035

function : D-flip flop with low reset XR,x4 powered

macro name	DFRP4	size [um]	28.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	Q
X	X	0	0
1->0	X	1	hold
0->1	0	1	0
0->1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.022	2.363	0.285	0.391	0.529	0.129	0.182	0.244
D	0.017							
Q								
XR	0.037							

**AC Characteristic**

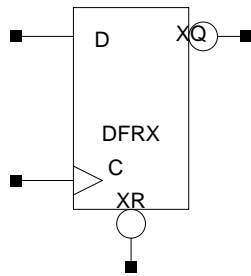
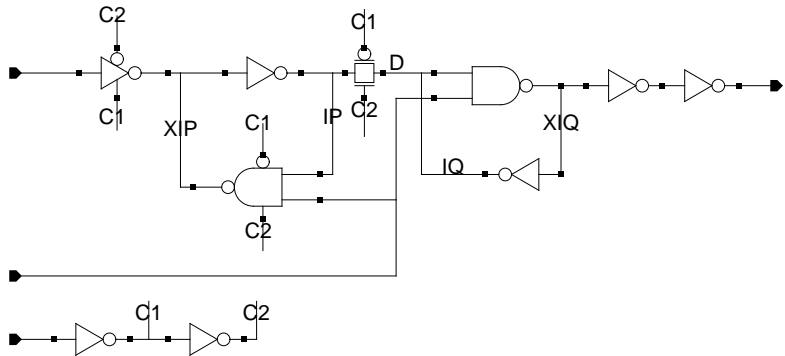
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.508	0.747	1.057	0.449	0.661	0.945
XR	=>	Q				0.284	0.407	0.580
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.508	0.897	1.057
XR		(low)	minimum pulse width			0.638	1.203	1.497



series : TSMC035

function : D-flip flop,inverted out with low reset XR

macro name	DFRX	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
C	0.022	0.571	1.140	1.560	2.099	0.498	0.690	0.911							
D	0.017														
XQ	0.040														
XR															

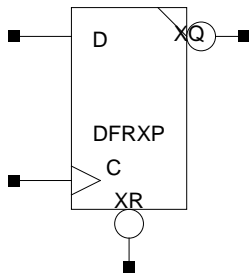
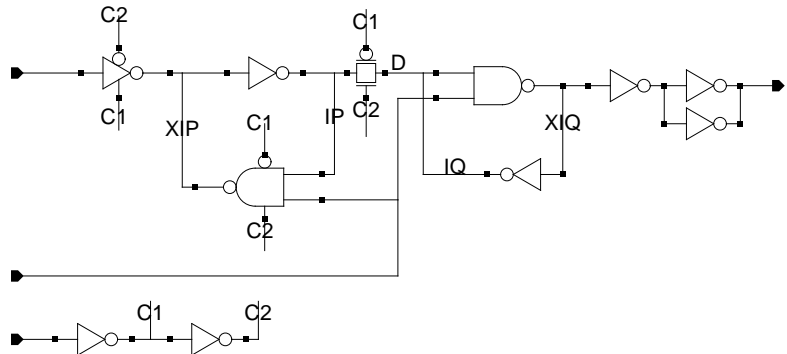
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.433	0.636	0.907	0.451	0.671	0.963
XR	=>	XQ	0.260	0.377	0.536			
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.451	0.805	0.963
XR		(low)	minimum pulse width			0.488	0.928	1.165

series : TSMC035

function : D-flip flop,inverted out with low reset XR,powered

macro name	DFRXP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
C	0.022	1.189	0.570	0.780	1.050	0.250	0.347	0.459							
D	0.017														
XQ															
XR									0.037						

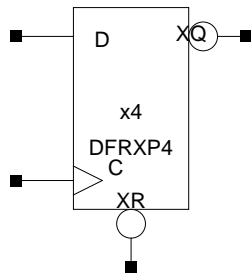
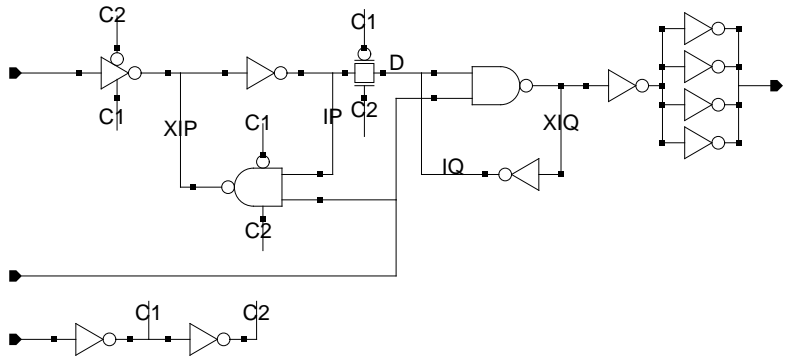
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.447	0.657	0.931	0.467	0.694	0.996
XR	=>	XQ	0.278	0.400	0.565			
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.467	0.832	0.996
XR		(low)	minimum pulse width			0.485	0.923	1.159

series : TSMC035

function : D-flip flop,inverted out with low reset XR,x4 powered

macro name	DFRXP4	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
C	0.022	2.402	0.285	0.391	0.527	0.128	0.179	0.237							
D	0.017														
XQ	0.046														
XR															

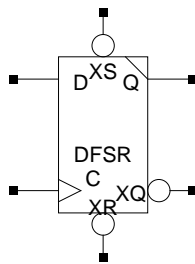
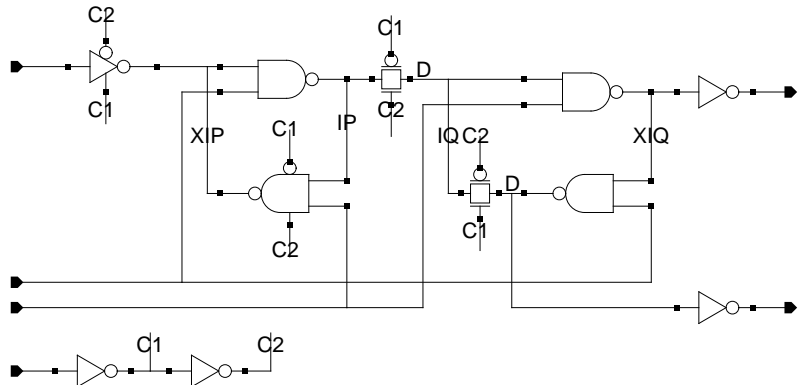
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.488	0.712	1.010	0.504	0.755	1.085
XR	=>	XQ	0.323	0.461	0.645			
D	<=	C	setup time			0.123	0.293	0.330
D	<=	C	hold time			0.110	0.222	0.154
XR	<=	C	release time			-0.121	-0.134	-0.220
XR	<=	C	removable time			0.233	0.376	0.417
C		(low)	minimum pulse width			0.372	0.683	0.845
C		(high)	minimum pulse width			0.504	0.906	1.085
XR		(low)	minimum pulse width			0.486	0.927	1.163

series : TSMC035

function : D-flip flop with low reset XR,low set XS

macro name	DFSR	size [um]	31.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
1->0	X	1	1	hold	hold
0->1	0	1	1	0	1
0->1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	0.568	1.141	1.563	2.105	0.498	0.692	0.916
D	0.019							
Q								
XQ								
XR	0.036	0.569	1.140	1.562	2.105	0.498	0.694	0.920
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.429	0.624	0.901	0.449	0.652	0.948
XR	=>	Q	0.252	0.332	0.444	0.210	0.317	0.457
XS	=>	Q	0.398	0.636	0.954			
C	=>	XQ	0.548	0.809	1.184	0.507	0.749	1.097
XR	=>	XQ	0.323	0.538	0.850			
XS	=>	XQ	0.209	0.348	0.561	0.242	0.389	0.603
D	<=	C	setup time			0.158	0.361	0.399
D	<=	C	hold time			0.123	0.241	0.190
XR	<=	C	release time			0.025	0.152	0.123
XR	<=	C	removable time			0.105	0.214	0.108
XS	<=	C	release time			0.077	0.183	0.113
XS	<=	C	removable time			0.114	0.251	0.200
XS	<=	XR	recovery time			0.147	0.325	0.293
XR	<=	XS	recovery time			0.114	0.248	0.181

**series : TSMC035**

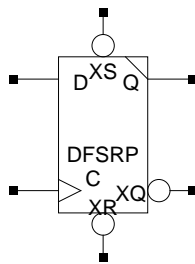
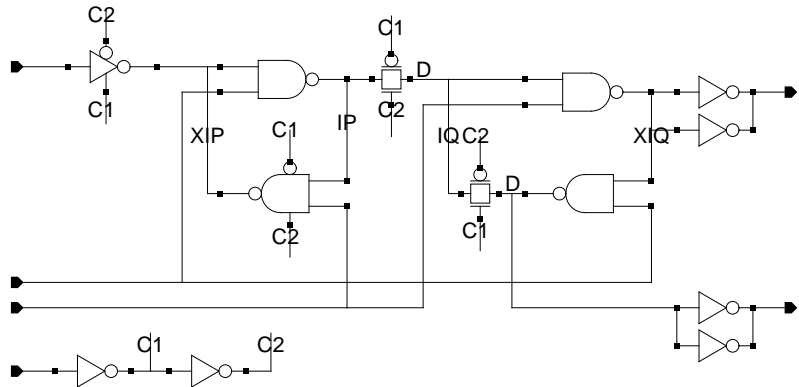
**function : D-flip flop with low reset XR,low set XS**

C	(low)	minimum pulse width	0.431	0.800	0.969
C	(high)	minimum pulse width	0.548	0.971	1.184
XR	(low)	minimum pulse width	0.398	0.731	0.918
XS	(low)	minimum pulse width	0.454	0.803	0.954

series : TSMC035

function : D-flip flop with low reset XR,low set XS,powered

macro name	DFSRP	size [um]	34.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
1->0	X	1	1	hold	hold
0->1	0	1	1	0	1
0->1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018							
D	0.019							
Q		1.177	0.571	0.782	1.055	0.252	0.351	0.465
XQ		1.175	0.571	0.781	1.054	0.251	0.352	0.472
XR	0.040							
XS	0.034							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.456	0.663	0.952	0.471	0.684	0.995
XR	=>	Q	0.286	0.375	0.495	0.232	0.348	0.499
XS	=>	Q	0.427	0.715	1.112			
C	=>	XQ	0.620	0.916	1.335	0.565	0.841	1.229
XR	=>	XQ	0.403	0.648	0.996			
XS	=>	XQ	0.245	0.386	0.597	0.266	0.416	0.632
D	<=	C		setup time		0.158	0.361	0.399
D	<=	C		hold time		0.123	0.241	0.190
XR	<=	C		release time		0.025	0.152	0.123
XR	<=	C		removable time		0.105	0.214	0.107
XS	<=	C		release time		0.077	0.184	0.114
XS	<=	C		removable time		0.114	0.251	0.200
XS	<=	XR		recovery time		0.173	0.334	0.273
XR	<=	XS		recovery time		0.149	0.300	0.232

**series : TSMC035**

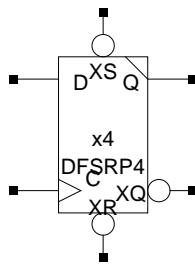
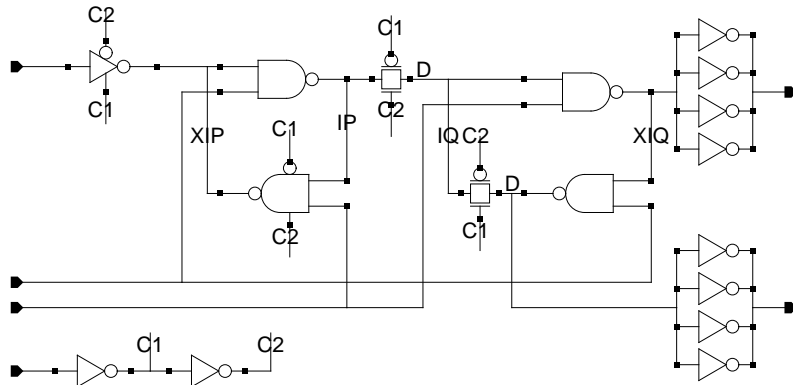
**function : D-flip flop with low reset XR,low set XS,powered**

C	(low)	minimum pulse width	0.431	0.800	0.969
C	(high)	minimum pulse width	0.620	1.100	1.335
XR	(low)	minimum pulse width	0.474	0.840	0.996
XS	(low)	minimum pulse width	0.534	0.940	1.112

series : TSMC035

function : D-flip flop with low reset XR,low set XS,x4 powered

macro name	DFSRP4	size [um]	40.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
1->0	X	1	1	hold	hold
0->1	0	1	1	0	1
0->1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	2.330	0.283	0.391	0.532	0.130	0.184	0.246
D	0.019							
Q								
XQ								
XR	0.038	2.302	0.283	0.391	0.532	0.129	0.186	0.256
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.519	0.753	1.077	0.521	0.764	1.110
XR	=>	Q	0.358	0.467	0.616	0.287	0.427	0.612
XS	=>	Q	0.487	0.877	1.444			
C	=>	XQ	0.775	1.148	1.662	0.688	1.034	1.513
XR	=>	XQ	0.550	0.873	1.317			
XS	=>	XQ	0.319	0.478	0.711	0.326	0.495	0.740
D	<=	C	setup time			0.158	0.361	0.399
D	<=	C	hold time			0.123	0.241	0.190
XR	<=	C	release time			0.025	0.152	0.123
XR	<=	C	removable time			0.105	0.213	0.108
XS	<=	C	release time			0.078	0.185	0.115
XS	<=	C	removable time			0.114	0.251	0.200
XS	<=	XR	recovery time			0.239	0.439	0.356
XR	<=	XS	recovery time			0.220	0.411	0.353



**series : TSMC035**

**function : D-flip flop with low reset XR,low set XS,x4 powered**

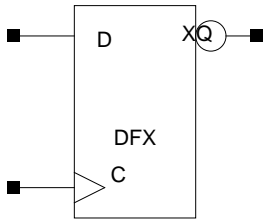
C	(low)	minimum pulse width	0.431	0.800	0.969
C	(high)	minimum pulse width	0.775	1.378	1.662
XR	(low)	minimum pulse width	0.631	1.115	1.317
XS	(low)	minimum pulse width	0.693	1.222	1.444

series : TSMC035

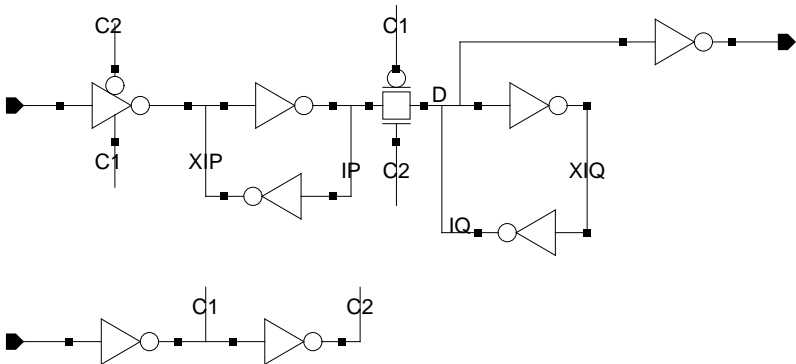
function : D-flip flop,inverted out

macro name	DFX	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.020	0.571	1.140	1.560	2.099	0.501	0.697	0.922
D	0.017							
XQ								

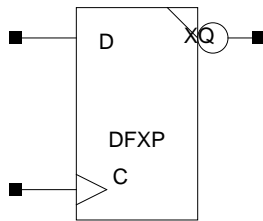
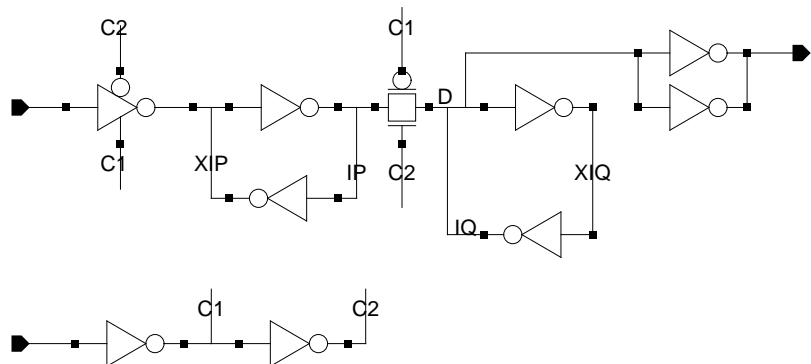
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.306	0.448	0.627	0.327	0.493	0.716
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.172	0.344	0.383
D	<=	C				0.051	0.163	0.094
C		(low)				0.350	0.632	0.782
C		(high)				0.327	0.591	0.716

series : TSMC035

function : D-flip flop,inverted out,powered

macro name	DFXP	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	1.187	0.570	0.781	1.052	0.257	0.359	0.478
D	0.017							
XQ								

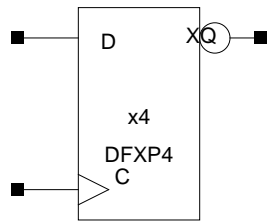
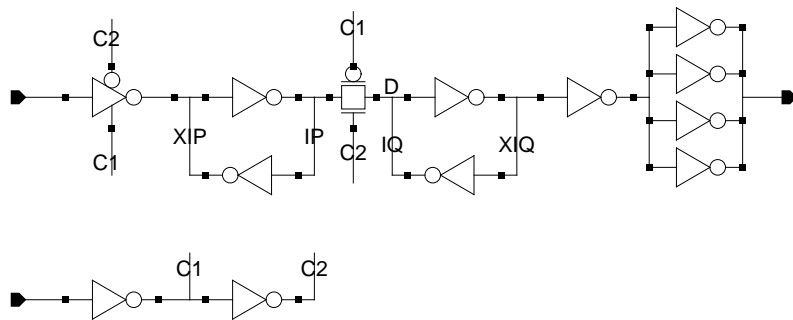
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.328	0.472	0.656	0.334	0.504	0.738
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.172	0.344	0.383
D	<=	C				0.052	0.163	0.095
C		(low)				0.350	0.632	0.782
C		(high)				0.334	0.604	0.738

series : TSMC035

function : D-flip flop,inverted out,x4 powered

macro name	DFXP4	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

**Port Characteristic**

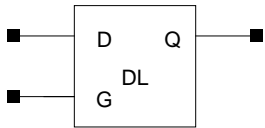
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	2.406	0.285	0.391	0.526	0.128	0.179	0.237
D	0.017							
XQ								

**AC Characteristic**

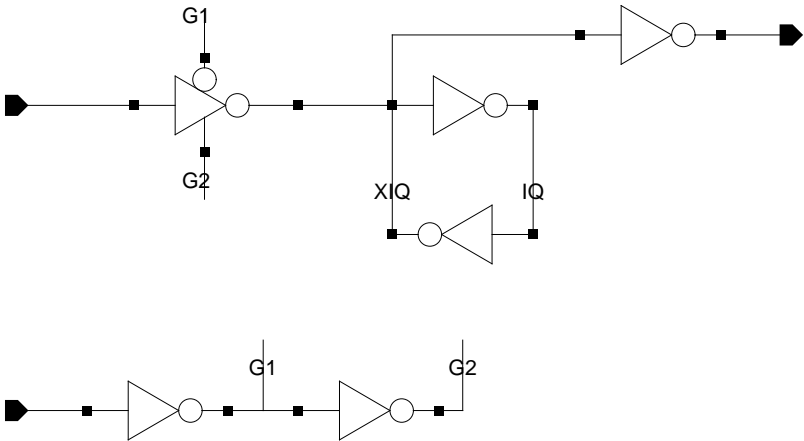
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.432	0.638	0.903	0.453	0.681	0.979
D	<=	C	setup time hold time minimum pulse width minimum pulse width			0.172	0.344	0.384
D	<=	C				0.052	0.162	0.093
C		(low)				0.350	0.631	0.781
C		(high)				0.453	0.817	0.979

macro name	DL	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.100	0.501	0.697	0.922
G	0.018							
Q								

AC Characteristic

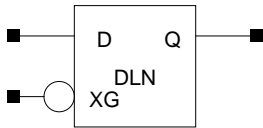
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.305	0.413	0.522	0.357	0.504	0.762
G	=>	Q	0.326	0.466	0.655	0.377	0.563	0.819
D	<=	G	setup time hold time minimum pulse width			0.198	0.403	0.448
D	<=	G				-0.038	0.053	-0.017
G		(high)				0.377	0.675	0.819

series : TSMC035

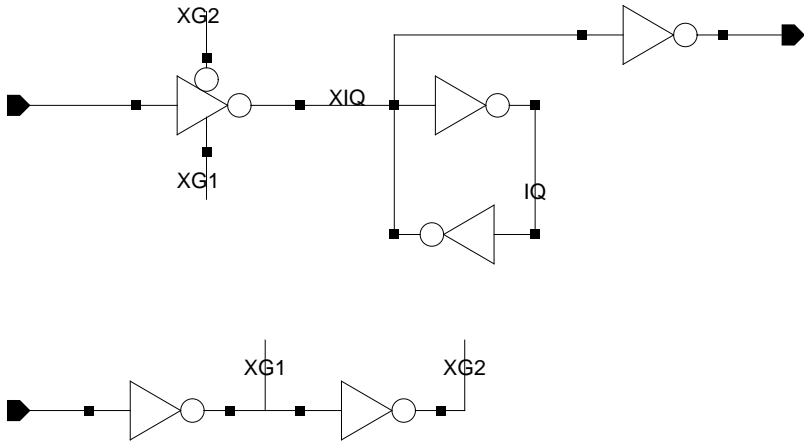
function : D-latch with active low XG

macro name	DLN	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

D	XG	Q
0	0	0
1	0	1
X	1	hold

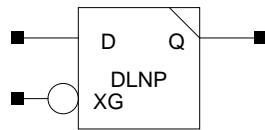
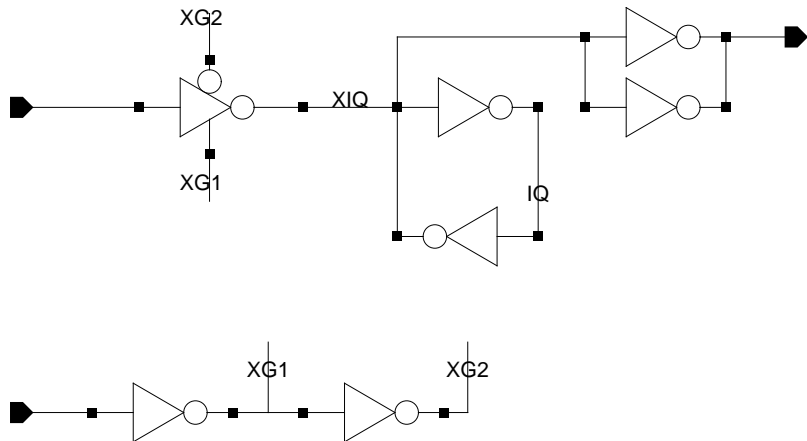
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.100	0.501	0.697	0.922
Q								
XG	0.018							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.305	0.412	0.522	0.357	0.504	0.762
XG	=>	Q	0.277	0.415	0.583	0.415	0.636	0.922
D	<=	XG	setup time hold time minimum pulse width			0.253	0.456	0.520
D	<=	XG				-0.014	0.067	-0.007
XG		(low)				0.415	0.763	0.922

macro name	DLNP	size [um]	15.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	Q
0	0	0
1	0	1
X	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.185	0.570	0.781	1.052	0.256	0.358	0.476
Q								
XG	0.018							

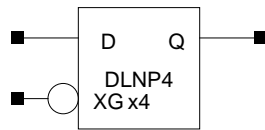
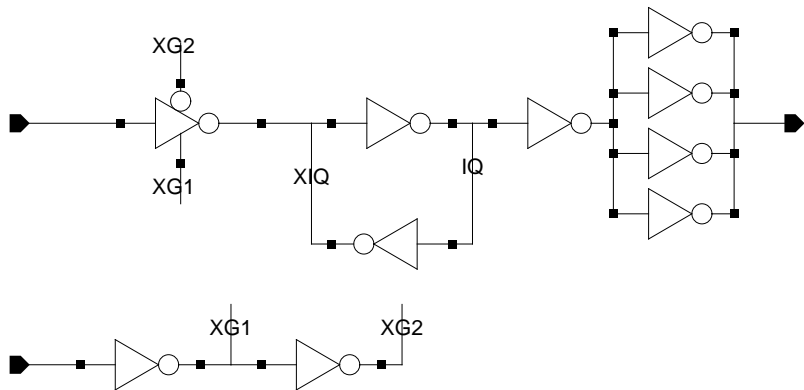
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.336	0.451	0.566	0.391	0.559	0.846
XG	=>	Q	0.304	0.449	0.624	0.453	0.694	1.009
D	<=	XG	setup time hold time minimum pulse width			0.323	0.570	0.649
D	<=	XG				-0.044	0.035	-0.058
XG		(low)				0.456	0.833	1.009

series : TSMC035

function : D-latch with active low XG,x4 powered

macro name	DLNP4	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	Q
0	0	0
1	0	1
X	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.404	0.285	0.391	0.527	0.128	0.179	0.237
Q								
XG	0.018							

**AC Characteristic**

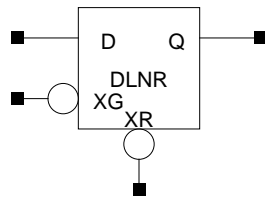
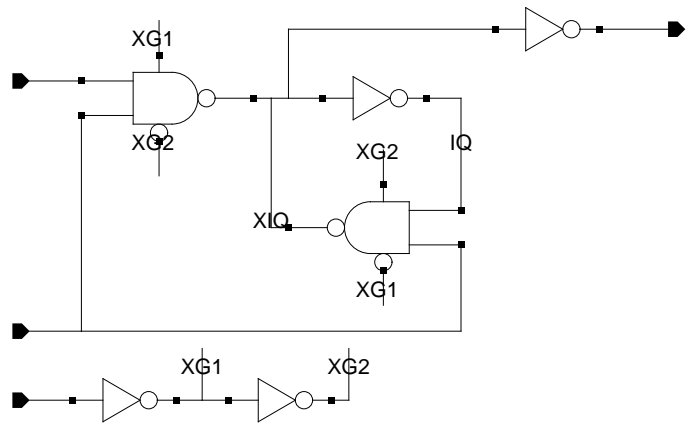
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.409	0.586	0.808	0.459	0.656	0.948
XG	=>	Q	0.391	0.591	0.841	0.512	0.780	1.129
D	<=	XG	setup time hold time minimum pulse width			0.215	0.407	0.423
D	<=	XG				0.020	0.102	0.024
XG		(low)				0.512	0.936	1.129



series : TSMC035

function : D-latch with low reset XR,low active XG

macro name	DLNR	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	Q
X	X	0	0
0	0	X	0
1	0	1	1
X	1	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.568	1.141	1.561	2.102	0.501	0.699	0.927
Q								
XG	0.018							
XR	0.035							

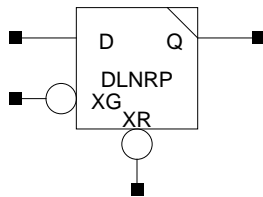
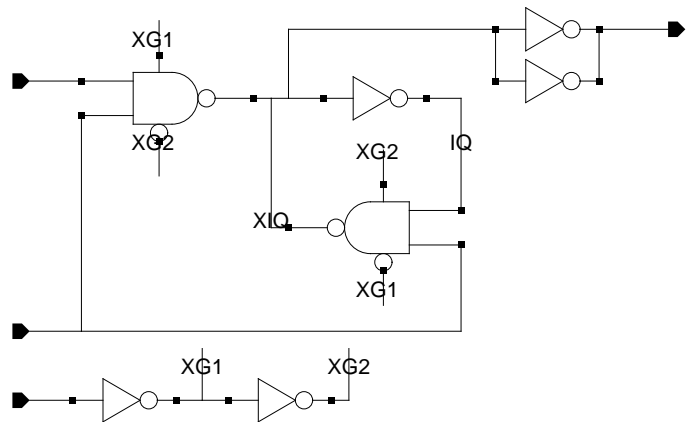
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.331	0.470	0.642	0.327	0.506	0.793
XG	=>	Q	0.360	0.541	0.761	0.442	0.690	1.007
XR	=>	Q	0.328	0.454	0.638	0.332	0.508	0.748
D	<=	XG	setup time			0.228	0.472	0.563
D	<=	XG				0.010	0.084	-0.042
XR	<=	XG				0.225	0.444	0.452
XR	<=	XG				0.013	0.097	-0.035
XG		(low)				0.442	0.828	1.007
XR		(low)	minimum pulse width			0.336	0.613	0.748

series : TSMC035

function : D-latch with low reset XR,low active XG,powered

macro name	DLNRP	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	Q
X	X	0	0
0	0	X	0
1	0	1	1
X	1	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.169	0.571	0.783	1.055	0.256	0.361	0.485
Q								
XG	0.018							
XR	0.034							

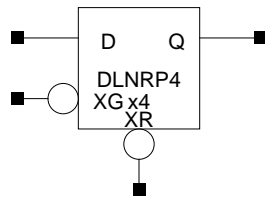
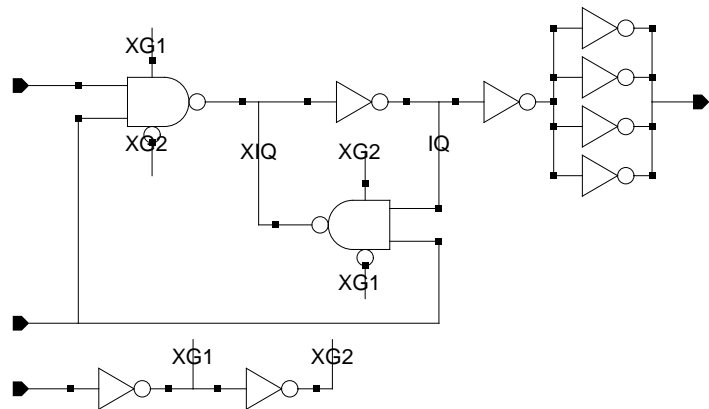
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.363	0.512	0.693	0.347	0.539	0.850
XG	=>	Q	0.388	0.581	0.812	0.465	0.727	1.063
XR	=>	Q	0.363	0.499	0.692	0.358	0.549	0.813
D	<=	XG	setup time			0.274	0.562	0.679
D	<=	XG				-0.023	0.048	-0.103
XR	<=	XG				0.271	0.521	0.539
XR	<=	XG				-0.022	0.059	-0.098
XG		(low)	minimum pulse width			0.468	0.874	1.072
XR		(low)				0.375	0.682	0.839

series : TSMC035

function : D-latch with low reset XR,low active XG,x4 powered

macro name	DLNRP4	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	Q
X	X	0	0
0	0	X	0
1	0	1	1
X	1	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.406	0.285	0.391	0.526	0.128	0.179	0.237
Q								
XG	0.018							
XR	0.033							

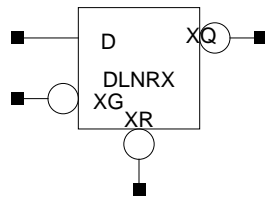
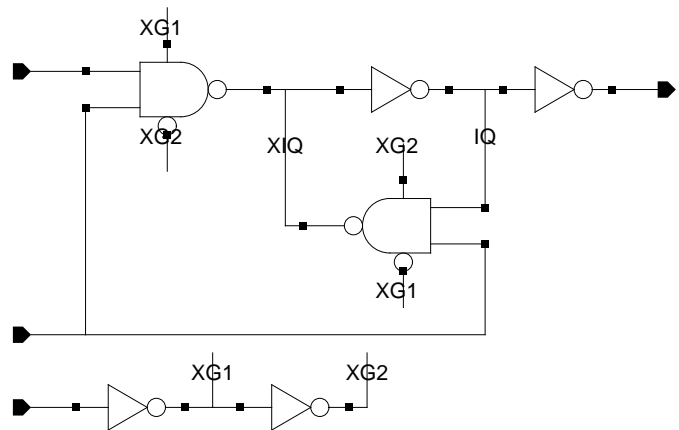
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.451	0.665	0.933	0.452	0.693	1.059
XG	=>	Q	0.490	0.742	1.053	0.563	0.872	1.272
XR	=>	Q	0.444	0.645	0.925	0.451	0.689	1.011
D	<=	XG	setup time			0.219	0.449	0.502
D	<=	XG	hold time			0.043	0.122	0.022
XR	<=	XG	release time			0.210	0.424	0.432
XR	<=	XG	removable time			0.050	0.137	0.032
XG		(low)	minimum pulse width			0.563	1.046	1.272
XR		(low)	minimum pulse width			0.457	0.831	1.011

series : TSMC035

function : D-latch with low reset XR,inverted out

macro name	DLNRX	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XQ
X	X	0	1
0	0	X	1
1	0	1	0
X	1	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.099	0.498	0.692	0.913
XG	0.018							
XQ	0.033							
XR								

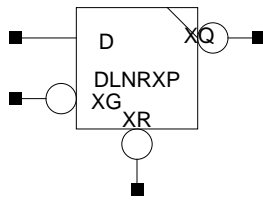
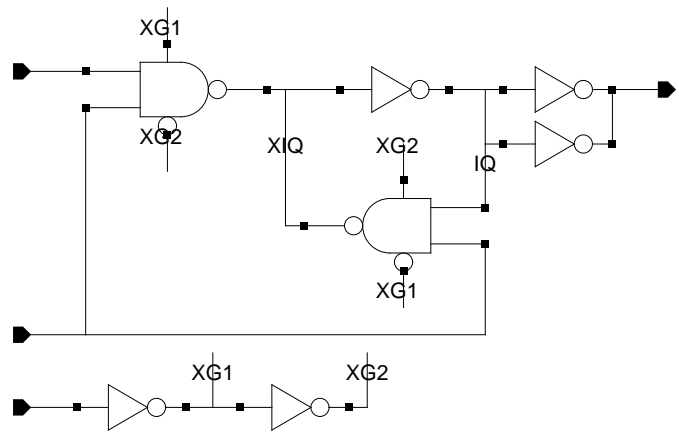
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.352	0.537	0.828	0.365	0.537	0.754
XG	=>	XQ	0.462	0.716	1.039	0.404	0.613	0.873
XR	=>	XQ	0.352	0.534	0.779	0.358	0.518	0.747
D	<=	XG	setup time			0.218	0.448	0.502
D	<=	XG	hold time			0.043	0.122	0.022
XR	<=	XG	release time			0.209	0.423	0.431
XR	<=	XG	removable time			0.050	0.138	0.032
XG	(low)		minimum pulse width			0.462	0.859	1.039
XR	(low)		minimum pulse width			0.355	0.645	0.779

series : TSMC035

function : D-latch with low reset XR,low active XG,inverted out,powered

macro name	DLNRXP	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XQ
X	X	0	1
0	0	X	1
1	0	1	0
X	1	1	hold

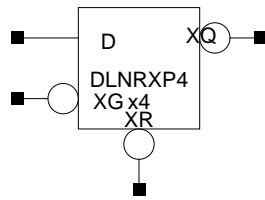
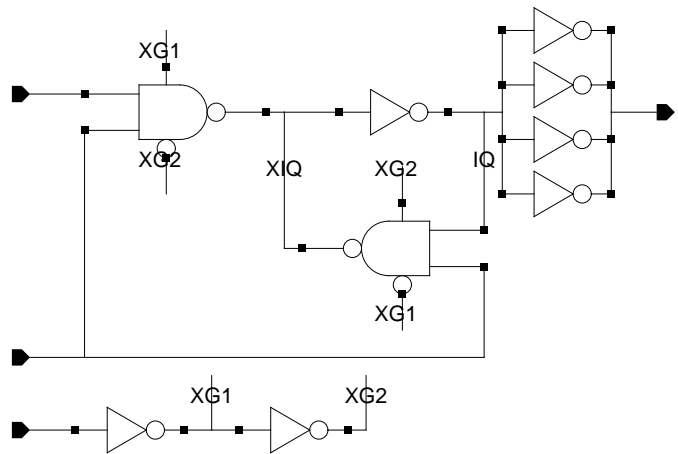
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.188	0.570	0.780	1.050	0.251	0.350	0.463
XG	0.018							
XQ	0.036							
XR	0.036							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.373	0.564	0.862	0.383	0.564	0.795
XG	=>	XQ	0.483	0.744	1.072	0.422	0.640	0.913
XR	=>	XQ	0.368	0.559	0.812	0.376	0.545	0.788
D	<=	XG	setup time			0.250	0.504	0.543
D	<=	XG	hold time			0.044	0.122	0.023
XR	<=	XG	release time			0.242	0.478	0.495
XR	<=	XG	removable time			0.051	0.138	0.033
XG	(low)		minimum pulse width			0.483	0.893	1.072
XR	(low)		minimum pulse width			0.373	0.675	0.812

macro name	DLNRXP4	size [um]	24.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XQ
X	X	0	1
0	0	X	1
1	0	1	0
X	1	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.396	0.285	0.390	0.527	0.131	0.183	0.244
XG	0.018							
XQ	0.018							
XR	0.034							

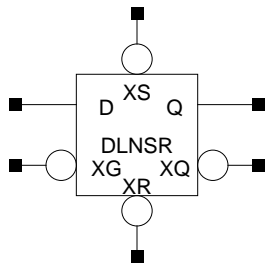
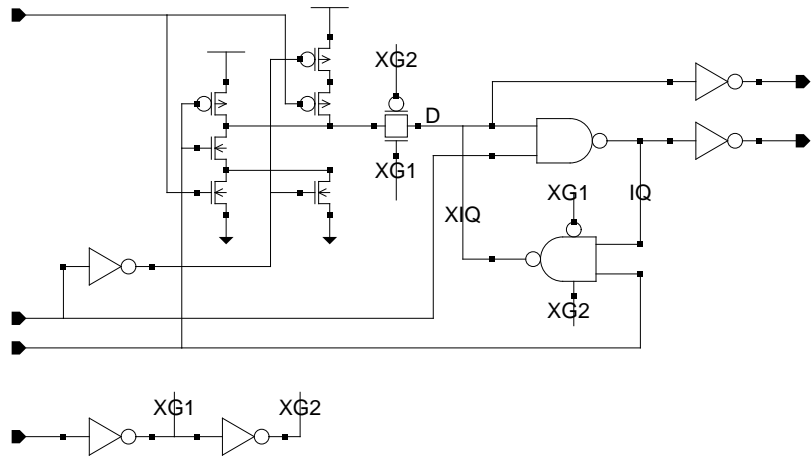
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.421	0.634	0.955	0.436	0.641	0.907
XG	=>	XQ	0.530	0.813	1.165	0.469	0.716	1.025
XR	=>	XQ	0.418	0.627	0.902	0.427	0.622	0.900
D	<=	XG	setup time			0.321	0.620	0.639
D	<=	XG				0.044	0.122	0.022
XR	<=	XG				0.310	0.595	0.628
XR	<=	XG				0.050	0.138	0.032
XG	(low)					0.530	0.976	1.165
XR	(low)		minimum pulse width			0.423	0.758	0.902

series : TSMC035

function : D-latch with low reset XR,low set XS,low active XG

macro name	DLNSR	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.569	1.140	1.561	2.102	0.502	0.706	0.948
Q								
XG	0.018	0.570	1.139	1.559	2.100	0.498	0.692	0.915
XQ								
XR	0.035							
XS	0.034							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.394	0.542	0.725	0.402	0.631	0.974
XG	=>	Q	0.330	0.493	0.690	0.333	0.517	0.769
XR	=>	Q	0.289	0.487	0.734	0.267	0.479	0.815
XS	=>	Q	0.365	0.595	0.901	0.469	0.741	1.156
D	=>	XQ	0.564	0.878	1.328	0.480	0.685	0.946
XG	=>	XQ	0.476	0.743	1.101	0.421	0.639	0.914
XR	=>	XQ	0.402	0.682	1.109	0.481	0.667	0.920
XS	=>	XQ	0.241	0.657	1.512	0.226	0.338	0.468

**series : TSMC035**

**function : D-latch with low reset XR,low set XS,low active XG**

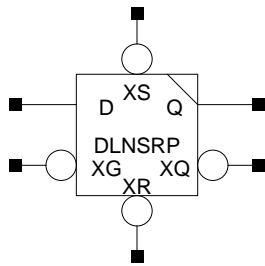
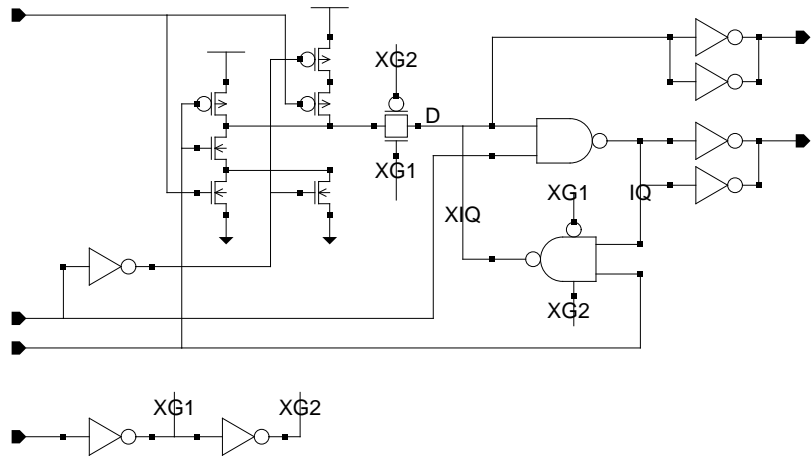
D	<=	XG	setup time	0.364	0.775	0.926
D	<=	XG	hold time	-0.059	0.024	-0.123
XR	<=	XG	release time	0.324	0.592	0.591
XR	<=	XG	removable time	0.050	0.120	-0.006
XS	<=	XG	release time	0.448	0.912	1.102
XS	<=	XG	removable time	0.067	0.173	0.106
XS	<=	XR	recovery time	0.502	0.996	1.133
XR	<=	XS	recovery time	0.346	0.654	0.652
XG		(low)	minimum pulse width	0.476	0.892	1.101
XR		(low)	minimum pulse width	0.502	0.900	1.109
XS		(low)	minimum pulse width	0.415	0.756	0.901



series : TSMC035

function : D-latch with low reset XR,low set XS,low active XG,powered

macro name	DLNSRP	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.165	0.569	0.781	1.055	0.258	0.372	0.514
Q								
XG	0.018	1.175	0.566	0.778	1.052	0.251	0.350	0.464
XQ								
XR	0.033							
XS	0.035							

**AC Characteristic**

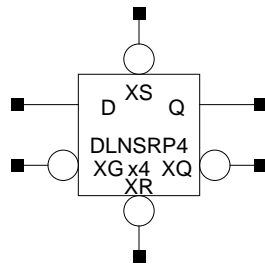
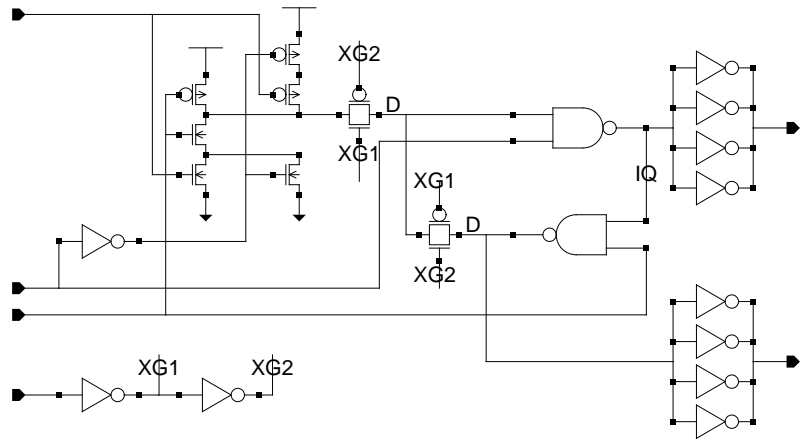
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.425	0.579	0.767	0.421	0.659	1.016
XG	=>	Q	0.355	0.528	0.732	0.337	0.523	0.777
XR	=>	Q	0.321	0.528	0.781	0.279	0.504	0.873
XS	=>	Q	0.388	0.664	1.046	0.489	0.772	1.201
D	=>	XQ	0.675	1.049	1.580	0.546	0.779	1.080
XG	=>	XQ	0.577	0.896	1.323	0.479	0.729	1.047
XR	=>	XQ	0.484	0.821	1.335	0.549	0.764	1.056
XS	=>	XQ	0.275	0.763	1.766	0.248	0.369	0.511

**series : TSMC035**

**function : D-latch with low reset XR,low set XS,low active XG,powered**

D	<=	XG	setup time	0.458	0.955	1.153
D	<=	XG	hold time	-0.089	-0.008	-0.177
XR	<=	XG	release time	0.403	0.726	0.747
XR	<=	XG	removable time	0.018	0.085	-0.066
XS	<=	XG	release time	0.542	1.093	1.328
XS	<=	XG	removable time	0.037	0.141	0.054
XS	<=	XR	recovery time	0.578	1.166	1.327
XR	<=	XS	recovery time	0.384	0.738	0.736
XG		(low)	minimum pulse width	0.577	1.076	1.323
XR		(low)	minimum pulse width	0.603	1.085	1.335
XS		(low)	minimum pulse width	0.492	0.884	1.046

macro name	DLNSRP4	size [um]	37.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.298	0.282	0.390	0.532	0.129	0.185	0.255
Q								
XG	0.021	2.331	0.282	0.389	0.530	0.128	0.181	0.246
XQ								
XR	0.034							
XS	0.034							

**AC Characteristic**

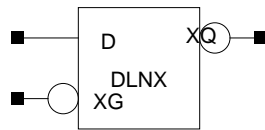
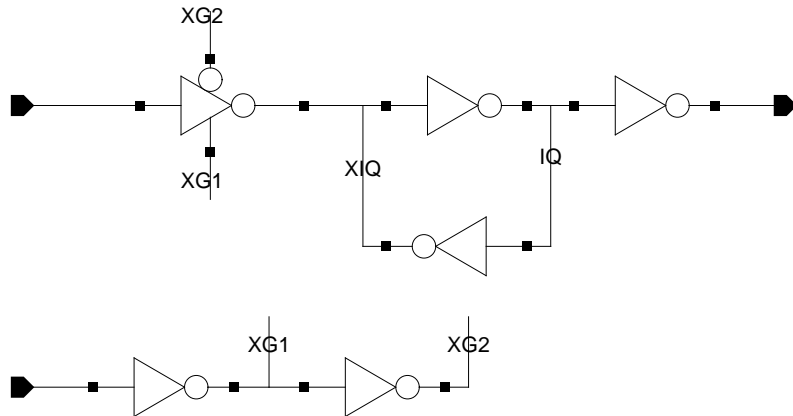
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.748	1.095	1.542	0.753	1.179	1.781
XG	=>	Q	0.694	1.053	1.508	0.684	1.071	1.592
XR	=>	Q	0.314	0.741	1.508	0.312	0.483	0.720
XS	=>	Q	0.499	0.843	1.300	0.845	1.297	1.964
D	=>	XQ	0.590	0.910	1.358	0.501	0.722	1.007
XG	=>	XQ	0.520	0.802	1.169	0.450	0.682	0.973
XR	=>	XQ	0.446	0.840	1.415	0.484	0.683	0.972
XS	=>	XQ	0.344	0.737	1.541	0.289	0.439	0.613

D	<=	XG	setup time	0.382	0.809	0.962
D	<=	XG	hold time	-0.023	0.062	-0.065
XR	<=	XG	release time	0.364	0.662	0.693
XR	<=	XG	removable time	-0.008	0.090	-0.031
XS	<=	XG	release time	0.470	0.949	1.139
XS	<=	XG	removable time	-0.013	0.086	-0.038
XS	<=	XR	recovery time	0.632	1.325	1.559
XR	<=	XS	recovery time	0.524	1.037	1.096
XG		(low)	minimum pulse width	0.694	1.285	1.592
XR		(low)	minimum pulse width	0.677	1.199	1.415
XS		(low)	minimum pulse width	0.632	1.116	1.300

series : TSMC035

function : D-latch,inverted out,with active low XG

macro name	DLNX	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XQ
0	0	1
1	0	0
X	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.099	0.498	0.691	0.912
XG	0.018							
XQ								

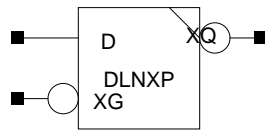
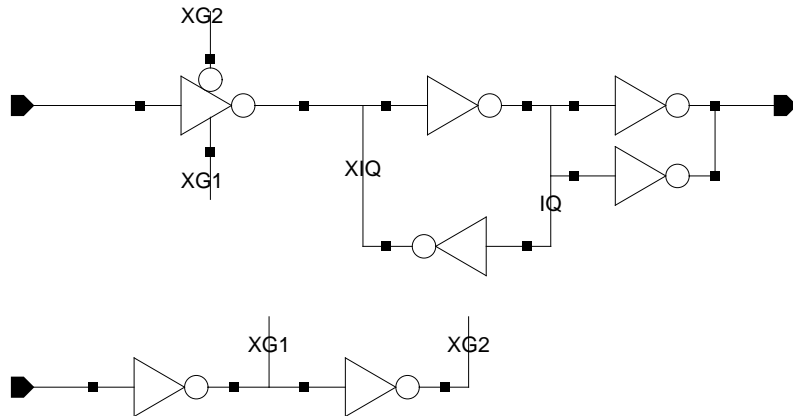
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.358	0.501	0.741	0.326	0.459	0.610
XG	=>	XQ	0.411	0.625	0.897	0.307	0.467	0.667
D	<=	XG	setup time hold time minimum pulse width			0.215	0.408	0.447
D	<=	XG				0.020	0.104	0.048
XG		(low)				0.411	0.750	0.897

series : TSMC035

function : D-latch,inverted out,with active low XG,powered

macro name	DLNXP	size [um]	15.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XQ
0	0	1
1	0	0
X	1	hold

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.188	0.570	0.780	1.050	0.251	0.349	0.461
XG	0.018							
XQ								

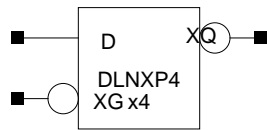
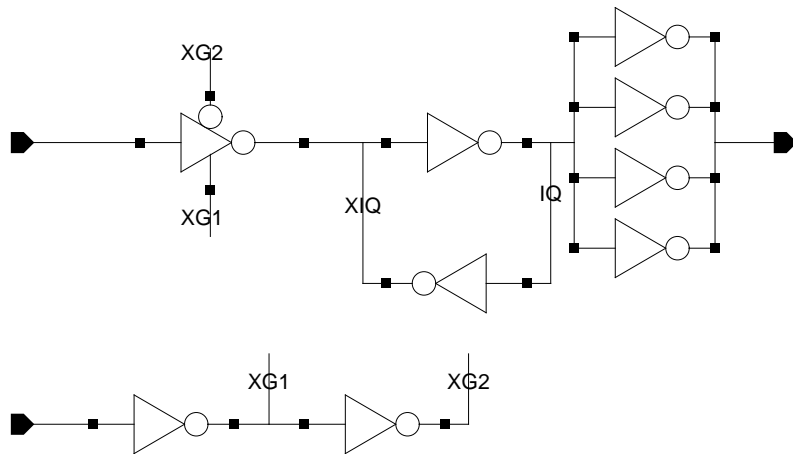
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.389	0.545	0.797	0.351	0.497	0.662
XG	=>	XQ	0.442	0.667	0.954	0.332	0.506	0.724
D	<=	XG	setup time hold time minimum pulse width			0.243	0.460	0.507
D	<=	XG				0.017	0.100	0.043
XG	(low)					0.442	0.800	0.954

series : TSMC035

function : D-latch,inverted out,with active low XG,x4 powered

macro name	DLNXP4	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	XG	XQ
0	0	1
1	0	0
X	1	hold

**Port Characteristic**

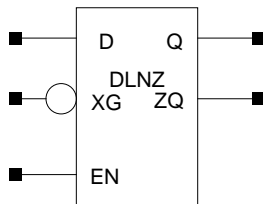
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.399	0.285	0.390	0.526	0.130	0.182	0.242
XG	0.019							
XQ								

**AC Characteristic**

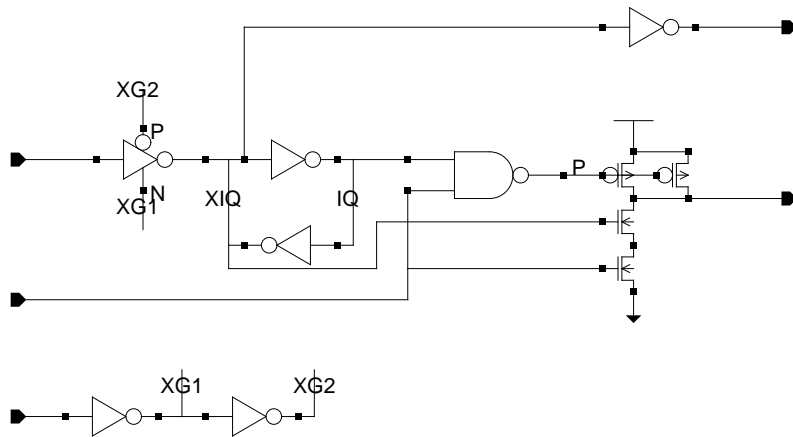
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.436	0.610	0.883	0.398	0.566	0.767
XG	=>	XQ	0.486	0.730	1.037	0.375	0.573	0.824
D	<=	XG	setup time hold time minimum pulse width			0.300	0.540	0.578
D	<=	XG				0.021	0.104	0.049
XG	<=	(low)				0.486	0.876	1.037

macro name	DLNZ	size [um]	21.000 x 15.000
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***Symbol***



## Schematic



## Truth Table

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.570	1.140	1.561	2.100	0.502	0.699	0.926
EN	0.030							
Q								
XG	0.018	0.870	0.767	1.056	1.429	0.723	1.069	1.503
ZQ	0.026							

### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.318	0.439	0.570	0.378	0.547	0.839
XG	=>	Q	0.290	0.440	0.628	0.439	0.680	1.000
D	=>	ZQ	0.447	0.635	0.860	0.491	0.709	1.056
EN	=>	ZQ		tpLZ		0.169	0.170	0.153
EN	=>	ZQ		tpZH		0.316	0.390	0.489
EN	=>	ZQ		tpHZ		0.111	0.173	0.259
EN	=>	ZQ		tpZL		0.179	0.246	0.328
XG	=>	ZQ	0.418	0.636	0.917	0.547	0.839	1.216



**series : TSMC035**

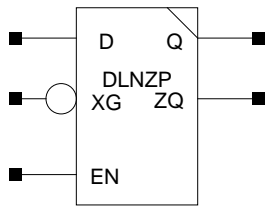
**function : Tri-state Latch,with active low XG**

D	<=	XG	setup time	0.295	0.557	0.643
D	<=	XG	hold time	-0.024	0.055	-0.026
XG		(low)	minimum pulse width	0.547	1.007	1.216

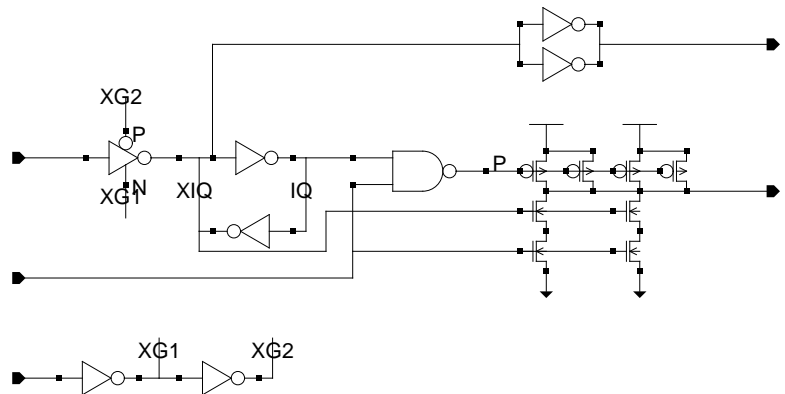
**function : Tri-state Latch,with active low XG powered**

<b>macro name</b>	DLNZP	<b>size [um]</b>	25.500 x 15.000
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***Symbol***



## Schematic



### Truth Table

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.178	0.570	0.781	1.054	0.258	0.363	0.486
EN	0.037							
Q								
XG	0.019							
ZQ	0.065	1.704	0.384	0.529	0.717	0.360	0.541	0.775

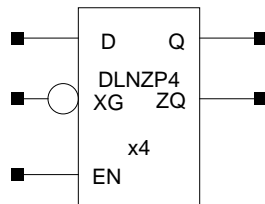
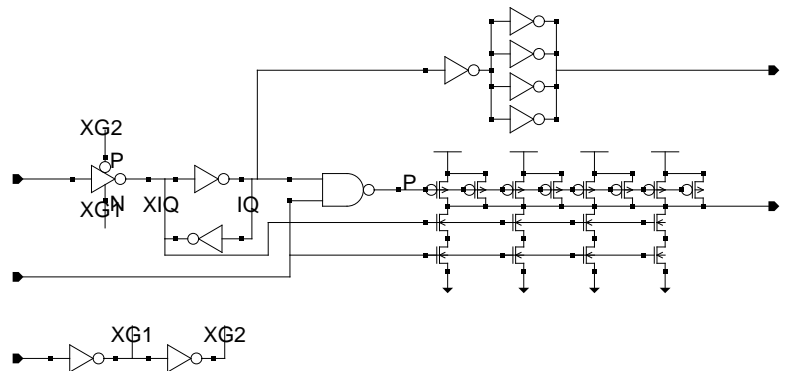
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.356	0.490	0.640	0.417	0.617	0.959
XG	=>	Q	0.319	0.484	0.694	0.485	0.757	1.125
D	=>	ZQ	0.525	0.742	1.004	0.601	0.880	1.313
EN	=>	ZQ		tpLZ		0.165	0.277	0.146
EN	=>	ZQ		tpZH		0.338	0.311	0.539
EN	=>	ZQ		tpHZ		0.166	0.357	0.361
EN	=>	ZQ		tpZL		0.146	0.098	0.304
XG	=>	ZQ	0.483	0.734	1.058	0.664	1.018	1.479
D	<=	XG	setup time			0.390	0.701	0.824
D	<=	XG	hold time			-0.058	0.020	-0.085
XG		(low)	minimum pulse width			0.664	1.222	1.479

series : TSMC035

function : Tri-state Latch,with active low XG x4 powered

macro name	DLNZP4	size [um]	39.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

**Port Characteristic**

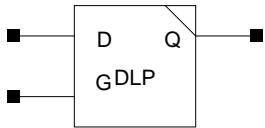
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.019	2.403	0.285	0.391	0.527	0.128	0.179	0.237
EN	0.061							
Q								
XG	0.019	2.812	0.194	0.269	0.365	0.174	0.281	0.433
ZQ	0.113							

**AC Characteristic**

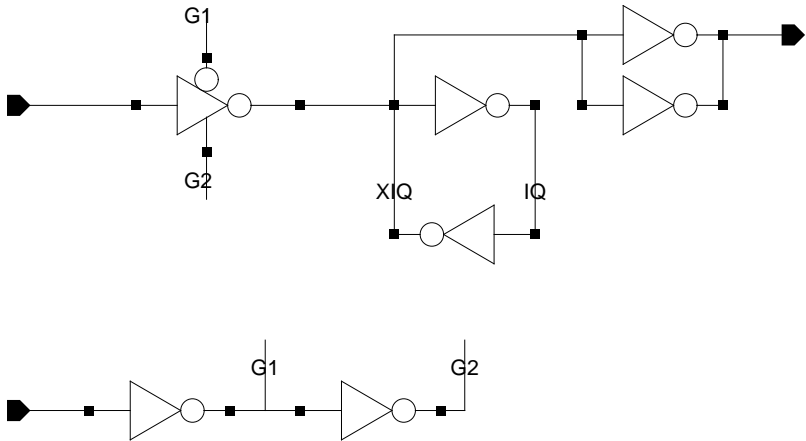
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.489	0.732	1.030	0.546	0.835	1.302
XG	=>	Q	0.463	0.733	1.083	0.606	0.968	1.463
D	=>	ZQ	0.552	0.798	1.098	0.560	0.813	1.201
EN	=>	ZQ		tpLZ		0.161	0.274	0.139
EN	=>	ZQ		tpZH		0.375	0.363	0.617
EN	=>	ZQ		tpHZ		0.274	0.511	0.561
EN	=>	ZQ		tpZL		0.125	0.074	0.290
XG	=>	ZQ	0.520	0.796	1.152	0.617	0.944	1.363
D	<=	XG	setup time			0.345	0.647	0.744
D	<=	XG	hold time			-0.015	0.065	-0.015
XG		(low)	minimum pulse width			0.659	1.210	1.463

macro name	DLP	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

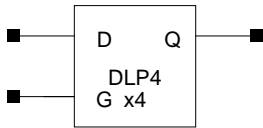
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.185	0.570	0.781	1.052	0.256	0.358	0.476
G	0.018							
Q								

AC Characteristic

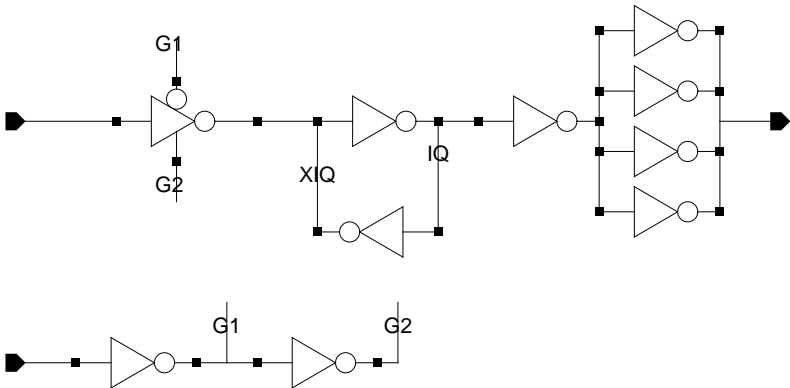
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.336	0.451	0.566	0.391	0.559	0.846
G	=>	Q	0.348	0.496	0.691	0.416	0.622	0.907
D	<=	G	setup time hold time minimum pulse width			0.268	0.517	0.577
D	<=	G				-0.068	0.022	-0.068
G		(high)				0.417	0.747	0.907

macro name	DLP4	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.405	0.286	0.391	0.526	0.128	0.179	0.237
G	0.017							
Q								

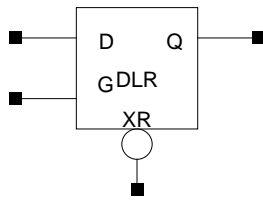
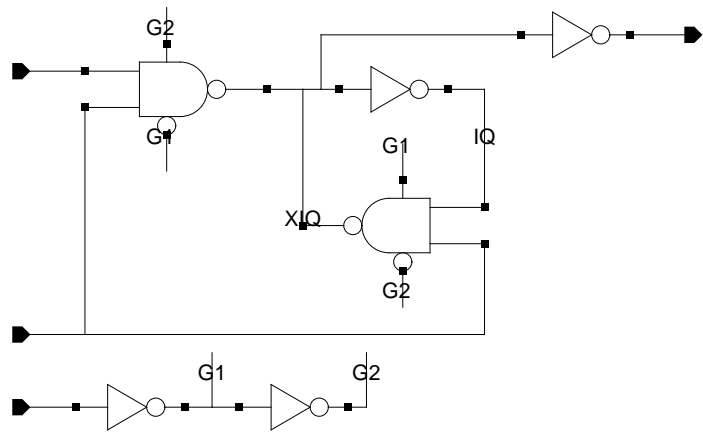
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.409	0.586	0.784	0.459	0.656	0.972
G	=>	Q	0.446	0.652	0.924	0.473	0.709	1.028
D	<=	G	setup time hold time minimum pulse width			0.159	0.352	0.374
D	<=	G				-0.003	0.089	0.039
G		(high)				0.473	0.851	1.028

series : TSMC035

function : D-latch with low reset XR

macro name	DLR	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.568	1.141	1.561	2.102	0.501	0.699	0.927
G	0.018							
Q	0.036							
XR	0.036							

**AC Characteristic**

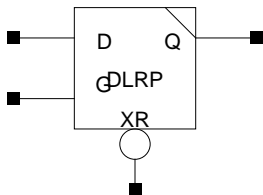
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.331	0.470	0.643	0.327	0.506	0.793
G	=>	Q	0.403	0.583	0.849	0.403	0.591	0.874
XR	=>	Q	0.328	0.454	0.638	0.332	0.508	0.748
D	<=	G	setup time			0.179	0.411	0.495
D	<=	G	hold time			-0.018	0.078	-0.060
XR	<=	G	release time			0.176	0.382	0.384
XR	<=	G	removable time			-0.015	0.091	-0.053
G		(high)	minimum pulse width			0.408	0.709	0.874
XR		(low)	minimum pulse width			0.336	0.613	0.748

series : TSMC035

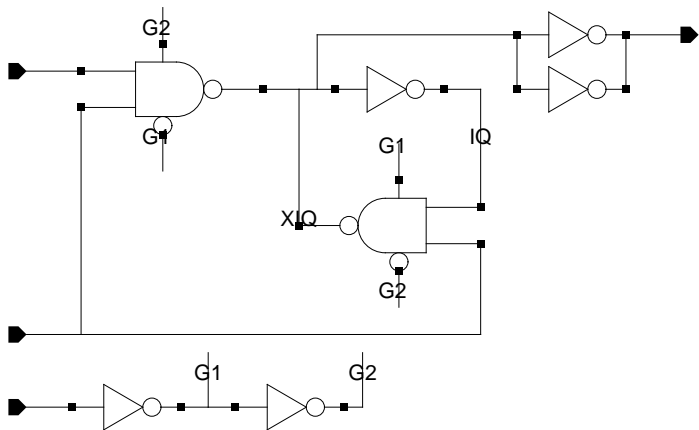
function : D-latch with low reset XR,powered

macro name	DLRP	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.169	0.571	0.783	1.055	0.256	0.361	0.485
G	0.018							
Q	0.034							
XR	0.034							

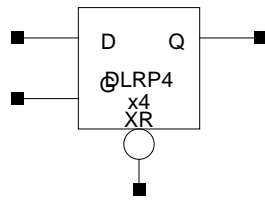
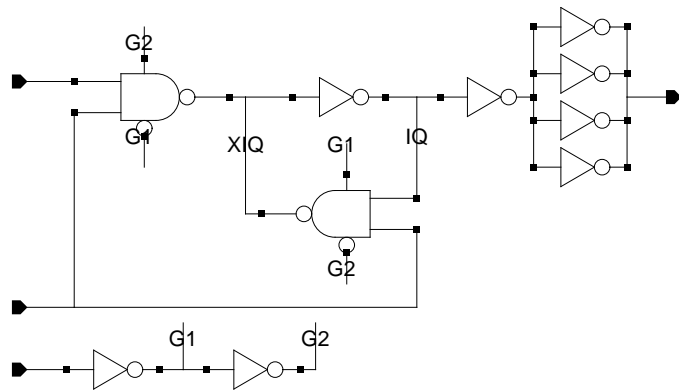
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.363	0.512	0.693	0.347	0.539	0.850
G	=>	Q	0.428	0.619	0.895	0.425	0.629	0.933
XR	=>	Q	0.363	0.499	0.692	0.358	0.549	0.813
D	<=	G	setup time			0.224	0.501	0.611
D	<=	G	hold time			-0.050	0.042	-0.121
XR	<=	G	release time			0.221	0.460	0.471
XR	<=	G	removable time			-0.049	0.054	-0.116
G		(high)	minimum pulse width			0.444	0.775	0.938
XR		(low)	minimum pulse width			0.375	0.682	0.839

series : TSMC035

function : D-latch with low reset XR,x4 powered

macro name	DLRP4	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.405	0.285	0.391	0.526	0.128	0.179	0.237
G	0.018							
Q								
XR	0.033							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.451	0.664	0.933	0.451	0.693	1.059
G	=>	Q	0.535	0.789	1.145	0.521	0.773	1.137
XR	=>	Q	0.444	0.646	0.925	0.451	0.689	1.011
D	<=	G	setup time			0.169	0.388	0.433
D	<=	G	hold time			0.016	0.116	0.003
XR	<=	G	release time			0.160	0.362	0.364
XR	<=	G	removable time			0.023	0.132	0.014
G		(high)	minimum pulse width			0.535	0.947	1.145
XR		(low)	minimum pulse width			0.456	0.831	1.011

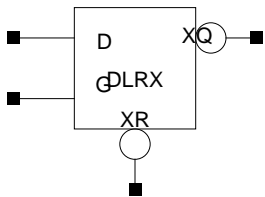


series : TSMC035

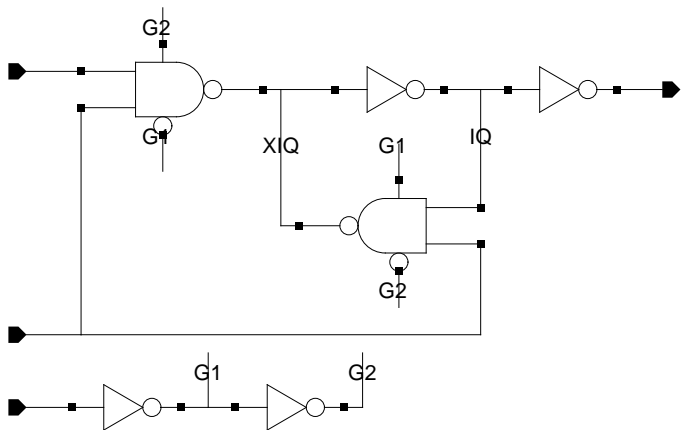
function : D-latch with low reset XR,inverted out

macro name	DLRX	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
D	0.017	0.571	1.140	1.560	2.099	0.498	0.692	0.913							
G	0.018														
XQ	0.033														
XR															

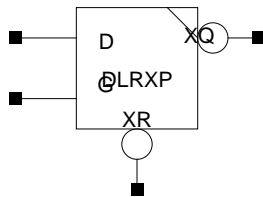
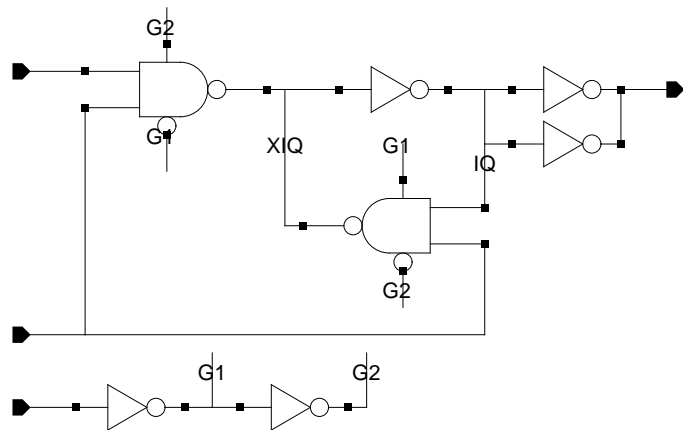
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.352	0.537	0.827	0.365	0.537	0.754
G	=>	XQ	0.422	0.616	0.905	0.450	0.658	0.966
XR	=>	XQ	0.351	0.534	0.779	0.358	0.518	0.747
D	<=	G	setup time			0.168	0.386	0.433
D	<=	G	hold time			0.016	0.116	0.004
XR	<=	G	release time			0.159	0.361	0.363
XR	<=	G	removable time			0.023	0.132	0.014
G		(high)	minimum pulse width			0.450	0.790	0.966
XR		(low)	minimum pulse width			0.355	0.645	0.779

series : TSMC035

function : D-latch with low reset XR,inverted out,powered

macro name	DLRXP	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]									
			min	typ	max	min	typ	max							
D	0.017	1.188	0.570	0.780	1.050	0.251	0.350	0.463							
G	0.018														
XQ															
XR									0.033						

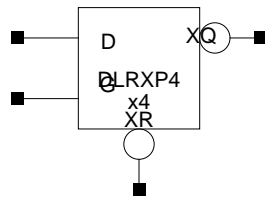
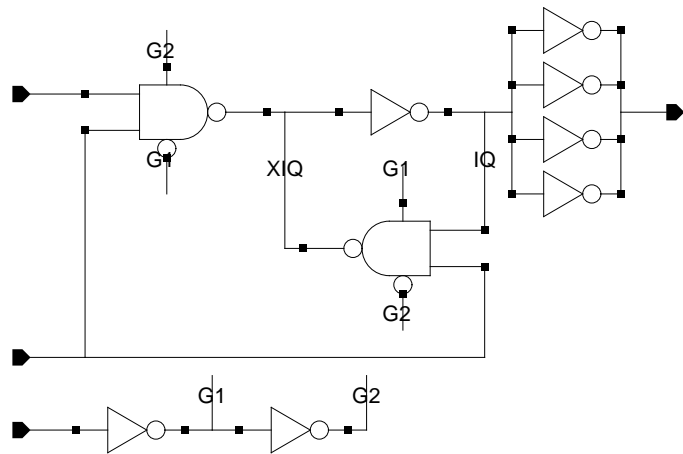
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.374	0.565	0.863	0.383	0.565	0.797
G	=>	XQ	0.443	0.645	0.940	0.469	0.688	1.008
XR	=>	XQ	0.369	0.560	0.813	0.377	0.546	0.789
D	<=	G	setup time			0.201	0.443	0.477
D	<=	G	hold time			0.016	0.116	0.004
XR	<=	G	release time			0.193	0.418	0.429
XR	<=	G	removable time			0.023	0.132	0.013
G		(high)	minimum pulse width			0.469	0.826	1.008
XR		(low)	minimum pulse width			0.375	0.677	0.813

series : TSMC035

function : D-latch with low reset XR,inverted out,x4 powered

macro name	DLRXP4	size [um]	24.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.397	0.285	0.390	0.527	0.131	0.183	0.244
G	0.018							
XQ	0.018							
XR	0.035							

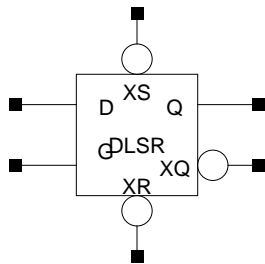
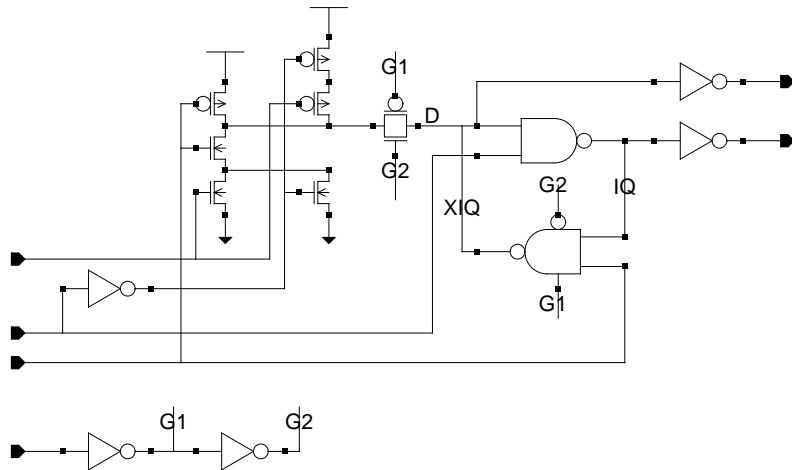
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.421	0.634	0.954	0.436	0.641	0.907
G	=>	XQ	0.491	0.713	1.030	0.515	0.763	1.118
XR	=>	XQ	0.418	0.627	0.901	0.427	0.622	0.899
D	<=	G	setup time			0.271	0.559	0.570
D	<=	G	hold time			0.016	0.116	0.004
XR	<=	G	release time			0.260	0.533	0.560
XR	<=	G	removable time			0.023	0.132	0.014
G		(high)	minimum pulse width			0.515	0.915	1.118
XR		(low)	minimum pulse width			0.423	0.758	0.901

series : TSMC035

function : D-latch with low reset XR and low set XS

macro name	DLSR	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.569	1.140	1.561	2.102	0.502	0.706	0.948
G	0.018							
Q								
XQ		0.570	1.139	1.559	2.100	0.498	0.692	0.915
XR	0.035							
XS	0.034							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.394	0.543	0.725	0.402	0.631	0.974
G	=>	Q	0.346	0.497	0.720	0.330	0.488	0.743
XR	=>	Q	0.289	0.487	0.734	0.267	0.479	0.815
XS	=>	Q	0.365	0.595	0.901	0.469	0.741	1.156
D	=>	XQ	0.564	0.878	1.328	0.480	0.685	0.946
G	=>	XQ	0.468	0.707	1.071	0.437	0.642	0.943
XR	=>	XQ	0.402	0.682	1.109	0.481	0.667	0.920
XS	=>	XQ	0.241	0.657	1.512	0.226	0.338	0.468

**series : TSMC035**

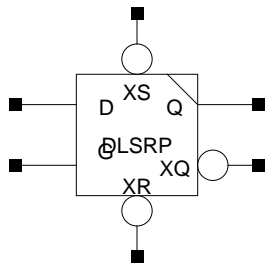
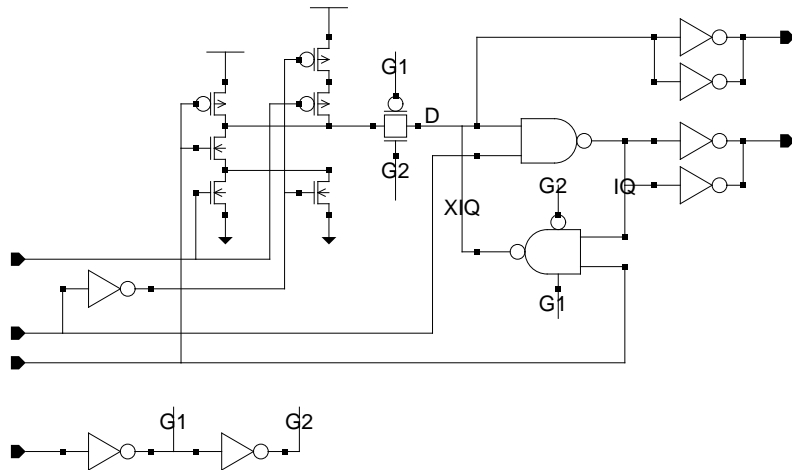
**function : D-latch with low reset XR and low set XS**

D	<=	G	setup time	0.312	0.714	0.857
D	<=	G	hold time	-0.086	0.019	-0.141
XR	<=	G	release time	0.273	0.530	0.523
XR	<=	G	removable time	0.024	0.115	-0.024
XS	<=	G	release time	0.396	0.851	1.033
XS	<=	G	removable time	0.040	0.168	0.088
XS	<=	XR	recovery time	0.502	0.996	1.133
XR	<=	XS	recovery time	0.346	0.654	0.653
G		(high)	minimum pulse width	0.468	0.848	1.071
XR		(low)	minimum pulse width	0.502	0.900	1.109
XS		(low)	minimum pulse width	0.415	0.756	0.901

series : TSMC035

function : D-latch with low reset XR and low set XS,powered

macro name	DLSRP	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.165	0.569	0.781	1.056	0.258	0.372	0.514
G	0.018							
Q								
XQ		1.175	0.566	0.778	1.052	0.251	0.350	0.464
XR	0.037							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.425	0.580	0.767	0.421	0.659	1.016
G	=>	Q	0.366	0.526	0.754	0.332	0.494	0.755
XR	=>	Q	0.321	0.528	0.782	0.279	0.504	0.873
XS	=>	Q	0.388	0.664	1.046	0.489	0.772	1.201
D	=>	XQ	0.675	1.049	1.580	0.546	0.779	1.080
G	=>	XQ	0.564	0.858	1.287	0.491	0.727	1.068
XR	=>	XQ	0.484	0.821	1.335	0.549	0.764	1.056
XS	=>	XQ	0.275	0.763	1.766	0.248	0.369	0.511

**series : TSMC035**

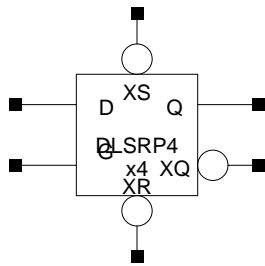
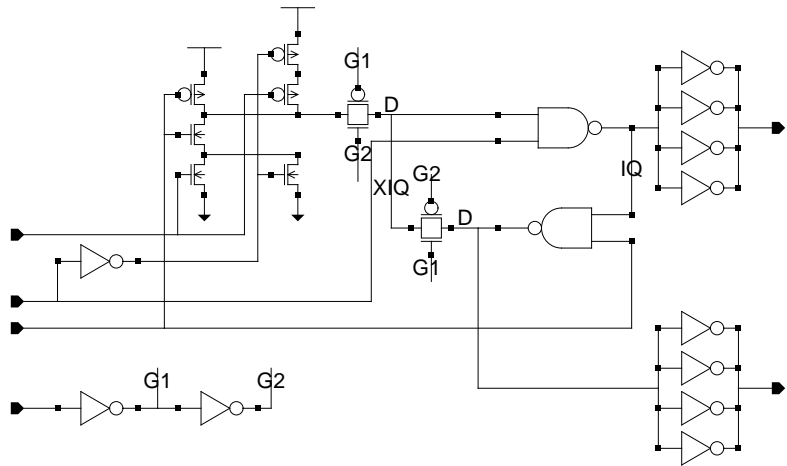
**function : D-latch with low reset XR and low set XS,powered**

D	<=	G	setup time	0.407	0.894	1.084
D	<=	G	hold time	-0.116	-0.012	-0.194
XR	<=	G	release time	0.352	0.665	0.679
XR	<=	G	removable time	-0.008	0.081	-0.083
XS	<=	G	release time	0.490	1.032	1.260
XS	<=	G	removable time	0.010	0.136	0.036
XS	<=	XR	recovery time	0.578	1.166	1.327
XR	<=	XS	recovery time	0.384	0.738	0.737
G		(high)	minimum pulse width	0.564	1.029	1.287
XR		(low)	minimum pulse width	0.603	1.085	1.335
XS		(low)	minimum pulse width	0.492	0.884	1.046

series : TSMC035

function : D-latch with low reset XR and low set XS,x4 powered

macro name	DLSRP4	size [um]	37.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.298	0.282	0.390	0.532	0.129	0.185	0.255
G	0.018							
Q		2.331	0.282	0.389	0.530	0.128	0.181	0.246
XQ								
XR	0.034							
XS	0.034							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.748	1.095	1.543	0.753	1.179	1.781
G	=>	Q	0.714	1.064	1.549	0.673	1.030	1.533
XR	=>	Q	0.314	0.741	1.508	0.312	0.483	0.720
XS	=>	Q	0.499	0.843	1.300	0.845	1.297	1.964
D	=>	XQ	0.590	0.910	1.358	0.501	0.722	1.007
G	=>	XQ	0.510	0.760	1.110	0.470	0.693	1.015
XR	=>	XQ	0.446	0.840	1.415	0.484	0.684	0.972
XS	=>	XQ	0.344	0.737	1.542	0.289	0.439	0.613



**series : TSMC035**

**function : D-latch with low reset XR and low set XS,x4 powered**

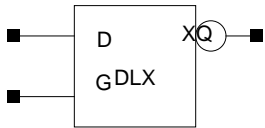
D	<=	G	setup time	0.331	0.749	0.894
D	<=	G	hold time	-0.052	0.055	-0.083
XR	<=	G	release time	0.313	0.602	0.626
XR	<=	G	removable time	-0.037	0.083	-0.048
XS	<=	G	release time	0.419	0.889	1.072
XS	<=	G	removable time	-0.042	0.080	-0.056
XS	<=	XR	recovery time	0.632	1.325	1.559
XR	<=	XS	recovery time	0.524	1.037	1.096
G		(high)	minimum pulse width	0.714	1.277	1.549
XR		(low)	minimum pulse width	0.677	1.199	1.415
XS		(low)	minimum pulse width	0.632	1.116	1.300

series : TSMC035

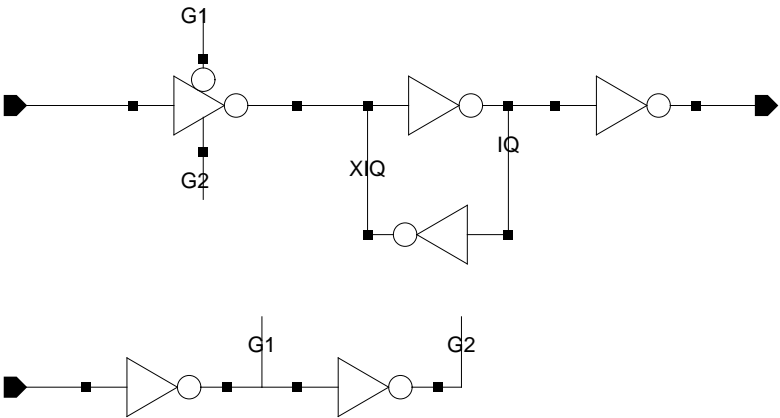
function : D-latch,inverted out

macro name	DLX	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	0.571	1.140	1.560	2.099	0.498	0.691	0.912
G	0.017							
XQ								

AC Characteristic

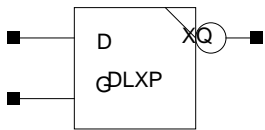
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.359	0.501	0.741	0.325	0.459	0.610
G	=>	XQ	0.372	0.553	0.796	0.363	0.529	0.749
D	<=	G	setup time hold time minimum pulse width			0.160	0.353	0.374
D	<=	G				-0.002	0.091	0.039
G		(high)				0.372	0.664	0.796

series : TSMC035

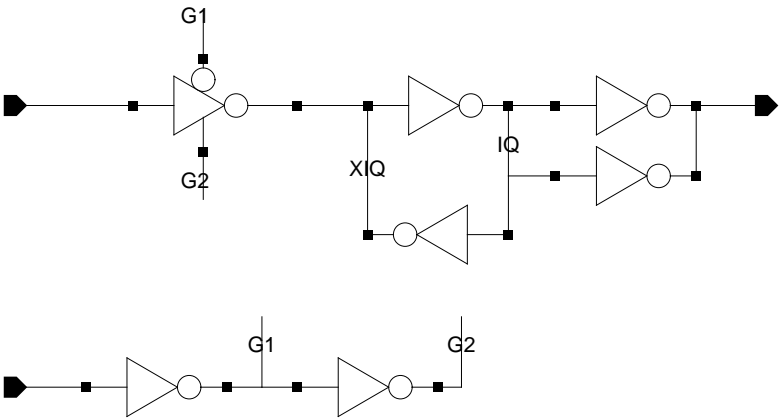
function : D-latch,inverted out,powered

macro name	DLXP	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	1.188	0.570	0.780	1.050	0.251	0.349	0.461
G	0.018							
XQ								

AC Characteristic

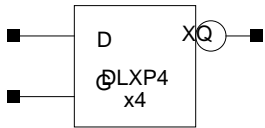
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.418	0.545	0.797	0.322	0.497	0.663
G	=>	XQ	0.402	0.594	0.851	0.387	0.563	0.803
D	<=	G	setup time hold time minimum pulse width			0.219	0.407	0.437
D	<=	G				0.023	0.088	0.035
G		(high)				0.402	0.713	0.851

series : TSMC035

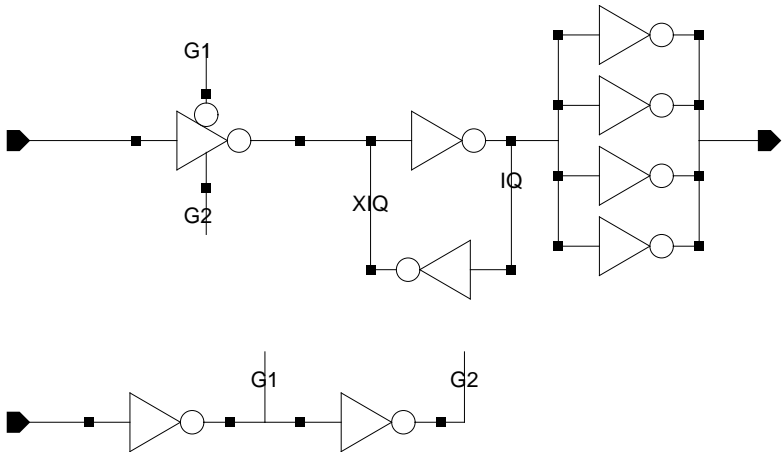
function : D-latch,inverted out,x4 powered

macro name	DLXP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

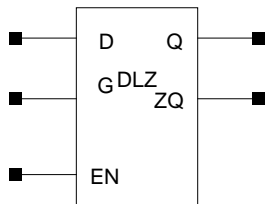
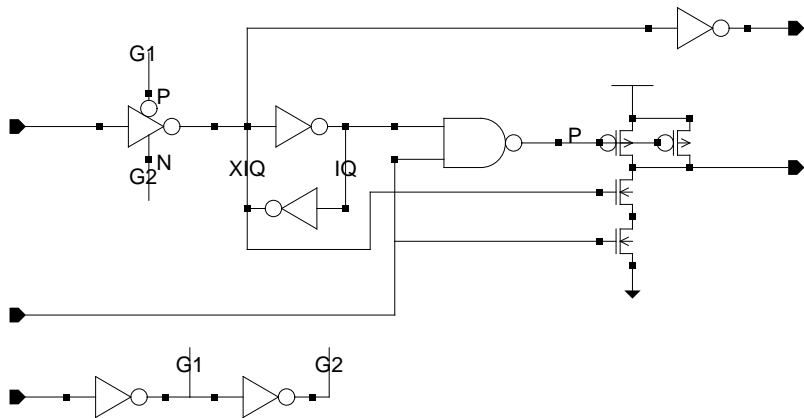
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017	2.399	0.285	0.390	0.526	0.130	0.182	0.242
G	0.017							
XQ								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.466	0.610	0.883	0.368	0.566	0.768
G	=>	XQ	0.449	0.660	0.937	0.432	0.633	0.905
D	<=	G	setup time hold time minimum pulse width			0.255	0.485	0.505
D	<=	G				0.027	0.091	0.039
G		(high)				0.449	0.792	0.937

macro name	DLZ	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	EN	G	Q	ZQ
X	0	0	hold	hiZ
X	1	0	hold	hold
0	0	1	0	hiZ
1	0	1	1	hiZ
0	1	1	0	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017							
EN	0.030							
G	0.018							
Q		0.570	1.140	1.561	2.100	0.502	0.699	0.926
ZQ	0.026	0.870	0.767	1.056	1.429	0.723	1.069	1.503

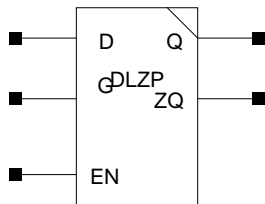
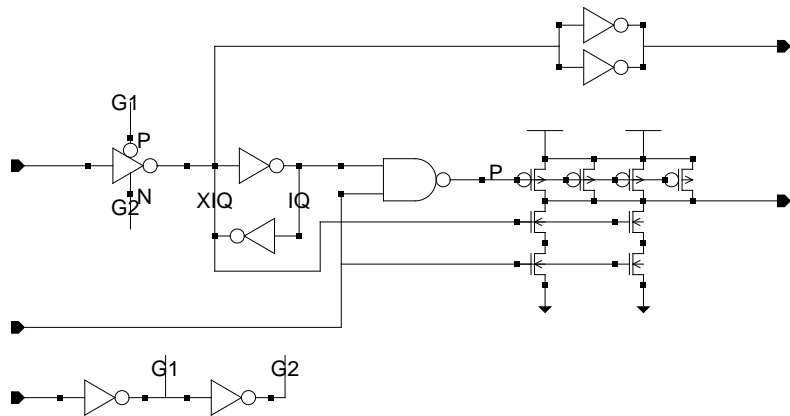
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.318	0.439	0.570	0.378	0.547	0.839
G	=>	Q	0.337	0.488	0.695	0.401	0.609	0.899
D	=>	ZQ	0.447	0.635	0.860	0.491	0.709	1.056
EN	=>	ZQ		tpLZ		0.169	0.170	0.153
EN	=>	ZQ		tpZH		0.316	0.390	0.489
EN	=>	ZQ		tpHZ		0.111	0.173	0.259
EN	=>	ZQ		tpZL		0.179	0.246	0.328
G	=>	ZQ	0.463	0.685	0.985	0.512	0.769	1.114
D	<=	G	setup time			0.239	0.502	0.569
D	<=	G	hold time			-0.048	0.042	-0.036
G		(high)	minimum pulse width			0.512	0.922	1.114

series : TSMC035

function : Tri-state Latch,powered

macro name	DLZP	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	EN	G	Q	ZQ
X	0	0	hold	hiZ
X	1	0	hold	hold
0	0	1	0	hiZ
1	0	1	1	hiZ
0	1	1	0	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.017							
EN	0.037							
G	0.018							
Q		1.178	0.570	0.782	1.054	0.258	0.363	0.486
ZQ	0.065	1.704	0.384	0.529	0.717	0.360	0.542	0.775

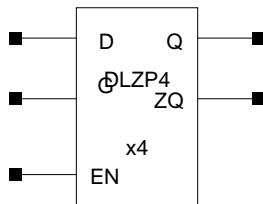
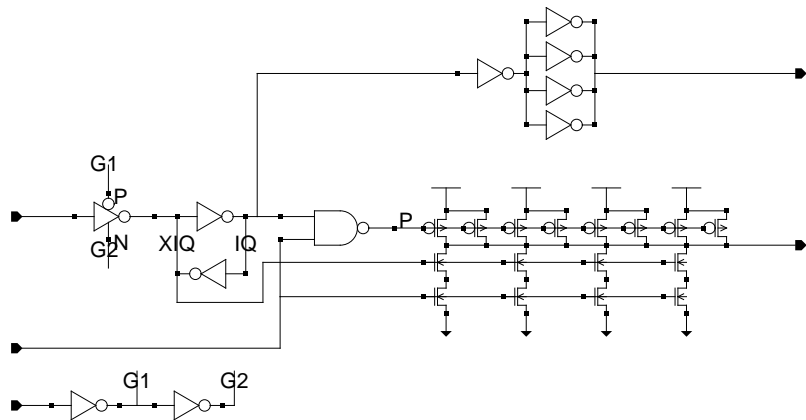
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.356	0.490	0.639	0.417	0.617	0.958
G	=>	Q	0.362	0.527	0.756	0.448	0.686	1.023
D	=>	ZQ	0.524	0.742	1.004	0.600	0.879	1.312
EN	=>	ZQ		tpLZ		0.165	0.277	0.146
EN	=>	ZQ		tpZH		0.338	0.311	0.539
EN	=>	ZQ		tpHZ		0.166	0.357	0.361
EN	=>	ZQ		tpZL		0.146	0.098	0.304
G	=>	ZQ	0.524	0.777	1.120	0.630	0.948	1.377
D	<=	G		setup time		0.334	0.646	0.750
D	<=	G		hold time		-0.082	0.006	-0.094
G		(high)		minimum pulse width		0.630	1.138	1.377

series : TSMC035

function : Tri-state Latch,x4 powered

macro name	DLZP4	size [um]	39.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	EN	G	Q	ZQ
X	0	0	hold	hiZ
X	1	0	hold	hold
0	0	1	0	hiZ
1	0	1	1	hiZ
0	1	1	0	0
1	1	1	1	1

**Port Characteristic**

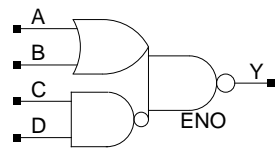
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020							
EN	0.061							
G	0.018							
Q		2.403	0.285	0.391	0.527	0.128	0.179	0.237
ZQ	0.113	2.813	0.194	0.269	0.365	0.174	0.281	0.433

**AC Characteristic**

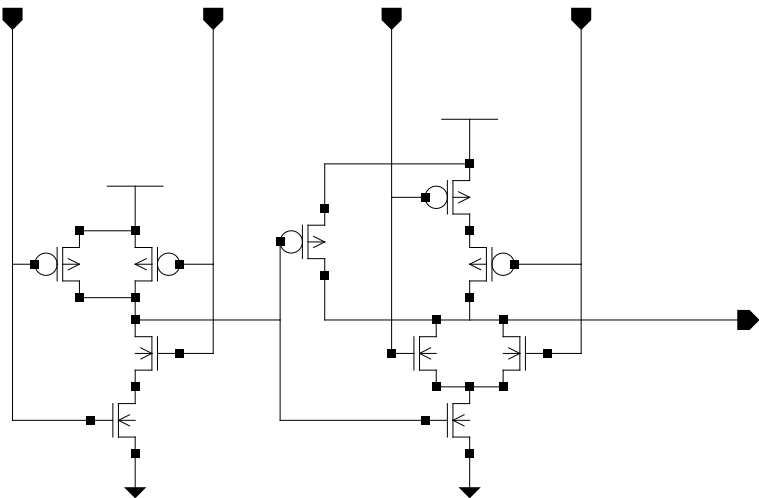
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.489	0.732	1.030	0.546	0.835	1.302
G	=>	Q	0.512	0.779	1.148	0.571	0.896	1.362
D	=>	ZQ	0.552	0.798	1.098	0.560	0.813	1.201
EN	=>	ZQ		tpLZ		0.161	0.274	0.139
EN	=>	ZQ		tpZH		0.375	0.363	0.617
EN	=>	ZQ		tpHZ		0.274	0.511	0.561
EN	=>	ZQ		tpZL		0.125	0.074	0.290
G	=>	ZQ	0.562	0.841	1.217	0.582	0.873	1.261
D	<=	G	setup time			0.289	0.592	0.671
D	<=	G	hold time			-0.039	0.051	-0.025
G		(high)	minimum pulse width			0.624	1.125	1.362

macro name	ENO	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.214	1.141	2.283	4.151	0.561	0.944	1.504
B	0.022							
C	0.017							
D	0.016							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.152	0.196	0.258	0.168	0.225	0.286
B	=>	Y	0.154	0.193	0.273	0.153	0.222	0.287
C	=>	Y	0.234	0.355	0.480	0.206	0.284	0.436
D	=>	Y	0.244	0.363	0.485	0.215	0.301	0.473

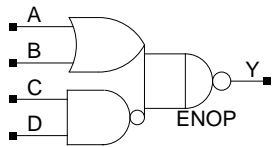


series : TSMC035

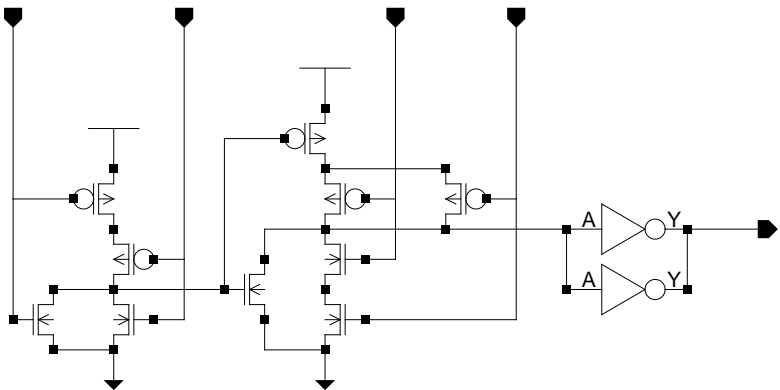
function : 2-wide 2-2-2-inputs OR-NAND-NAND,powered

macro name	ENOP	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

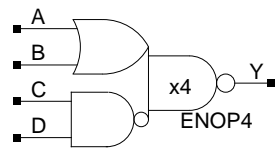
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	1.187	0.570	0.781	1.051	0.253	0.354	0.471
B	0.023							
C	0.023							
D	0.022							
Y								

AC Characteristic

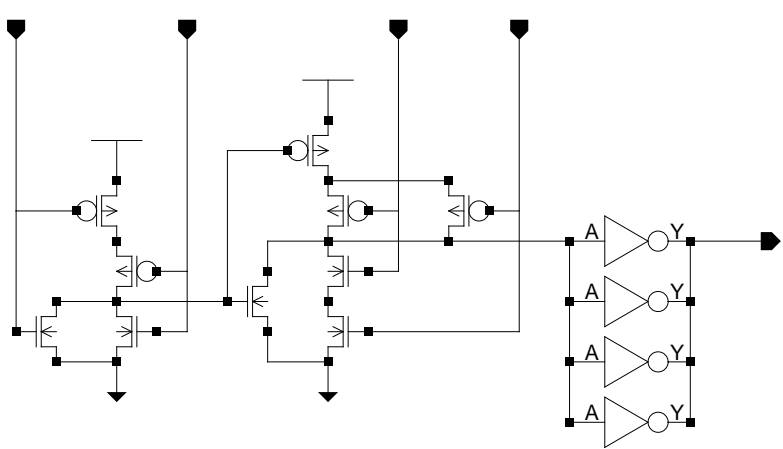
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.271	0.407	0.594	0.317	0.524	0.841
B	=>	Y	0.283	0.410	0.617	0.314	0.537	0.853
C	=>	Y	0.258	0.350	0.453	0.241	0.346	0.497
D	=>	Y	0.260	0.352	0.446	0.253	0.373	0.562

macro name	ENOP4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.388	0.285	0.391	0.528	0.133	0.190	0.258
B	0.023							
C	0.023							
D	0.022							
Y								

AC Characteristic

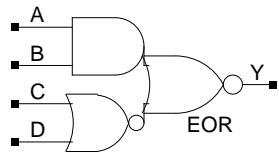
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.308	0.455	0.657	0.367	0.614	0.991
B	=>	Y	0.322	0.460	0.679	0.363	0.626	1.003
C	=>	Y	0.335	0.445	0.566	0.314	0.455	0.657
D	=>	Y	0.325	0.433	0.544	0.319	0.473	0.711

series : TSMC035

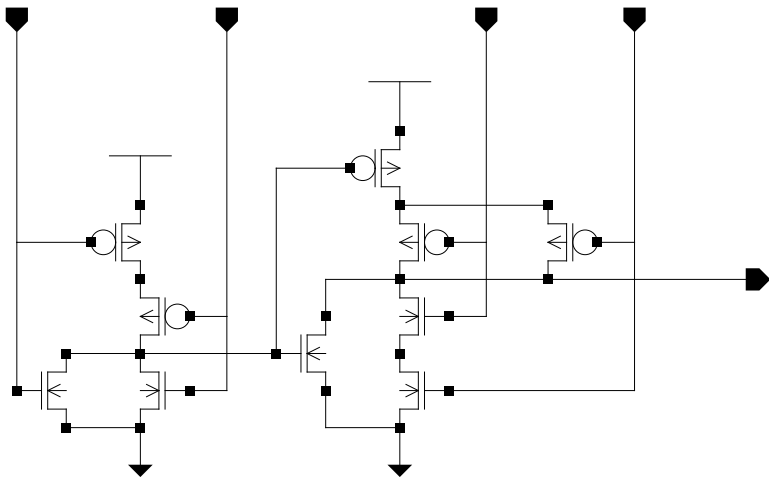
function : 2-wide 2-2-2-inputs AND-NOR-NOR

macro name	EOR	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.244	1.608	2.652	4.165	0.499	0.879	1.485
B	0.022							
C	0.022							
D	0.022							
Y								

AC Characteristic

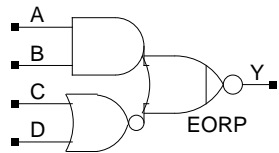
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.149	0.192	0.250	0.169	0.225	0.287
B	=>	Y	0.166	0.225	0.314	0.165	0.215	0.273
C	=>	Y	0.236	0.378	0.591	0.207	0.311	0.460
D	=>	Y	0.232	0.385	0.601	0.218	0.317	0.482

series : TSMC035

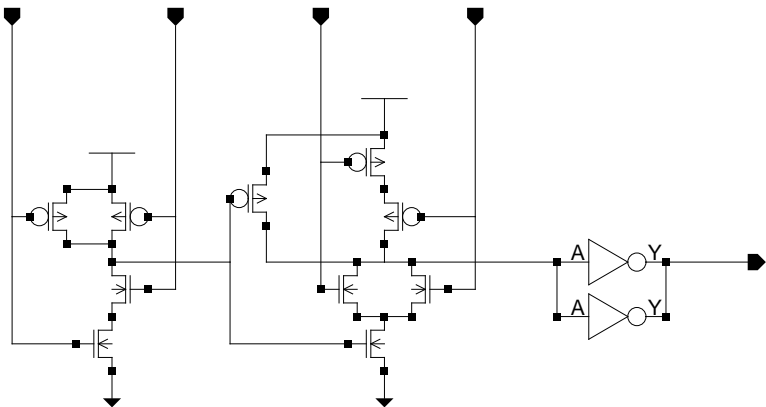
function : 2-wide 2-2-2-inputs AND-NOR-NOR,powered

macro name	EORP	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

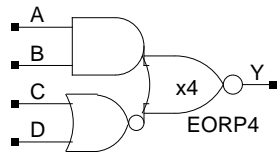
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.015	1.186	0.571	0.781	1.052	0.251	0.351	0.468
B	0.015							
C	0.023							
D	0.025							
Y								

AC Characteristic

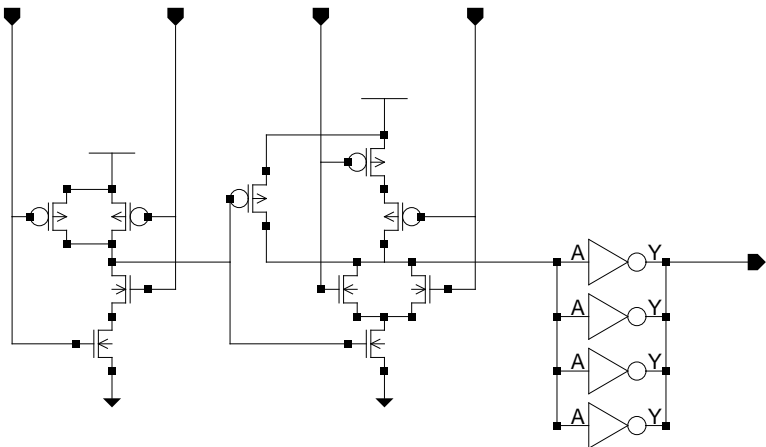
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.277	0.429	0.614	0.297	0.431	0.643
B	=>	Y	0.287	0.449	0.647	0.305	0.433	0.647
C	=>	Y	0.259	0.351	0.453	0.243	0.349	0.505
D	=>	Y	0.253	0.363	0.465	0.249	0.347	0.521

macro name	EORP4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.016	2.379	0.285	0.392	0.529	0.129	0.185	0.254
B	0.015							
C	0.023							
D	0.022							
Y								

AC Characteristic

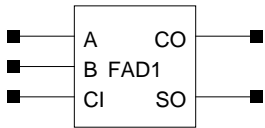
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.312	0.482	0.696	0.332	0.483	0.718
B	=>	Y	0.322	0.502	0.728	0.339	0.485	0.721
C	=>	Y	0.336	0.446	0.566	0.317	0.459	0.665
D	=>	Y	0.324	0.450	0.570	0.320	0.451	0.677

series : TSMC035

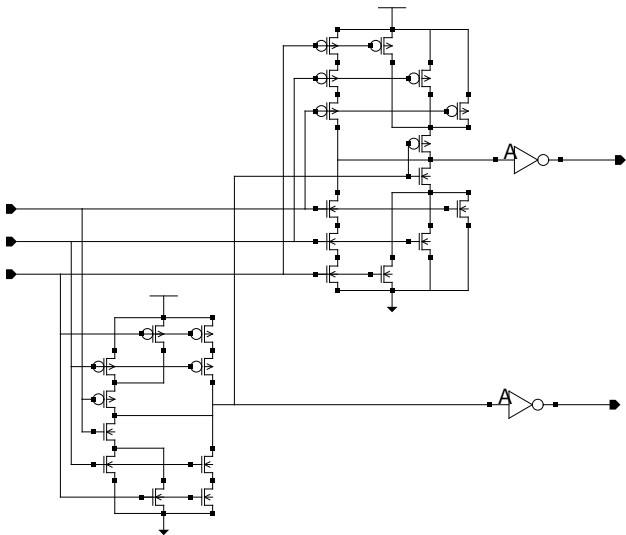
function : 1-bit full adder

macro name	FAD1	size [um]	24.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.075							
B	0.081							
CI	0.054							
CO		0.569	1.141	1.561	2.102	0.502	0.699	0.928
SO		0.568	1.139	1.560	2.102	0.500	0.698	0.928

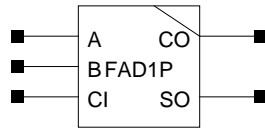
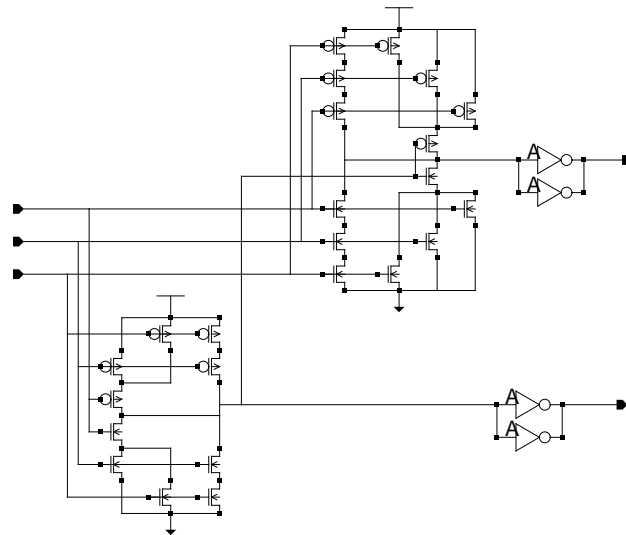
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.247	0.419	0.636	0.226	0.417	0.683
B	=>	CO	0.305	0.424	0.555	0.264	0.400	0.629
CI	=>	CO	0.305	0.437	0.584	0.296	0.420	0.617
A	=>	SO	0.231	0.526	0.966	0.206	0.526	0.911
B	=>	SO	0.270	0.517	0.944	0.238	0.517	0.854
CI	=>	SO	0.187	0.534	0.951	0.160	0.519	0.898

series : TSMC035

function : 1-bit full adder,powered

macro name	FAD1P	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.083							
B	0.078							
CI	0.051							
CO		1.172	0.571	0.782	1.054	0.257	0.361	0.484
SO		1.171	0.568	0.780	1.054	0.254	0.359	0.485

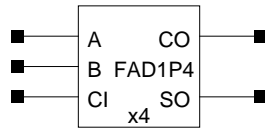
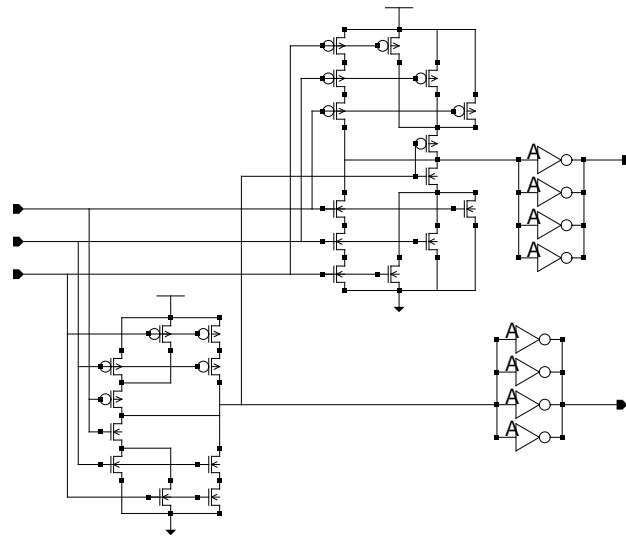
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.276	0.454	0.676	0.244	0.443	0.722
B	=>	CO	0.332	0.455	0.590	0.279	0.423	0.667
CI	=>	CO	0.338	0.475	0.626	0.314	0.447	0.662
A	=>	SO	0.264	0.611	1.146	0.228	0.592	1.034
B	=>	SO	0.302	0.599	1.123	0.256	0.579	0.980
CI	=>	SO	0.223	0.624	1.139	0.189	0.590	1.035

series : TSMC035

function : 1-bit full adder,x4 powered

macro name	FAD1P4	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.072							
B	0.092							
CI	0.052							
CO		2.339	0.286	0.394	0.533	0.139	0.199	0.272
SO		2.279	0.279	0.389	0.533	0.135	0.198	0.279

**AC Characteristic**

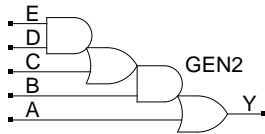
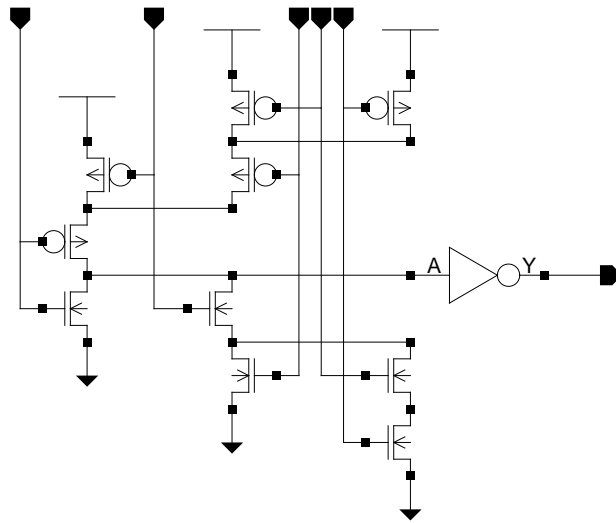
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.345	0.544	0.792	0.310	0.542	0.867
B	=>	CO	0.398	0.541	0.701	0.339	0.517	0.810
CI	=>	CO	0.415	0.570	0.745	0.382	0.548	0.810
A	=>	SO	0.336	0.803	1.547	0.298	0.765	1.345
B	=>	SO	0.374	0.786	1.523	0.318	0.747	1.288
CI	=>	SO	0.300	0.820	1.550	0.265	0.768	1.352



series : TSMC035

function : 2-stage generation

macro name	GEN2	size [um]	12.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	0.565	1.140	1.561	2.104	0.498	0.699	0.934
B	0.022							
C	0.024							
D	0.025							
E	0.021							
Y								

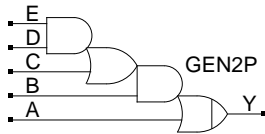
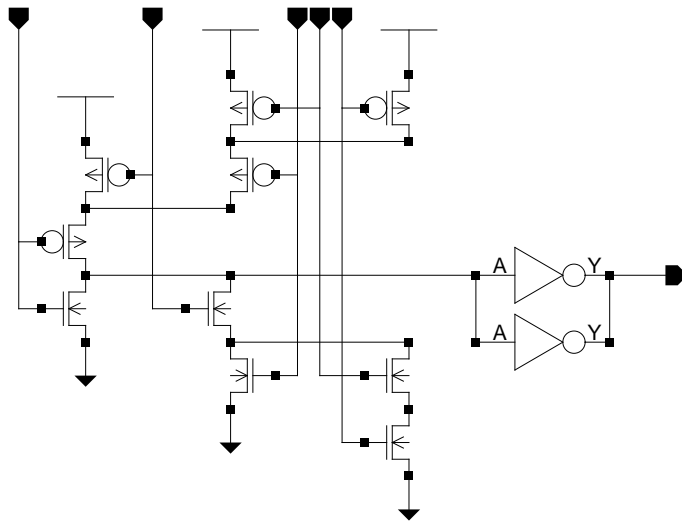
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.198	0.298	0.418	0.148	0.389	0.808
B	=>	Y	0.185	0.361	0.579	0.226	0.349	0.563
C	=>	Y	0.264	0.389	0.524	0.272	0.497	0.911
D	=>	Y	0.323	0.461	0.608	0.337	0.537	0.891
E	=>	Y	0.323	0.467	0.612	0.350	0.567	0.971

series : TSMC035

function : 2-stage generation,powered

macro name	GEN2P	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	1.163	0.571	0.782	1.057	0.252	0.360	0.493
B	0.026							
C	0.025							
D	0.022							
E	0.021							
Y								

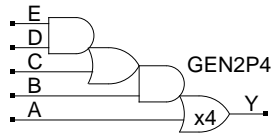
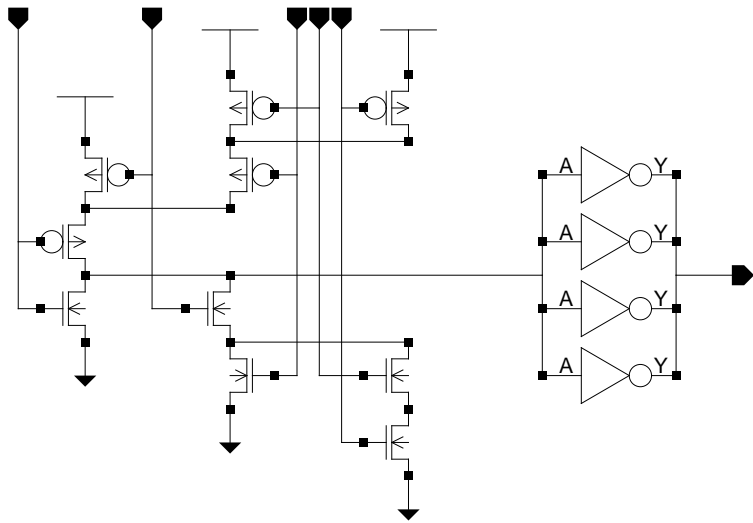
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.230	0.328	0.441	0.176	0.427	0.870
B	=>	Y	0.217	0.400	0.624	0.254	0.390	0.625
C	=>	Y	0.292	0.418	0.552	0.294	0.534	0.976
D	=>	Y	0.354	0.498	0.648	0.363	0.581	0.964
E	=>	Y	0.350	0.498	0.649	0.370	0.606	1.038

series : TSMC035

function : 2-stage generation,x4 powered

macro name	GEN2P4	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	2.292	0.286	0.393	0.535	0.132	0.199	0.288
B	0.023							
C	0.023							
D	0.022							
E	0.022							
Y								

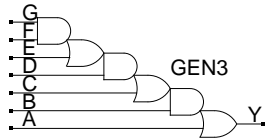
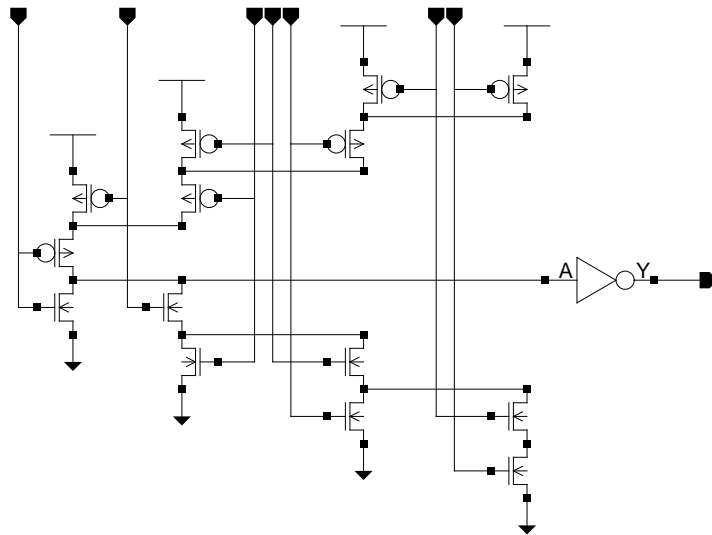
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.296	0.403	0.520	0.240	0.547	1.089
B	=>	Y	0.285	0.494	0.758	0.328	0.500	0.794
C	=>	Y	0.356	0.496	0.647	0.368	0.669	1.203
D	=>	Y	0.431	0.597	0.776	0.454	0.732	1.198
E	=>	Y	0.420	0.593	0.773	0.456	0.753	1.268

series : TSMC035

function : 3-stage generation

macro name	GEN3	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	0.550	1.140	1.564	2.112	0.498	0.708	0.961
B	0.026							
C	0.024							
D	0.026							
E	0.023							
F	0.021							
G	0.021							
Y								

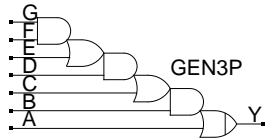
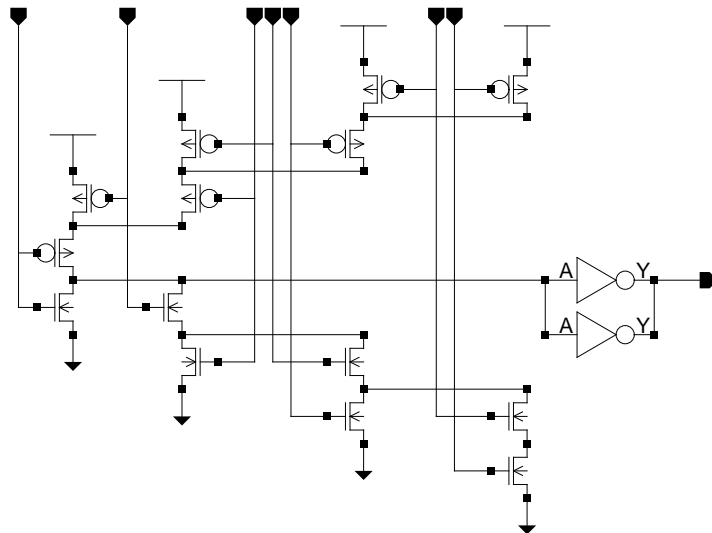
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.210	0.308	0.439	0.137	0.499	1.140
B	=>	Y	0.165	0.398	0.710	0.239	0.376	0.604
C	=>	Y	0.283	0.427	0.585	0.262	0.623	1.336
D	=>	Y	0.279	0.484	0.770	0.343	0.589	1.009
E	=>	Y	0.356	0.518	0.704	0.403	0.786	1.495
F	=>	Y	0.428	0.594	0.821	0.484	0.866	1.465
G	=>	Y	0.424	0.598	0.834	0.504	0.916	1.572

series : TSMC035

function : 3-stage generation,powered

macro name	GEN3P	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	1.115	0.571	0.785	1.066	0.252	0.372	0.527
B	0.025							
C	0.024							
D	0.024							
E	0.023							
F	0.021							
G	0.023							
Y								

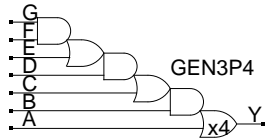
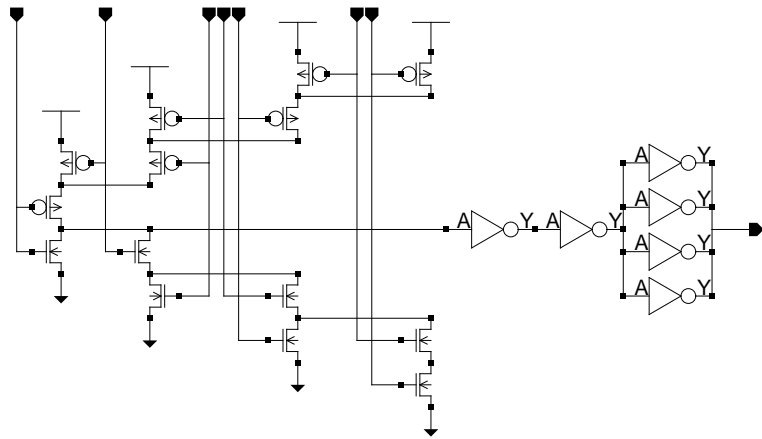
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.242	0.336	0.456	0.164	0.542	1.220
B	=>	Y	0.197	0.438	0.763	0.267	0.419	0.673
C	=>	Y	0.312	0.456	0.612	0.287	0.668	1.422
D	=>	Y	0.310	0.523	0.821	0.371	0.637	1.086
E	=>	Y	0.383	0.550	0.740	0.429	0.836	1.584
F	=>	Y	0.460	0.634	0.869	0.515	0.924	1.559
G	=>	Y	0.452	0.636	0.882	0.532	0.970	1.662

series : TSMC035

function : 3-stage generation,x4 powered

macro name	GEN3P4	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

**Port Characteristic**

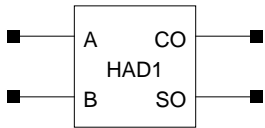
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.404	0.285	0.391	0.527	0.128	0.179	0.237
B	0.026							
C	0.023							
D	0.026							
E	0.025							
F	0.024							
G	0.024							
Y								

**AC Characteristic**

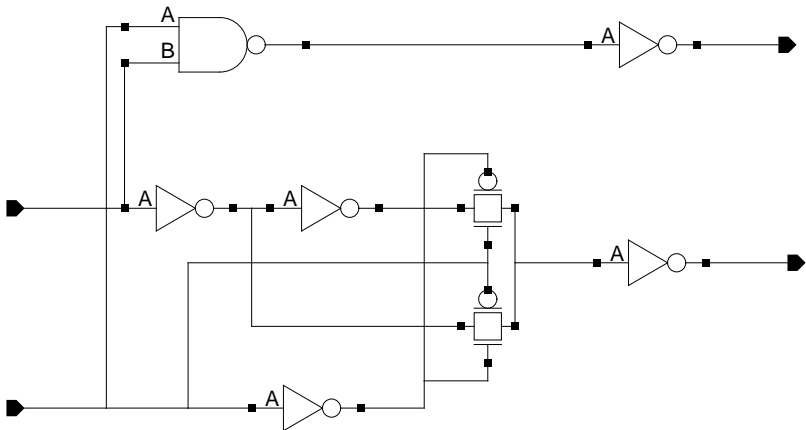
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.338	0.503	0.723	0.281	0.729	1.475
B	=>	Y	0.295	0.595	0.990	0.382	0.599	0.932
C	=>	Y	0.411	0.626	0.872	0.406	0.849	1.672
D	=>	Y	0.406	0.678	1.052	0.488	0.815	1.336
E	=>	Y	0.482	0.714	0.987	0.548	1.014	1.832
F	=>	Y	0.555	0.783	1.101	0.631	1.098	1.800
G	=>	Y	0.549	0.787	1.114	0.652	1.150	1.909

macro name	HAD1	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052	0.570 0.571	1.141 1.140	1.560 1.560	2.099 2.100	0.498 0.499	0.691 0.695	0.913 0.920
B	0.036							
CO								
SO								

AC Characteristic

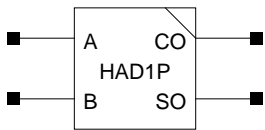
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.209	0.282	0.387	0.183	0.267	0.366
B	=>	CO	0.188	0.267	0.370	0.222	0.307	0.426
A	=>	SO	0.213	0.307	0.448	0.199	0.320	0.494
B	=>	SO	0.279	0.435	0.608	0.257	0.427	0.661

series : TSMC035

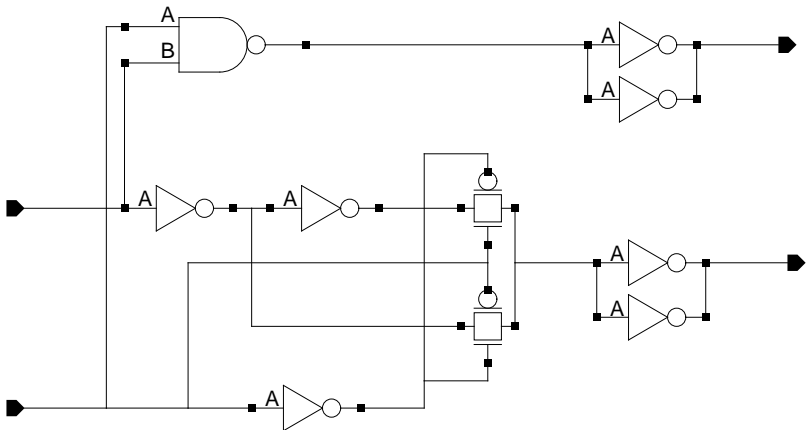
function : 1-bit half adder,powered

macro name	HAD1P	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.050							
B	0.036							
CO		1.186	0.571	0.781	1.051	0.251	0.349	0.462
SO		1.185	0.571	0.781	1.052	0.254	0.355	0.473

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.255	0.337	0.451	0.218	0.314	0.429
B	=>	CO	0.223	0.310	0.421	0.249	0.345	0.479
A	=>	SO	0.231	0.342	0.476	0.205	0.339	0.524
B	=>	SO	0.298	0.463	0.638	0.267	0.440	0.683

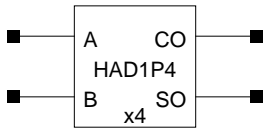


series : TSMC035

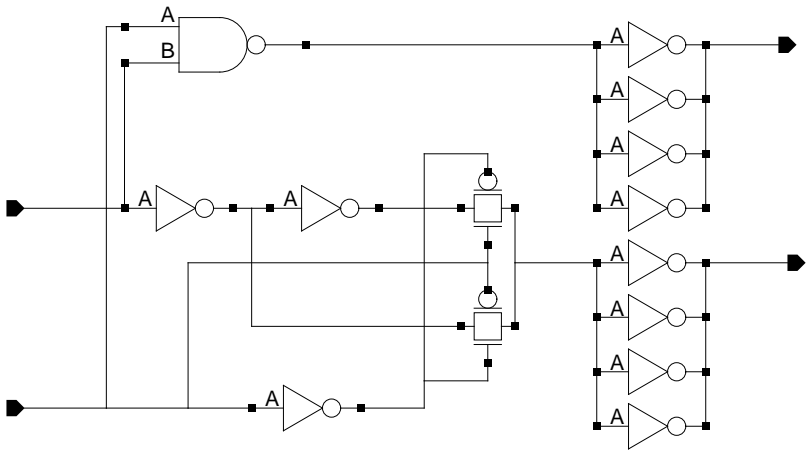
function : 1-bit half adder,x4 powered

macro name	HAD1P4	size [um]	27.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

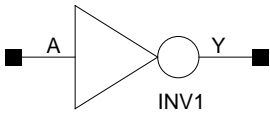
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.049							
B	0.038							
CO		2.375	0.286	0.392	0.529	0.130	0.182	0.243
SO		2.357	0.286	0.392	0.530	0.135	0.192	0.260

AC Characteristic

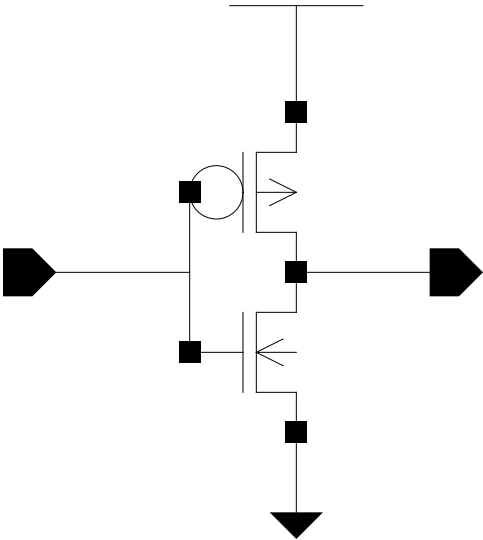
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.341	0.446	0.588	0.287	0.410	0.563
B	=>	CO	0.299	0.406	0.543	0.308	0.431	0.602
A	=>	SO	0.277	0.418	0.573	0.236	0.397	0.618
B	=>	SO	0.345	0.536	0.729	0.311	0.502	0.771

macro name	INV1	size [um]	3.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.022	0.594	1.140	1.560	2.099	0.497	0.690	0.910

AC Characteristic

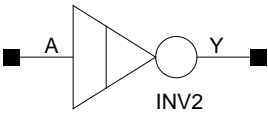
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.124	0.157	0.194	0.113	0.152	0.208

series : TSMC035

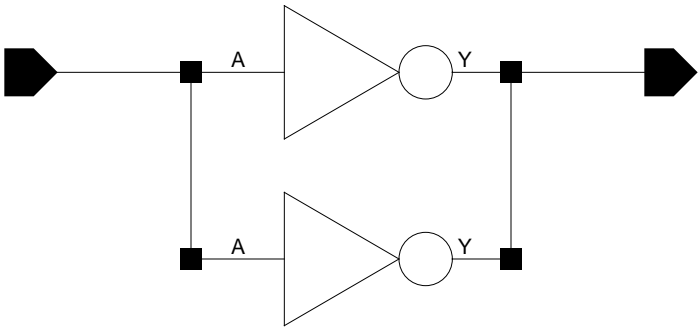
function : Inverter x 2

macro name	INV2	size [um]	4.500 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

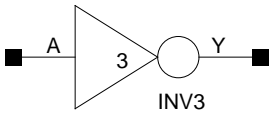
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.045	1.200	0.570	0.780	1.050	0.249	0.345	0.455

AC Characteristic

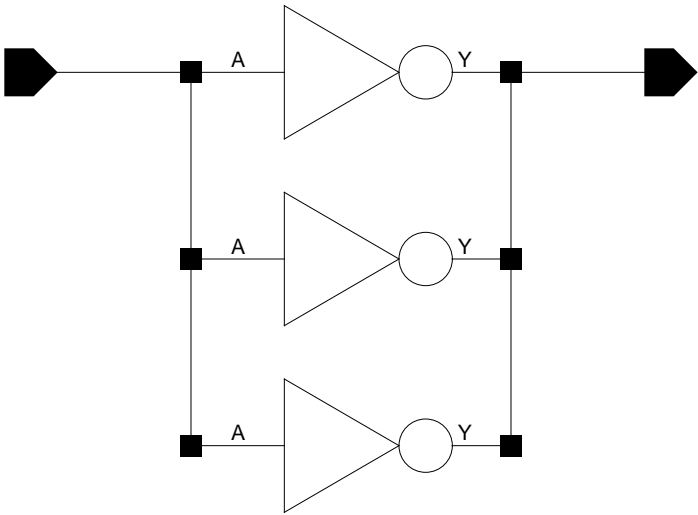
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.098	0.126	0.155	0.073	0.104	0.151

macro name	INV3	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

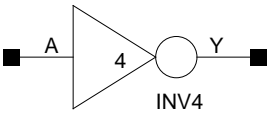
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.065	1.796	0.381	0.521	0.701	0.167	0.231	0.304

AC Characteristic

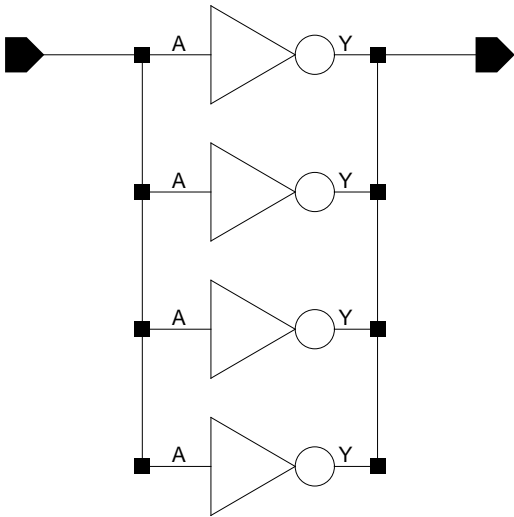
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.094	0.123	0.153	0.065	0.094	0.141

macro name	INV4	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

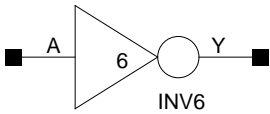
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.089	2.414	0.285	0.391	0.526	0.125	0.173	0.228

AC Characteristic

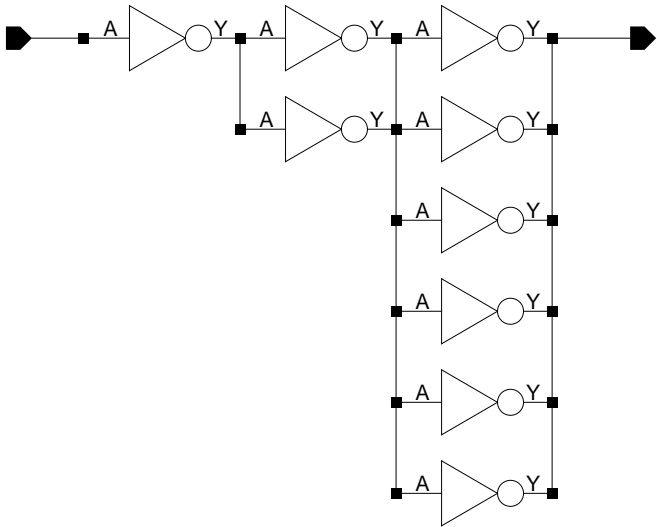
delay time from pin to pin	tpdr0 [nsec]			tpdf0 [nsec]		
	min	typ	max	min	typ	max
A => Y	0.084	0.110	0.136	0.054	0.081	0.124

macro name	INV6	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

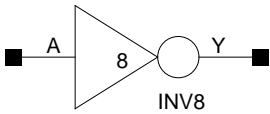
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.022	3.630	0.191	0.261	0.351	0.086	0.120	0.159

AC Characteristic

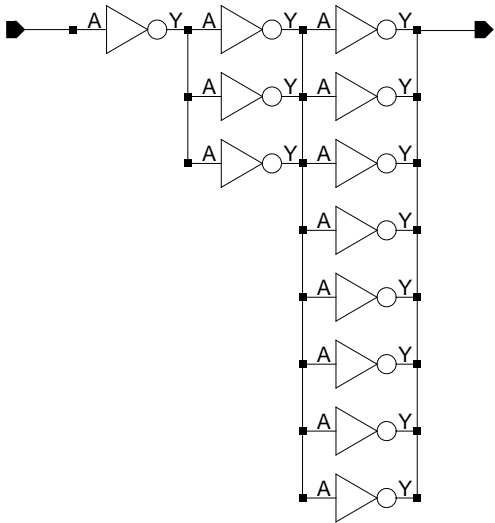
delay time from pin to pin	tpdr0 [nsec]			tpdf0 [nsec]		
	min	typ	max	min	typ	max
A ==> Y	0.256	0.379	0.498	0.261	0.355	0.514

macro name	INV8	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A Y	0.024	4.842	0.143	0.196	0.264	0.065	0.091	0.121

AC Characteristic

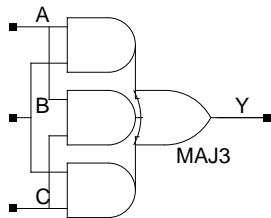
delay time from pin to pin	tpdr0 [nsec]			tpdf0 [nsec]		
	min	typ	max	min	typ	max
A => Y	0.287	0.421	0.560	0.288	0.387	0.551

series : TSMC035

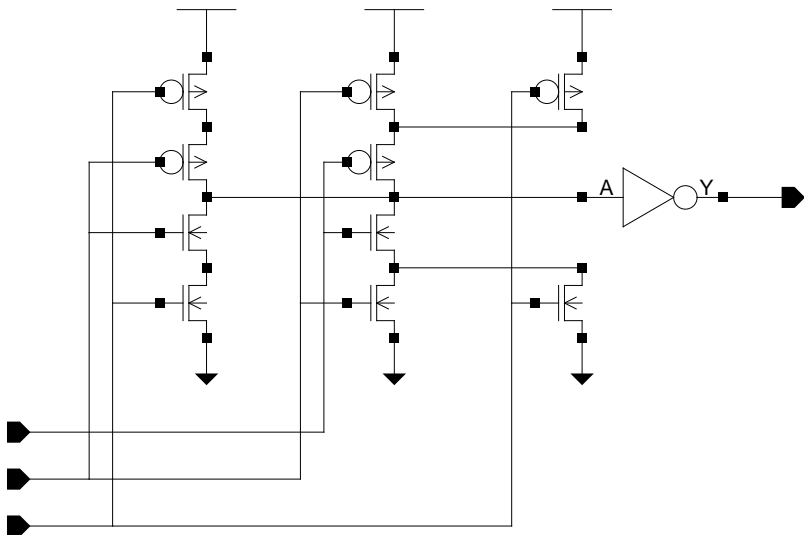
function : 2-of3 majority

macro name	MAJ3	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	0.569	1.140	1.560	2.101	0.500	0.696	0.923
B	0.042							
C	0.039							
Y								

AC Characteristic

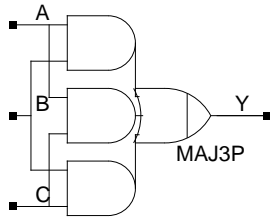
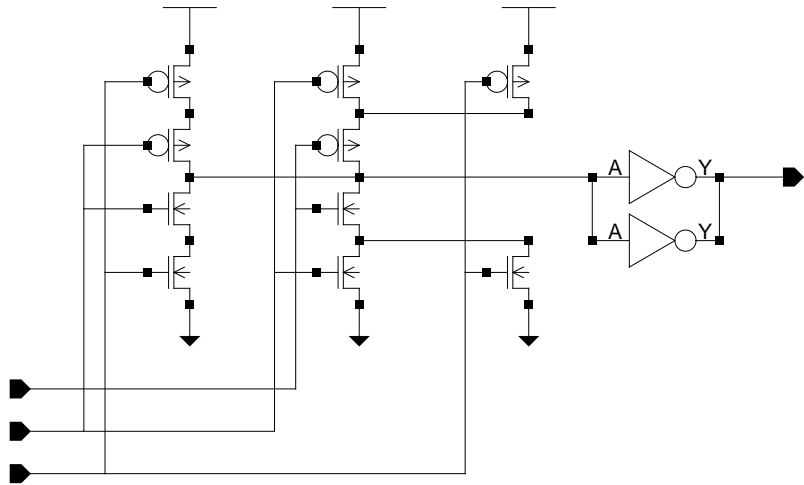
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.269	0.381	0.520	0.238	0.350	0.513
B	=>	Y	0.202	0.370	0.564	0.183	0.347	0.586
C	=>	Y	0.252	0.360	0.481	0.240	0.353	0.544



series : TSMC035

function : 2-of3 majority,powered

macro name	MAJ3P	size [um]	12.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	1.182	0.570	0.781	1.052	0.254	0.357	0.477
B	0.041							
C	0.045							
Y								

**AC Characteristic**

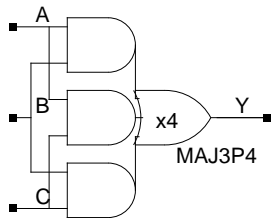
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.308	0.428	0.572	0.264	0.388	0.573
B	=>	Y	0.235	0.411	0.614	0.210	0.383	0.641
C	=>	Y	0.283	0.398	0.524	0.263	0.385	0.595

series : TSMC035

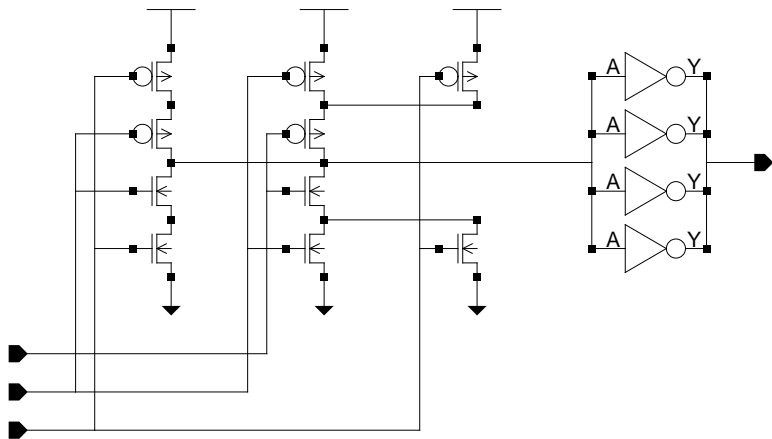
function : 2-of3 majority,x4 powered

macro name	MAJ3P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.354	0.285	0.392	0.530	0.136	0.194	0.265
B	0.045							
C	0.038							
Y								

AC Characteristic

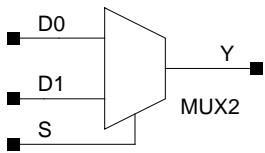
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.389	0.530	0.699	0.338	0.496	0.729
B	=>	Y	0.310	0.508	0.738	0.283	0.488	0.793
C	=>	Y	0.353	0.488	0.641	0.326	0.484	0.745

series : TSMC035

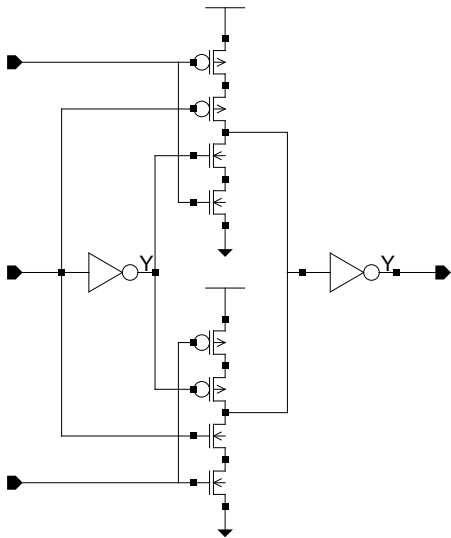
function : 2-to-1 mux

macro name	MUX2	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.024	0.570	1.140	1.560	2.100	0.499	0.694	0.917
D1	0.023							
S	0.032							
Y								

AC Characteristic

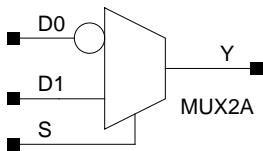
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.244	0.347	0.459	0.233	0.335	0.510
D1	=>	Y	0.243	0.346	0.456	0.234	0.336	0.513
S	=>	Y	0.261	0.379	0.571	0.220	0.361	0.584

series : TSMC035

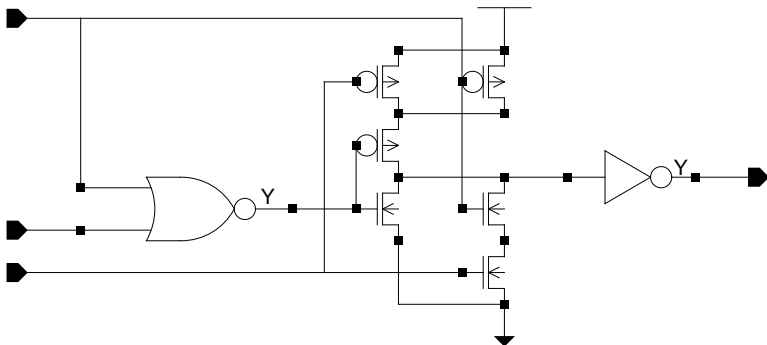
function : 2-to-1 mux,LSB inverted in

macro name	MUX2A	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0 D1 S Y	0.020 0.023 0.042	0.570	1.141	1.560	2.100	0.498	0.693	0.918

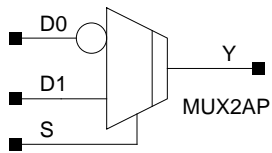
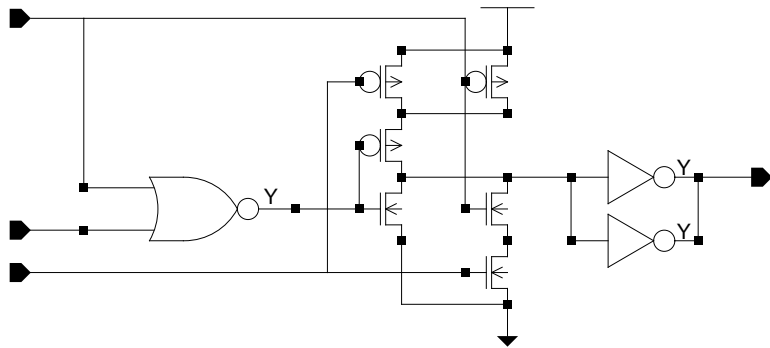
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.266	0.387	0.560	0.261	0.405	0.596
D1	=>	Y	0.233	0.330	0.431	0.237	0.349	0.545
S	=>	Y	0.252	0.371	0.557	0.196	0.355	0.608

series : TSMC035

function : 2-to-1 mux,LSB inverted in,powered

macro name	MUX2AP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.020	1.185	0.571	0.781	1.052	0.251	0.352	0.470
D1	0.023							
S	0.042							
Y								

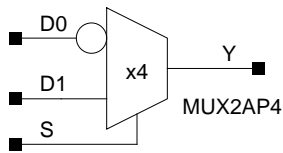
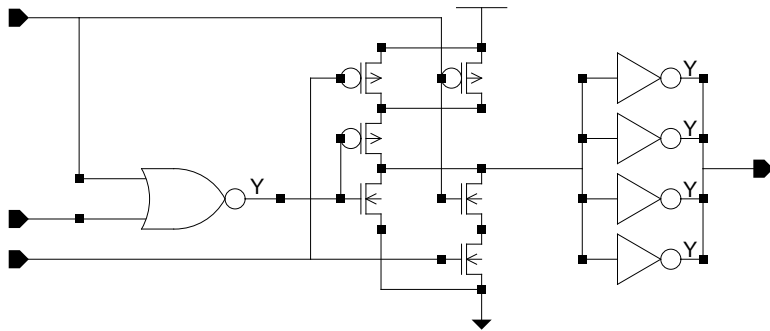
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.285	0.411	0.590	0.282	0.439	0.652
D1	=>	Y	0.259	0.360	0.464	0.257	0.381	0.596
S	=>	Y	0.285	0.402	0.588	0.223	0.393	0.660

series : TSMC035

function : 2-to-1 mux,LSB inverted in,x4 powered

macro name	MUX2AP4	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	2.378	0.285	0.391	0.529	0.131	0.188	0.257
D1	0.024							
S	0.040							
Y								

**AC Characteristic**

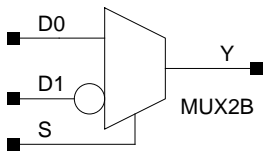
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.332	0.474	0.674	0.331	0.529	0.806
D1	=>	Y	0.320	0.437	0.558	0.318	0.477	0.745
S	=>	Y	0.343	0.476	0.670	0.294	0.494	0.808

series : TSMC035

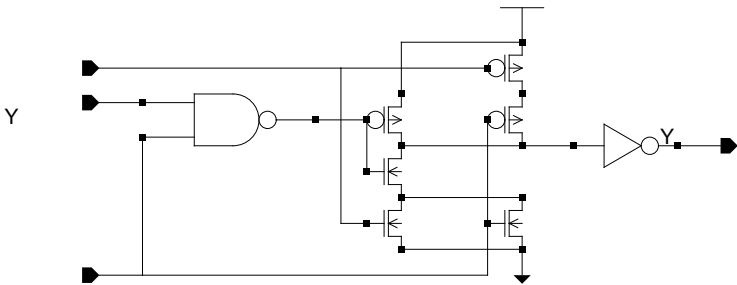
function : 2-to-1 mux,MSB inverted in

macro name	MUX2B	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	0.570	1.140	1.560	2.100	0.498	0.693	0.918
D1	0.019							
S	0.039							
Y								

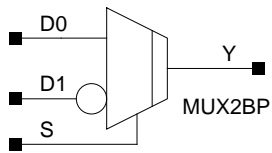
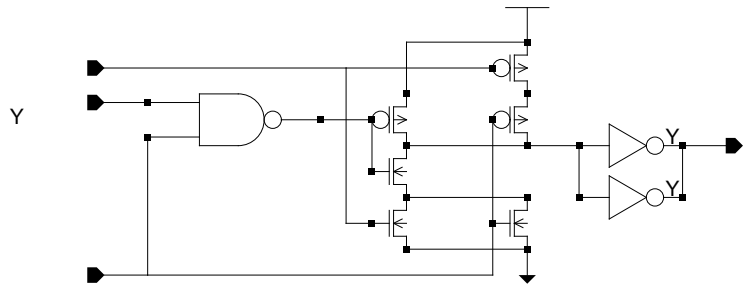
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.235	0.333	0.434	0.245	0.360	0.558
D1	=>	Y	0.245	0.385	0.551	0.266	0.368	0.537
S	=>	Y	0.201	0.312	0.500	0.281	0.400	0.571

series : TSMC035

function : 2-to-1 mux,MSB inverted in,powered

macro name	MUX2BP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	1.186	0.570	0.781	1.052	0.251	0.352	0.471
D1	0.019							
S	0.037							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.261	0.363	0.467	0.264	0.390	0.606
D1	=>	Y	0.260	0.409	0.582	0.287	0.399	0.581
S	=>	Y	0.228	0.341	0.527	0.302	0.432	0.622

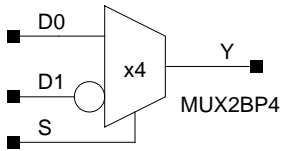


series : TSMC035

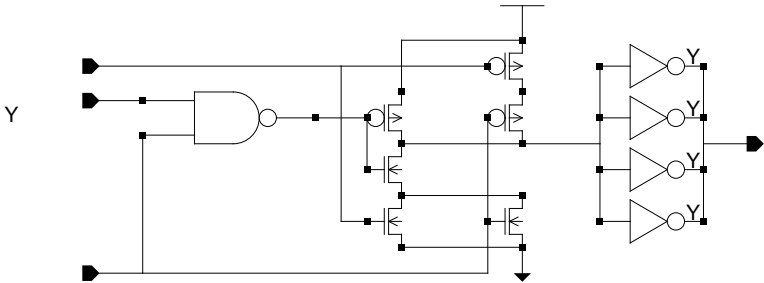
function : 2-to-1 mux,MSB inverted in,x4 powered

macro name	MUX2BP4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.025	2.379	0.285	0.392	0.529	0.130	0.187	0.257
D1	0.022							
S	0.037							
Y								

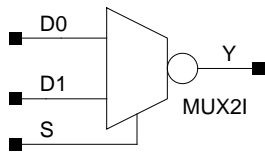
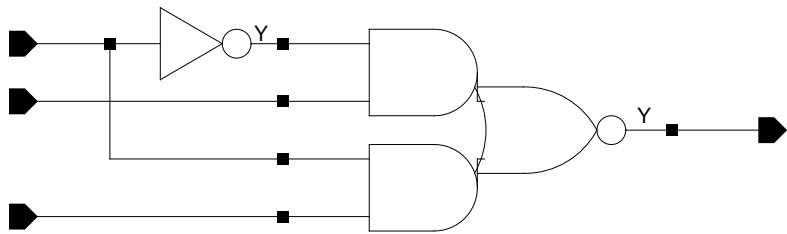
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.322	0.439	0.563	0.324	0.484	0.751
D1	=>	Y	0.302	0.468	0.668	0.338	0.475	0.691
S	=>	Y	0.278	0.412	0.613	0.356	0.519	0.768

series : TSMC035

function : 2-to-1 mux,inverted out

macro name	MUX2I	size [um]	10.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0 D1 S Y	0.022 0.022 0.038	0.242	1.610	2.644	4.166	0.726	1.066	1.488

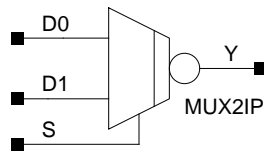
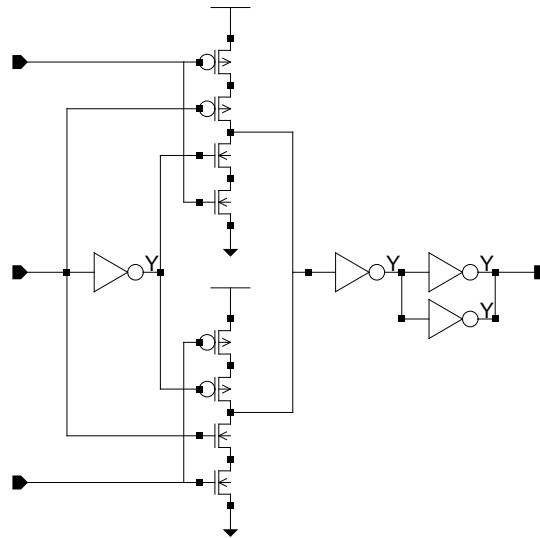
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.143	0.216	0.313	0.151	0.204	0.266
D1	=>	Y	0.172	0.246	0.388	0.152	0.236	0.328
S	=>	Y	0.165	0.246	0.393	0.173	0.257	0.371

series : TSMC035

function : 2-to-1 mux,inverted out,powered

macro name	MUX2IP	size [um]	15.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.020	1.189	0.571	0.780	1.050	0.250	0.347	0.459
D1	0.023							
S	0.033							
Y								

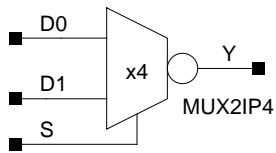
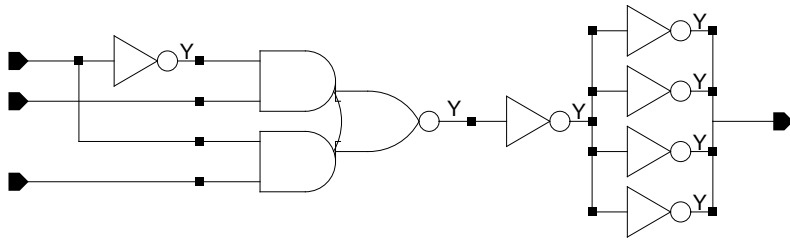
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.289	0.427	0.630	0.304	0.439	0.609
D1	=>	Y	0.290	0.428	0.632	0.303	0.438	0.606
S	=>	Y	0.275	0.445	0.700	0.323	0.479	0.721

series : TSMC035

function : 2-to-1 mux,inverted out,x4 powered

macro name	MUX2IP4	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	2.404	0.285	0.391	0.526	0.128	0.179	0.237
D1	0.024							
S	0.048							
Y								

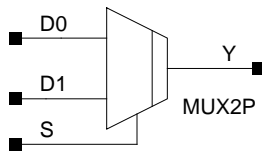
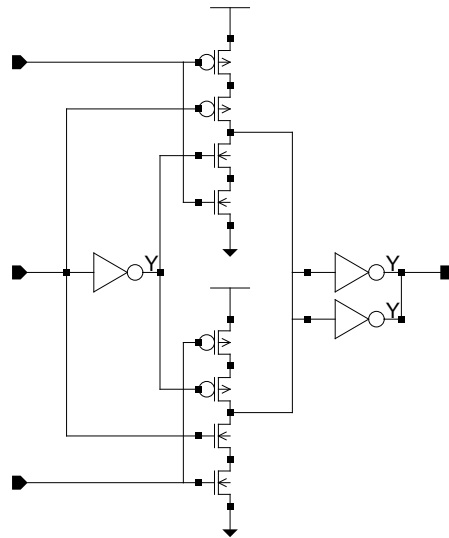
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.285	0.469	0.710	0.313	0.451	0.636
D1	=>	Y	0.324	0.499	0.782	0.335	0.513	0.726
S	=>	Y	0.328	0.503	0.755	0.342	0.500	0.709

series : TSMC035

function : 2-to-1 mux,powered

macro name	MUX2P	size [um]	12.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.021	1.183	0.570	0.781	1.052	0.254	0.354	0.469
D1	0.024							
S	0.030							
Y								

**AC Characteristic**

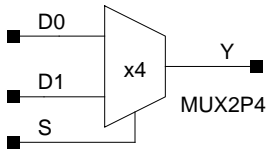
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.275	0.385	0.504	0.255	0.368	0.563
D1	=>	Y	0.274	0.384	0.501	0.256	0.370	0.566
S	=>	Y	0.300	0.419	0.609	0.249	0.399	0.637

series : TSMC035

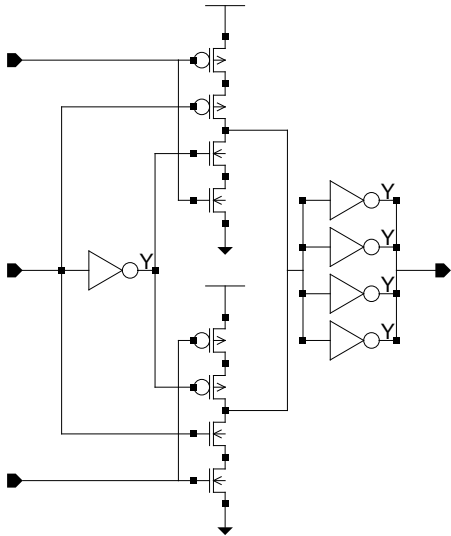
function : 2-to-1 mux,x4 powered

macro name	MUX2P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

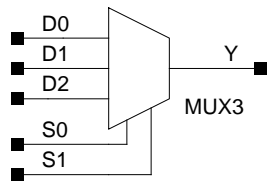
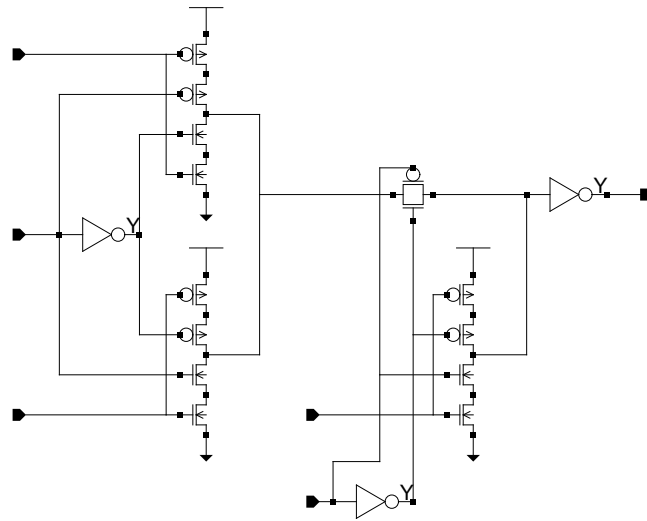
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.020	2.362	0.285	0.392	0.529	0.136	0.191	0.256
D1	0.023							
S	0.037							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.346	0.476	0.621	0.319	0.467	0.713
D1	=>	Y	0.345	0.474	0.617	0.320	0.469	0.716
S	=>	Y	0.356	0.510	0.714	0.320	0.503	0.786

macro name	MUX3	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.024	0.570	1.140	1.561	2.101	0.499	0.699	0.933
D1	0.024							
D2	0.023							
S0	0.030							
S1	0.038							
Y								

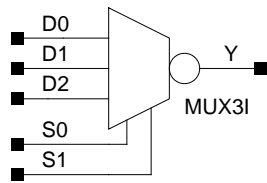
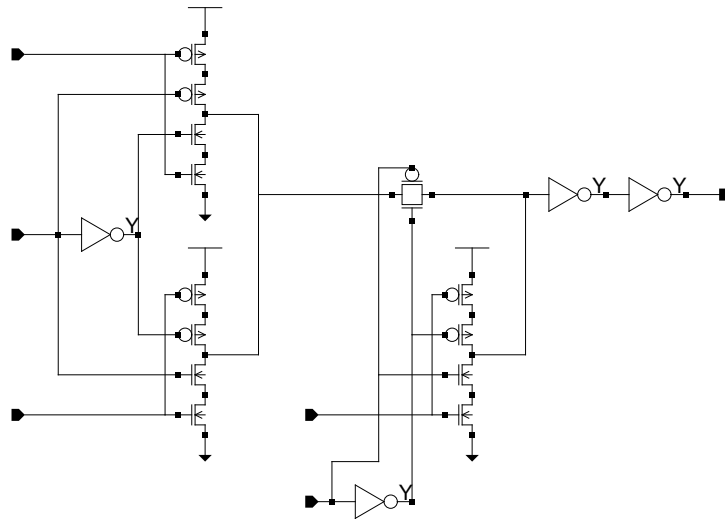
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.362	0.517	0.704	0.329	0.501	0.789
D1	=>	Y	0.361	0.516	0.700	0.330	0.502	0.791
D2	=>	Y	0.243	0.346	0.456	0.233	0.336	0.512
S0	=>	Y	0.373	0.550	0.799	0.326	0.534	0.861
S1	=>	Y	0.242	0.359	0.520	0.213	0.366	0.601

series : TSMC035

function : 3-to-1 mux,inverted out

macro name	MUX3I	size [um]	21.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	0.571	1.140	1.560	2.099	0.497	0.691	0.912
D1	0.022							
D2	0.019							
S0	0.031							
S1	0.032							
Y								

**AC Characteristic**

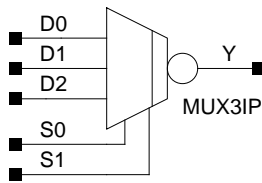
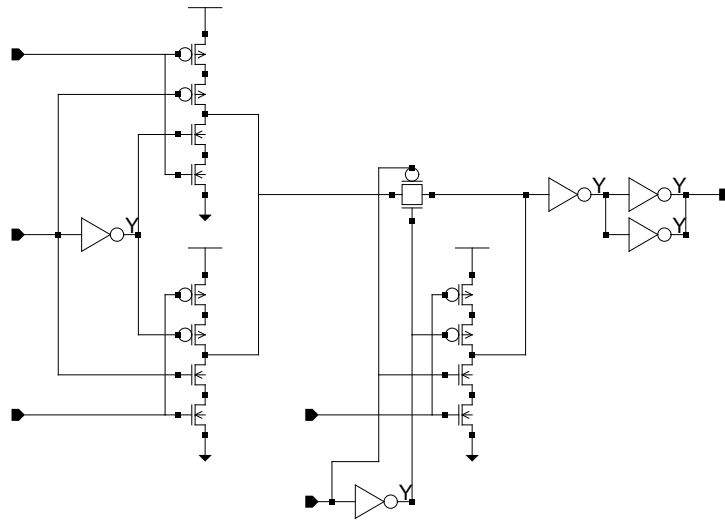
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.370	0.569	0.877	0.404	0.582	0.812
D1	=>	Y	0.371	0.570	0.879	0.403	0.580	0.808
D2	=>	Y	0.274	0.406	0.604	0.285	0.413	0.569
S0	=>	Y	0.367	0.595	0.948	0.414	0.621	0.908
S1	=>	Y	0.252	0.429	0.691	0.287	0.432	0.629



series : TSMC035

function : 3-to-1 mux,inverted out,powered

macro name	MUX3IP	size [um]	22.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022	1.187	0.570	0.780	1.050	0.250	0.348	0.459
D1	0.022							
D2	0.023							
S0	0.036							
S1	0.032							
Y								

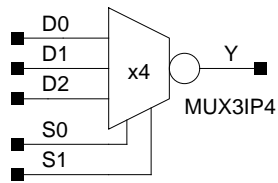
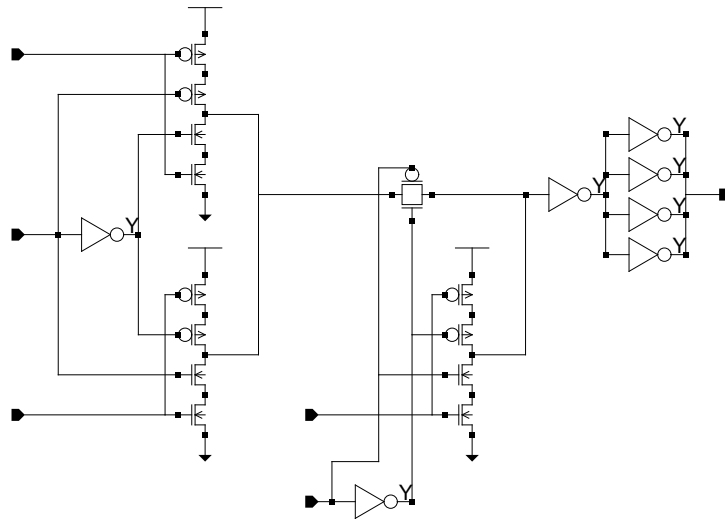
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.393	0.600	0.918	0.420	0.608	0.852
D1	=>	Y	0.393	0.601	0.921	0.420	0.607	0.849
D2	=>	Y	0.290	0.427	0.631	0.303	0.439	0.606
S0	=>	Y	0.387	0.625	0.988	0.432	0.649	0.948
S1	=>	Y	0.269	0.451	0.716	0.306	0.458	0.669

series : TSMC035

function : 3-to-1 mux,inverted out,x4 powered

macro name	MUX3IP4	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	2.399	0.285	0.390	0.526	0.128	0.179	0.238
D1	0.020							
D2	0.023							
S0	0.033							
S1	0.034							
Y								

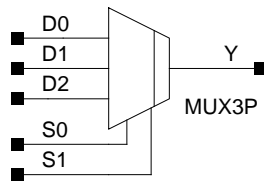
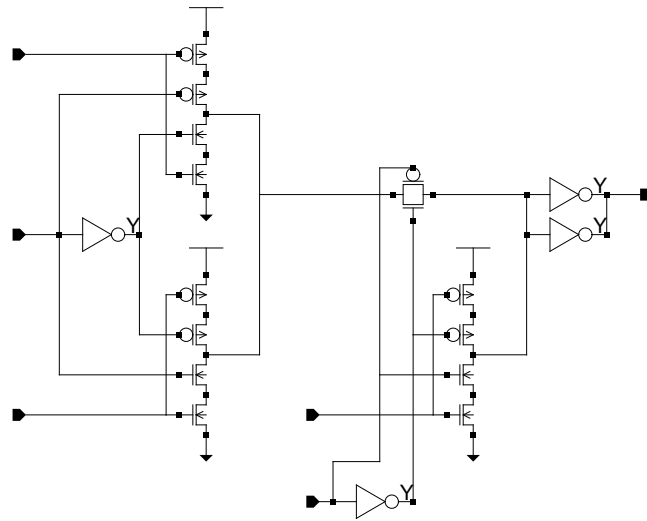
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.441	0.668	1.015	0.460	0.671	0.944
D1	=>	Y	0.442	0.670	1.017	0.459	0.669	0.939
D2	=>	Y	0.331	0.482	0.705	0.340	0.496	0.690
S0	=>	Y	0.435	0.693	1.084	0.472	0.709	1.039
S1	=>	Y	0.312	0.505	0.787	0.342	0.518	0.760

series : TSMC035

function : 3-to-1 mux,powered

macro name	MUX3P	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

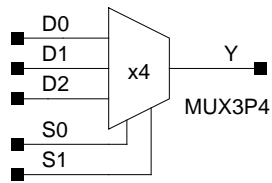
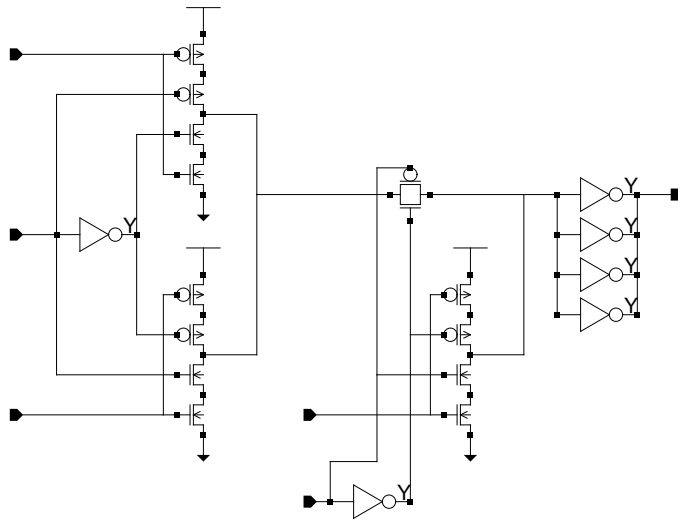
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.021	1.172	0.570	0.781	1.054	0.254	0.361	0.492
D1	0.023							
D2	0.020							
S0	0.032							
S1	0.033							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.391	0.554	0.747	0.343	0.522	0.822
D1	=>	Y	0.390	0.553	0.743	0.344	0.523	0.824
D2	=>	Y	0.273	0.383	0.500	0.255	0.369	0.564
S0	=>	Y	0.397	0.586	0.839	0.341	0.557	0.894
S1	=>	Y	0.265	0.399	0.556	0.218	0.392	0.653

macro name	MUX3P4	size [um]	22.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

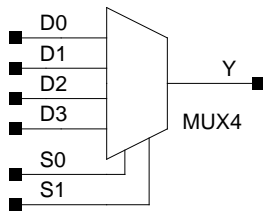
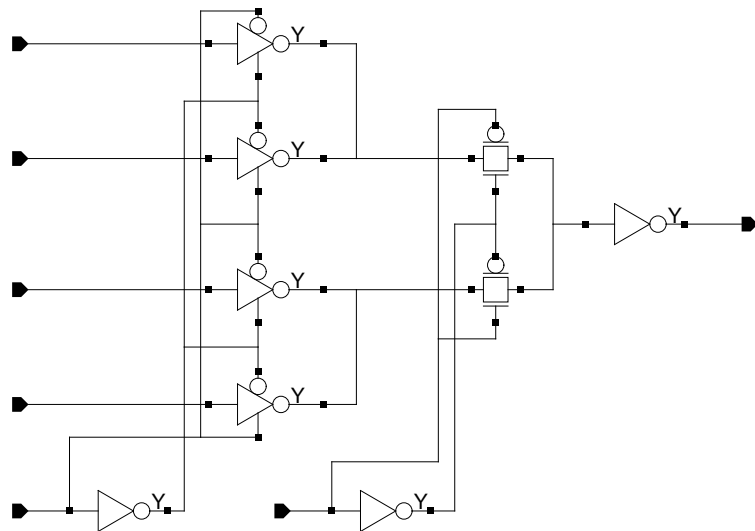
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.020	2.289	0.285	0.393	0.534	0.136	0.201	0.286
D1	0.020							
D2	0.023							
S0	0.030							
S1	0.033							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.462	0.650	0.877	0.407	0.623	0.976
D1	=>	Y	0.461	0.648	0.872	0.407	0.625	0.978
D2	=>	Y	0.344	0.473	0.616	0.319	0.467	0.714
S0	=>	Y	0.457	0.683	0.964	0.411	0.662	1.048
S1	=>	Y	0.322	0.495	0.670	0.255	0.473	0.802

macro name	MUX4	size [um]	24.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.024	0.569	1.140	1.561	2.101	0.504	0.703	0.934
D1	0.023							
D2	0.023							
D3	0.023							
S0	0.047							
S1	0.043							
Y								

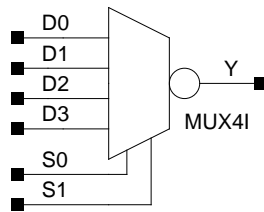
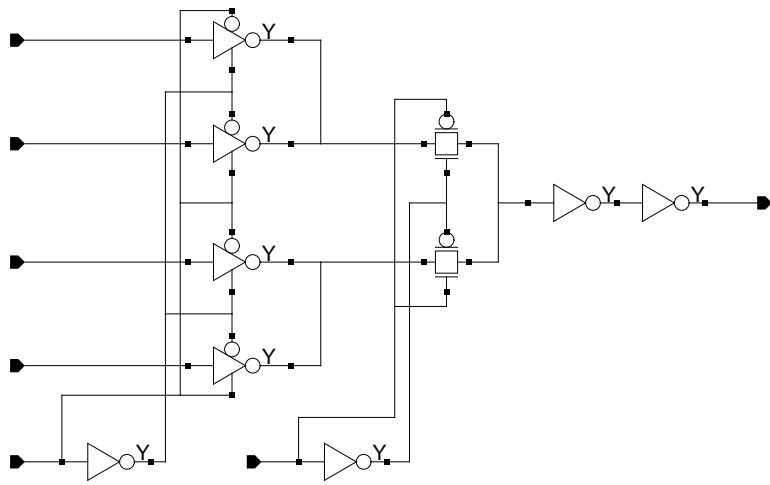
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.365	0.521	0.708	0.333	0.506	0.797
D1	=>	Y	0.364	0.520	0.706	0.334	0.508	0.799
D2	=>	Y	0.359	0.514	0.698	0.328	0.500	0.788
D3	=>	Y	0.359	0.513	0.695	0.329	0.501	0.790
S0	=>	Y	0.369	0.546	0.828	0.344	0.576	0.939
S1	=>	Y	0.235	0.350	0.497	0.208	0.335	0.518

series : TSMC035

function : 4-to-1 mux,inverted out

macro name	MUX4I	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022	0.570	1.140	1.560	2.099	0.497	0.691	0.912
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.051							
S1	0.042							
Y								

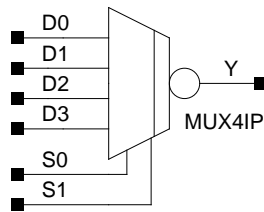
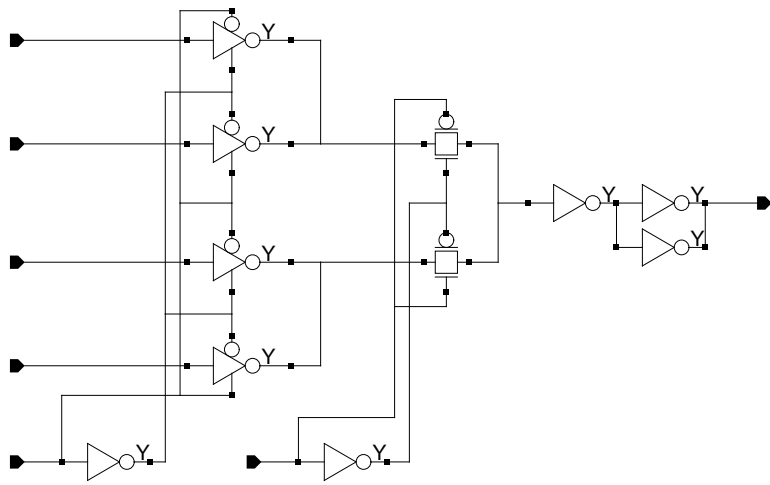
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.398	0.610	0.928	0.394	0.566	0.796
D1	=>	Y	0.399	0.612	0.931	0.394	0.565	0.794
D2	=>	Y	0.394	0.605	0.922	0.391	0.561	0.789
D3	=>	Y	0.396	0.607	0.924	0.390	0.560	0.786
S0	=>	Y	0.412	0.672	1.072	0.403	0.600	0.916
S1	=>	Y	0.263	0.418	0.637	0.268	0.404	0.587

series : TSMC035

function : 4-to-1 mux,inverted out,powered

macro name	MUX4IP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.023	1.186	0.570	0.780	1.050	0.250	0.347	0.459
D1	0.023							
D2	0.023							
D3	0.024							
S0	0.058							
S1	0.040							
Y								

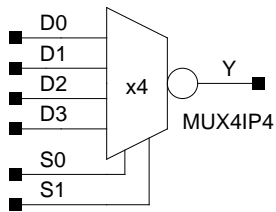
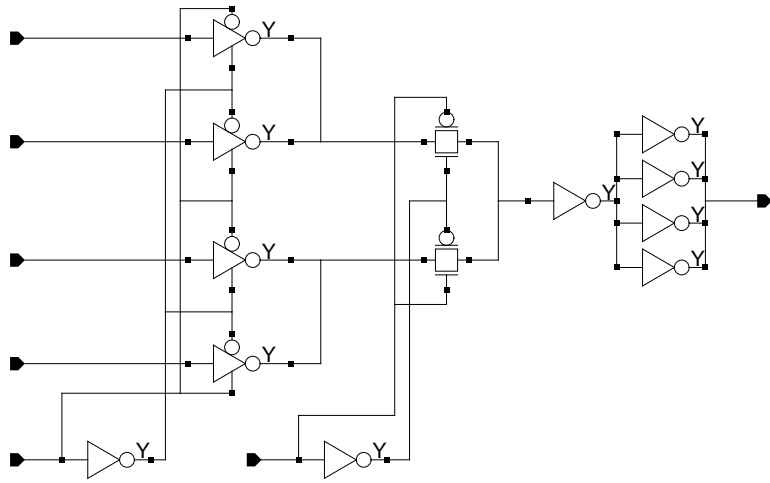
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.422	0.647	0.979	0.413	0.594	0.838
D1	=>	Y	0.424	0.649	0.981	0.413	0.593	0.836
D2	=>	Y	0.419	0.642	0.973	0.409	0.589	0.831
D3	=>	Y	0.420	0.644	0.975	0.408	0.588	0.828
S0	=>	Y	0.436	0.709	1.123	0.422	0.628	0.958
S1	=>	Y	0.286	0.449	0.679	0.286	0.432	0.628

series : TSMC035

function : 4-to-1 mux,inverted out,x4 powered

macro name	MUX4IP4	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.021	2.399	0.285	0.390	0.526	0.128	0.179	0.238
D1	0.020							
D2	0.020							
D3	0.020							
S0	0.048							
S1	0.044							
Y								

**AC Characteristic**

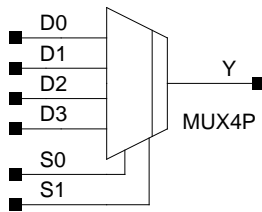
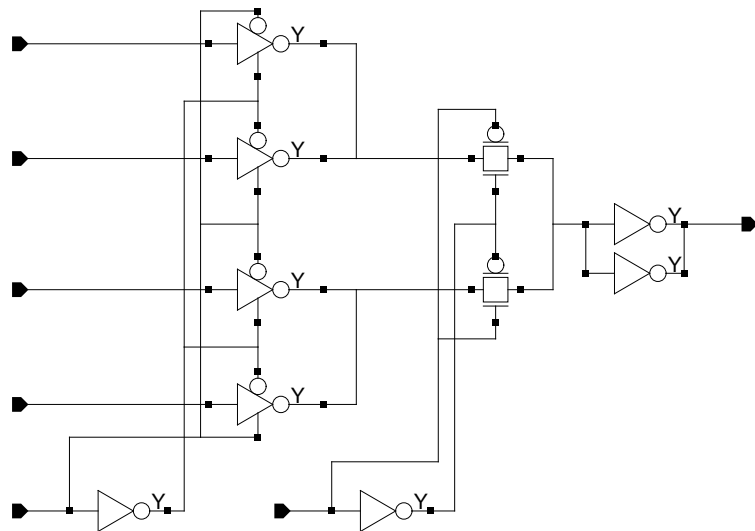
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.446	0.675	1.025	0.464	0.675	0.949
D1	=>	Y	0.446	0.676	1.027	0.463	0.674	0.946
D2	=>	Y	0.442	0.670	1.019	0.459	0.670	0.940
D3	=>	Y	0.442	0.672	1.021	0.459	0.668	0.937
S0	=>	Y	0.457	0.738	1.165	0.469	0.707	1.071
S1	=>	Y	0.307	0.479	0.722	0.334	0.510	0.738



series : TSMC035

function : 4-to-1 mux,powered

macro name	MUX4P	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022	1.173	0.570	0.782	1.054	0.261	0.368	0.493
D1	0.021							
D2	0.022							
D3	0.022							
S0	0.055							
S1	0.036							
Y								

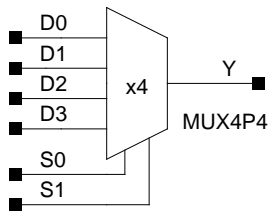
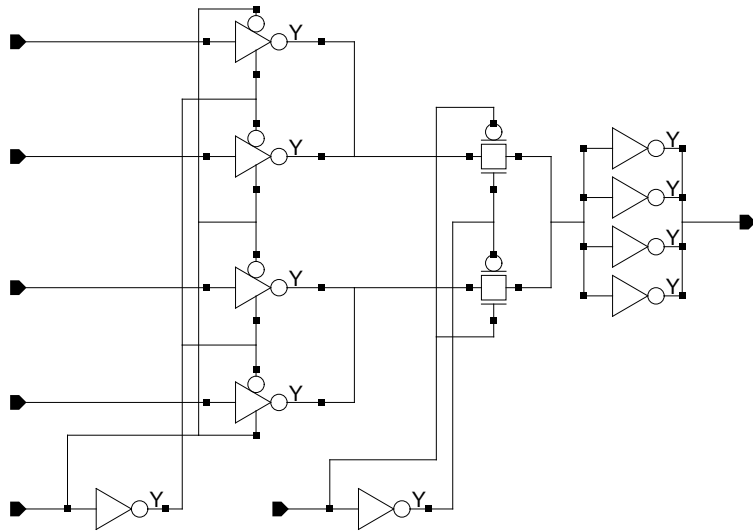
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.395	0.559	0.753	0.347	0.528	0.832
D1	=>	Y	0.394	0.558	0.750	0.348	0.530	0.834
D2	=>	Y	0.389	0.552	0.742	0.343	0.522	0.823
D3	=>	Y	0.389	0.551	0.739	0.344	0.523	0.825
S0	=>	Y	0.394	0.583	0.870	0.361	0.600	0.974
S1	=>	Y	0.258	0.391	0.535	0.216	0.356	0.558

series : TSMC035

function : 4-to-1 mux,x4 powered

macro name	MUX4P4	size [um]	28.500 x 15.000
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**Symbol****Schematic****Truth Table**

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.020	2.289	0.286	0.394	0.534	0.147	0.211	0.287
D1	0.020							
D2	0.020							
D3	0.020							
S0	0.050							
S1	0.041							
Y								

**AC Characteristic**

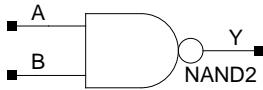
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.466	0.654	0.881	0.410	0.629	0.986
D1	=>	Y	0.465	0.653	0.878	0.410	0.631	0.988
D2	=>	Y	0.461	0.647	0.871	0.406	0.623	0.977
D3	=>	Y	0.460	0.646	0.868	0.407	0.624	0.979
S0	=>	Y	0.454	0.679	0.994	0.430	0.704	1.126
S1	=>	Y	0.315	0.486	0.675	0.253	0.436	0.695

series : TSMC035

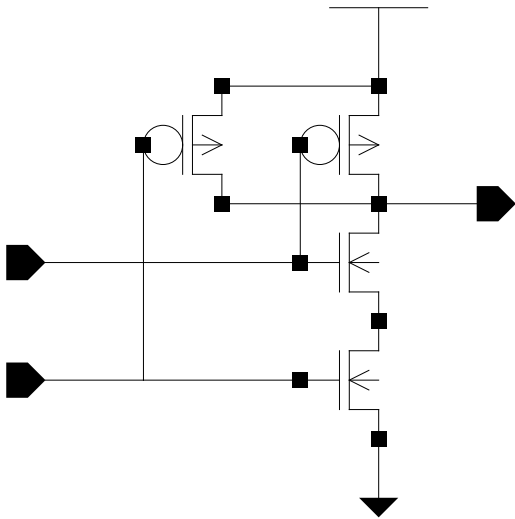
function : 2-input NAND

macro name	NAND2	size [um]	4.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	1
0	X	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	0.574	1.140	1.560	2.099	0.725	1.065	1.485
B	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.140	0.180	0.222	0.133	0.176	0.236
B	=>	Y	0.145	0.193	0.248	0.128	0.165	0.224

series : TSMC035

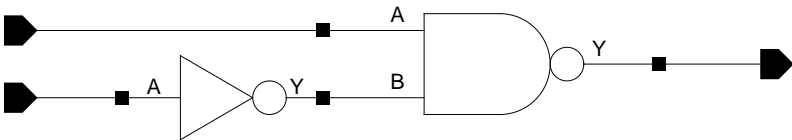
function : 2-input NAND,1-input inverted

macro name	NAND21	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.548	1.141	1.560	2.099	0.725	1.065	1.485
B	0.018							
Y								

AC Characteristic

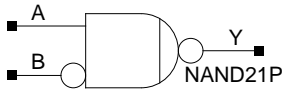
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.140	0.180	0.222	0.133	0.176	0.236
B	=>	Y	0.192	0.258	0.364	0.174	0.256	0.348

series : TSMC035

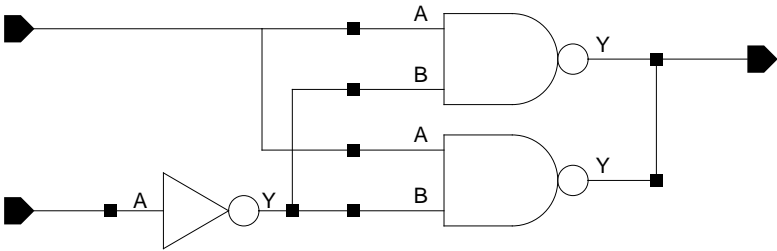
function : 2-input NAND,1-input inverted,powered

macro name	NAND21P	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	1.136	0.570	0.781	1.052	0.363	0.533	0.744
B	0.018							
Y								

AC Characteristic

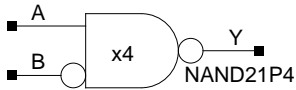
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.118	0.154	0.193	0.099	0.138	0.195
B	=>	Y	0.235	0.312	0.426	0.215	0.312	0.426

series : TSMC035

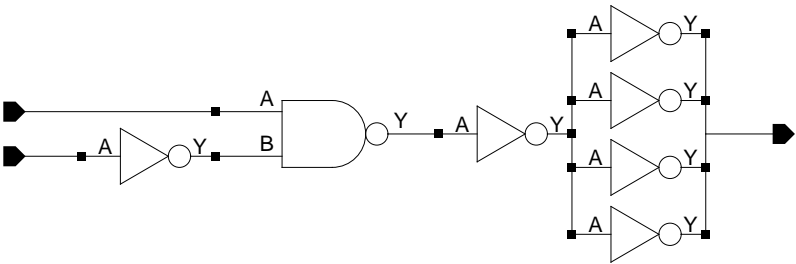
function : 2-input NAND,1-input inverted,x4 powered

macro name	NAND21P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.025 0.020	2.406	0.285	0.391	0.526	0.128	0.179	0.237

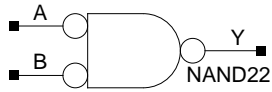
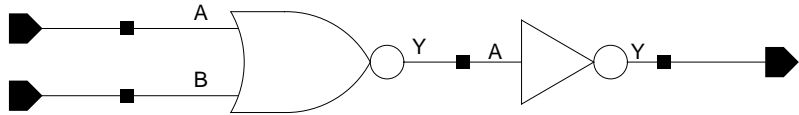
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.255	0.376	0.498	0.286	0.404	0.587
B	=>	Y	0.318	0.454	0.654	0.323	0.492	0.695

series : TSMC035

function : 2-input NAND,2-input inverted

macro name	NAND22	size [um]	6.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	Y
0	0	0
1	X	1
X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	0.571	1.141	1.560	2.099	0.499	0.693	0.916
B	0.023							
Y								

**AC Characteristic**

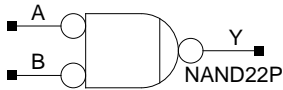
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.190	0.264	0.340	0.191	0.276	0.410
B	=>	Y	0.186	0.268	0.347	0.200	0.283	0.427

series : TSMC035

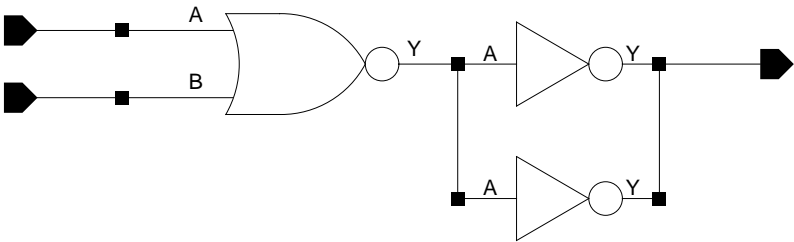
function : 2-input NAND,2-input inverted,powered

macro name	NAND22P	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	0
1	X	1
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.023 0.025	1.189	0.571	0.781	1.051	0.253	0.353	0.468

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.221	0.300	0.377	0.221	0.321	0.474
B	=>	Y	0.216	0.300	0.379	0.227	0.323	0.485

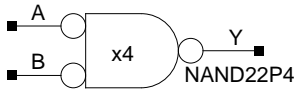


series : TSMC035

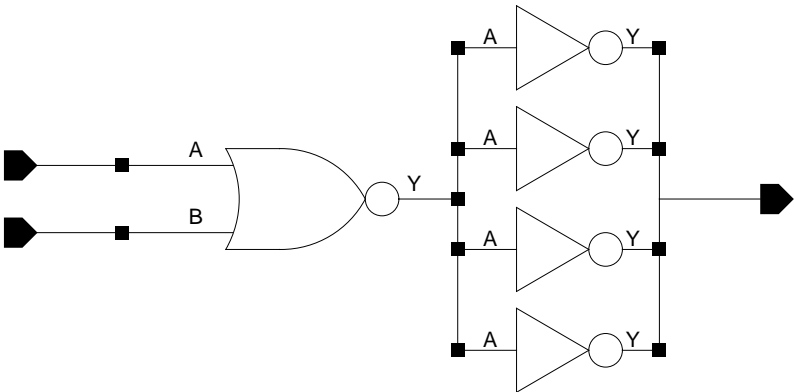
function : 2-input NAND,2-input inverted,x4 powered

macro name	NAND22P4	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	0
1	X	1
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.022 0.021	2.401	0.285	0.391	0.527	0.134	0.189	0.252

AC Characteristic

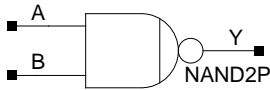
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.314	0.407	0.511	0.303	0.441	0.634
B	=>	Y	0.300	0.407	0.511	0.305	0.434	0.644

series : TSMC035

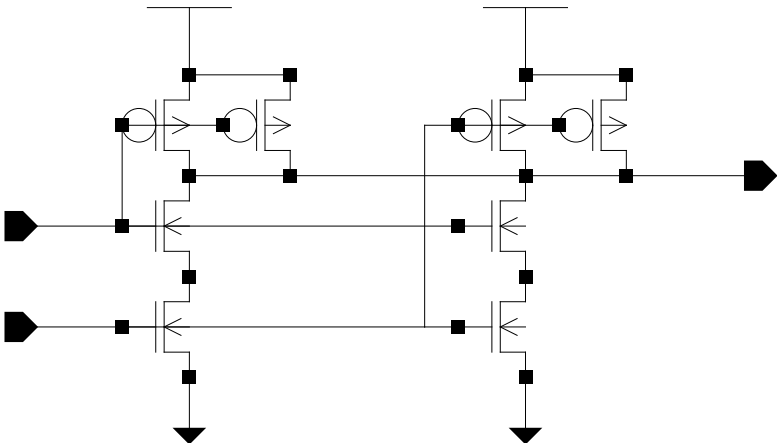
function : 2-input NAND,powered

macro name	NAND2P	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	1
0	X	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	1.153	0.570	0.781	1.052	0.363	0.533	0.743
B	0.046							
Y								

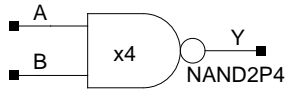
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.118	0.154	0.193	0.099	0.138	0.195
B	=>	Y	0.131	0.176	0.227	0.102	0.137	0.195

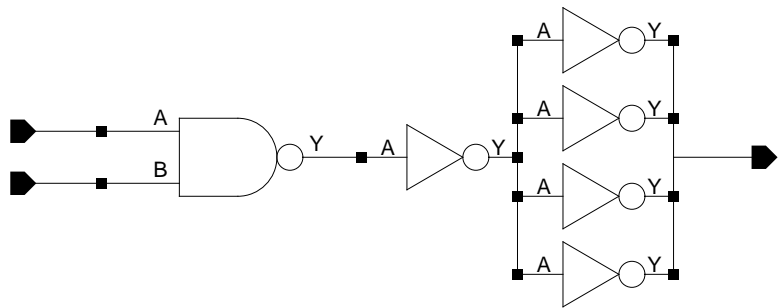
**function : 2-input NAND,x4 powered**

<b>macro name</b>	NAND2P4	<b>size [um]</b>	12.000 x 15.000
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***Symbol***



## Schematic



### ***Truth Table***

A	B	Y
X	0	1
0	X	1
1	1	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.021 0.020	2.402	0.285	0.391	0.527	0.128	0.179	0.237

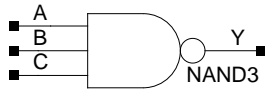
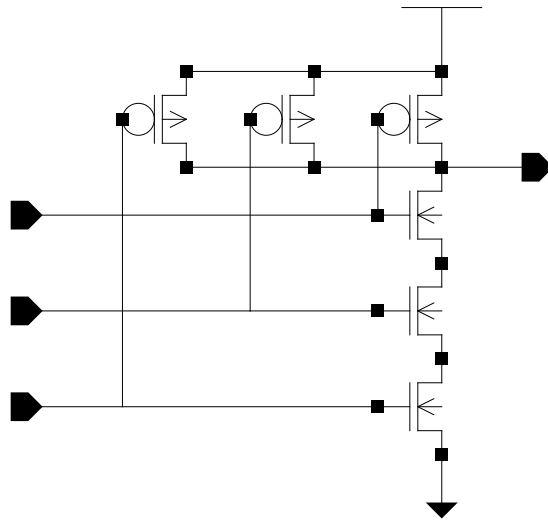
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.288	0.418	0.556	0.294	0.420	0.610
B	=>	Y	0.293	0.435	0.581	0.303	0.417	0.609

series : TSMC035

function : 3-input NAND

macro name	NAND3	size [um]	6.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.393	1.532	2.110	2.856	0.962	1.461	2.090
B	0.019							
C	0.019							
Y								

**AC Characteristic**

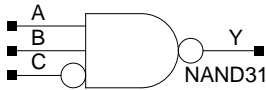
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.164	0.208	0.268	0.162	0.218	0.280
B	=>	Y	0.177	0.240	0.313	0.164	0.212	0.285
C	=>	Y	0.180	0.252	0.341	0.156	0.204	0.286

series : TSMC035

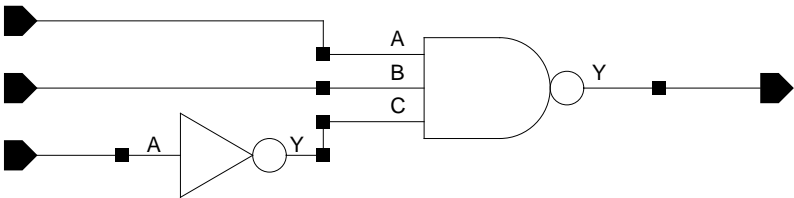
function : 3-input NAND,1-input inverted

macro name	NAND31	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.362	1.532	2.110	2.856	0.962	1.461	2.090
B	0.019							
C	0.017							
Y								

AC Characteristic

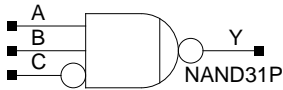
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.164	0.208	0.269	0.163	0.219	0.281
B	=>	Y	0.178	0.240	0.314	0.164	0.212	0.286
C	=>	Y	0.230	0.321	0.459	0.183	0.275	0.388

series : TSMC035

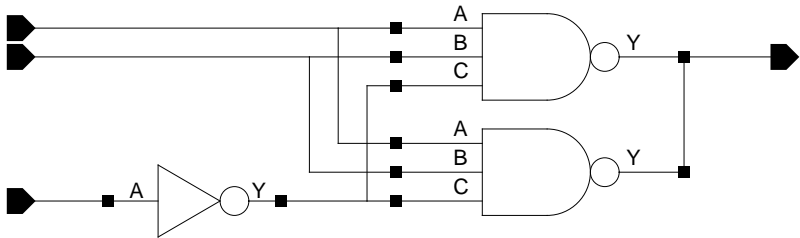
function : 3-input NAND,1-input inverted,powered

macro name	NAND31P	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

Port Characteristic

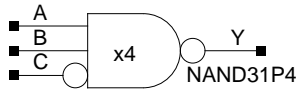
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	0.771	0.766	1.055	1.429	0.481	0.731	1.046
B	0.039							
C	0.022							
Y								

AC Characteristic

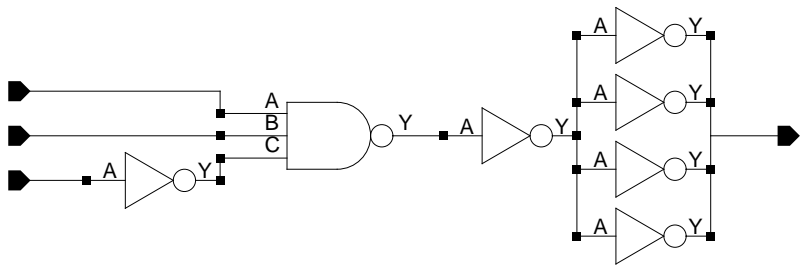
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.138	0.177	0.230	0.121	0.171	0.231
B	=>	Y	0.161	0.218	0.284	0.130	0.175	0.245
C	=>	Y	0.243	0.333	0.464	0.194	0.287	0.402

**function : 3-input NAND,1-input inverted,x4 powered**

<b>macro name</b>	NAND31P4	<b>size [um]</b>	16.500 x 15.000
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**Symbol**

## Schematic



### Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.405						
B	0.022							
C	0.023							
Y								
			0.285	0.391	0.526	0.128	0.179	0.237

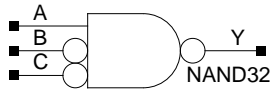
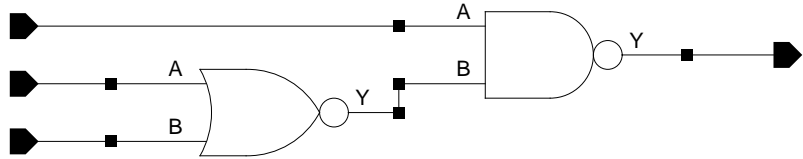
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.281	0.418	0.556	0.329	0.465	0.684
B	=>	Y	0.298	0.440	0.600	0.342	0.486	0.701
C	=>	Y	0.334	0.489	0.708	0.358	0.558	0.808

series : TSMC035

function : 3-input NAND,2-input inverted

macro name	NAND32	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.548	1.141	1.560	2.099	0.726	1.066	1.486
B	0.020							
C	0.020							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.140	0.180	0.222	0.133	0.176	0.236
B	=>	Y	0.218	0.303	0.406	0.200	0.291	0.420
C	=>	Y	0.215	0.315	0.419	0.212	0.295	0.441

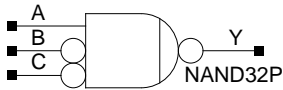


series : TSMC035

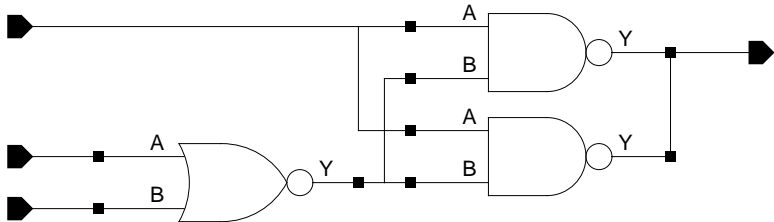
function : 3-input NAND,2-input inverted,powered

macro name	NAND32P	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.045	1.131	0.570	0.780	1.050	0.363	0.534	0.746
B	0.020							
C	0.020							
Y								

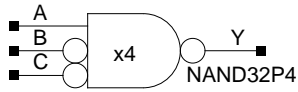
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.124	0.163	0.206	0.104	0.145	0.205
B	=>	Y	0.265	0.360	0.473	0.247	0.359	0.517
C	=>	Y	0.260	0.367	0.479	0.255	0.359	0.532

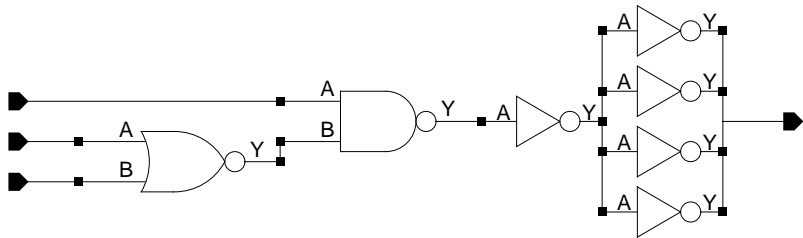
**function : 3-input NAND,2-input inverted,x4 powered**

<b>macro name</b>	NAND32P4	<b>size [um]</b>	16.500 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.406						
B	0.022							
C	0.020							
Y								
			0.285	0.391	0.527	0.128	0.179	0.237

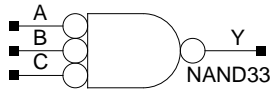
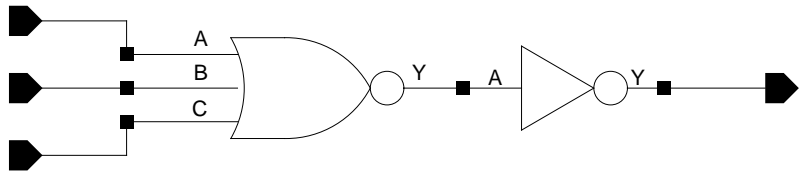
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.260	0.378	0.505	0.299	0.427	0.617
B	=>	Y	0.332	0.483	0.672	0.373	0.561	0.819
C	=>	Y	0.333	0.497	0.685	0.384	0.566	0.841

series : TSMC035

function : 3-input NAND,3-input inverted

macro name	NAND33	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.570	1.141	1.561	2.100	0.502	0.699	0.925
B	0.020							
C	0.022							
Y								

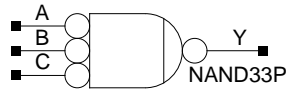
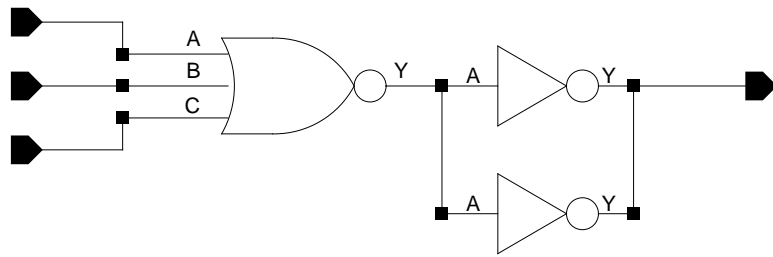
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.239	0.324	0.416	0.243	0.361	0.537
B	=>	Y	0.247	0.331	0.442	0.261	0.402	0.598
C	=>	Y	0.243	0.348	0.438	0.263	0.390	0.633

series : TSMC035

function : 3-input NAND,3-input inverted,powered

macro name	NAND33P	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	1.186	0.571	0.781	1.052	0.259	0.363	0.485
B	0.023							
C	0.025							
Y								

**AC Characteristic**

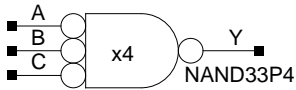
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.257	0.350	0.427	0.281	0.417	0.642
B	=>	Y	0.261	0.346	0.444	0.293	0.456	0.696
C	=>	Y	0.258	0.358	0.436	0.290	0.442	0.722

series : TSMC035

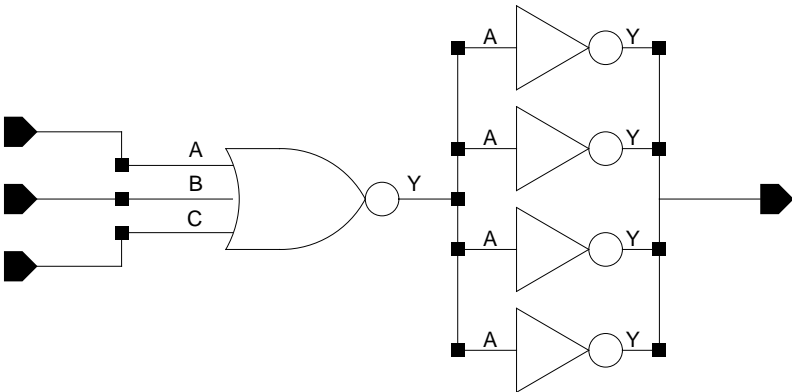
function : 3-input NAND,3-input inverted,x4 powered

macro name	NAND33P4	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.388	0.285	0.391	0.528	0.143	0.203	0.275
B	0.020							
C	0.021							
Y								

AC Characteristic

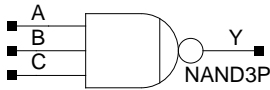
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.350	0.453	0.559	0.377	0.568	0.844
B	=>	Y	0.350	0.451	0.574	0.389	0.605	0.908
C	=>	Y	0.348	0.467	0.568	0.388	0.589	0.942

series : TSMC035

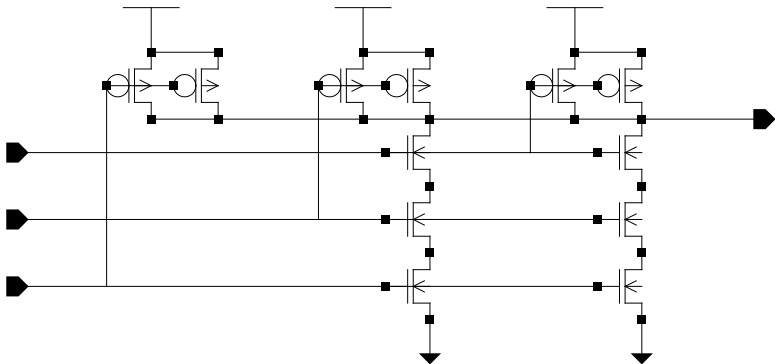
function : 3-input NAND,powered

macro name	NAND3P	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	0.799	0.766	1.055	1.429	0.481	0.731	1.045
B	0.039							
C	0.039							
Y								

AC Characteristic

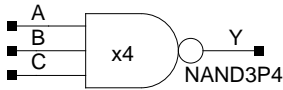
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.138	0.177	0.230	0.121	0.171	0.231
B	=>	Y	0.161	0.218	0.284	0.130	0.175	0.245
C	=>	Y	0.168	0.235	0.314	0.130	0.175	0.253

series : TSMC035

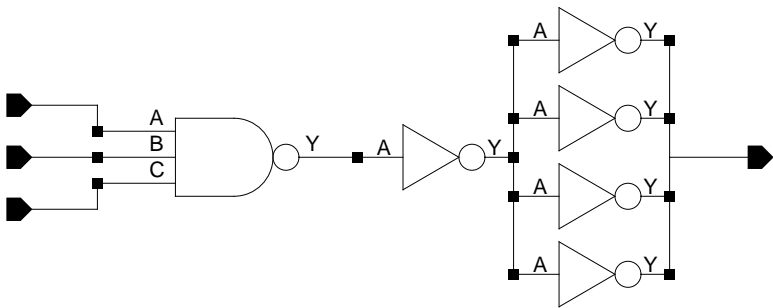
function : 3-input NAND,x4 powered

macro name	NAND3P4	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.023							
C	0.020							
Y								

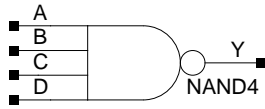
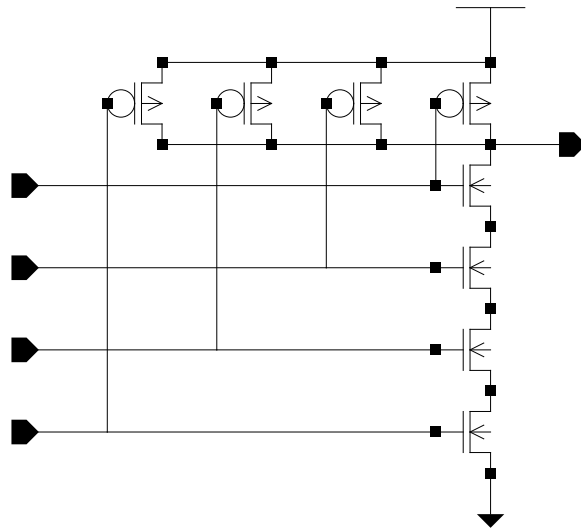
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.325	0.448	0.641	0.323	0.488	0.670
B	=>	Y	0.347	0.513	0.699	0.341	0.478	0.695
C	=>	Y	0.356	0.532	0.739	0.345	0.483	0.704

series : TSMC035

function : 4-input NAND

macro name	NAND4	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.374	1.532	2.110	2.858	1.207	1.869	2.709
B	0.020							
C	0.019							
D	0.019							
Y								

**AC Characteristic**

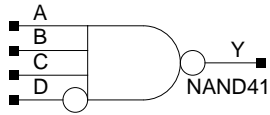
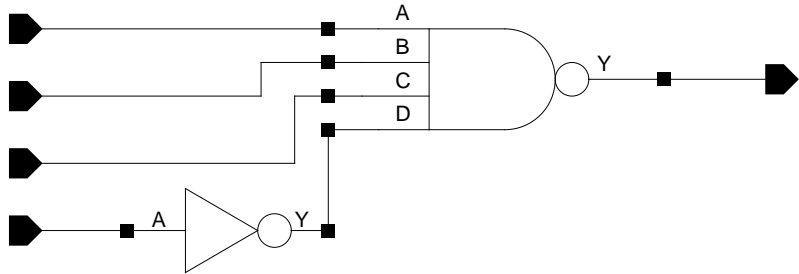
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.177	0.223	0.291	0.171	0.228	0.288
B	=>	Y	0.194	0.256	0.339	0.178	0.234	0.309
C	=>	Y	0.201	0.280	0.373	0.177	0.232	0.327
D	=>	Y	0.198	0.285	0.390	0.173	0.235	0.342



series : TSMC035

function : 4-input NAND,1-input inverted

macro name	NAND41	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.341	1.532	2.110	2.857	1.207	1.869	2.710
B	0.020							
C	0.019							
D	0.018							
Y								

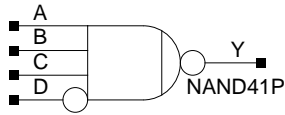
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.177	0.222	0.290	0.171	0.228	0.287
B	=>	Y	0.194	0.256	0.339	0.177	0.234	0.308
C	=>	Y	0.201	0.279	0.372	0.177	0.231	0.326
D	=>	Y	0.253	0.356	0.508	0.203	0.314	0.452

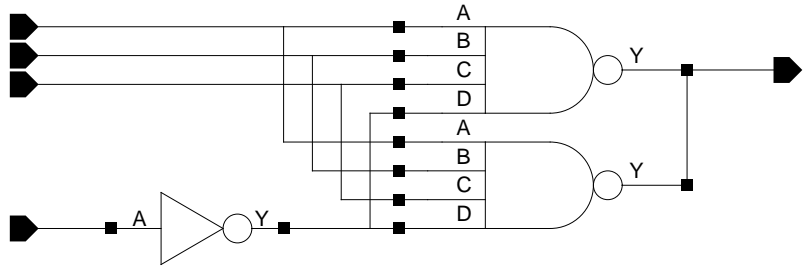
**function : 4-input NAND,1-input inverted,powered**

<b>macro name</b>	NAND41P	<b>size [um]</b>	15.000 x 15.000
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***Symbol***



## Schematic



## Truth Table

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

### Port Characteristic

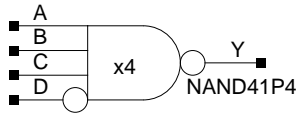
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	0.722						
B	0.039							
C	0.039							
D	0.025							
Y			0.766	1.056	1.431	0.604	0.935	1.355

### AC Characteristic

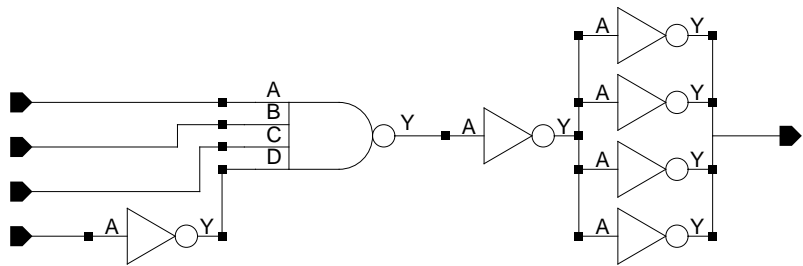
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.156	0.199	0.264	0.139	0.197	0.259
B	=>	Y	0.180	0.240	0.319	0.152	0.210	0.284
C	=>	Y	0.191	0.267	0.355	0.156	0.212	0.306
D	=>	Y	0.271	0.374	0.523	0.218	0.333	0.477

<b>macro name</b>	NAND41P4	<b>size [um]</b>	18.000 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	<b>delta-t (rise) [nsec/pF]</b>			<b>delta-t (fall) [nsec/pF]</b>		
			min	typ	max	min	typ	max
A	0.024	2.405						
B	0.022							
C	0.022							
D	0.020							
Y			0.285	0.391	0.526	0.128	0.179	0.238

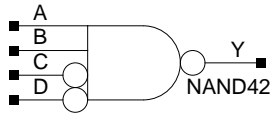
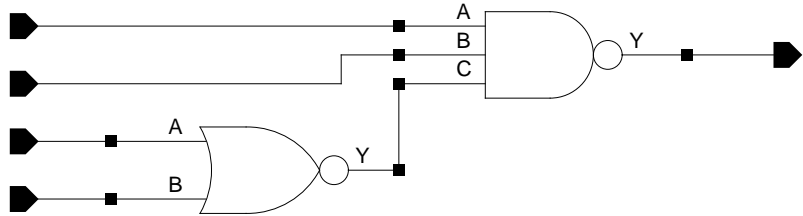
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.295	0.411	0.581	0.356	0.533	0.747
B	=>	Y	0.314	0.465	0.627	0.373	0.530	0.779
C	=>	Y	0.320	0.474	0.656	0.386	0.548	0.800
D	=>	Y	0.365	0.529	0.768	0.403	0.640	0.936

series : TSMC035

function : 4-input NAND,2-input inverted

macro name	NAND42	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.362	1.532	2.110	2.857	0.962	1.461	2.090
B	0.019							
C	0.020							
D	0.020							
Y								

**AC Characteristic**

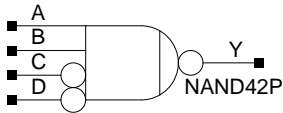
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.164	0.208	0.268	0.162	0.218	0.280
B	=>	Y	0.177	0.240	0.313	0.164	0.212	0.285
C	=>	Y	0.256	0.366	0.500	0.206	0.305	0.452
D	=>	Y	0.255	0.378	0.513	0.216	0.310	0.474

series : TSMC035

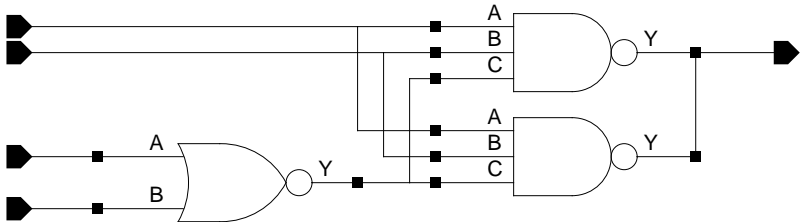
function : 4-input NAND,2-input inverted,powered

macro name	NAND42P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	0.771	0.766	1.055	1.430	0.481	0.731	1.047
B	0.039							
C	0.022							
D	0.022							
Y								

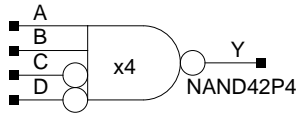
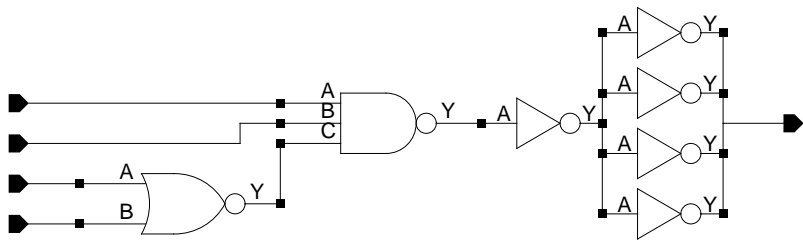
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.139	0.178	0.231	0.121	0.172	0.231
B	=>	Y	0.161	0.218	0.284	0.131	0.176	0.246
C	=>	Y	0.276	0.391	0.512	0.238	0.348	0.527
D	=>	Y	0.271	0.391	0.515	0.242	0.350	0.538

series : TSMC035

function : 4-input NAND,2-input inverted,x4 powered

macro name	NAND42P4	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.405	0.285	0.391	0.526	0.128	0.179	0.237
B	0.020							
C	0.021							
D	0.020							
Y								

**AC Characteristic**

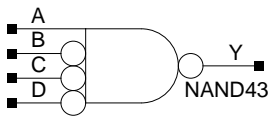
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.289	0.424	0.564	0.350	0.502	0.736
B	=>	Y	0.297	0.434	0.594	0.362	0.516	0.746
C	=>	Y	0.357	0.523	0.734	0.419	0.645	0.961
D	=>	Y	0.357	0.535	0.748	0.432	0.651	0.982

series : TSMC035

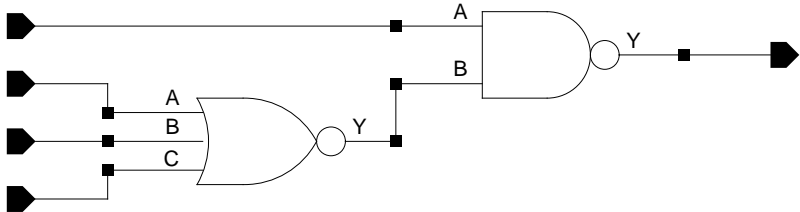
function : 4-input NAND,3-input inverted

macro name	NAND43	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	0.547	1.140	1.560	2.100	0.726	1.066	1.490
B	0.020							
C	0.019							
D	0.020							
Y								

AC Characteristic

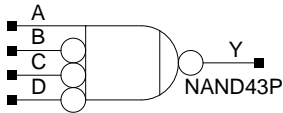
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.141	0.180	0.222	0.133	0.176	0.236
B	=>	Y	0.258	0.355	0.463	0.249	0.371	0.553
C	=>	Y	0.266	0.362	0.489	0.267	0.411	0.613
D	=>	Y	0.262	0.379	0.485	0.269	0.399	0.648

series : TSMC035

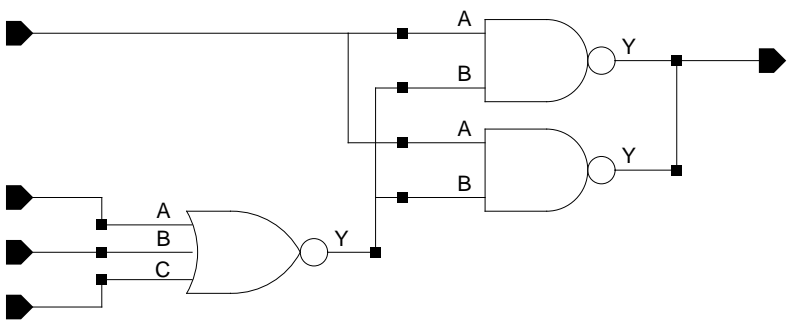
function : 4-input NAND,3-input inverted,powered

macro name	NAND43P	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	1.132	0.570	0.781	1.052	0.363	0.536	0.753
B	0.020							
C	0.022							
D	0.020							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.118	0.154	0.193	0.099	0.138	0.195
B	=>	Y	0.300	0.404	0.517	0.300	0.448	0.666
C	=>	Y	0.305	0.407	0.538	0.316	0.486	0.726
D	=>	Y	0.301	0.424	0.533	0.316	0.473	0.760

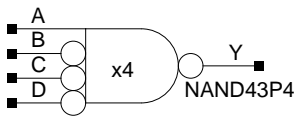


series : TSMC035

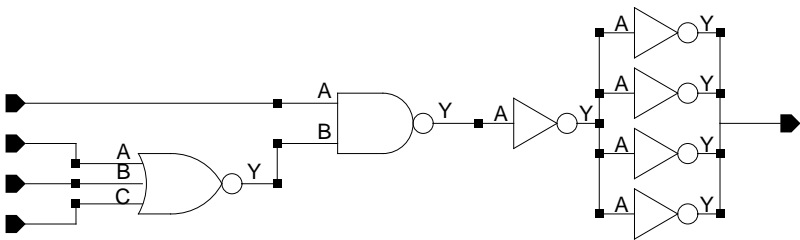
function : 4-input NAND,3-input inverted,x4 powered

macro name	NAND43P4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.405	0.285	0.391	0.526	0.128	0.179	0.237
B	0.021							
C	0.020							
D	0.022							
Y								

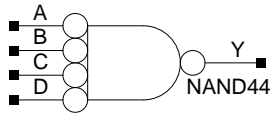
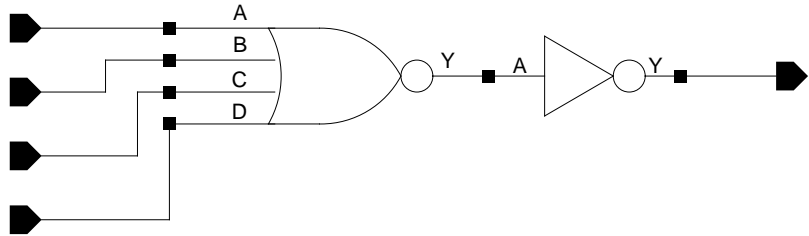
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.256	0.377	0.499	0.286	0.405	0.588
B	=>	Y	0.390	0.558	0.758	0.410	0.622	0.924
C	=>	Y	0.397	0.564	0.785	0.429	0.665	0.985
D	=>	Y	0.393	0.585	0.782	0.430	0.648	1.019

series : TSMC035

function : 4-input NAND,4-input inverted

macro name	NAND44	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.568	1.141	1.561	2.102	0.507	0.707	0.939
B	0.021							
C	0.022							
D	0.020							
Y								

**AC Characteristic**

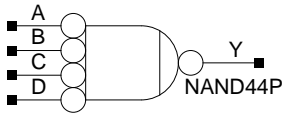
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.261	0.364	0.443	0.270	0.395	0.612
B	=>	Y	0.275	0.368	0.477	0.299	0.468	0.718
C	=>	Y	0.276	0.388	0.482	0.312	0.486	0.807
D	=>	Y	0.272	0.364	0.475	0.312	0.514	0.847

series : TSMC035

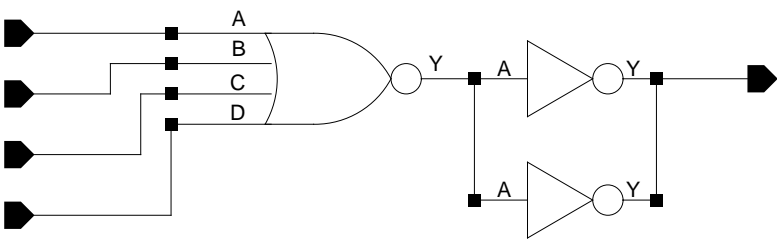
function : 4-input NAND,4-input inverted,powered

macro name	NAND44P	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	1.178	0.571	0.781	1.054	0.265	0.374	0.501
B	0.021							
C	0.019							
D	0.020							
Y								

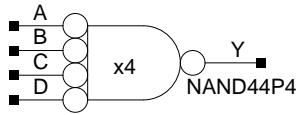
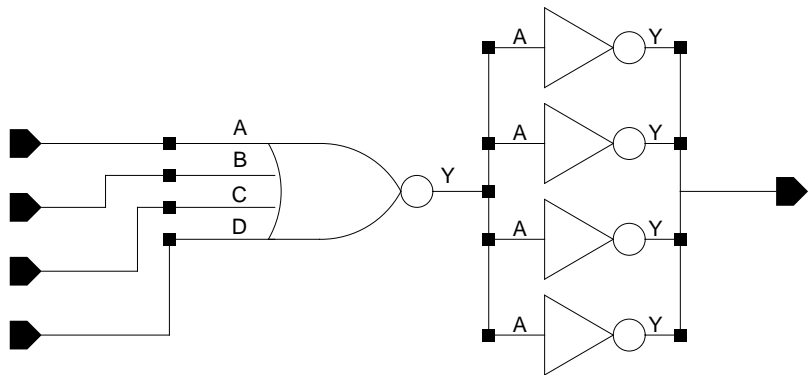
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.298	0.404	0.484	0.316	0.466	0.717
B	=>	Y	0.309	0.405	0.514	0.343	0.539	0.829
C	=>	Y	0.310	0.425	0.517	0.356	0.558	0.920
D	=>	Y	0.307	0.401	0.510	0.354	0.585	0.959

series : TSMC035

function : 4-input NAND,4-input inverted,x4 powered

macro name	NAND44P4	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.372	0.285	0.392	0.530	0.152	0.218	0.298
B	0.022							
C	0.020							
D	0.021							
Y								

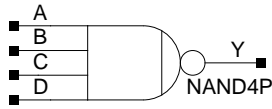
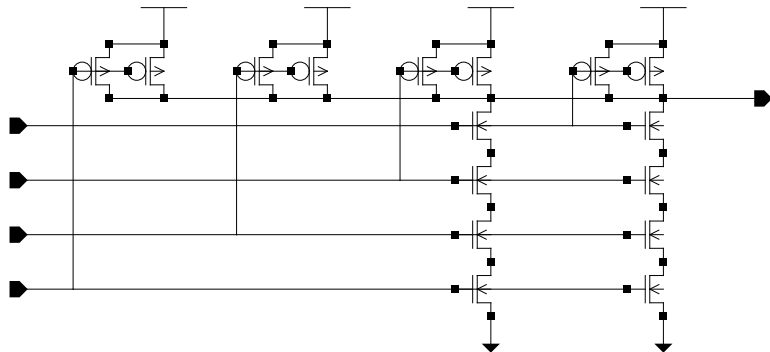
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.372	0.493	0.584	0.440	0.662	1.011
B	=>	Y	0.380	0.489	0.608	0.466	0.739	1.134
C	=>	Y	0.381	0.508	0.612	0.477	0.758	1.229
D	=>	Y	0.379	0.485	0.606	0.474	0.785	1.268

series : TSMC035

function : 4-input NAND,powered

macro name	NAND4P	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	0.757	0.766	1.056	1.431	0.604	0.935	1.355
B	0.039							
C	0.039							
D	0.040							
Y								

**AC Characteristic**

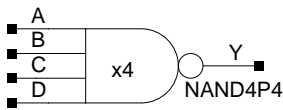
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.156	0.199	0.264	0.139	0.197	0.260
B	=>	Y	0.180	0.240	0.319	0.152	0.210	0.285
C	=>	Y	0.191	0.267	0.355	0.156	0.212	0.306
D	=>	Y	0.192	0.275	0.373	0.156	0.218	0.324

series : TSMC035

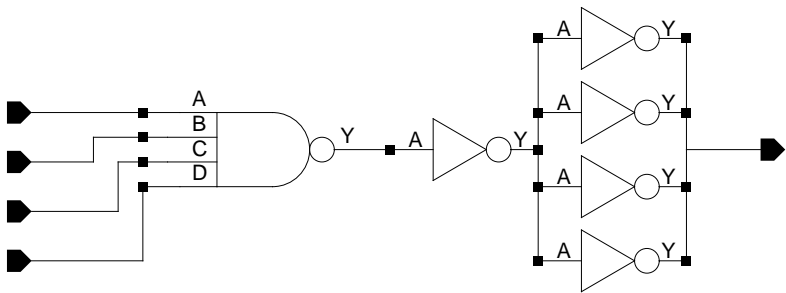
function : 4-input NAND,x4 powered

macro name	NAND4P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.401	0.285	0.391	0.527	0.128	0.179	0.237
B	0.022							
C	0.020							
D	0.020							
Y								

AC Characteristic

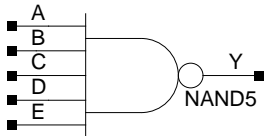
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.336	0.476	0.664	0.347	0.513	0.725
B	=>	Y	0.364	0.541	0.727	0.369	0.517	0.764
C	=>	Y	0.376	0.561	0.772	0.382	0.538	0.789
D	=>	Y	0.379	0.570	0.802	0.384	0.549	0.804

series : TSMC035

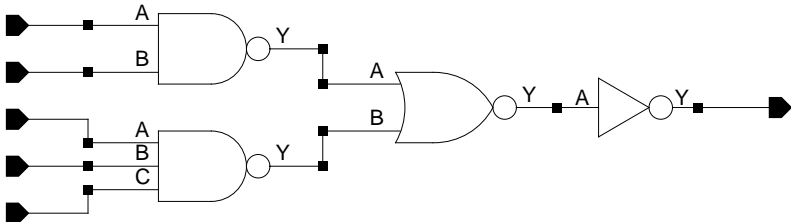
function : 5-input NAND

macro name	NAND5	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.571	1.140	1.560	2.099	0.499	0.693	0.916
B	0.019							
C	0.019							
D	0.019							
E	0.021							
Y								

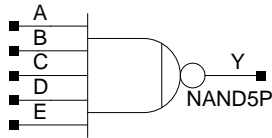
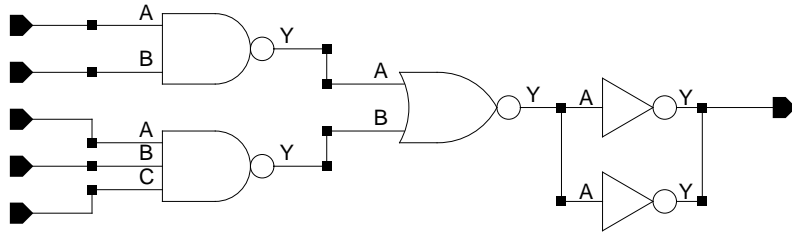
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.238	0.358	0.487	0.272	0.387	0.571
B	=>	Y	0.257	0.389	0.542	0.283	0.400	0.583
C	=>	Y	0.275	0.421	0.566	0.316	0.454	0.692
D	=>	Y	0.297	0.451	0.623	0.334	0.478	0.714
E	=>	Y	0.303	0.466	0.660	0.336	0.483	0.723

series : TSMC035

function : 5-input NAND,powered

macro name	NAND5P	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	1.187	0.570	0.780	1.051	0.253	0.352	0.467
B	0.019							
C	0.019							
D	0.023							
E	0.020							
Y								

**AC Characteristic**

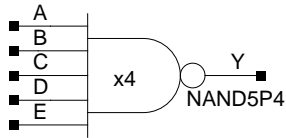
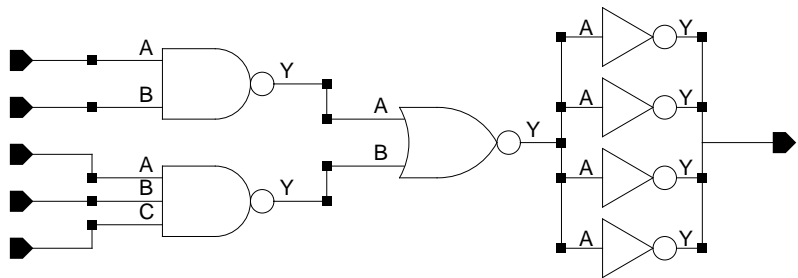
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.254	0.381	0.514	0.299	0.429	0.631
B	=>	Y	0.275	0.411	0.570	0.310	0.442	0.643
C	=>	Y	0.294	0.442	0.591	0.341	0.494	0.753
D	=>	Y	0.315	0.473	0.650	0.359	0.519	0.775
E	=>	Y	0.320	0.490	0.688	0.361	0.523	0.784



series : TSMC035

function : 5-input NAND,x4 powered

macro name	NAND5P4	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.403	0.285	0.391	0.527	0.134	0.189	0.254
B	0.024							
C	0.019							
D	0.022							
E	0.020							
Y								

**AC Characteristic**

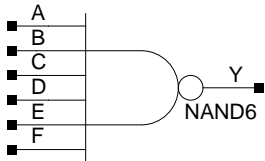
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.278	0.409	0.550	0.377	0.553	0.813
B	=>	Y	0.295	0.440	0.606	0.392	0.566	0.824
C	=>	Y	0.309	0.464	0.616	0.422	0.618	0.935
D	=>	Y	0.332	0.491	0.678	0.436	0.642	0.952
E	=>	Y	0.338	0.510	0.716	0.440	0.646	0.961

series : TSMC035

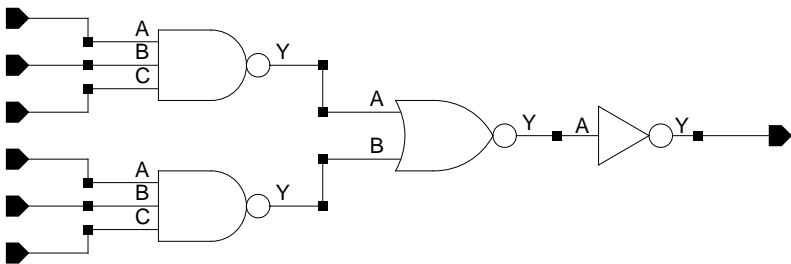
function : 6-input NAND

macro name	NAND6	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	0.571	1.140	1.560	2.099	0.499	0.693	0.916
B	0.019							
C	0.019							
D	0.019							
E	0.019							
F	0.021							
Y								

AC Characteristic

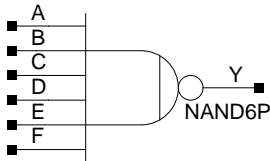
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.264	0.400	0.537	0.306	0.437	0.652
B	=>	Y	0.283	0.426	0.593	0.327	0.466	0.677
C	=>	Y	0.287	0.441	0.628	0.331	0.470	0.684
D	=>	Y	0.274	0.421	0.566	0.316	0.455	0.693
E	=>	Y	0.297	0.451	0.623	0.335	0.479	0.716
F	=>	Y	0.303	0.466	0.660	0.337	0.483	0.725

series : TSMC035

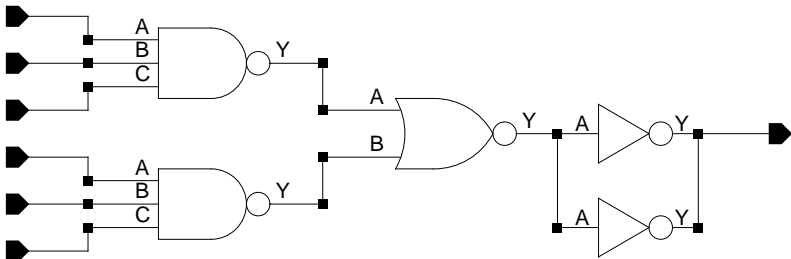
function : 6-input NAND,powered

macro name	NAND6P	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	1.187	0.570	0.780	1.051	0.253	0.352	0.467
B	0.019							
C	0.020							
D	0.019							
E	0.023							
F	0.020							
Y								

AC Characteristic

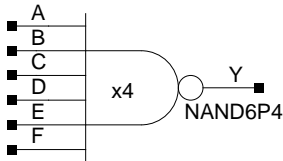
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.282	0.423	0.565	0.333	0.479	0.713
B	=>	Y	0.303	0.451	0.624	0.354	0.508	0.739
C	=>	Y	0.307	0.466	0.660	0.359	0.513	0.747
D	=>	Y	0.294	0.441	0.591	0.341	0.495	0.755
E	=>	Y	0.315	0.473	0.650	0.359	0.520	0.777
F	=>	Y	0.320	0.490	0.688	0.361	0.524	0.786

series : TSMC035

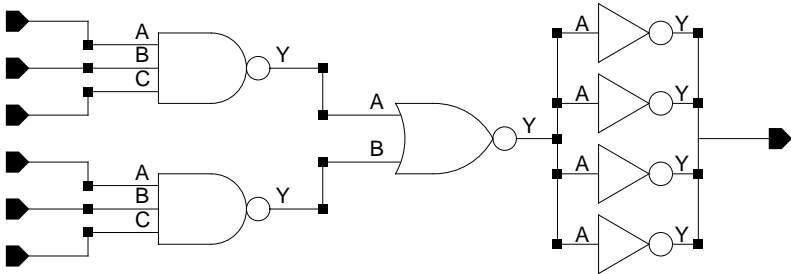
function : 6-input NAND,x4 powered

macro name	NAND6P4	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.403	0.285	0.391	0.527	0.134	0.189	0.254
B	0.021							
C	0.020							
D	0.019							
E	0.023							
F	0.020							
Y								

AC Characteristic

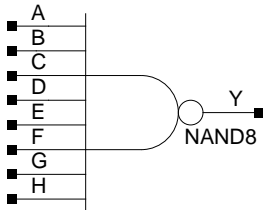
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.302	0.451	0.603	0.419	0.607	0.899
B	=>	Y	0.323	0.477	0.660	0.439	0.634	0.924
C	=>	Y	0.329	0.494	0.697	0.443	0.640	0.931
D	=>	Y	0.309	0.463	0.616	0.423	0.619	0.937
E	=>	Y	0.332	0.491	0.679	0.436	0.643	0.954
F	=>	Y	0.338	0.510	0.716	0.440	0.647	0.963

series : TSMC035

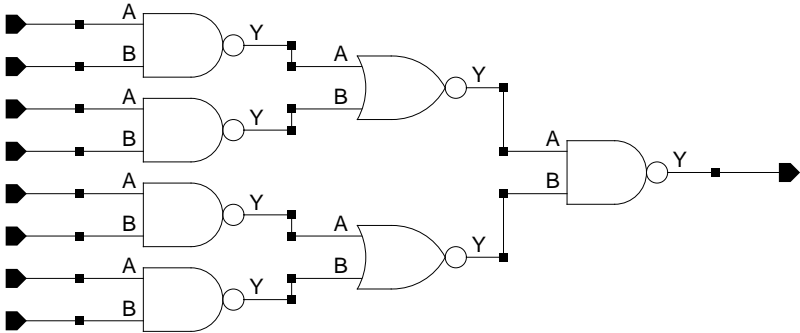
function : 8-input NAND

macro name	NAND8	size [um]	25.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.548	1.140	1.560	2.100	0.726	1.067	1.488
B	0.020							
C	0.019							
D	0.019							
E	0.019							
F	0.019							
G	0.019							
H	0.019							
Y	0.019							

AC Characteristic

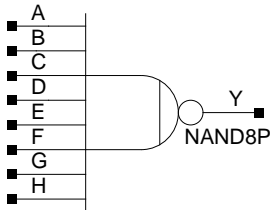
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.240	0.363	0.491	0.283	0.409	0.606
B	=>	Y	0.260	0.393	0.549	0.296	0.422	0.615
C	=>	Y	0.253	0.383	0.520	0.294	0.431	0.654
D	=>	Y	0.271	0.415	0.576	0.306	0.442	0.664
E	=>	Y	0.257	0.387	0.532	0.280	0.402	0.594
F	=>	Y	0.275	0.417	0.587	0.292	0.414	0.606
G	=>	Y	0.269	0.407	0.556	0.288	0.421	0.642
H	=>	Y	0.287	0.438	0.612	0.299	0.432	0.652

series : TSMC035

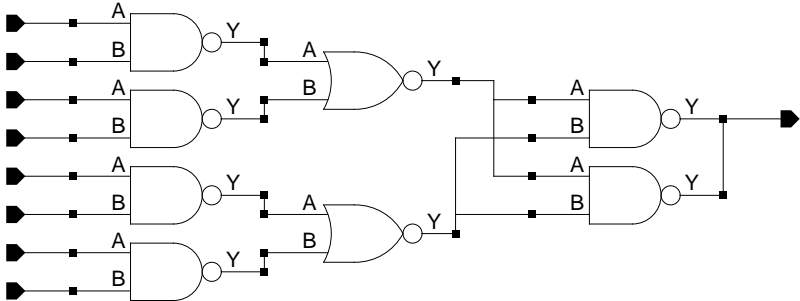
function : 8-input NAND,powered

macro name	NAND8P	size [um]	28.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

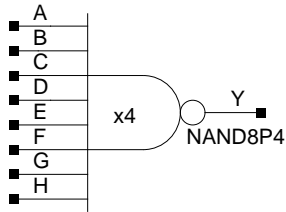
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	1.135	0.570	0.781	1.052	0.365	0.537	0.750
B	0.019							
C	0.019							
D	0.019							
E	0.019							
F	0.019							
G	0.019							
H	0.019							
Y	0.019							

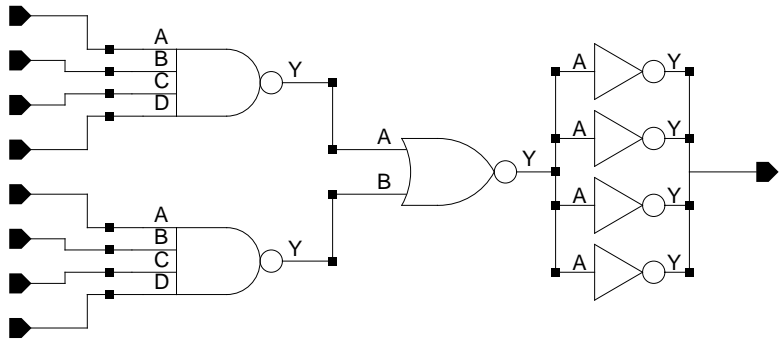
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.259	0.389	0.528	0.318	0.462	0.679
B	=>	Y	0.280	0.421	0.585	0.331	0.475	0.691
C	=>	Y	0.270	0.407	0.550	0.326	0.482	0.728
D	=>	Y	0.289	0.439	0.608	0.338	0.493	0.739
E	=>	Y	0.276	0.414	0.565	0.314	0.456	0.673
F	=>	Y	0.297	0.445	0.622	0.325	0.469	0.686
G	=>	Y	0.289	0.432	0.588	0.321	0.477	0.722
H	=>	Y	0.306	0.464	0.645	0.334	0.487	0.733

<b>macro name</b>	NAND8P4	<b>size [um]</b>	24.000 x 15.000
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**Symbol**

## Schematic



### Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

### Port Characteristic

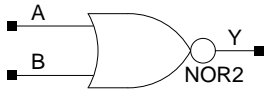
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.402	0.285	0.391	0.527	0.134	0.190	0.254
B	0.023							
C	0.020							
D	0.020							
E	0.019							
F	0.021							
G	0.020							
H	0.020							
Y								

### AC Characteristic

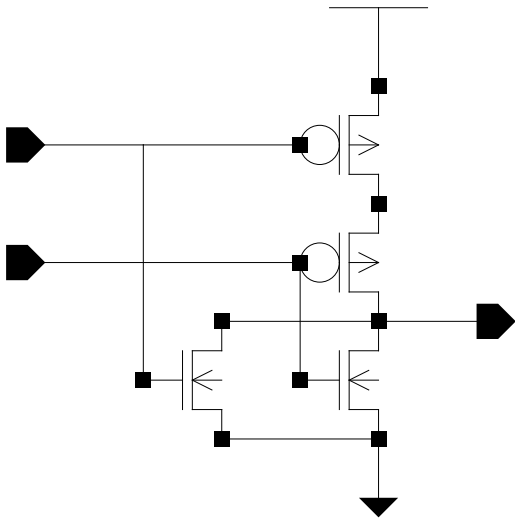
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.319	0.446	0.632	0.449	0.679	0.966
B	=>	Y	0.341	0.511	0.693	0.475	0.682	1.004
C	=>	Y	0.355	0.525	0.734	0.486	0.705	1.030
D	=>	Y	0.352	0.532	0.759	0.492	0.715	1.047
E	=>	Y	0.323	0.457	0.646	0.444	0.678	0.983
F	=>	Y	0.349	0.520	0.708	0.467	0.680	1.017
G	=>	Y	0.359	0.538	0.750	0.479	0.701	1.043
H	=>	Y	0.358	0.545	0.774	0.483	0.712	1.062

macro name	NOR2	size [um]	4.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.281	2.112	3.005	4.151	0.497	0.690	0.911
B	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.131	0.169	0.227	0.145	0.197	0.252
B	=>	Y	0.132	0.165	0.235	0.130	0.191	0.249

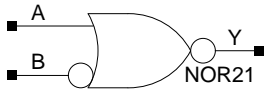


series : TSMC035

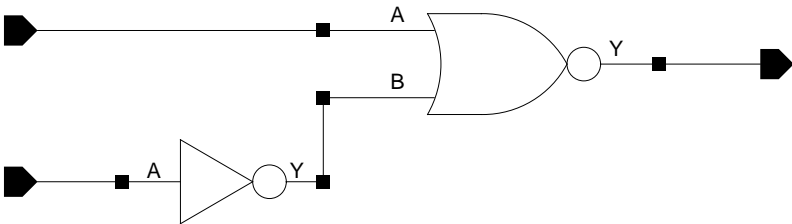
function : 2-input NOR,1-input inverted

macro name	NOR21	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.270	2.112	3.005	4.151	0.497	0.690	0.911
B	0.025							
Y								

AC Characteristic

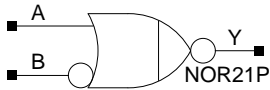
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.131	0.169	0.226	0.145	0.197	0.252
B	=>	Y	0.198	0.278	0.411	0.166	0.243	0.323

series : TSMC035

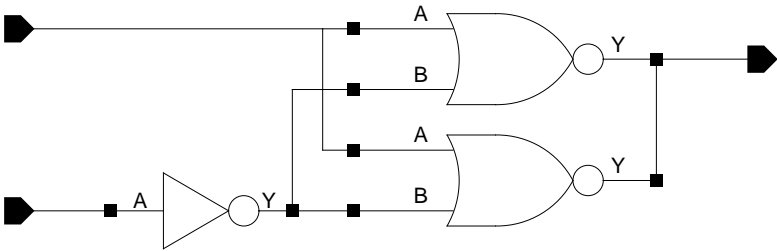
function : 2-input NOR,1-input inverted,powered

macro name	NOR21P	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	0.575	1.056	1.504	2.076	0.250	0.347	0.459
B	0.023							
Y								

AC Characteristic

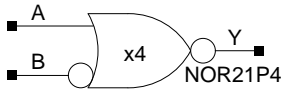
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.122	0.156	0.206	0.105	0.151	0.202
B	=>	Y	0.220	0.300	0.430	0.186	0.272	0.371

series : TSMC035

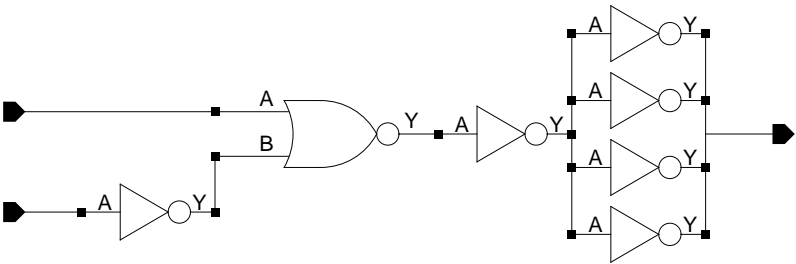
function : 2-input NOR,1-input inverted,x4 powered

macro name	NOR21P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.023 0.020	2.403	0.285	0.391	0.526	0.128	0.179	0.237

AC Characteristic

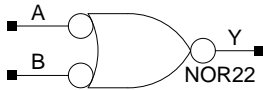
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.282	0.419	0.594	0.284	0.406	0.570
B	=>	Y	0.359	0.527	0.782	0.313	0.472	0.662

series : TSMC035

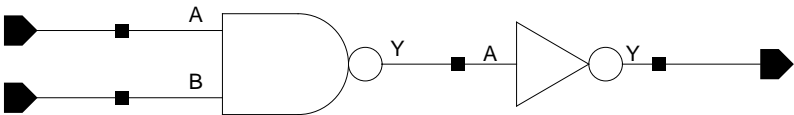
function : 2-input NOR,2-input inverted

macro name	NOR22	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.018	0.570	1.140	1.560	2.099	0.498	0.691	0.912
B	0.017							
Y								

AC Characteristic

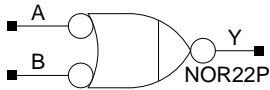
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.205	0.276	0.386	0.187	0.270	0.361
B	=>	Y	0.213	0.280	0.389	0.195	0.288	0.395

series : TSMC035

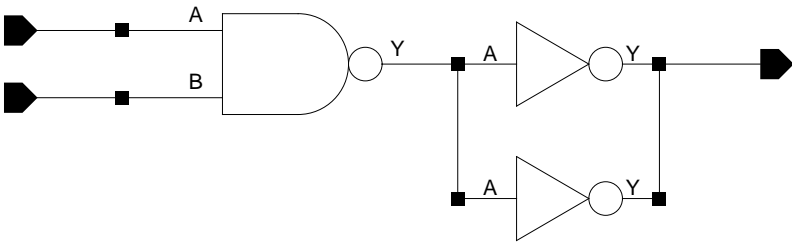
function : 2-input NOR,2-input inverted,powered

macro name	NOR22P	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.022 0.020	1.187	0.571	0.781	1.051	0.251	0.349	0.462

AC Characteristic

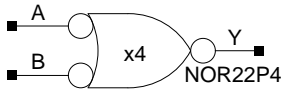
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.227	0.300	0.407	0.211	0.303	0.411
B	=>	Y	0.231	0.304	0.406	0.217	0.320	0.454

series : TSMC035

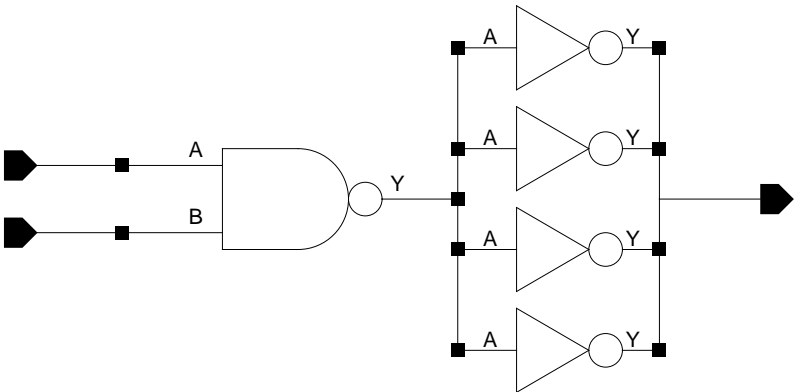
function : 2-input NOR,2-input inverted,x4 powered

macro name	NOR22P4	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.374	0.286	0.392	0.529	0.128	0.179	0.238
B	0.022							
Y								

AC Characteristic

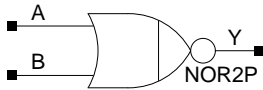
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.321	0.424	0.569	0.260	0.365	0.487
B	=>	Y	0.309	0.403	0.548	0.247	0.360	0.489

series : TSMC035

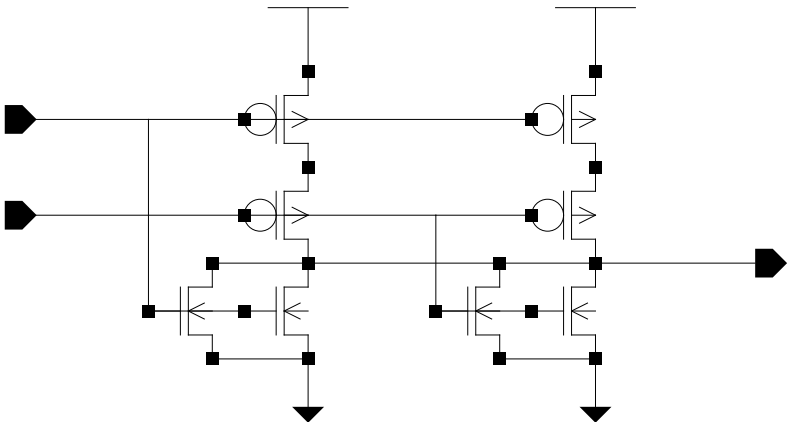
function : 2-input NOR,powered

macro name	NOR2P	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044	0.575	1.056	1.503	2.076	0.249	0.346	0.457
B	0.043							
Y								

AC Characteristic

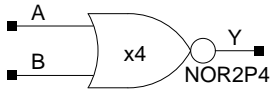
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.121	0.156	0.206	0.105	0.151	0.202
B	=>	Y	0.127	0.157	0.218	0.094	0.150	0.204

series : TSMC035

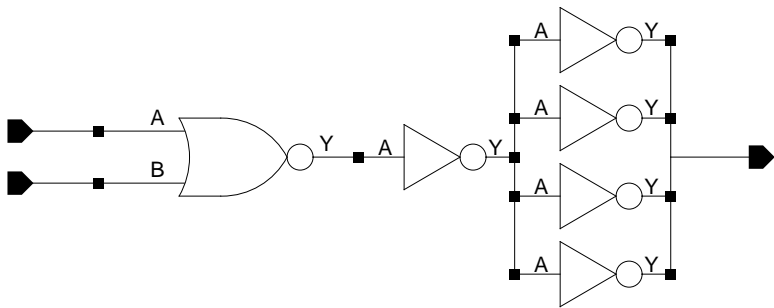
function : 2-input NOR,x4 powered

macro name	NOR2P4	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A B Y	0.021 0.023	2.401	0.285	0.391	0.526	0.128	0.179	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.315	0.466	0.647	0.293	0.412	0.582
B	=>	Y	0.327	0.473	0.670	0.294	0.427	0.597

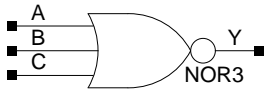


series : TSMC035

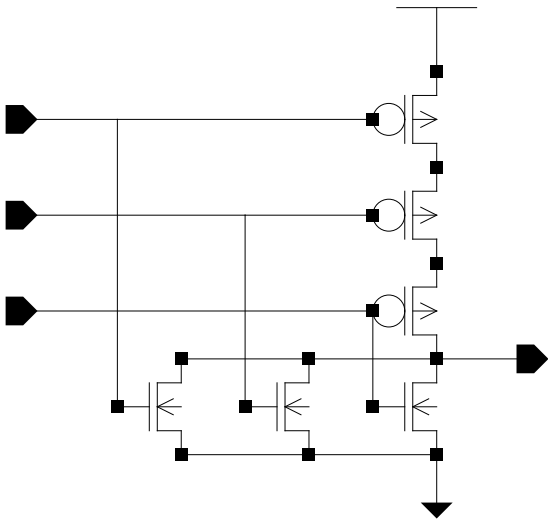
function : 3-input NOR

macro name	NOR3	size [um]	6.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.157	3.100	4.476	6.241	0.497	0.691	0.912
B	0.022							
C	0.022							
Y	0.022							

AC Characteristic

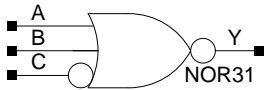
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.158	0.215	0.305	0.179	0.241	0.298
B	=>	Y	0.170	0.245	0.365	0.175	0.237	0.307
C	=>	Y	0.168	0.272	0.390	0.164	0.232	0.293

series : TSMC035

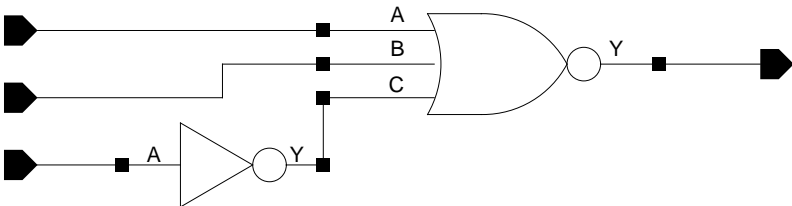
function : 3-input NOR,1-input inverted

macro name	NOR31	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.155	3.100	4.476	6.240	0.497	0.691	0.913
B	0.022							
C	0.022							
Y	0.022							

AC Characteristic

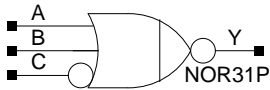
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.157	0.214	0.304	0.179	0.241	0.297
B	=>	Y	0.170	0.244	0.364	0.174	0.237	0.306
C	=>	Y	0.272	0.413	0.628	0.172	0.253	0.338

series : TSMC035

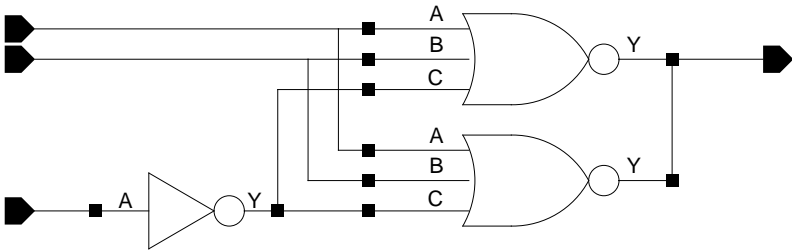
function : 3-input NOR,1-input inverted,powered

macro name	NOR31P	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.041	0.359	1.550	2.239	3.121	0.330	0.462	0.616
B	0.040							
C	0.020							
Y								

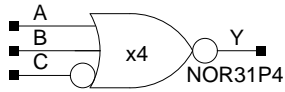
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.138	0.182	0.238	0.142	0.193	0.252
B	=>	Y	0.157	0.214	0.297	0.142	0.202	0.273
C	=>	Y	0.274	0.398	0.591	0.206	0.301	0.404

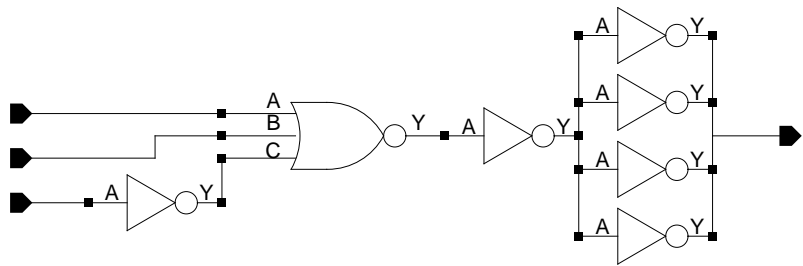
**function : 3-input NOR,1-input inverted,x4 powered**

<b>macro name</b>	NOR31P4	<b>size [um]</b>	16.500 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	2.403	0.285	0.390	0.526	0.128	0.179	0.237
B	0.023							
C	0.022							
Y								

### AC Characteristic

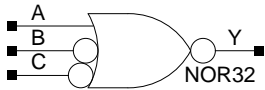
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.344	0.521	0.767	0.321	0.458	0.622
B	=>	Y	0.362	0.563	0.823	0.328	0.456	0.643
C	=>	Y	0.450	0.701	1.063	0.319	0.485	0.688

series : TSMC035

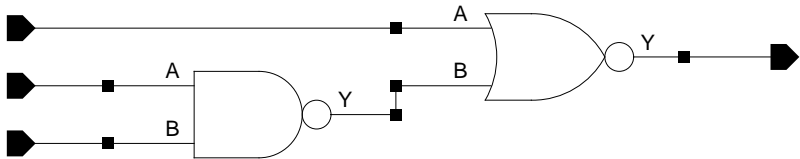
function : 3-input NOR,2-input inverted

macro name	NOR32	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.269	2.112	3.005	4.151	0.497	0.690	0.913
B	0.018							
C	0.018							
Y	0.018							

AC Characteristic

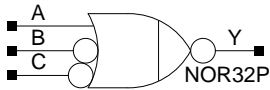
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.131	0.169	0.227	0.145	0.197	0.252
B	=>	Y	0.231	0.327	0.475	0.192	0.281	0.380
C	=>	Y	0.238	0.330	0.478	0.200	0.299	0.415

series : TSMC035

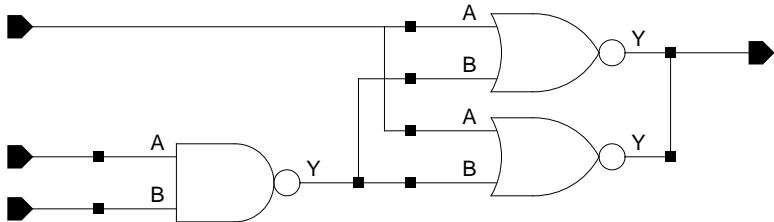
function : 3-input NOR,2-input inverted,powered

macro name	NOR32P	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.580	1.056	1.503	2.076	0.331	0.463	0.616
B	0.017							
C	0.020							
Y								

AC Characteristic

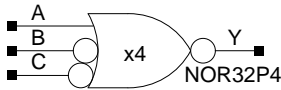
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.123	0.159	0.202	0.113	0.157	0.212
B	=>	Y	0.263	0.358	0.506	0.236	0.341	0.464
C	=>	Y	0.262	0.353	0.500	0.237	0.353	0.491

series : TSMC035

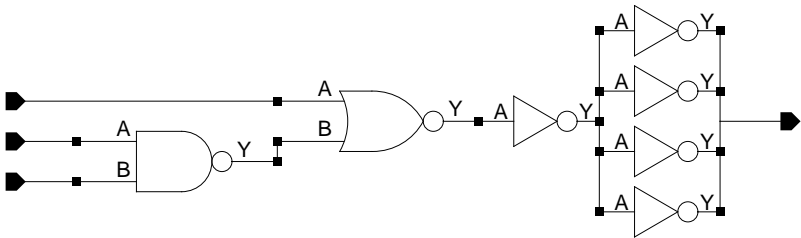
function : 3-input NOR,2-input inverted,x4 powered

macro name	NOR32P4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.405	0.286	0.391	0.527	0.128	0.179	0.237
B	0.023							
C	0.020							
Y								

AC Characteristic

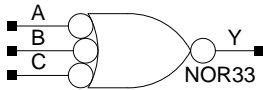
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.282	0.419	0.595	0.285	0.406	0.571
B	=>	Y	0.388	0.576	0.842	0.328	0.491	0.694
C	=>	Y	0.395	0.574	0.843	0.328	0.505	0.714

series : TSMC035

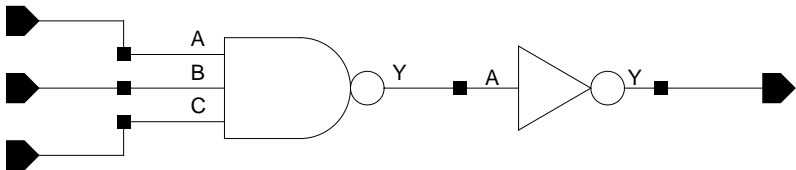
function : 3-input NOR,3-input inverted

macro name	NOR33	size [um]	7.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.570	1.141	1.560	2.100	0.498	0.692	0.915
B	0.020							
C	0.021							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.230	0.311	0.443	0.206	0.304	0.408
B	=>	Y	0.248	0.336	0.464	0.225	0.331	0.465
C	=>	Y	0.251	0.342	0.471	0.230	0.344	0.500

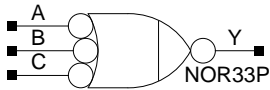


series : TSMC035

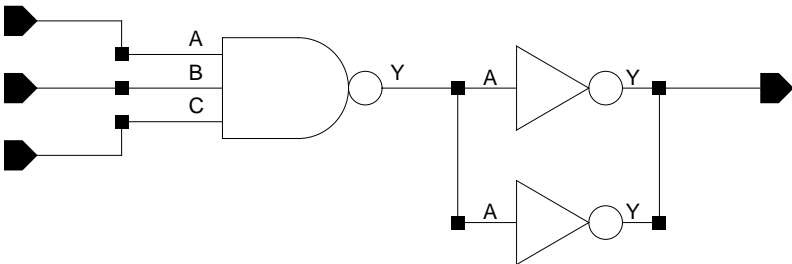
function : 3-input NOR,3-input inverted,powered

macro name	NOR33P	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	1.185	0.571	0.781	1.052	0.251	0.350	0.465
B	0.019							
C	0.020							
Y								

AC Characteristic

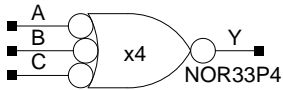
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.270	0.358	0.497	0.235	0.342	0.458
B	=>	Y	0.281	0.375	0.509	0.244	0.360	0.505
C	=>	Y	0.278	0.376	0.511	0.247	0.366	0.534

series : TSMC035

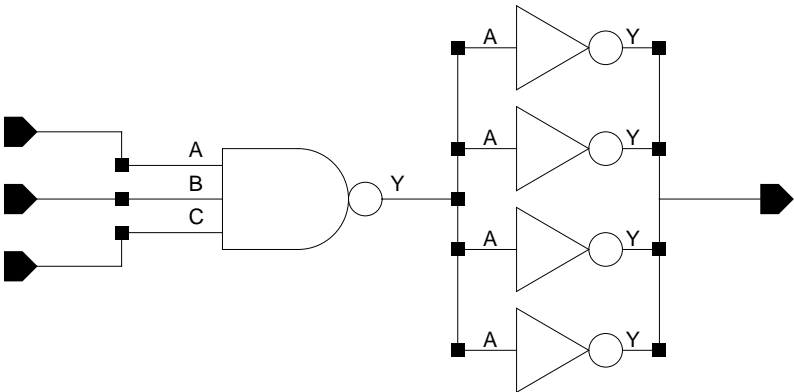
function : 3-input NOR,3-input inverted,x4 powered

macro name	NOR33P4	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.310	0.286	0.394	0.533	0.129	0.181	0.241
B	0.020							
C	0.021							
Y								

AC Characteristic

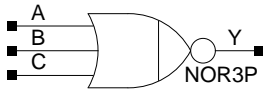
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.378	0.516	0.718	0.287	0.406	0.534
B	=>	Y	0.377	0.516	0.714	0.279	0.399	0.545
C	=>	Y	0.369	0.506	0.714	0.261	0.388	0.539

series : TSMC035

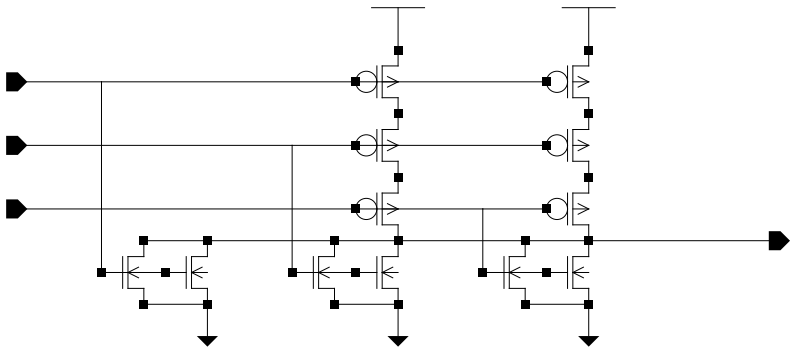
function : 3-input NOR,powered

macro name	NOR3P	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.041	0.359	1.550	2.239	3.121	0.330	0.462	0.615
B	0.040							
C	0.040							
Y								

AC Characteristic

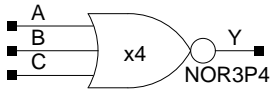
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.138	0.182	0.238	0.142	0.193	0.252
B	=>	Y	0.157	0.214	0.297	0.142	0.202	0.273
C	=>	Y	0.158	0.215	0.331	0.129	0.195	0.260

series : TSMC035

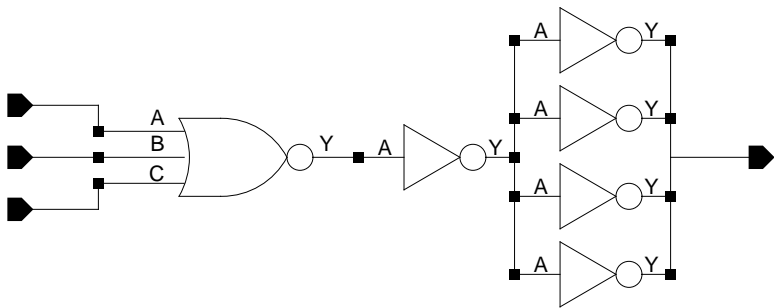
function : 3-input NOR,x4 powered

macro name	NOR3P4	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

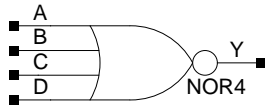
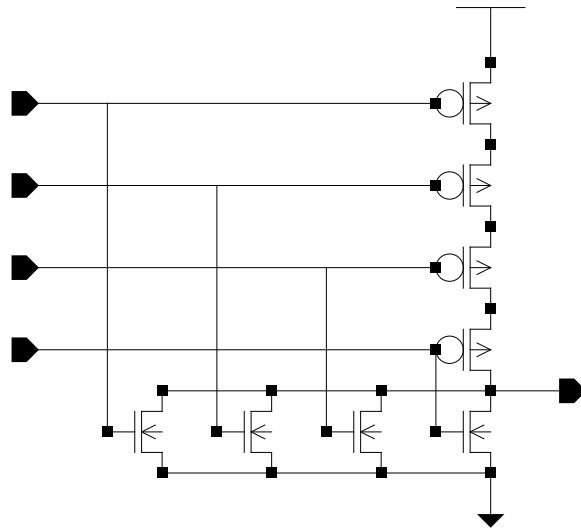
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.398	0.285	0.390	0.527	0.128	0.179	0.237
B	0.021							
C	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.374	0.567	0.807	0.331	0.460	0.637
B	=>	Y	0.395	0.609	0.871	0.339	0.467	0.665
C	=>	Y	0.395	0.593	0.902	0.337	0.489	0.665

macro name	NOR4	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.099	4.093	5.956	8.346	0.497	0.691	0.915
B	0.022							
C	0.022							
D	0.022							
Y	0.022							

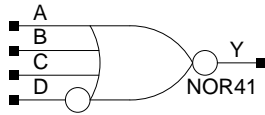
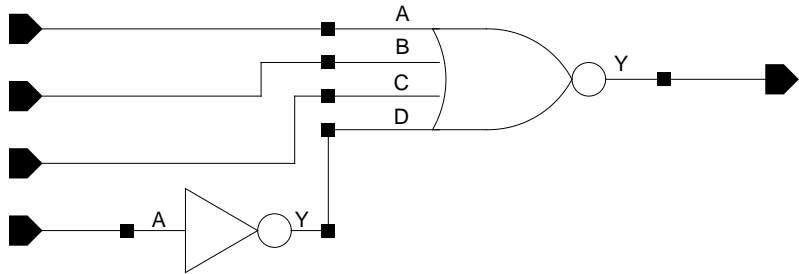
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.172	0.250	0.340	0.200	0.253	0.322
B	=>	Y	0.199	0.310	0.484	0.202	0.270	0.337
C	=>	Y	0.233	0.383	0.537	0.195	0.265	0.331
D	=>	Y	0.256	0.384	0.572	0.189	0.253	0.320

series : TSMC035

function : 4-input NOR,1-input inverted

macro name	NOR41	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.099	4.093	5.956	8.346	0.497	0.692	0.915
B	0.022							
C	0.022							
D	0.023							
Y								

**AC Characteristic**

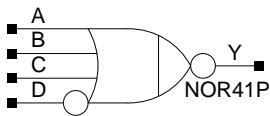
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.172	0.250	0.340	0.200	0.253	0.322
B	=>	Y	0.199	0.310	0.484	0.201	0.270	0.337
C	=>	Y	0.233	0.383	0.537	0.195	0.265	0.331
D	=>	Y	0.359	0.569	0.868	0.174	0.255	0.340

series : TSMC035

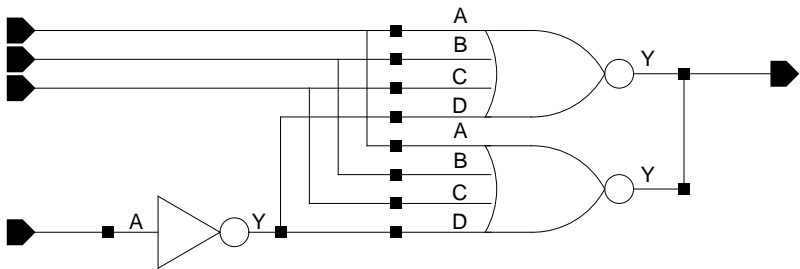
function : 4-input NOR,1-input inverted,powered

macro name	NOR41P	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.238	2.047	2.979	4.174	0.330	0.464	0.619
B	0.040							
C	0.041							
D	0.020							
Y								

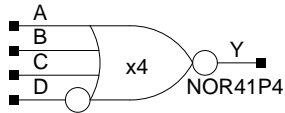
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.155	0.201	0.276	0.170	0.234	0.288
B	=>	Y	0.186	0.265	0.383	0.176	0.240	0.314
C	=>	Y	0.199	0.291	0.472	0.168	0.243	0.310
D	=>	Y	0.358	0.550	0.826	0.213	0.311	0.418

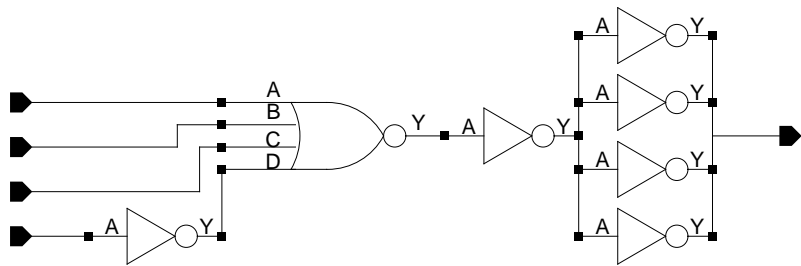
**function : 4-input NOR,1-input inverted,x4 powered**

<b>macro name</b>	NOR41P4	<b>size [um]</b>	18.000 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

### Port Characteristic

[illegible]

### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.389	0.617	0.878	0.343	0.461	0.651
B	=>	Y	0.416	0.654	0.983	0.354	0.495	0.675
C	=>	Y	0.427	0.670	1.064	0.354	0.509	0.678
D	=>	Y	0.569	0.909	1.388	0.330	0.498	0.699

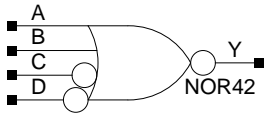


series : TSMC035

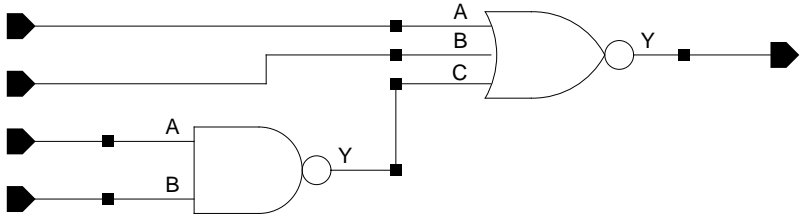
function : 4-input NOR,2-input inverted

macro name	NOR42	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.156	3.100	4.476	6.241	0.497	0.691	0.914
B	0.022							
C	0.025							
D	0.022							
Y								

AC Characteristic

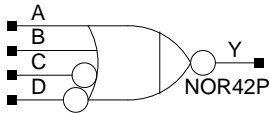
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.157	0.213	0.303	0.178	0.240	0.297
B	=>	Y	0.169	0.244	0.363	0.174	0.236	0.306
C	=>	Y	0.286	0.440	0.661	0.184	0.268	0.367
D	=>	Y	0.294	0.445	0.667	0.195	0.289	0.403

series : TSMC035

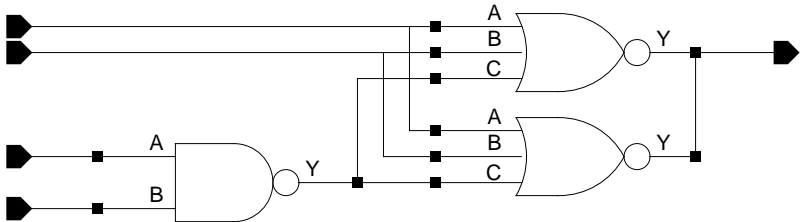
function : 4-input NOR,2-input inverted,powered

macro name	NOR42P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.358	1.550	2.239	3.122	0.330	0.463	0.618
B	0.040							
C	0.018							
D	0.018							
Y								

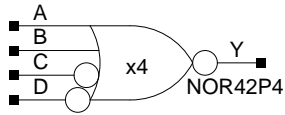
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.138	0.183	0.239	0.142	0.193	0.253
B	=>	Y	0.157	0.214	0.298	0.143	0.202	0.274
C	=>	Y	0.315	0.456	0.668	0.241	0.351	0.481
D	=>	Y	0.314	0.451	0.663	0.242	0.363	0.509

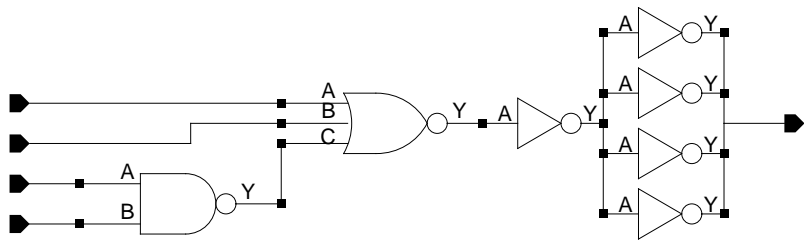
**function : 4-input NOR,2-input inverted,x4 powered**

<b>macro name</b>	NOR42P4	<b>size [um]</b>	18.000 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.403	0.285	0.390	0.526	0.128	0.179	0.237
B	0.023							
C	0.022							
D	0.022							
Y								

### AC Characteristic

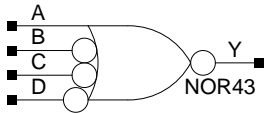
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.344	0.521	0.766	0.321	0.457	0.622
B	=>	Y	0.362	0.563	0.822	0.327	0.456	0.643
C	=>	Y	0.479	0.741	1.114	0.334	0.506	0.720
D	=>	Y	0.485	0.745	1.120	0.346	0.528	0.756

series : TSMC035

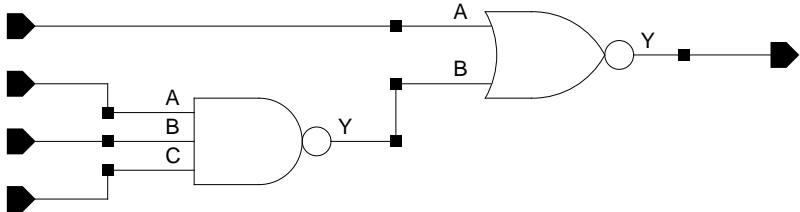
function : 4-input NOR,3-input inverted

macro name	NOR43	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.269	2.112	3.005	4.151	0.497	0.691	0.915
B	0.020							
C	0.020							
D	0.021							
Y								

AC Characteristic

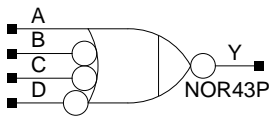
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.131	0.169	0.226	0.145	0.197	0.252
B	=>	Y	0.253	0.355	0.524	0.212	0.317	0.429
C	=>	Y	0.270	0.380	0.543	0.232	0.343	0.487
D	=>	Y	0.274	0.387	0.552	0.235	0.356	0.522

series : TSMC035

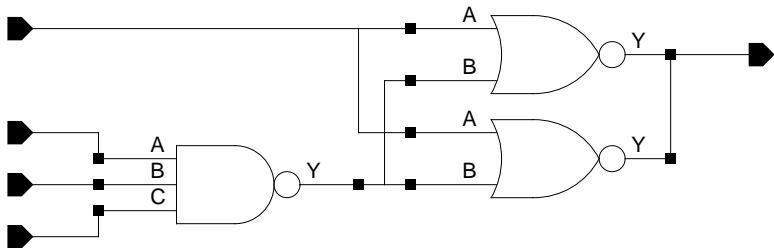
function : 4-input NOR,3-input inverted,powered

macro name	NOR43P	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.580	1.056	1.503	2.077	0.331	0.464	0.619
B	0.020							
C	0.020							
D	0.020							
Y								

AC Characteristic

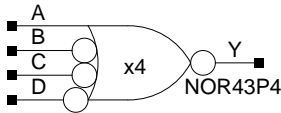
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.123	0.159	0.202	0.113	0.157	0.212
B	=>	Y	0.284	0.389	0.554	0.253	0.371	0.508
C	=>	Y	0.296	0.403	0.568	0.267	0.396	0.559
D	=>	Y	0.294	0.406	0.572	0.267	0.405	0.591

series : TSMC035

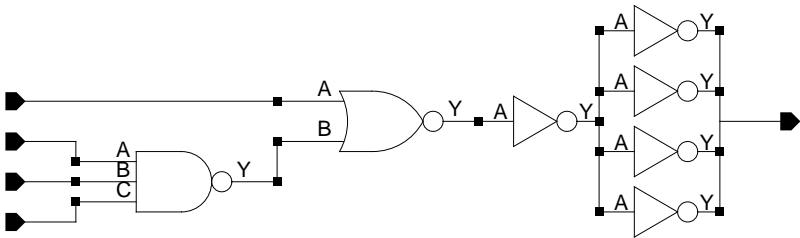
function : 4-input NOR,3-input inverted,x4 powered

macro name	NOR43P4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.405	0.285	0.391	0.526	0.128	0.179	0.237
B	0.021							
C	0.020							
D	0.020							
Y								

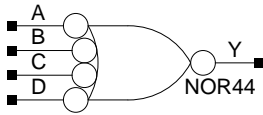
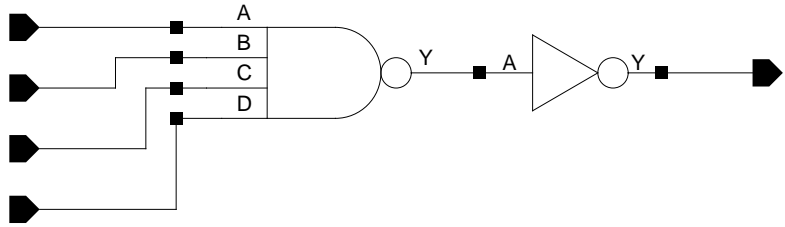
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.282	0.419	0.595	0.285	0.406	0.571
B	=>	Y	0.438	0.643	0.945	0.355	0.536	0.753
C	=>	Y	0.449	0.657	0.957	0.358	0.543	0.777
D	=>	Y	0.447	0.655	0.965	0.352	0.543	0.779

series : TSMC035

function : 4-input NOR,4-input inverted

macro name	NOR44	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.570	1.140	1.561	2.101	0.498	0.693	0.917
B	0.019							
C	0.021							
D	0.019							
Y								

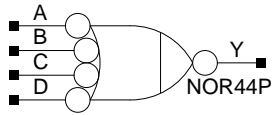
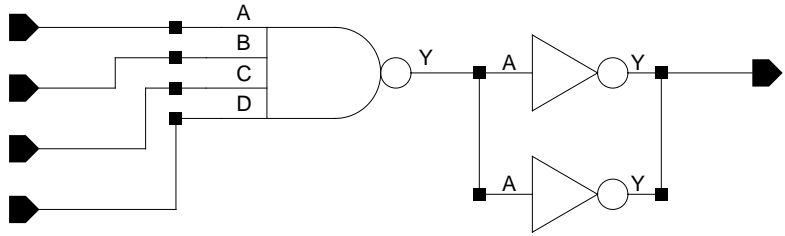
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.254	0.367	0.493	0.218	0.300	0.433
B	=>	Y	0.278	0.373	0.531	0.240	0.360	0.492
C	=>	Y	0.288	0.395	0.556	0.250	0.373	0.531
D	=>	Y	0.294	0.407	0.572	0.247	0.374	0.551

series : TSMC035

function : 4-input NOR,4-input inverted,powered

macro name	NOR44P	size [um]	10.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	1.175	0.571	0.782	1.054	0.251	0.351	0.468
B	0.022							
C	0.019							
D	0.019							
Y								

**AC Characteristic**

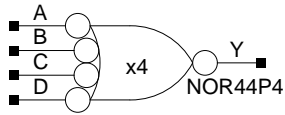
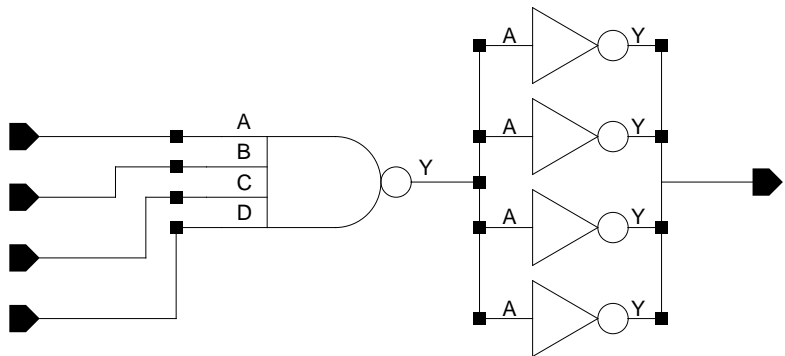
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.296	0.420	0.554	0.247	0.339	0.482
B	=>	Y	0.314	0.419	0.585	0.261	0.388	0.532
C	=>	Y	0.321	0.436	0.605	0.267	0.396	0.566
D	=>	Y	0.321	0.445	0.620	0.260	0.395	0.582



series : TSMC035

function : 4-input NOR,4-input inverted,x4 powered

macro name	NOR44P4	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019	2.297	0.286	0.394	0.534	0.131	0.185	0.250
B	0.023							
C	0.020							
D	0.019							
Y								

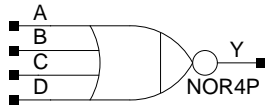
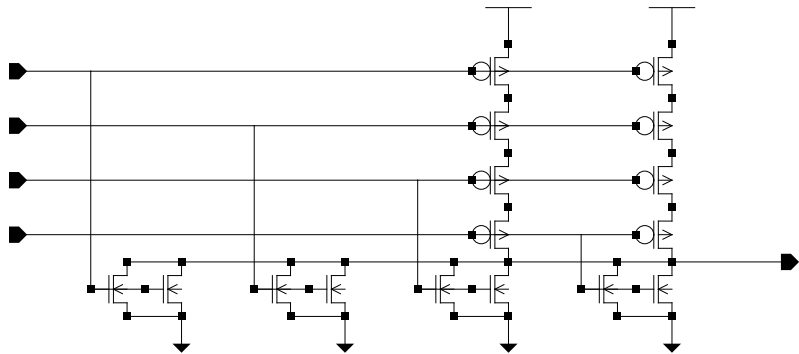
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.385	0.538	0.708	0.314	0.428	0.604
B	=>	Y	0.395	0.529	0.730	0.319	0.469	0.643
C	=>	Y	0.395	0.540	0.745	0.318	0.470	0.671
D	=>	Y	0.392	0.546	0.757	0.306	0.465	0.686

series : TSMC035

function : 4-input NOR,powered

macro name	NOR4P	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

**Port Characteristic**

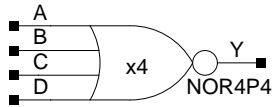
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.238	2.047	2.979	4.174	0.330	0.463	0.618
B	0.040							
C	0.041							
D	0.041							
Y								

**AC Characteristic**

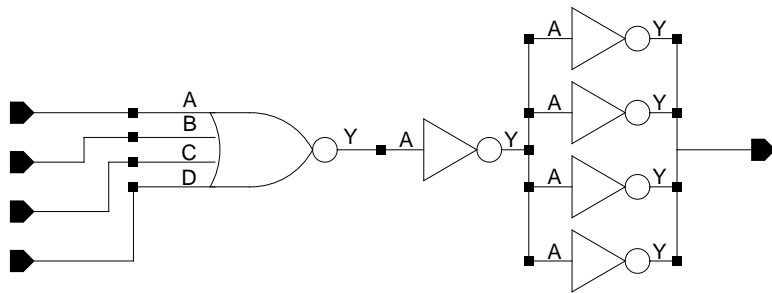
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.155	0.201	0.276	0.170	0.234	0.288
B	=>	Y	0.186	0.265	0.384	0.176	0.240	0.314
C	=>	Y	0.199	0.291	0.472	0.168	0.243	0.310
D	=>	Y	0.198	0.307	0.513	0.160	0.226	0.296

<b>macro name</b>	NOR4P4	<b>size [um]</b>	15.000 x 15.000
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***Symbol***



## Schematic



### ***Truth Table***

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.396						
B	0.020							
C	0.019							
D	0.020							
Y			0.285	0.390	0.526	0.128	0.179	0.237

### AC Characteristic

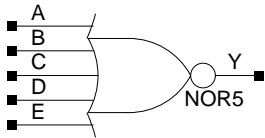
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.416	0.625	0.914	0.354	0.498	0.665
B	=>	Y	0.448	0.701	1.024	0.367	0.503	0.700
C	=>	Y	0.461	0.719	1.113	0.369	0.524	0.705
D	=>	Y	0.460	0.716	1.151	0.367	0.530	0.701

series : TSMC035

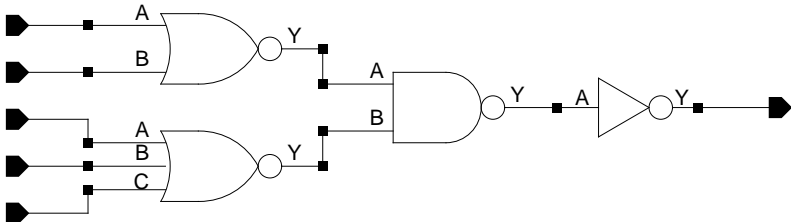
function : 5-input NOR

macro name	NOR5	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	0.571	1.141	1.560	2.099	0.498	0.691	0.913
B	0.020							
C	0.020							
D	0.020							
E	0.020							
Y								

AC Characteristic

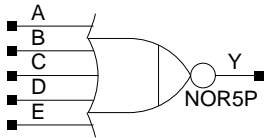
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.250	0.378	0.535	0.262	0.367	0.519
B	=>	Y	0.260	0.383	0.558	0.264	0.382	0.534
C	=>	Y	0.293	0.450	0.654	0.321	0.453	0.633
D	=>	Y	0.314	0.489	0.715	0.330	0.463	0.661
E	=>	Y	0.315	0.475	0.750	0.326	0.484	0.657

series : TSMC035

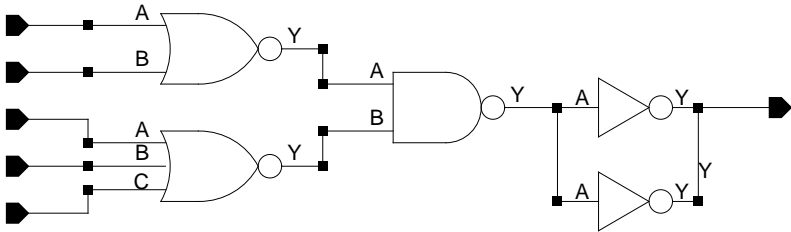
function : 5-input NOR,powered

macro name	NOR5P	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	1.186	0.570	0.781	1.051	0.251	0.349	0.462
B	0.023							
C	0.020							
D	0.021							
E	0.022							
Y								

AC Characteristic

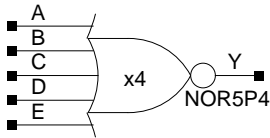
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.271	0.406	0.574	0.283	0.400	0.566
B	=>	Y	0.282	0.412	0.596	0.284	0.415	0.580
C	=>	Y	0.312	0.475	0.688	0.340	0.480	0.672
D	=>	Y	0.333	0.516	0.749	0.348	0.488	0.700
E	=>	Y	0.334	0.500	0.784	0.343	0.511	0.697

series : TSMC035

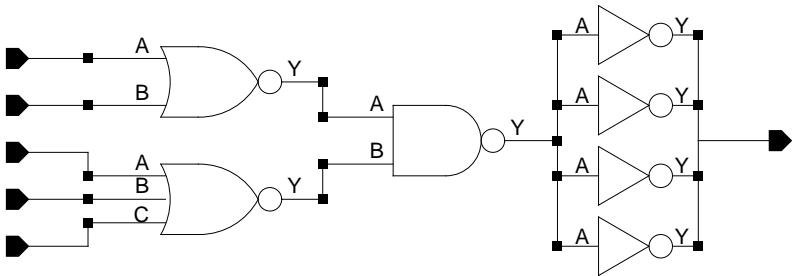
function : 5-input NOR,x4 powered

macro name	NOR5P4	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

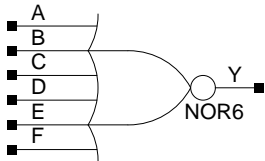
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	2.379	0.285	0.391	0.528	0.128	0.180	0.239
B	0.023							
C	0.021							
D	0.021							
E	0.022							
Y								

AC Characteristic

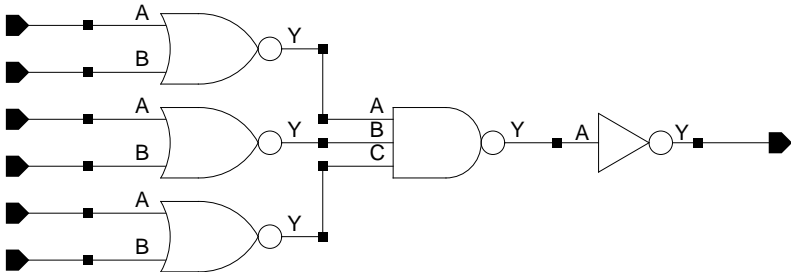
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.336	0.500	0.703	0.303	0.429	0.607
B	=>	Y	0.347	0.506	0.725	0.304	0.442	0.619
C	=>	Y	0.372	0.570	0.818	0.352	0.495	0.692
D	=>	Y	0.395	0.611	0.879	0.359	0.503	0.719
E	=>	Y	0.397	0.595	0.914	0.356	0.523	0.716

macro name	NOR6	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
0	0	0	0	0	0	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.570	1.140	1.560	2.100	0.498	0.691	0.914
B	0.020							
C	0.020							
D	0.020							
E	0.020							
F	0.020							
Y								

AC Characteristic

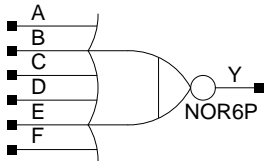
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.303	0.464	0.664	0.261	0.364	0.519
B	=>	Y	0.313	0.470	0.687	0.262	0.378	0.532
C	=>	Y	0.308	0.469	0.675	0.276	0.394	0.563
D	=>	Y	0.316	0.473	0.697	0.280	0.408	0.577
E	=>	Y	0.306	0.471	0.684	0.293	0.419	0.601
F	=>	Y	0.317	0.473	0.705	0.292	0.432	0.614

series : TSMC035

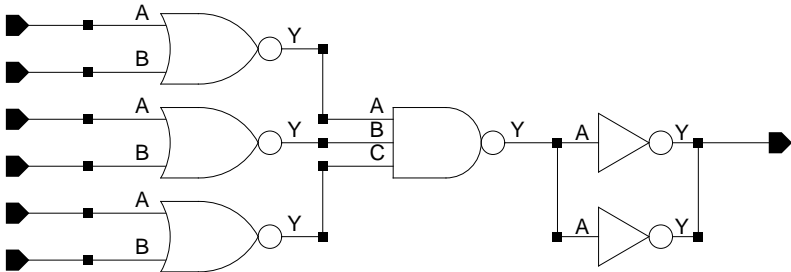
function : 6-input NOR,powered

macro name	NOR6P	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
0	0	0	0	0	0	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	1.181	0.570	0.781	1.053	0.250	0.349	0.463
B	0.023							
C	0.021							
D	0.023							
E	0.021							
F	0.020							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.326	0.496	0.705	0.274	0.383	0.546
B	=>	Y	0.334	0.502	0.727	0.276	0.396	0.558
C	=>	Y	0.327	0.497	0.712	0.286	0.409	0.585
D	=>	Y	0.336	0.501	0.733	0.289	0.423	0.599
E	=>	Y	0.326	0.499	0.722	0.303	0.434	0.622
F	=>	Y	0.337	0.501	0.742	0.301	0.446	0.635

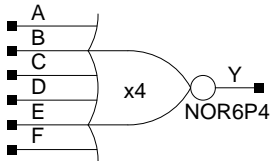


series : TSMC035

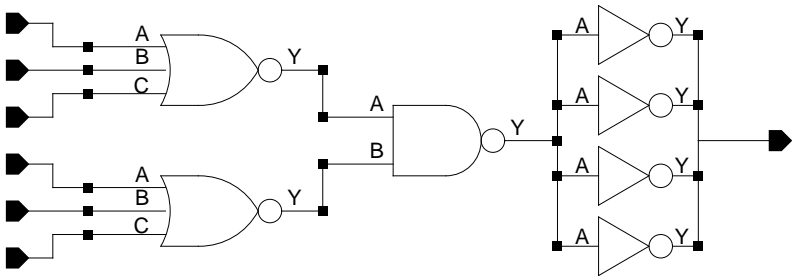
function : 6-input NOR,x4 powered

macro name	NOR6P4	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
0	0	0	0	0	0	1
other states						0

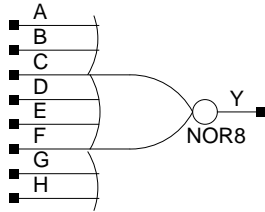
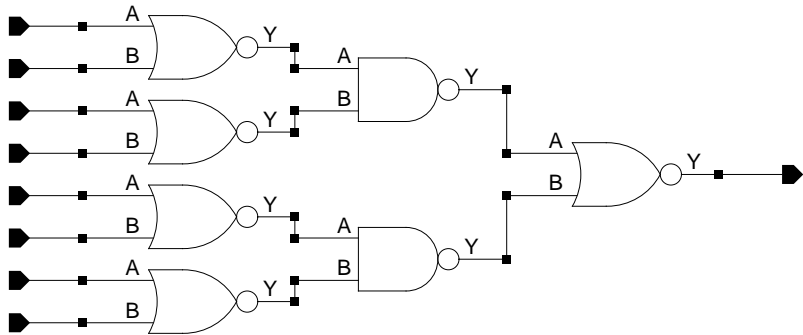
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024	2.380	0.285	0.391	0.528	0.129	0.180	0.239
B	0.023							
C	0.019							
D	0.021							
E	0.021							
F	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.392	0.601	0.862	0.339	0.475	0.658
B	=>	Y	0.413	0.642	0.926	0.349	0.481	0.684
C	=>	Y	0.415	0.628	0.956	0.346	0.503	0.686
D	=>	Y	0.373	0.570	0.819	0.352	0.495	0.692
E	=>	Y	0.396	0.612	0.880	0.359	0.503	0.719
F	=>	Y	0.398	0.596	0.915	0.356	0.524	0.717

macro name	NOR8	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
0	0	0	0	0	0	0	0	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.268	2.112	3.005	4.150	0.498	0.691	0.913
B	0.020							
C	0.020							
D	0.020							
E	0.020							
F	0.020							
G	0.020							
H	0.020							
Y	0.022							

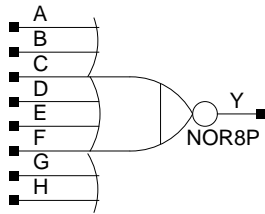
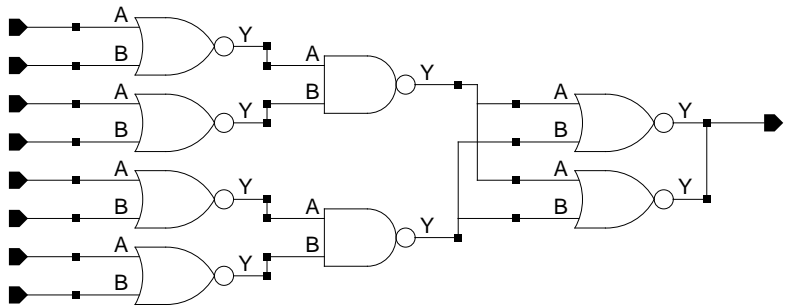
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.272	0.414	0.589	0.262	0.371	0.525
B	=>	Y	0.281	0.418	0.612	0.264	0.386	0.540
C	=>	Y	0.273	0.414	0.591	0.286	0.410	0.586
D	=>	Y	0.284	0.415	0.612	0.286	0.426	0.600
E	=>	Y	0.289	0.446	0.643	0.269	0.380	0.540
F	=>	Y	0.300	0.450	0.666	0.269	0.395	0.554
G	=>	Y	0.289	0.442	0.641	0.290	0.419	0.601
H	=>	Y	0.298	0.444	0.662	0.291	0.435	0.615

series : TSMC035

function : 8-input NOR,powered

macro name	NOR8P	size [um]	28.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
0	0	0	0	0	0	0	0	1
other states								0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.572	1.056	1.503	2.077	0.251	0.350	0.463
B	0.020							
C	0.020							
D	0.020							
E	0.020							
F	0.020							
G	0.020							
H	0.020							
Y	0.020							

**AC Characteristic**

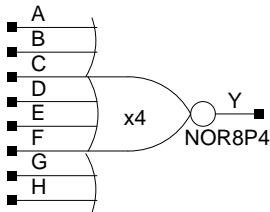
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.291	0.441	0.624	0.286	0.406	0.577
B	=>	Y	0.303	0.446	0.648	0.288	0.421	0.591
C	=>	Y	0.287	0.435	0.617	0.303	0.440	0.631
D	=>	Y	0.298	0.436	0.639	0.304	0.455	0.645
E	=>	Y	0.309	0.472	0.679	0.292	0.417	0.595
F	=>	Y	0.321	0.477	0.702	0.292	0.432	0.609
G	=>	Y	0.306	0.464	0.670	0.309	0.450	0.651
H	=>	Y	0.314	0.467	0.693	0.310	0.467	0.665

series : TSMC035

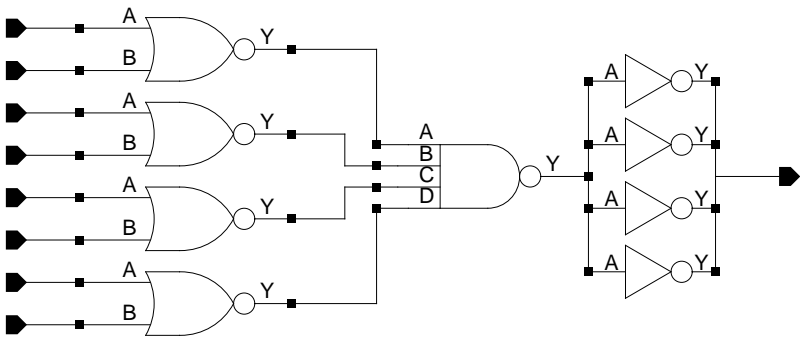
function : 8-input NOR,x4 powered

macro name	NOR8P4	size [um]	28.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
0	0	0	0	0	0	0	0	1
other states								0

Port Characteristic

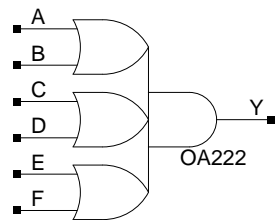
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.291	0.286	0.394	0.534	0.131	0.186	0.250
B	0.020							
C	0.024							
D	0.020							
E	0.020							
F	0.020							
G	0.020							
H	0.020							
Y	0.020							

AC Characteristic

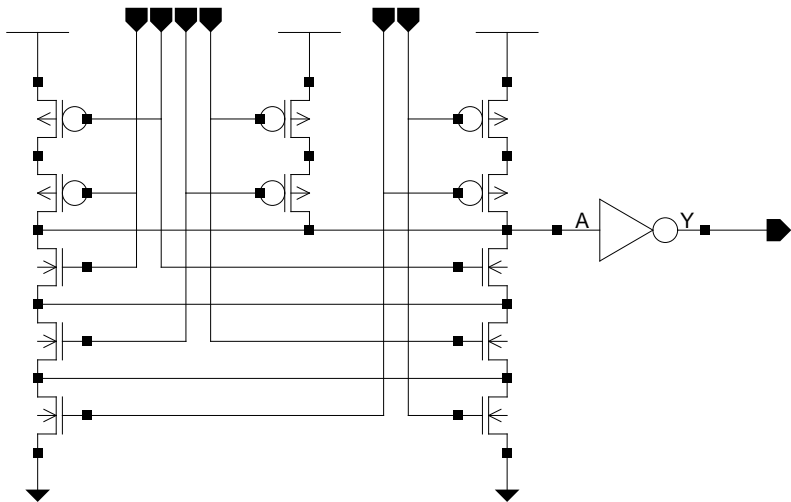
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.406	0.619	0.879	0.346	0.494	0.709
B	=>	Y	0.421	0.626	0.903	0.344	0.508	0.722
C	=>	Y	0.412	0.631	0.904	0.364	0.526	0.761
D	=>	Y	0.426	0.637	0.927	0.362	0.540	0.774
E	=>	Y	0.417	0.646	0.934	0.382	0.558	0.810
F	=>	Y	0.429	0.649	0.956	0.380	0.571	0.823
G	=>	Y	0.422	0.655	0.952	0.395	0.585	0.852
H	=>	Y	0.432	0.656	0.974	0.394	0.599	0.865

macro name	OA222	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

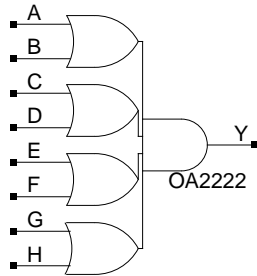
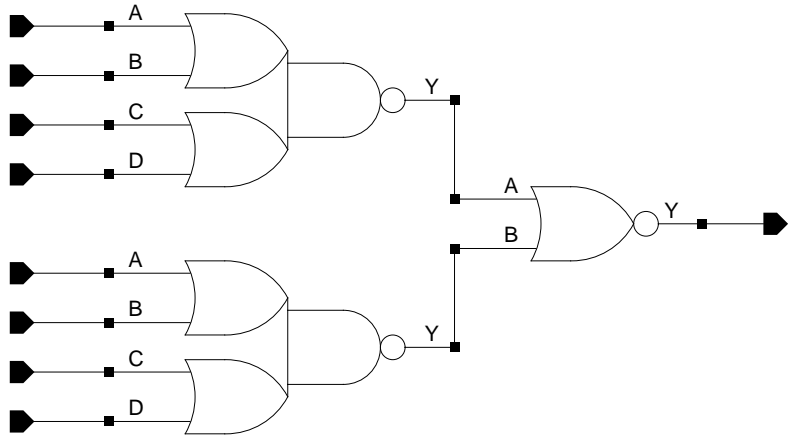
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.567	1.140	1.561	2.102	0.500	0.701	0.939
B	0.023							
C	0.021							
D	0.023							
E	0.023							
F	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.243	0.458	0.760	0.232	0.374	0.579
B	=>	Y	0.236	0.464	0.791	0.239	0.386	0.604
C	=>	Y	0.297	0.503	0.803	0.281	0.445	0.699
D	=>	Y	0.288	0.493	0.836	0.281	0.463	0.715
E	=>	Y	0.328	0.518	0.815	0.300	0.485	0.774
F	=>	Y	0.322	0.529	0.849	0.295	0.477	0.786

macro name	OA2222	size [um]	19.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	0.268	2.111	3.005	4.151	0.499	0.696	0.925
B	0.023							
C	0.020							
D	0.021							
E	0.024							
F	0.022							
G	0.022							
H	0.021							
Y								

**AC Characteristic**

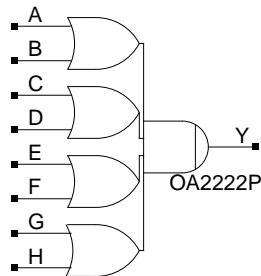
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.227	0.375	0.573	0.208	0.323	0.481
B	=>	Y	0.224	0.376	0.595	0.217	0.342	0.505
C	=>	Y	0.282	0.417	0.591	0.254	0.391	0.605
D	=>	Y	0.280	0.427	0.608	0.256	0.388	0.619
E	=>	Y	0.238	0.405	0.613	0.212	0.324	0.503
F	=>	Y	0.233	0.394	0.631	0.221	0.350	0.527
G	=>	Y	0.286	0.430	0.629	0.260	0.405	0.628
H	=>	Y	0.282	0.437	0.641	0.263	0.402	0.642

series : TSMC035

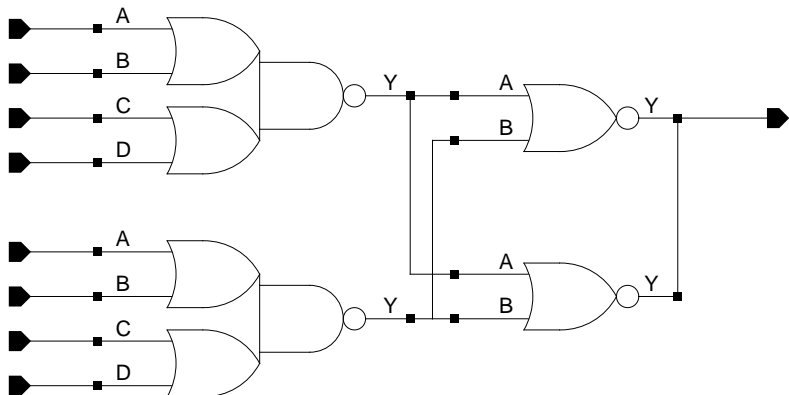
function : 4-wide 2-2-2-2-inputs OR-AND,powered

macro name	OA2222P	size [um]	22.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.571	1.056	1.503	2.078	0.253	0.358	0.481
B	0.022							
C	0.023							
D	0.022							
E	0.021							
F	0.022							
G	0.022							
H	0.021							
Y								

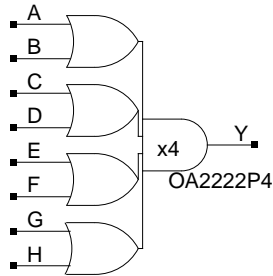
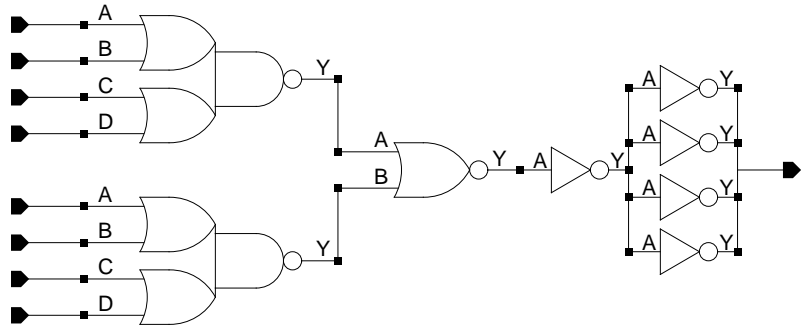
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.268	0.424	0.630	0.246	0.371	0.542
B	=>	Y	0.261	0.420	0.649	0.251	0.385	0.560
C	=>	Y	0.315	0.457	0.639	0.280	0.427	0.654
D	=>	Y	0.310	0.464	0.654	0.278	0.420	0.666
E	=>	Y	0.285	0.457	0.671	0.248	0.371	0.568
F	=>	Y	0.276	0.443	0.684	0.252	0.393	0.586
G	=>	Y	0.327	0.473	0.678	0.284	0.441	0.682
H	=>	Y	0.320	0.478	0.688	0.283	0.435	0.693

series : TSMC035

function : 4-wide 2-2-2-2-inputs OR-AND,x4 powered

macro name	OA2222P4	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.402	0.285	0.391	0.526	0.128	0.179	0.237
B	0.024							
C	0.020							
D	0.022							
E	0.021							
F	0.024							
G	0.022							
H	0.022							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.395	0.636	0.960	0.354	0.552	0.814
B	=>	Y	0.391	0.637	0.983	0.364	0.569	0.838
C	=>	Y	0.450	0.679	0.978	0.399	0.616	0.936
D	=>	Y	0.448	0.691	0.995	0.401	0.612	0.949
E	=>	Y	0.409	0.676	1.002	0.366	0.555	0.851
F	=>	Y	0.406	0.654	1.020	0.372	0.592	0.875
G	=>	Y	0.455	0.694	1.017	0.414	0.640	0.972
H	=>	Y	0.454	0.702	1.030	0.417	0.637	0.986

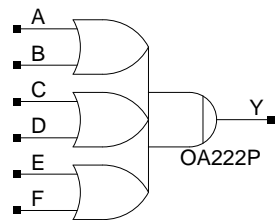


series : TSMC035

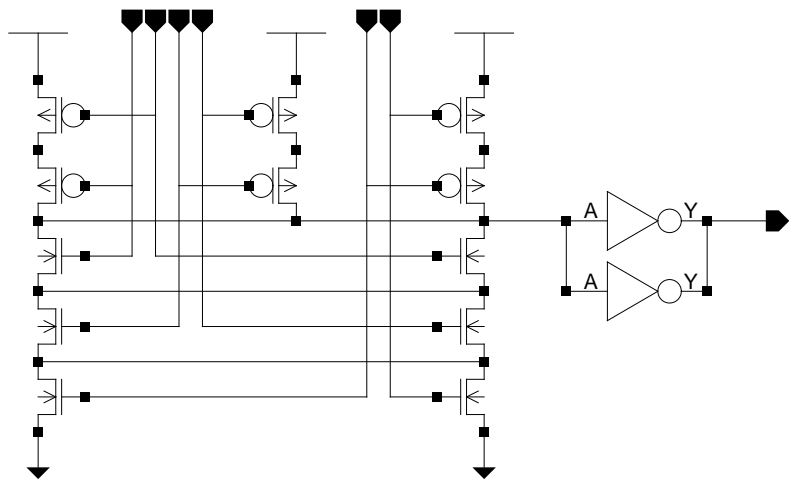
function : 3-wide 2-2-2-inputs OR-AND,powered

macro name	OA222P	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	1.163	0.570	0.782	1.055	0.254	0.363	0.497
B	0.023							
C	0.022							
D	0.022							
E	0.022							
F	0.023							
Y	0.023							

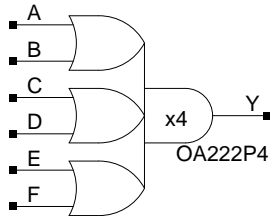
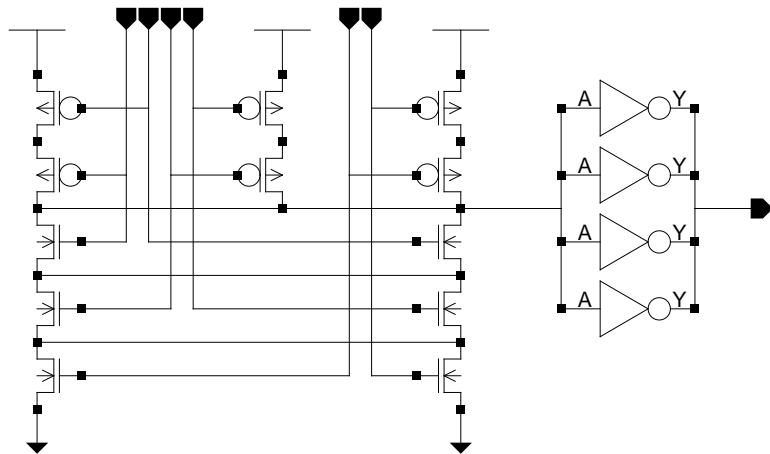
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.284	0.505	0.815	0.264	0.409	0.612
B	=>	Y	0.272	0.506	0.843	0.267	0.416	0.634
C	=>	Y	0.328	0.543	0.854	0.302	0.469	0.720
D	=>	Y	0.316	0.529	0.885	0.300	0.485	0.735
E	=>	Y	0.356	0.553	0.864	0.315	0.505	0.796
F	=>	Y	0.345	0.562	0.898	0.308	0.495	0.807

series : TSMC035

function : 3-wide 2-2-2-inputs OR-AND,x4 powered

macro name	OA222P4	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

**Port Characteristic**

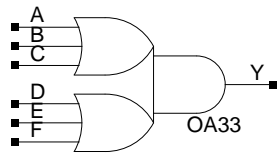
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	2.252	0.285	0.393	0.535	0.136	0.201	0.285
B	0.023							
C	0.023							
D	0.023							
E	0.021							
F	0.023							
Y	0.023							

**AC Characteristic**

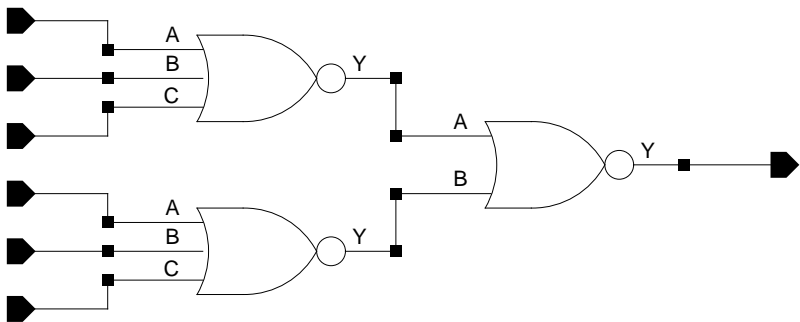
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.367	0.614	0.966	0.342	0.517	0.760
B	=>	Y	0.347	0.609	0.991	0.341	0.520	0.779
C	=>	Y	0.399	0.642	1.000	0.369	0.566	0.859
D	=>	Y	0.381	0.624	1.029	0.364	0.580	0.873
E	=>	Y	0.420	0.646	1.009	0.376	0.599	0.935
F	=>	Y	0.404	0.653	1.041	0.367	0.587	0.947

macro name	OA33	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

Port Characteristic

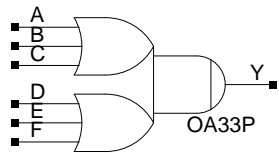
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.271	2.112	3.005	4.150	0.663	0.928	1.235
B	0.020							
C	0.021							
D	0.020							
E	0.021							
F	0.021							
Y								

AC Characteristic

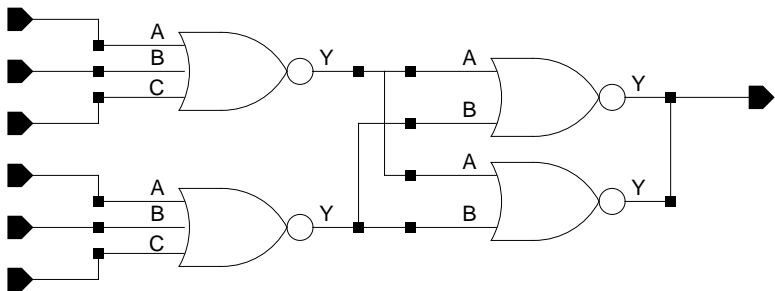
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.243	0.339	0.443	0.253	0.377	0.561
B	=>	Y	0.253	0.346	0.470	0.273	0.419	0.623
C	=>	Y	0.249	0.363	0.465	0.275	0.408	0.658
D	=>	Y	0.256	0.364	0.493	0.262	0.396	0.593
E	=>	Y	0.262	0.366	0.516	0.282	0.438	0.655
F	=>	Y	0.256	0.379	0.507	0.284	0.427	0.690

macro name	OA33P	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	0.573	1.056	1.504	2.077	0.259	0.363	0.484
B	0.021							
C	0.021							
D	0.021							
E	0.020							
F	0.021							
Y	0.021							

AC Characteristic

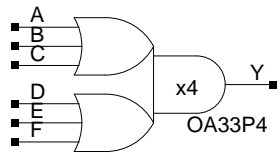
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.293	0.397	0.508	0.282	0.421	0.628
B	=>	Y	0.297	0.400	0.530	0.297	0.458	0.688
C	=>	Y	0.293	0.417	0.524	0.301	0.448	0.724
D	=>	Y	0.308	0.423	0.558	0.287	0.435	0.658
E	=>	Y	0.315	0.424	0.577	0.300	0.472	0.719
F	=>	Y	0.308	0.436	0.567	0.304	0.462	0.753

series : TSMC035

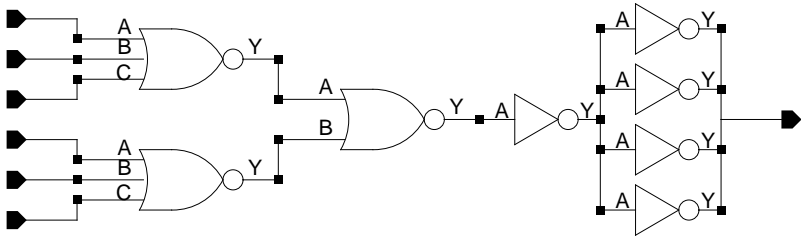
function : 2-wide 3-3-inputs OR-AND,x4 powered

macro name	OA33P4	size [um]	22.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

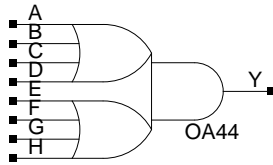
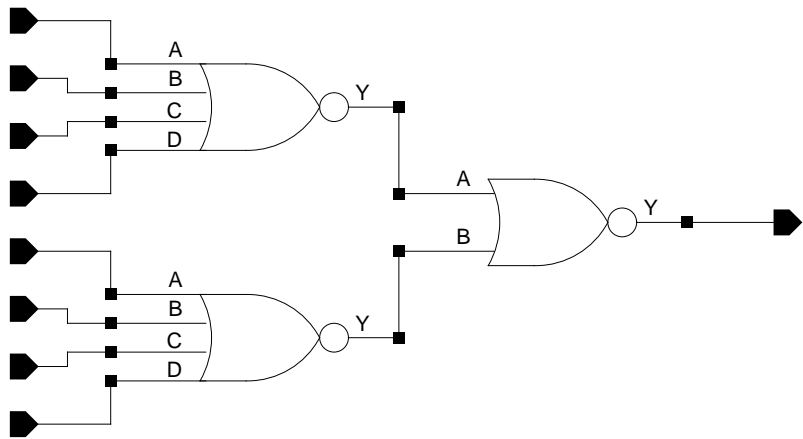
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.405	0.285	0.391	0.526	0.128	0.179	0.237
B	0.020							
C	0.022							
D	0.020							
E	0.021							
F	0.022							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.406	0.595	0.815	0.402	0.605	0.899
B	=>	Y	0.417	0.599	0.843	0.418	0.648	0.960
C	=>	Y	0.411	0.618	0.838	0.423	0.633	0.995
D	=>	Y	0.415	0.614	0.861	0.414	0.631	0.938
E	=>	Y	0.421	0.614	0.884	0.435	0.674	1.000
F	=>	Y	0.417	0.633	0.875	0.435	0.659	1.035

macro name	OA44	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.269	2.112	3.005	4.153	0.507	0.707	0.939
B	0.021							
C	0.022							
D	0.019							
E	0.021							
F	0.021							
G	0.023							
H	0.021							
Y								

**AC Characteristic**

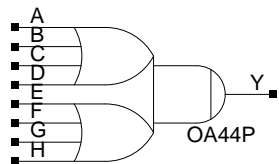
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.278	0.397	0.493	0.269	0.391	0.612
B	=>	Y	0.294	0.401	0.528	0.296	0.463	0.716
C	=>	Y	0.294	0.422	0.533	0.310	0.482	0.806
D	=>	Y	0.290	0.392	0.526	0.311	0.519	0.848
E	=>	Y	0.290	0.420	0.543	0.275	0.409	0.642
F	=>	Y	0.302	0.421	0.573	0.304	0.481	0.748
G	=>	Y	0.302	0.437	0.573	0.317	0.500	0.837
H	=>	Y	0.295	0.406	0.562	0.318	0.534	0.878

series : TSMC035

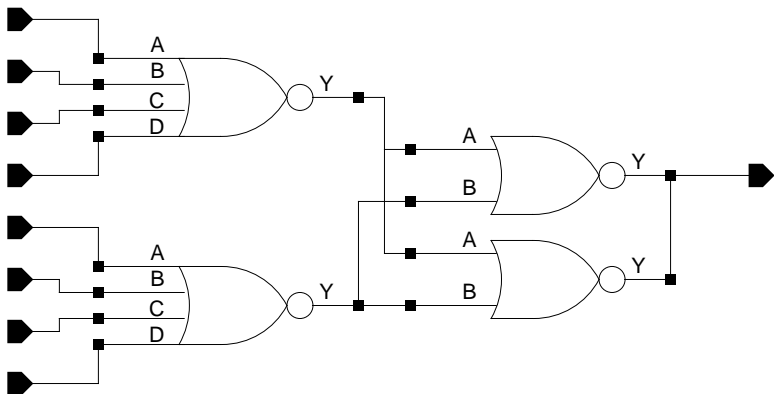
function : 2-wide 4-4-inputs OR-AND,powered

macro name	OA44P	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

Port Characteristic

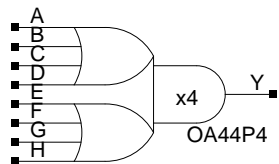
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.021	0.571	1.056	1.504	2.079	0.266	0.375	0.502
B	0.019							
C	0.020							
D	0.020							
E	0.021							
F	0.019							
G	0.019							
H	0.019							
Y	0.019							

AC Characteristic

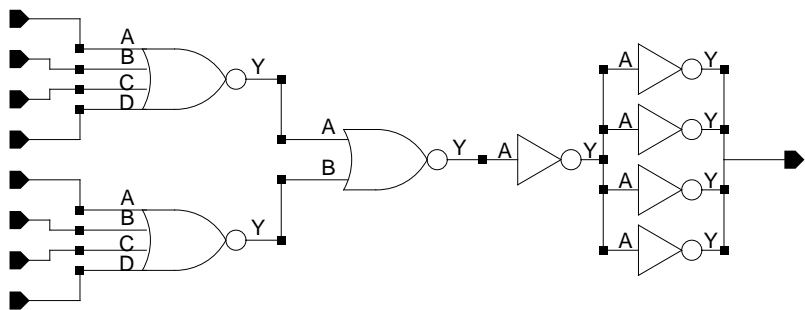
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.315	0.437	0.535	0.315	0.465	0.723
B	=>	Y	0.327	0.439	0.565	0.341	0.537	0.834
C	=>	Y	0.328	0.459	0.569	0.356	0.556	0.925
D	=>	Y	0.326	0.429	0.561	0.355	0.592	0.967
E	=>	Y	0.330	0.461	0.583	0.318	0.479	0.755
F	=>	Y	0.340	0.460	0.610	0.345	0.552	0.866
G	=>	Y	0.343	0.477	0.610	0.357	0.571	0.958
H	=>	Y	0.337	0.447	0.600	0.358	0.605	0.998

macro name	OA44P4	size [um]	25.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	2.403	0.285	0.391	0.526	0.128	0.179	0.237
B	0.020							
C	0.022							
D	0.023							
E	0.020							
F	0.021							
G	0.021							
H	0.022							
Y	0.022							

AC Characteristic

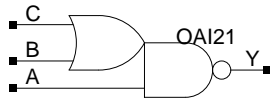
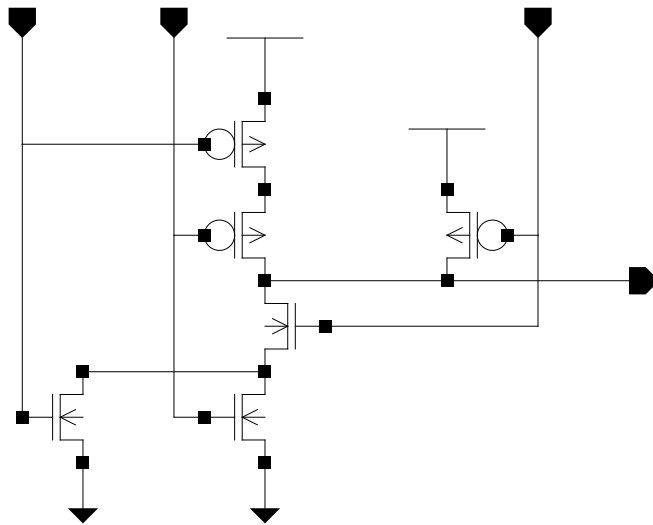
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.428	0.635	0.842	0.427	0.642	0.979
B	=>	Y	0.442	0.636	0.877	0.458	0.716	1.086
C	=>	Y	0.445	0.657	0.881	0.474	0.734	1.175
D	=>	Y	0.439	0.622	0.872	0.472	0.772	1.217
E	=>	Y	0.435	0.652	0.885	0.444	0.667	1.020
F	=>	Y	0.451	0.652	0.917	0.472	0.744	1.127
G	=>	Y	0.450	0.669	0.917	0.484	0.762	1.216
H	=>	Y	0.444	0.672	0.908	0.489	0.762	1.255



series : TSMC035

function : 2-wide 2-1-inputs OR-NAND

macro name	OAI21	size [um]	6.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

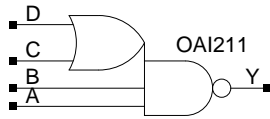
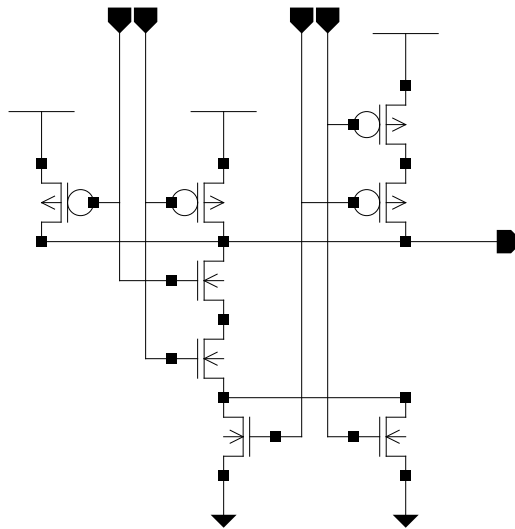
**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.253	1.532	2.557	4.150	0.606	0.975	1.504
B	0.024							
C	0.021							
Y								

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.136	0.182	0.243	0.126	0.212	0.312
B	=>	Y	0.180	0.249	0.351	0.167	0.221	0.283
C	=>	Y	0.175	0.240	0.357	0.153	0.216	0.283

macro name	OAI211	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.020	0.229	1.532	2.557	4.151	0.845	1.371	2.112
B	0.022							
C	0.022							
D	0.022							
Y	0.022							

**AC Characteristic**

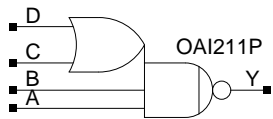
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.160	0.215	0.286	0.153	0.245	0.356
B	=>	Y	0.172	0.240	0.330	0.149	0.239	0.357
C	=>	Y	0.217	0.312	0.450	0.189	0.255	0.340
D	=>	Y	0.209	0.301	0.458	0.177	0.253	0.347

series : TSMC035

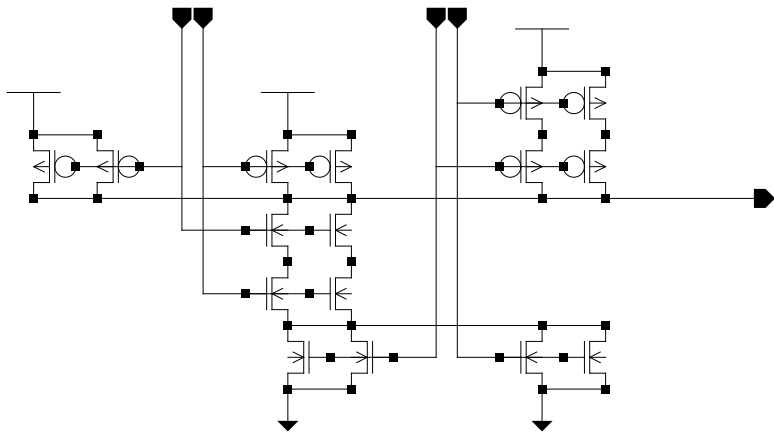
function : 3-wide 2-1-1-inputs OR-NAND,powered

macro name	OAI211P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.045	0.467	0.570	1.142	2.078	0.424	0.687	1.058
B	0.047							
C	0.043							
D	0.043							
Y								

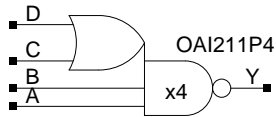
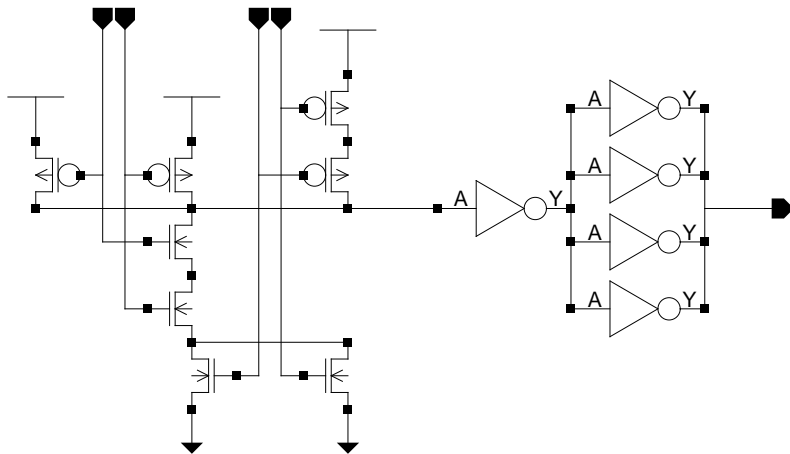
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.126	0.176	0.235	0.107	0.193	0.303
B	=>	Y	0.140	0.199	0.271	0.109	0.194	0.310
C	=>	Y	0.213	0.303	0.431	0.165	0.231	0.316
D	=>	Y	0.210	0.295	0.438	0.155	0.231	0.325

series : TSMC035

function : 3-wide 2-1-1-inputs OR-NAND,x4 powered

macro name	OAI211P4	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.401	0.285	0.391	0.526	0.128	0.179	0.237
B	0.022							
C	0.022							
D	0.023							
Y								

**AC Characteristic**

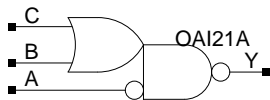
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.273	0.414	0.588	0.307	0.498	0.769
B	=>	Y	0.288	0.434	0.627	0.316	0.512	0.783
C	=>	Y	0.389	0.593	0.871	0.389	0.555	0.778
D	=>	Y	0.386	0.584	0.880	0.390	0.567	0.800

series : TSMC035

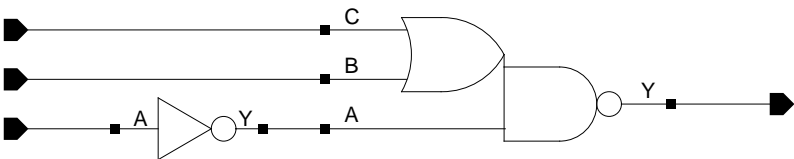
function : 2-wide 2-1-inputs OR-NAND

macro name	OAI21A	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.016	0.247	1.141	2.282	4.150	0.607	0.975	1.504
B	0.022							
C	0.021							
Y								

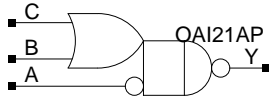
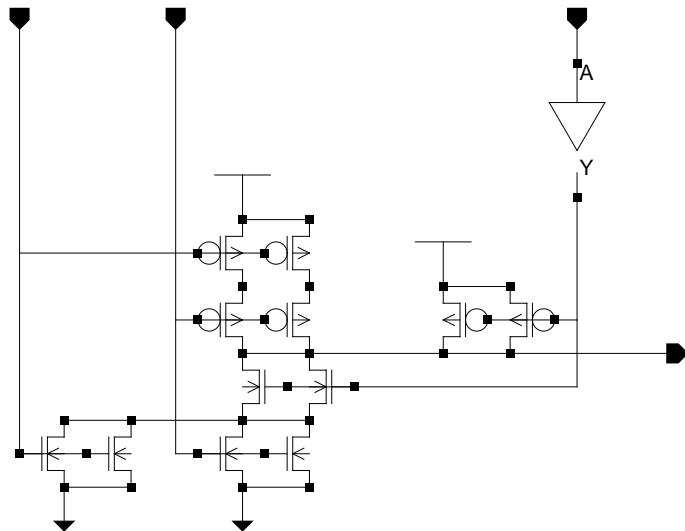
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.178	0.241	0.338	0.177	0.275	0.393
B	=>	Y	0.179	0.248	0.350	0.167	0.222	0.286
C	=>	Y	0.175	0.239	0.356	0.153	0.218	0.286

series : TSMC035

function : 2-wide 2-1-inputs OR-NAND,powered

macro name	OAI21AP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.017	0.515	0.571	1.142	2.077	0.306	0.491	0.756
B	0.044							
C	0.044							
Y								

**AC Characteristic**

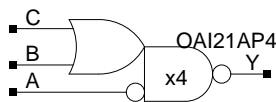
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.220	0.291	0.397	0.216	0.331	0.474
B	=>	Y	0.173	0.238	0.332	0.136	0.191	0.256
C	=>	Y	0.174	0.233	0.340	0.126	0.190	0.261

series : TSMC035

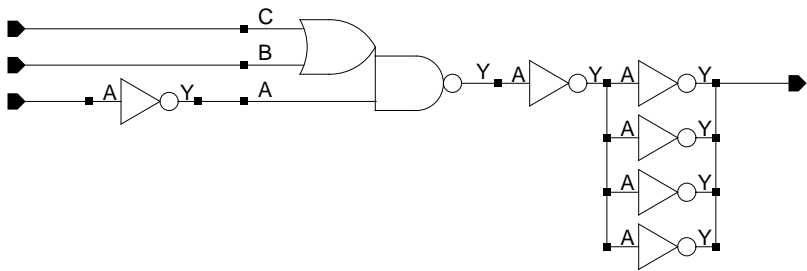
function : 2-wide 2-1-inputs OR-NAND,x4 powered

macro name	OAI21AP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.016	2.404	0.285	0.391	0.527	0.128	0.179	0.237
B	0.022							
C	0.024							
Y								

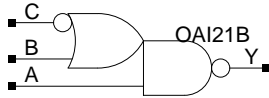
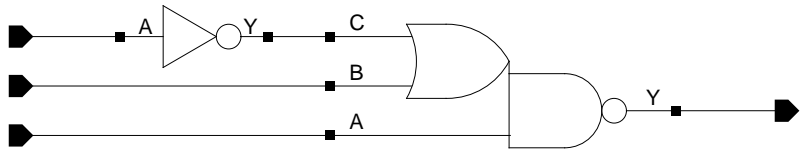
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.307	0.443	0.654	0.326	0.524	0.776
B	=>	Y	0.343	0.515	0.746	0.334	0.474	0.657
C	=>	Y	0.345	0.512	0.756	0.335	0.482	0.671

series : TSMC035

function : 2-wide 2-1-inputs OR-NAND

macro name	OAI21B	size [um]	9.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.233	1.140	2.282	4.150	0.608	0.976	1.504
B	0.024							
C	0.015							
Y								

**AC Characteristic**

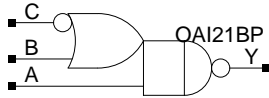
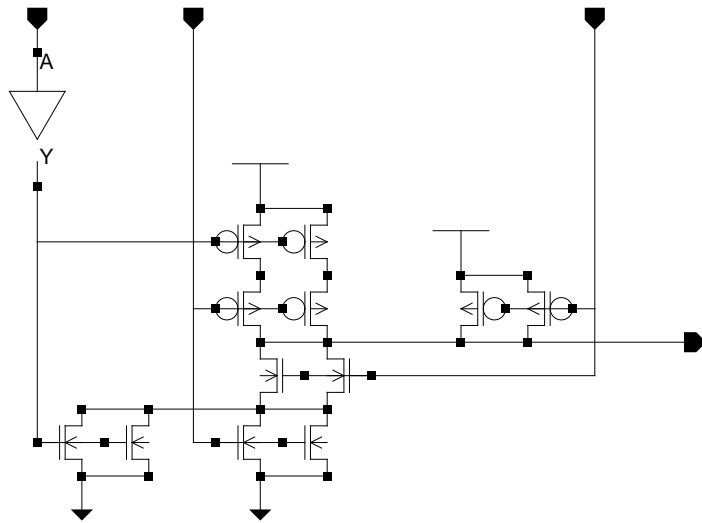
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.139	0.187	0.246	0.125	0.211	0.314
B	=>	Y	0.191	0.268	0.382	0.178	0.237	0.304
C	=>	Y	0.267	0.391	0.582	0.198	0.298	0.415



series : TSMC035

function : 2-wide 2-1-inputs OR-NAND,powered

macro name	OAI21BP	size [um]	13.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

**Port Characteristic**

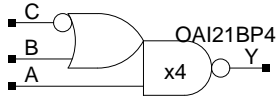
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.046	0.515	0.571	1.142	2.076	0.304	0.489	0.754
B	0.044							
C	0.017							
Y								

**AC Characteristic**

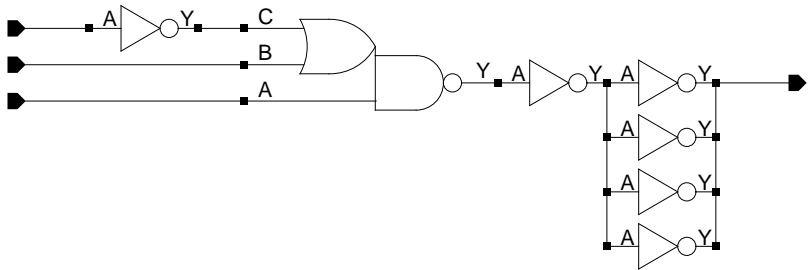
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.106	0.148	0.198	0.081	0.160	0.258
B	=>	Y	0.175	0.241	0.335	0.137	0.190	0.253
C	=>	Y	0.299	0.418	0.600	0.231	0.344	0.478

**function : 2-wide 2-1-inputs OR-NAND,x4 powered**

<b>macro name</b>	OAI21BP4	<b>size [um]</b>	18.000 x 15.000
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**Symbol**

## Schematic



### Truth Table

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	<b>delta-t (rise) [nsec/pF]</b>			<b>delta-t (fall) [nsec/pF]</b>		
			min	typ	max	min	typ	max
A B C Y	0.025 0.022 0.015	2.404	0.285	0.391	0.526	0.128	0.179	0.237

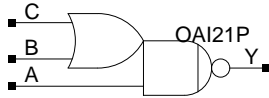
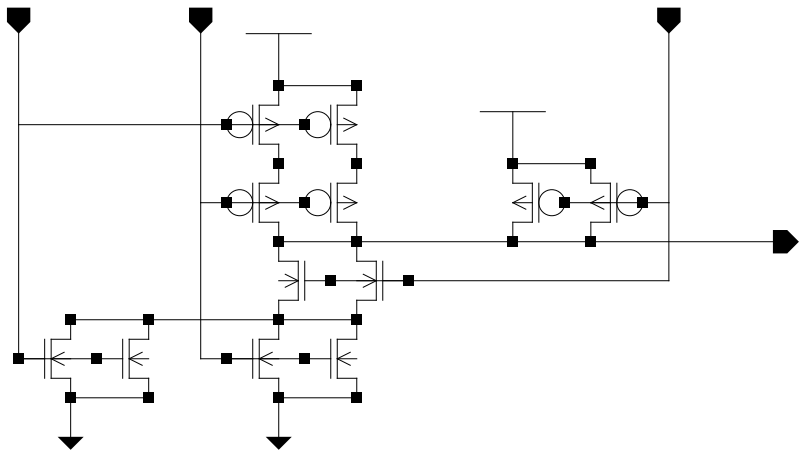
### AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.244	0.371	0.534	0.261	0.430	0.659
B	=>	Y	0.343	0.514	0.743	0.334	0.472	0.654
C	=>	Y	0.423	0.631	0.939	0.357	0.549	0.781

series : TSMC035

function : 2-wide 2-1-inputs OR-NAND,powered

macro name	OAI21P	size [um]	10.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.046	0.516	0.571	1.142	2.076	0.304	0.489	0.754
B	0.044							
C	0.044							
Y								

**AC Characteristic**

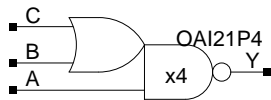
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.106	0.148	0.198	0.081	0.160	0.258
B	=>	Y	0.175	0.241	0.335	0.137	0.190	0.252
C	=>	Y	0.175	0.236	0.343	0.126	0.189	0.257

series : TSMC035

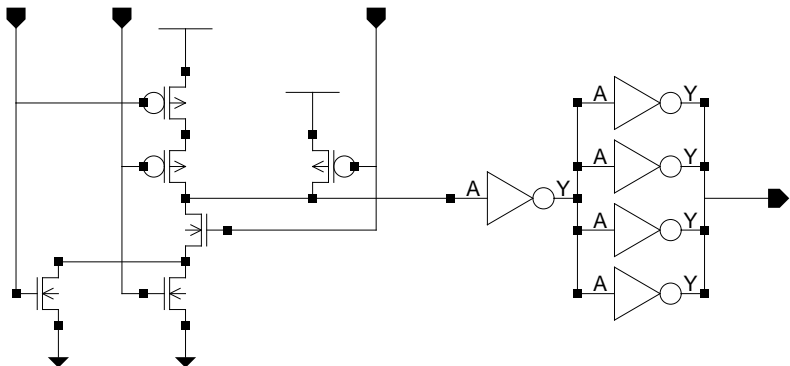
function : 2-wide 2-1-inputs OR-NAND,x4 powered

macro name	OAI21P4	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.025	2.403	0.285	0.391	0.526	0.128	0.179	0.237
B	0.026							
C	0.024							
Y								

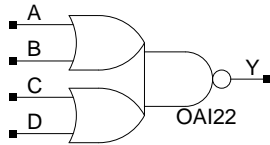
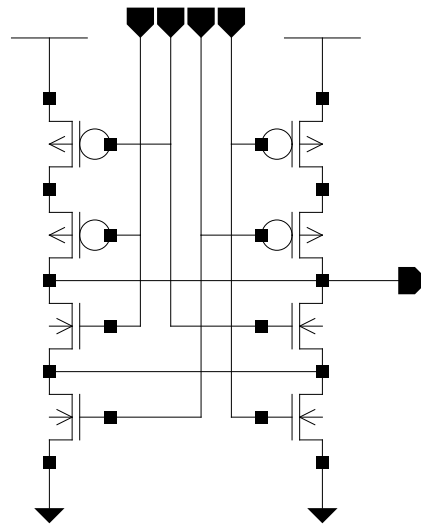
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.246	0.373	0.537	0.264	0.432	0.661
B	=>	Y	0.345	0.517	0.747	0.335	0.474	0.656
C	=>	Y	0.346	0.514	0.757	0.336	0.482	0.670

series : TSMC035

function : 2-wide 2-2-inputs OR-NAND

macro name	OAI22	size [um]	7.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.232	2.112	3.005	4.153	0.560	0.944	1.504
B	0.022							
C	0.022							
D	0.022							
Y								

**AC Characteristic**

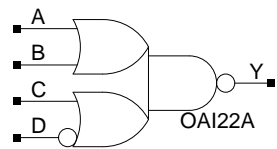
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.142	0.201	0.276	0.150	0.240	0.343
B	=>	Y	0.142	0.198	0.289	0.133	0.233	0.343
C	=>	Y	0.201	0.299	0.448	0.183	0.259	0.349
D	=>	Y	0.195	0.288	0.454	0.169	0.253	0.348

series : TSMC035

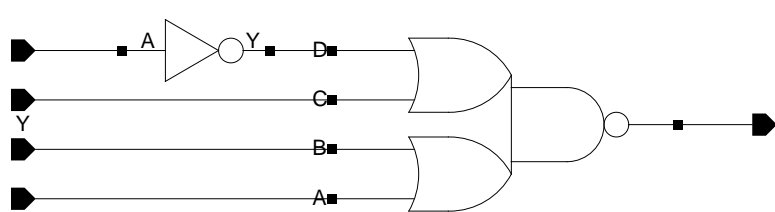
function : 2-wide 2-2-inputs OR-NAND

macro name	OAI22A	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	0.203	2.112	3.005	4.153	0.562	0.945	1.504
B	0.022							
C	0.022							
D	0.015							
Y								

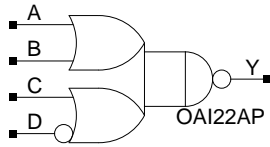
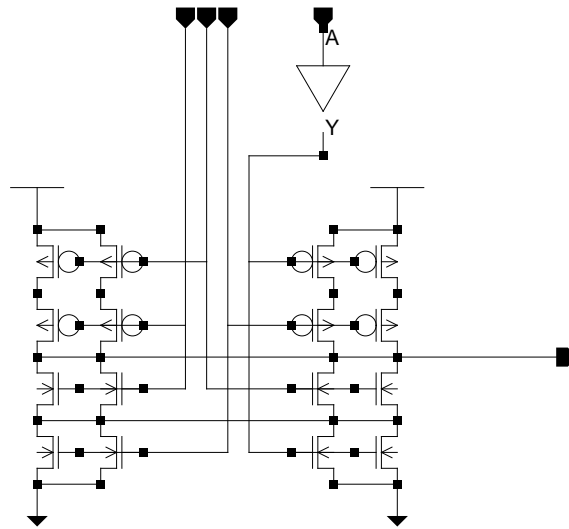
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.155	0.221	0.307	0.161	0.255	0.365
B	=>	Y	0.154	0.218	0.320	0.143	0.248	0.363
C	=>	Y	0.212	0.318	0.478	0.193	0.273	0.369
D	=>	Y	0.289	0.441	0.677	0.205	0.319	0.467

series : TSMC035

function : 2-wide 2-2-inputs OR-NAND,powered

macro name	OAI22AP	size [um]	16.500 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.478	1.056	1.504	2.079	0.372	0.631	1.011
B	0.040							
C	0.040							
D	0.016							
Y								

**AC Characteristic**

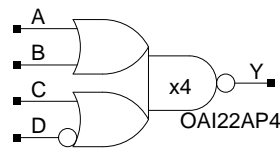
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.141	0.199	0.269	0.126	0.224	0.343
B	=>	Y	0.145	0.205	0.289	0.114	0.223	0.354
C	=>	Y	0.185	0.270	0.386	0.158	0.236	0.345
D	=>	Y	0.289	0.419	0.619	0.247	0.382	0.563

series : TSMC035

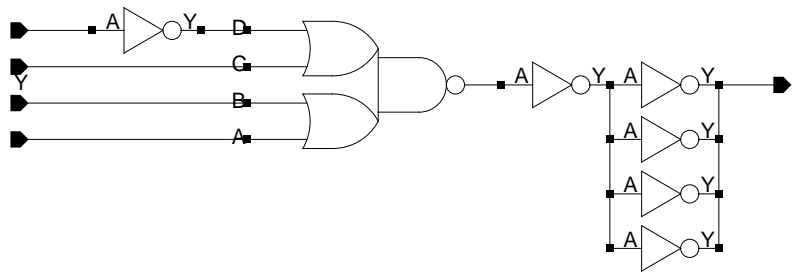
function : 2-wide 2-2-inputs OR-NAND,x4 powered

macro name	OAI22AP4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.401	0.285	0.390	0.526	0.128	0.179	0.237
B	0.026							
C	0.023							
D	0.015							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.296	0.469	0.684	0.298	0.467	0.716
B	=>	Y	0.306	0.470	0.701	0.292	0.479	0.730
C	=>	Y	0.367	0.572	0.859	0.350	0.517	0.742
D	=>	Y	0.458	0.696	1.063	0.368	0.585	0.862

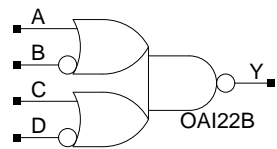


series : TSMC035

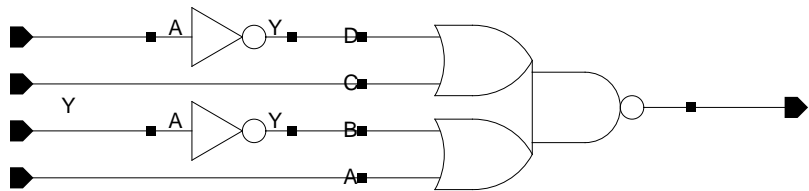
function : 2-wide 2-2-inputs OR-NAND

macro name	OAI22B	size [um]	12.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.210	2.112	3.005	4.153	0.560	0.944	1.505
B	0.016							
C	0.022							
D	0.016							
Y								

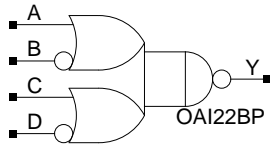
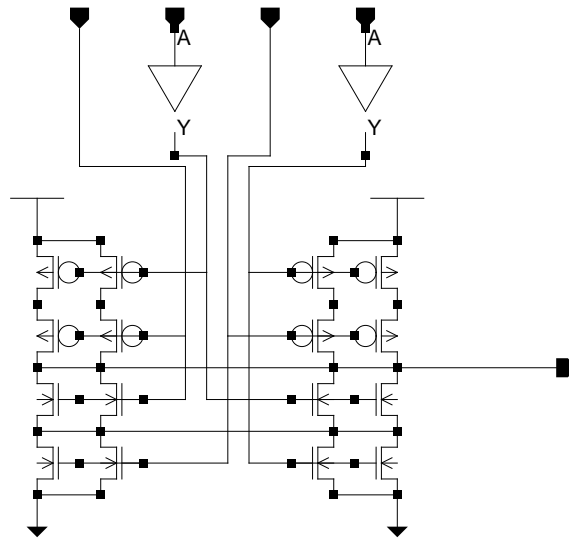
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.142	0.201	0.275	0.150	0.239	0.343
B	=>	Y	0.213	0.312	0.464	0.190	0.297	0.430
C	=>	Y	0.201	0.298	0.446	0.183	0.259	0.352
D	=>	Y	0.281	0.424	0.650	0.203	0.316	0.463

series : TSMC035

function : 2-wide 2-2-inputs OR-NAND,powered

macro name	OAI22BP	size [um]	18.000 x 15.000
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**Symbol****Schematic****Truth Table**

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.478	1.056	1.504	2.079	0.372	0.631	1.012
B	0.017							
C	0.040							
D	0.017							
Y								

**AC Characteristic**

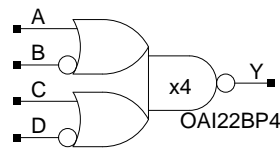
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.141	0.199	0.269	0.126	0.225	0.343
B	=>	Y	0.248	0.351	0.500	0.240	0.374	0.554
C	=>	Y	0.185	0.269	0.384	0.158	0.237	0.350
D	=>	Y	0.289	0.419	0.618	0.248	0.386	0.573

series : TSMC035

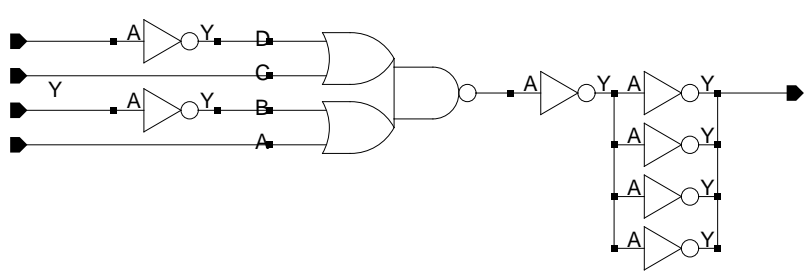
function : 2-wide 2-2-inputs OR-NAND,x4 powered

macro name	OAI22BP4	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.401	0.285	0.391	0.526	0.128	0.179	0.237
B	0.015							
C	0.023							
D	0.015							
Y								

AC Characteristic

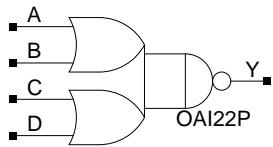
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.296	0.469	0.683	0.298	0.467	0.715
B	=>	Y	0.377	0.571	0.868	0.344	0.556	0.828
C	=>	Y	0.367	0.571	0.858	0.349	0.517	0.744
D	=>	Y	0.453	0.691	1.058	0.365	0.581	0.863

series : TSMC035

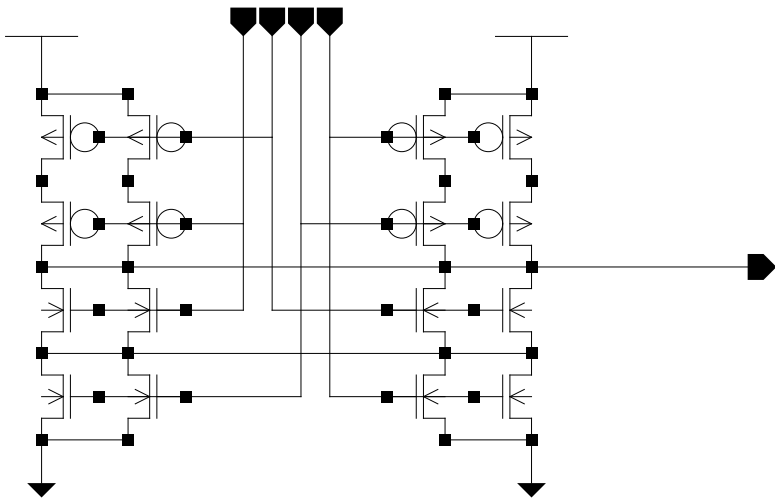
function : 2-wide 2-2-inputs OR-NAND,powered

macro name	OAI22P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	0.494	1.056	1.504	2.079	0.371	0.631	1.011
B	0.040							
C	0.040							
D	0.040							
Y								

AC Characteristic

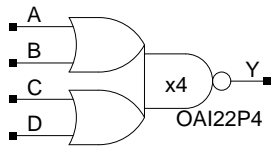
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.141	0.199	0.269	0.126	0.224	0.343
B	=>	Y	0.145	0.205	0.288	0.114	0.223	0.354
C	=>	Y	0.185	0.270	0.385	0.158	0.236	0.344
D	=>	Y	0.185	0.262	0.395	0.147	0.239	0.352

series : TSMC035

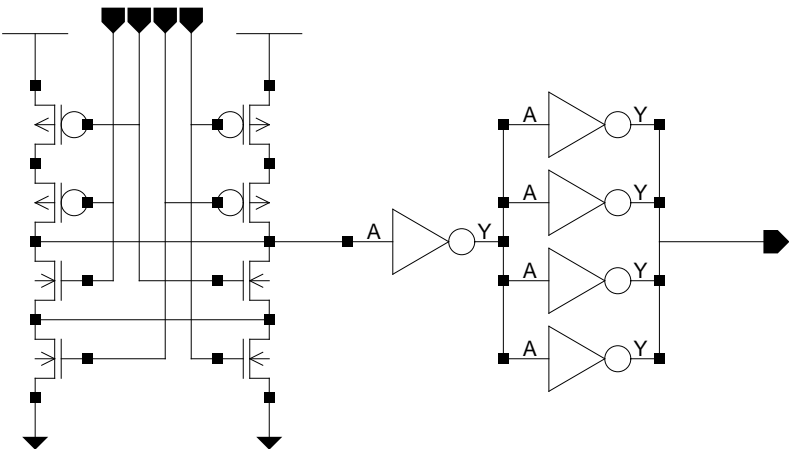
function : 2-wide 2-2-inputs OR-NAND,x4 powered

macro name	OAI22P4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.401	0.285	0.391	0.526	0.128	0.179	0.237
B	0.025							
C	0.023							
D	0.023							
Y								

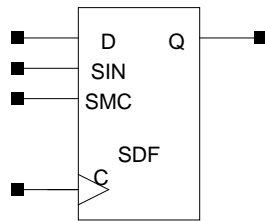
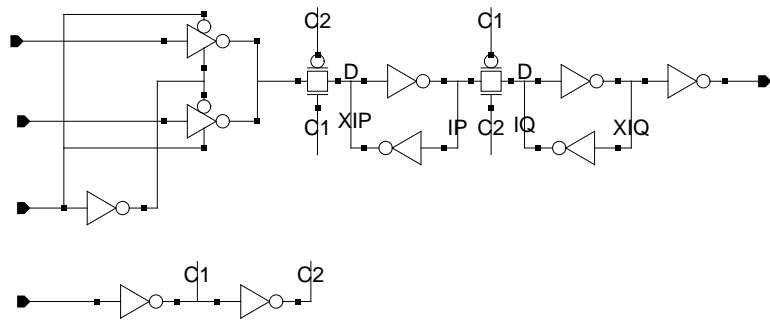
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.297	0.470	0.685	0.298	0.467	0.716
B	=>	Y	0.306	0.471	0.702	0.294	0.480	0.730
C	=>	Y	0.367	0.573	0.859	0.349	0.518	0.741
D	=>	Y	0.367	0.568	0.867	0.349	0.521	0.749

series : TSMC035

function : Scan D-flip flop

macro name	SDF	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	0.572	1.140	1.560	2.098	0.498	0.691	0.912
D	0.020							
Q								
SIN	0.020							
SMC	0.030							

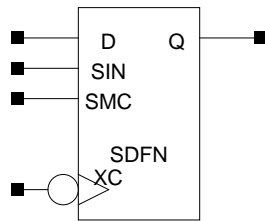
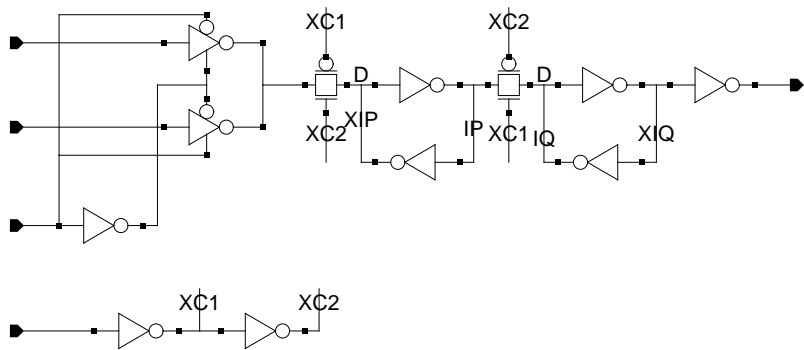
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.349	0.520	0.740	0.345	0.509	0.724
D	<=	C	setup time			0.259	0.490	0.570
D	<=	C	hold time			-0.033	0.068	-0.097
SIN	<=	C	setup time			0.258	0.492	0.573
SIN	<=	C	hold time			-0.032	0.070	-0.093
SMC	<=	C	setup time			0.286	0.548	0.630
SMC	<=	C	hold time			-0.056	0.046	-0.111
C		(low)	minimum pulse width			0.278	0.497	0.616
C		(high)	minimum pulse width			0.349	0.625	0.740

series : TSMC035

function : Scan D-flip flop

macro name	SDFN	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	0.572	1.141	1.560	2.099	0.498	0.691	0.912
Q								
SIN	0.020							
SMC	0.030							
XC	0.018							

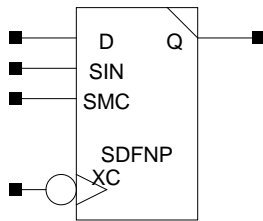
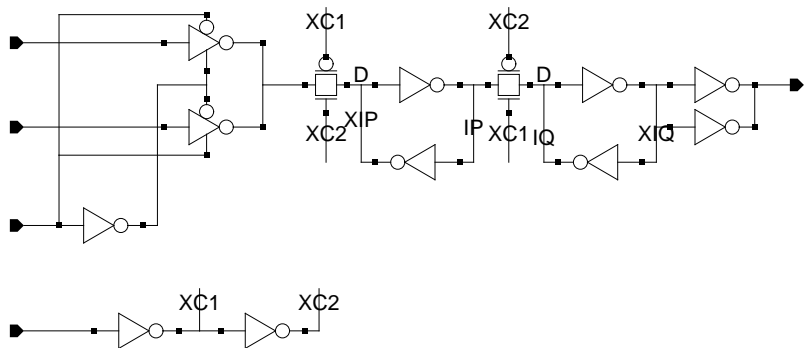
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.344	0.513	0.756	0.310	0.463	0.682
D	<=	XC	setup time			0.216	0.459	0.514
D	<=	XC	hold time			-0.060	0.031	-0.106
SIN	<=	XC	setup time			0.216	0.462	0.517
SIN	<=	XC	hold time			-0.060	0.033	-0.103
SMC	<=	XC	setup time			0.244	0.517	0.573
SMC	<=	XC	hold time			-0.083	0.009	-0.120
XC		(low)	minimum pulse width			0.344	0.616	0.756
XC		(high)	minimum pulse width			0.290	0.507	0.589

series : TSMC035

function : Scan D-flip flop,powered

macro name	SDFNP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	1.189	0.570	0.780	1.050	0.251	0.349	0.461
Q								
SIN	0.020							
SMC	0.030							
XC	0.018							

**AC Characteristic**

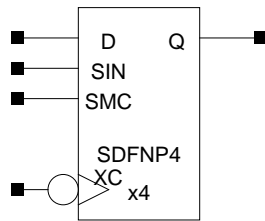
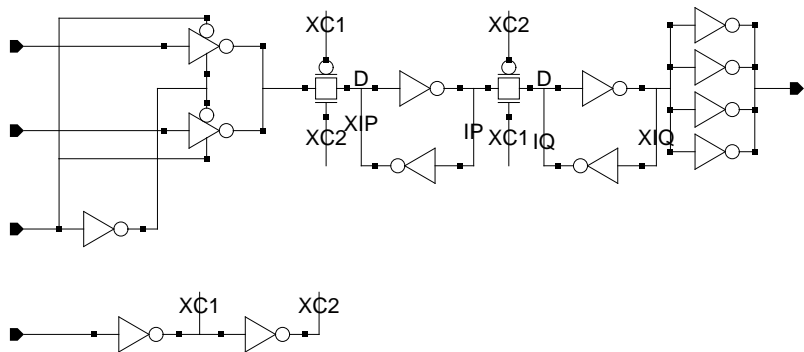
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.368	0.547	0.803	0.334	0.500	0.736
D	<=	XC	setup time			0.216	0.459	0.513
D	<=	XC	hold time			-0.060	0.032	-0.106
SIN	<=	XC	setup time			0.215	0.461	0.516
SIN	<=	XC	hold time			-0.059	0.033	-0.102
SMC	<=	XC	setup time			0.243	0.517	0.573
SMC	<=	XC	hold time			-0.083	0.009	-0.120
XC		(low)	minimum pulse width			0.369	0.657	0.803
XC		(high)	minimum pulse width			0.290	0.507	0.589



series : TSMC035

function : Scan D-flip flop,x4 powered

macro name	SDFNP4	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.400	0.285	0.390	0.526	0.130	0.182	0.242
Q								
SIN	0.020							
SMC	0.030							
XC	0.019							

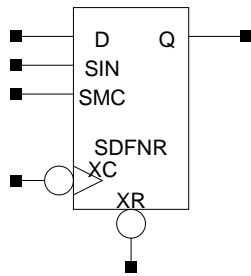
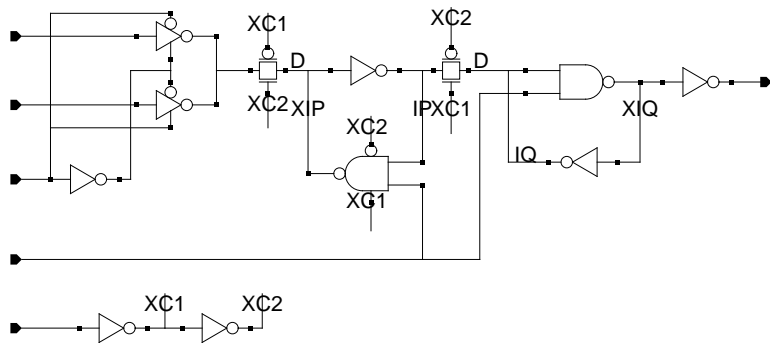
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.417	0.616	0.895	0.380	0.573	0.842
D	<=	XC	setup time			0.215	0.458	0.511
D	<=	XC	hold time			-0.059	0.034	-0.104
SIN	<=	XC	setup time			0.214	0.460	0.514
SIN	<=	XC	hold time			-0.058	0.035	-0.100
SMC	<=	XC	setup time			0.242	0.516	0.570
SMC	<=	XC	hold time			-0.082	0.011	-0.118
XC		(low)	minimum pulse width			0.417	0.739	0.895
XC		(high)	minimum pulse width			0.292	0.509	0.591

series : TSMC035

function : Scan D-flip flop with low reset XR

macro name	SDFNR	size [um]	31.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	Q
X	X	X	X	0	0
X	X	X	0->1	1	hold
0	X	0	1->0	1	0
1	X	0	1->0	1	1
X	0	1	1->0	1	0
X	1	1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	0.570	1.140	1.560	2.100	0.498	0.692	0.914
Q								
SIN	0.020							
SMC	0.031							
XC	0.020							
XR	0.038							

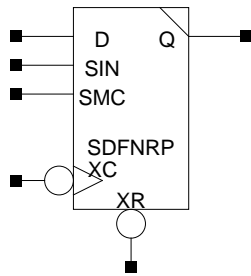
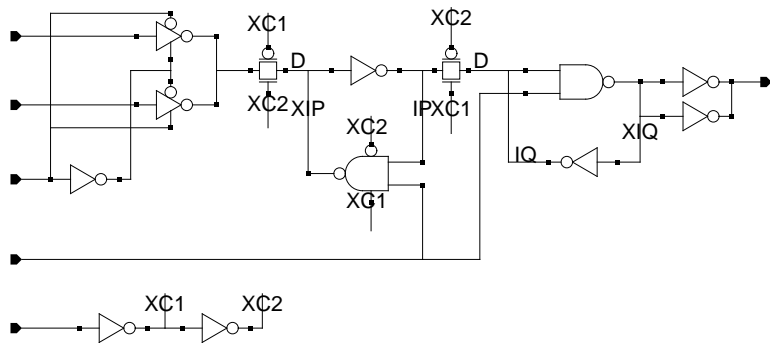
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.411	0.620	0.894	0.324	0.496	0.710
XR	=>	Q				0.203	0.292	0.414
D	<=	XC	setup time			0.188	0.431	0.456
D	<=	XC	hold time			-0.012	0.091	-0.058
SIN	<=	XC	setup time			0.187	0.429	0.459
SIN	<=	XC	hold time			-0.011	0.092	-0.055
SMC	<=	XC	setup time			0.216	0.499	0.522
SMC	<=	XC	hold time			-0.041	0.081	-0.073
XR	<=	XC	release time			-0.163	-0.176	-0.277
XR	<=	XC	removable time			0.199	0.349	0.396
XC		(low)	minimum pulse width			0.411	0.744	0.894
XC		(high)	minimum pulse width			0.347	0.595	0.712
XR		(low)	minimum pulse width			0.483	0.920	1.156

series : TSMC035

function : Scan D-flip flop with low reset XR,powered

macro name	SDFNRP	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	Q
X	X	X	X	0	0
X	X	X	0->1	1	hold
0	X	0	1->0	1	0
1	X	0	1->0	1	1
X	0	1	1->0	1	0
X	1	1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	1.185	0.570	0.781	1.052	0.251	0.350	0.464
Q								
SIN	0.020							
SMC	0.031							
XC	0.018							
XR	0.040							

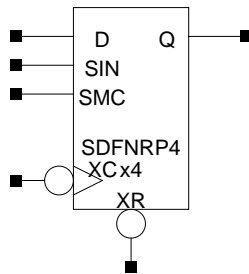
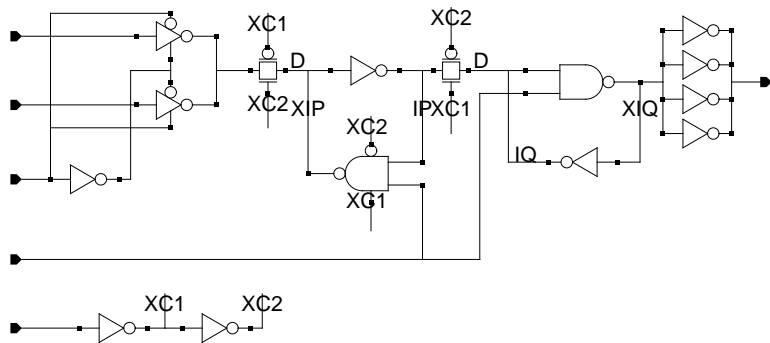
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.446	0.675	0.967	0.350	0.536	0.771
XR	=>	Q				0.230	0.331	0.471
D	<=	XC	setup time			0.186	0.429	0.451
D	<=	XC	hold time			-0.011	0.091	-0.057
SIN	<=	XC	setup time			0.185	0.427	0.455
SIN	<=	XC	hold time			-0.010	0.093	-0.053
SMC	<=	XC	setup time			0.213	0.497	0.518
SMC	<=	XC	hold time			-0.040	0.082	-0.071
XR	<=	XC	release time			-0.165	-0.178	-0.281
XR	<=	XC	removable time			0.199	0.349	0.396
XC		(low)	minimum pulse width			0.446	0.810	0.967
XC		(high)	minimum pulse width			0.347	0.595	0.712
XR		(low)	minimum pulse width			0.545	1.031	1.289

series : TSMC035

function : Scan D-flip flop with low reset XR,x4 powered

macro name	SDFNRP4	size [um]	36.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	Q
X	X	X	X	0	0
X	X	X	0->1	1	hold
0	X	0	1->0	1	0
1	X	0	1->0	1	1
X	0	1	1->0	1	0
X	1	1	1->0	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.362	0.285	0.392	0.529	0.129	0.182	0.244
Q								
SIN	0.020							
SMC	0.031							
XC	0.019							
XR	0.035							

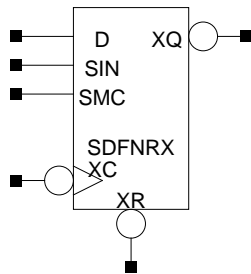
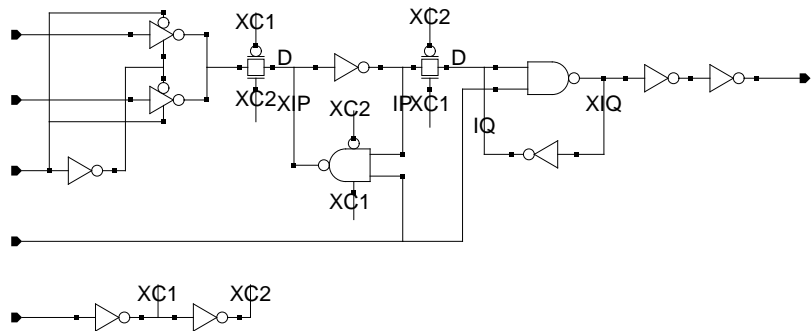
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.506	0.761	1.087	0.393	0.601	0.869
XR	=>	Q				0.283	0.406	0.579
D	<=	XC		setup time		0.188	0.431	0.456
D	<=	XC		hold time		-0.012	0.091	-0.058
SIN	<=	XC		setup time		0.187	0.429	0.459
SIN	<=	XC		hold time		-0.011	0.092	-0.055
SMC	<=	XC		setup time		0.216	0.499	0.522
SMC	<=	XC		hold time		-0.041	0.081	-0.073
XR	<=	XC		release time		-0.163	-0.176	-0.277
XR	<=	XC		removable time		0.199	0.349	0.396
XC		(low)		minimum pulse width		0.506	0.913	1.087
XC		(high)		minimum pulse width		0.347	0.595	0.712
XR		(low)		minimum pulse width		0.635	1.196	1.489

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out

macro name	SDFNRX	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	0.572	1.140	1.560	2.099	0.497	0.691	0.911
SIN	0.020							
SMC	0.031							
XC	0.020							
XQ								
XR	0.036							

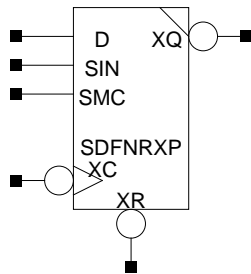
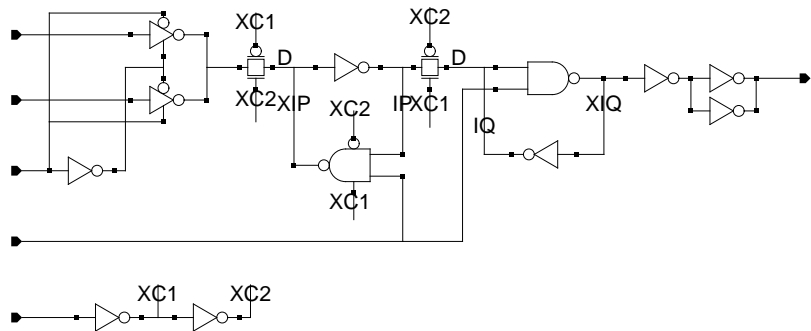
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.377	0.579	0.830	0.449	0.684	0.995
XR	=>	XQ	0.260	0.378	0.537			
D	<=	XC	setup time			0.188	0.431	0.456
D	<=	XC	hold time			-0.012	0.091	-0.058
SIN	<=	XC	setup time			0.187	0.429	0.459
SIN	<=	XC	hold time			-0.011	0.092	-0.055
SMC	<=	XC	setup time			0.216	0.499	0.522
SMC	<=	XC	hold time			-0.041	0.081	-0.073
XR	<=	XC	release time			-0.163	-0.176	-0.277
XR	<=	XC	removable time			0.199	0.349	0.396
XC		(low)	minimum pulse width			0.449	0.821	0.995
XC		(high)	minimum pulse width			0.347	0.595	0.712
XR		(low)	minimum pulse width			0.486	0.924	1.160

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out,powered

macro name	SDFNRXP	size [um]	34.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	1.189	0.571	0.780	1.050	0.250	0.347	0.459
SIN	0.020							
SMC	0.031							
XC	0.018							
XQ								
XR	0.036							

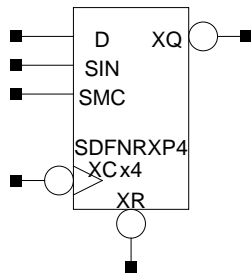
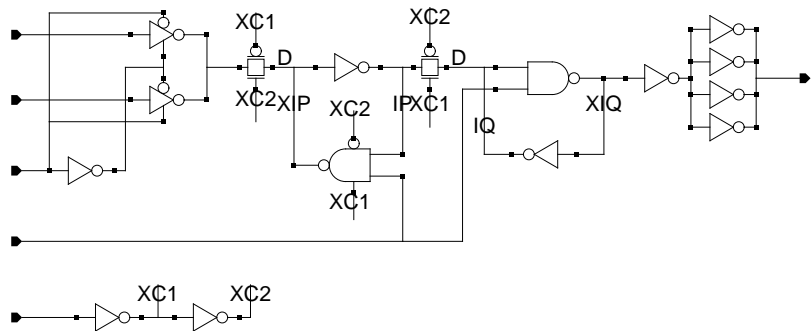
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.391	0.600	0.857	0.467	0.709	1.030
XR	=>	XQ	0.278	0.401	0.566			
D	<=	XC	setup time			0.188	0.431	0.456
D	<=	XC	hold time			-0.012	0.091	-0.058
SIN	<=	XC	setup time			0.187	0.429	0.459
SIN	<=	XC	hold time			-0.011	0.092	-0.055
SMC	<=	XC	setup time			0.216	0.499	0.522
SMC	<=	XC	hold time			-0.041	0.081	-0.073
XR	<=	XC	release time			-0.163	-0.176	-0.277
XR	<=	XC	removable time			0.199	0.349	0.396
XC		(low)	minimum pulse width			0.467	0.851	1.030
XC		(high)	minimum pulse width			0.347	0.595	0.712
XR		(low)	minimum pulse width			0.485	0.923	1.159

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out,x4 powered

macro name	SDFNRXP4	size [um]	37.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.400	0.285	0.391	0.527	0.128	0.179	0.237
SIN	0.020							
SMC	0.031							
XC	0.022							
XQ								
XR	0.039							

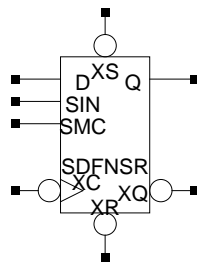
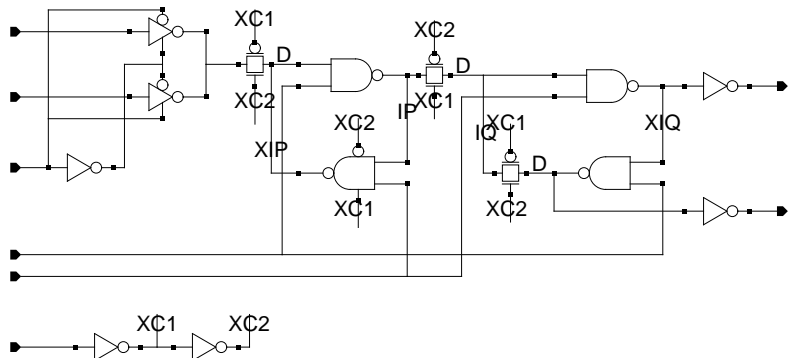
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.431	0.656	0.933	0.504	0.768	1.117
XR	=>	XQ	0.323	0.460	0.645			
D	<=	XC	setup time			0.188	0.431	0.456
D	<=	XC	hold time			-0.012	0.091	-0.058
SIN	<=	XC	setup time			0.187	0.429	0.459
SIN	<=	XC	hold time			-0.011	0.092	-0.055
SMC	<=	XC	setup time			0.216	0.499	0.522
SMC	<=	XC	hold time			-0.041	0.081	-0.073
XR	<=	XC	release time			-0.163	-0.176	-0.277
XR	<=	XC	removable time			0.199	0.349	0.396
XC		(low)	minimum pulse width			0.504	0.922	1.117
XC		(high)	minimum pulse width			0.347	0.595	0.712
XR		(low)	minimum pulse width			0.484	0.922	1.158

series : TSMC035

function : Scan D-flip flop with low reset XR,low set XS

macro name	SDFNSR	size [um]	39.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
X	X	X	0->1	1	1	hold	hold
0	X	0	1->0	1	1	0	1
1	X	0	1->0	1	1	1	0
X	0	1	1->0	1	1	0	1
X	1	1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	0.568	1.141	1.563	2.105	0.498	0.692	0.916
Q								
SIN	0.020							
SMC	0.031							
XC	0.017	0.569	1.140	1.562	2.105	0.498	0.694	0.920
XQ								
XR	0.036							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.436	0.671	0.967	0.407	0.616	0.876
XR	=>	Q	0.252	0.332	0.444	0.210	0.317	0.457
XS	=>	Q	0.397	0.636	0.955			
XC	=>	XQ	0.506	0.772	1.112	0.514	0.796	1.163
XR	=>	XQ	0.324	0.538	0.850			
XS	=>	XQ	0.209	0.348	0.561	0.242	0.389	0.604



**series : TSMC035**

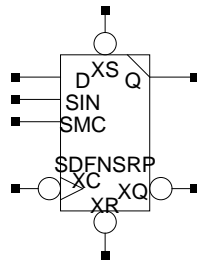
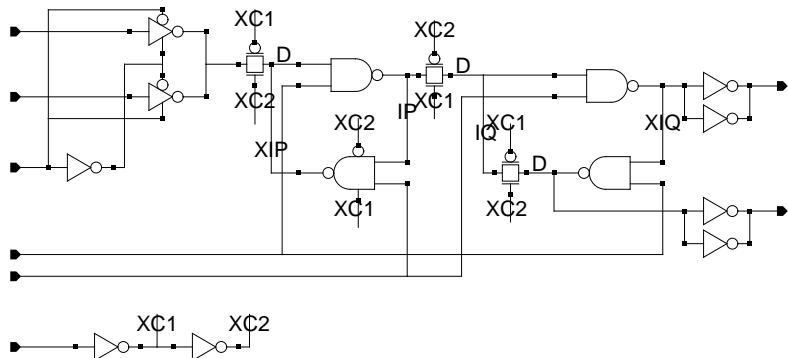
**function : Scan D-flip flop with low reset XR,low set XS**

D	<=	XC	setup time	0.211	0.479	0.513
D	<=	XC	hold time	0.006	0.126	-0.019
SIN	<=	XC	setup time	0.211	0.477	0.516
SIN	<=	XC	hold time	0.006	0.127	-0.015
SMC	<=	XC	setup time	0.240	0.547	0.582
SMC	<=	XC	hold time	-0.025	0.116	-0.034
XR	<=	XC	release time	-0.026	0.087	0.053
XR	<=	XC	removable time	0.073	0.202	0.090
XS	<=	XC	release time	0.032	0.127	0.053
XS	<=	XC	removable time	0.076	0.234	0.172
XS	<=	XR	recovery time	0.151	0.326	0.293
XR	<=	XS	recovery time	0.114	0.248	0.181
XC		(low)	minimum pulse width	0.514	0.955	1.163
XC		(high)	minimum pulse width	0.396	0.682	0.822
XR		(low)	minimum pulse width	0.398	0.718	0.901
XS		(low)	minimum pulse width	0.454	0.803	0.955

series : TSMC035

function : Scan D-flip flop with low reset XR,low set XS,powered

macro name	SDFNSRP	size [um]	42.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
X	X	X	0->1	1	1	hold	hold
0	X	0	1->0	1	1	0	1
1	X	0	1->0	1	1	1	0
X	0	1	1->0	1	1	0	1
X	1	1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	1.177	0.571	0.782	1.055	0.252	0.351	0.465
Q								
SIN	0.020							
SMC	0.031							
XC	0.018	1.175	0.571	0.781	1.054	0.251	0.352	0.472
XQ								
XR	0.038							
XS	0.042							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.463	0.712	1.022	0.428	0.647	0.923
XR	=>	Q	0.287	0.375	0.496	0.233	0.349	0.500
XS	=>	Q	0.427	0.715	1.113			
XC	=>	XQ	0.579	0.881	1.265	0.572	0.889	1.299
XR	=>	XQ	0.404	0.649	0.998			
XS	=>	XQ	0.245	0.386	0.598	0.266	0.416	0.632

series : TSMC035

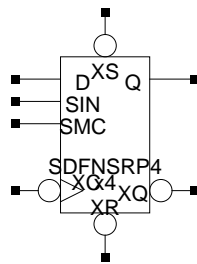
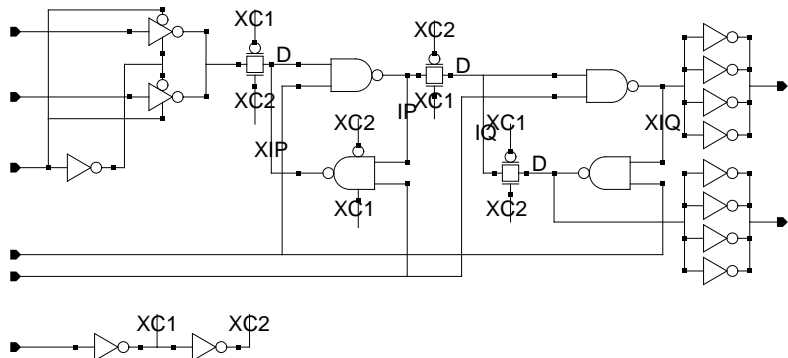
function : Scan D-flip flop with low reset XR,low set XS,powered

D	<=	XC	setup time	0.211	0.479	0.512
D	<=	XC	hold time	0.006	0.126	-0.019
SIN	<=	XC	setup time	0.210	0.477	0.516
SIN	<=	XC	hold time	0.006	0.127	-0.015
SMC	<=	XC	setup time	0.240	0.546	0.582
SMC	<=	XC	hold time	-0.025	0.116	-0.034
XR	<=	XC	release time	-0.026	0.087	0.053
XR	<=	XC	removable time	0.073	0.202	0.090
XS	<=	XC	release time	0.032	0.128	0.054
XS	<=	XC	removable time	0.076	0.234	0.172
XS	<=	XR	recovery time	0.179	0.341	0.273
XR	<=	XS	recovery time	0.149	0.300	0.233
XC		(low)	minimum pulse width	0.579	1.067	1.299
XC		(high)	minimum pulse width	0.396	0.682	0.822
XR		(low)	minimum pulse width	0.474	0.842	0.998
XS		(low)	minimum pulse width	0.534	0.941	1.113

series : TSMC035

function : Scan D-flop with low reset XR,low set XS,x4 powered

macro name	SDFNSRP4	size [um]	48.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
X	X	X	0->1	1	1	hold	hold
0	X	0	1->0	1	1	0	1
1	X	0	1->0	1	1	1	0
X	0	1	1->0	1	1	0	1
X	1	1	1->0	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.331	0.283	0.391	0.532	0.130	0.184	0.246
Q								
SIN	0.020							
SMC	0.031							
XC	0.021	2.302	0.283	0.391	0.532	0.129	0.186	0.256
XQ								
XR	0.037							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.527	0.802	1.146	0.479	0.725	1.036
XR	=>	Q	0.357	0.467	0.615	0.287	0.427	0.611
XS	=>	Q	0.484	0.875	1.439			
XC	=>	XQ	0.733	1.109	1.589	0.695	1.080	1.580
XR	=>	XQ	0.547	0.870	1.314			
XS	=>	XQ	0.318	0.476	0.709	0.325	0.494	0.738

series : TSMC035

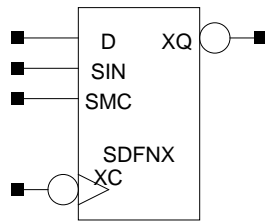
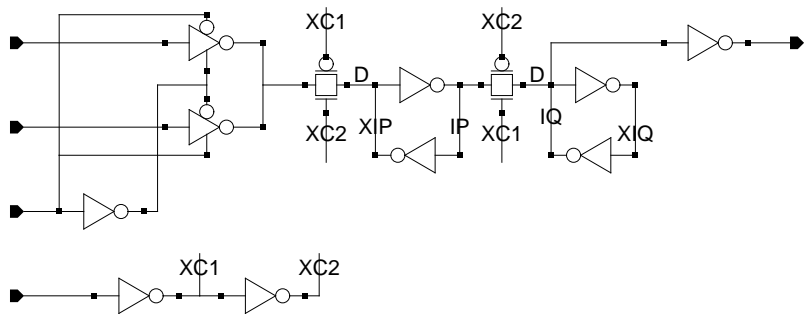
function : Scan D-flip flop with low reset XR,low set XS,x4 powered

D	<=	XC	setup time	0.211	0.479	0.512
D	<=	XC	hold time	0.006	0.126	-0.019
SIN	<=	XC	setup time	0.210	0.477	0.515
SIN	<=	XC	hold time	0.006	0.127	-0.015
SMC	<=	XC	setup time	0.240	0.546	0.582
SMC	<=	XC	hold time	-0.025	0.116	-0.034
XR	<=	XC	release time	-0.027	0.087	0.053
XR	<=	XC	removable time	0.073	0.202	0.090
XS	<=	XC	release time	0.033	0.129	0.055
XS	<=	XC	removable time	0.076	0.234	0.172
XS	<=	XR	recovery time	0.243	0.443	0.364
XR	<=	XS	recovery time	0.220	0.410	0.352
XC		(low)	minimum pulse width	0.733	1.331	1.589
XC		(high)	minimum pulse width	0.396	0.682	0.822
XR		(low)	minimum pulse width	0.629	1.112	1.314
XS		(low)	minimum pulse width	0.691	1.218	1.439

series : TSMC035

function : Scan D-flip flop,inverted out

macro name	SDFNX	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XQ
X	X	X	0->1	hold
0	X	0	1->0	1
1	X	0	1->0	0
X	0	1	1->0	1
X	1	1	1->0	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	0.570	1.141	1.560	2.100	0.501	0.697	0.921
SIN	0.020							
SMC	0.030							
XC	0.017							
XQ								

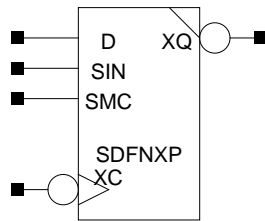
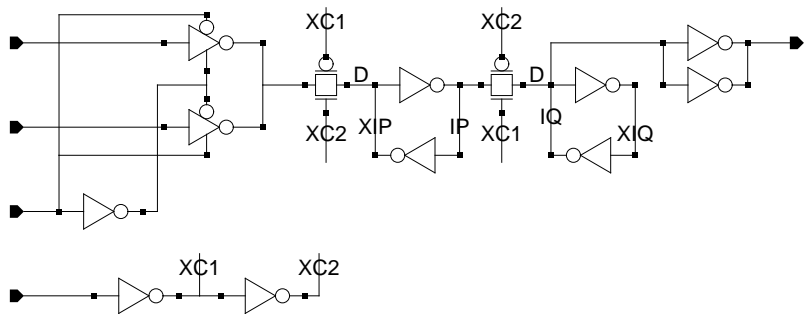
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.284	0.414	0.600	0.315	0.473	0.712
D	<=	XC	setup time			0.216	0.459	0.513
D	<=	XC	hold time			-0.060	0.031	-0.106
SIN	<=	XC	setup time			0.215	0.461	0.516
SIN	<=	XC	hold time			-0.060	0.033	-0.103
SMC	<=	XC	setup time			0.243	0.517	0.572
SMC	<=	XC	hold time			-0.083	0.009	-0.120
XC		(low)	minimum pulse width			0.315	0.568	0.712
XC		(high)	minimum pulse width			0.290	0.507	0.589

series : TSMC035

function : Scan D-flip flop,inverted out,powered

macro name	SDFNXP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XQ
X	X	X	0->1	hold
0	X	0	1->0	1
1	X	0	1->0	0
X	0	1	1->0	1
X	1	1	1->0	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	1.186	0.571	0.781	1.052	0.257	0.359	0.477
SIN	0.020							
SMC	0.030							
XC	0.017							
XQ								

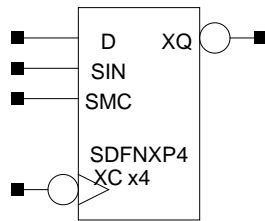
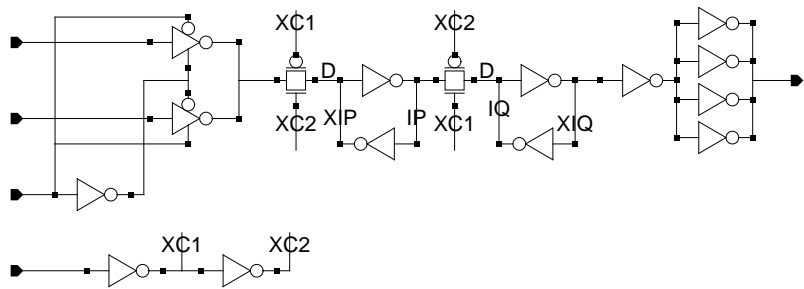
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.310	0.445	0.638	0.322	0.483	0.729
D	<=	XC	setup time			0.214	0.458	0.512
D	<=	XC	hold time			-0.060	0.032	-0.106
SIN	<=	XC	setup time			0.214	0.461	0.515
SIN	<=	XC	hold time			-0.059	0.033	-0.102
SMC	<=	XC	setup time			0.242	0.516	0.572
SMC	<=	XC	hold time			-0.083	0.009	-0.120
XC		(low)	minimum pulse width			0.322	0.579	0.729
XC		(high)	minimum pulse width			0.291	0.507	0.589

series : TSMC035

function : Scan D-flip flop,inverted out,x4 powered

macro name	SDFNXP4	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

D	SIN	SMC	XC	XQ
X	X	X	0->1	hold
0	X	0	1->0	1
1	X	0	1->0	0
X	0	1	1->0	1
X	1	1	1->0	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.020	2.406	0.286	0.391	0.526	0.128	0.179	0.237
SIN	0.020							
SMC	0.030							
XC	0.017							
XQ								

**AC Characteristic**

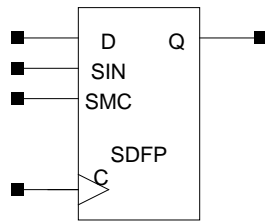
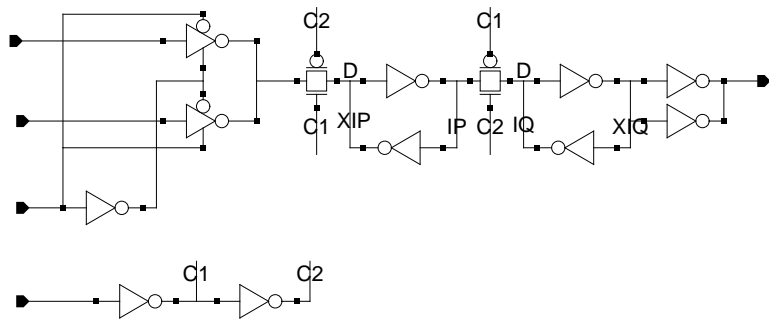
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.394	0.590	0.857	0.446	0.670	0.992
D	<=	XC	setup time			0.217	0.460	0.514
D	<=	XC	hold time			-0.061	0.031	-0.107
SIN	<=	XC	setup time			0.216	0.462	0.517
SIN	<=	XC	hold time			-0.060	0.032	-0.103
SMC	<=	XC	setup time			0.244	0.518	0.574
SMC	<=	XC	hold time			-0.083	0.008	-0.121
XC		(low)	minimum pulse width			0.446	0.804	0.992
XC		(high)	minimum pulse width			0.290	0.507	0.589



series : TSMC035

function : Scan D-flip flop,powered

macro name	SDFP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	1.188	0.570	0.780	1.050	0.251	0.349	0.461
D	0.020							
Q								
SIN	0.020							
SMC	0.030							

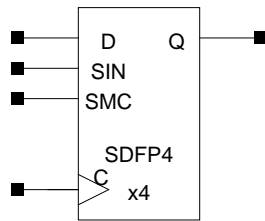
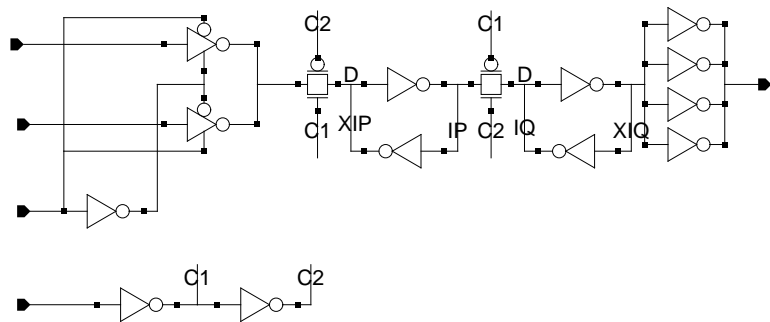
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.371	0.552	0.784	0.366	0.541	0.774
D	<=	C	setup time			0.259	0.490	0.570
D	<=	C	hold time			-0.033	0.069	-0.096
SIN	<=	C	setup time			0.258	0.492	0.573
SIN	<=	C	hold time			-0.032	0.070	-0.093
SMC	<=	C	setup time			0.286	0.548	0.629
SMC	<=	C	hold time			-0.055	0.046	-0.110
C		(low)	minimum pulse width			0.278	0.498	0.616
C		(high)	minimum pulse width			0.371	0.662	0.784

series : TSMC035

function : Scan D-flip flop,x4 powered

macro name	SDFP4	size [um]	30.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019	2.400	0.285	0.390	0.526	0.130	0.182	0.242
D	0.020							
Q								
SIN	0.020							
SMC	0.030							

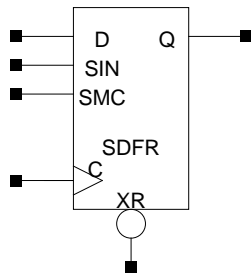
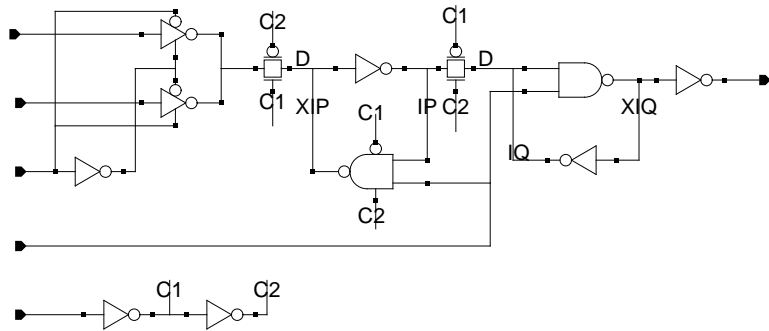
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.420	0.623	0.878	0.415	0.618	0.884
D	<=	C	setup time			0.257	0.489	0.568
D	<=	C	hold time			-0.030	0.071	-0.094
SIN	<=	C	setup time			0.256	0.491	0.571
SIN	<=	C	hold time			-0.030	0.072	-0.090
SMC	<=	C	setup time			0.285	0.547	0.628
SMC	<=	C	hold time			-0.053	0.048	-0.108
C		(low)	minimum pulse width			0.280	0.501	0.620
C		(high)	minimum pulse width			0.420	0.748	0.884

series : TSMC035

function : Scan D-flip flop with low reset XR

macro name	SDFR	size [um]	31.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	Q
X	X	X	X	0	0
1->0	X	X	X	1	hold
0->1	0	X	0	1	0
0->1	1	X	0	1	1
0->1	X	0	1	1	0
0->1	X	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.021	0.571	1.140	1.560	2.099	0.498	0.692	0.914
D	0.020							
Q								
SIN	0.020							
SMC	0.031							
XR	0.037							

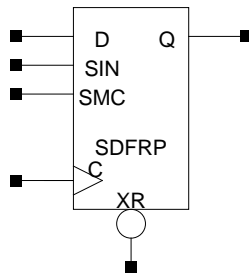
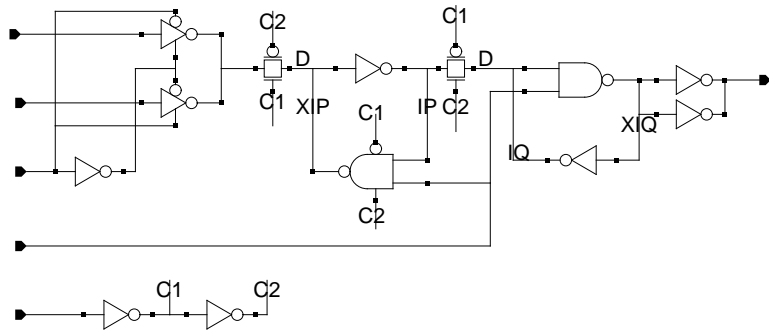
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.418	0.614	0.873	0.385	0.558	0.793
XR	=>	Q				0.206	0.297	0.422
D	<=	C		setup time		0.228	0.474	0.513
D	<=	C				0.023	0.116	-0.040
SIN	<=	C				0.227	0.472	0.516
SIN	<=	C				0.024	0.117	-0.036
SMC	<=	C				0.256	0.542	0.579
SMC	<=	C				-0.006	0.106	-0.055
XR	<=	C				-0.124	-0.134	-0.221
XR	<=	C				0.234	0.374	0.414
C		(low)				0.312	0.561	0.693
C		(high)				0.418	0.736	0.873
XR		(low)				0.491	0.936	1.175

series : TSMC035

function : Scan D-flip flop with low reset XR,powered

macro name	SDFRP	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	Q
X	X	X	X	0	0
1->0	X	X	X	1	hold
0->1	0	X	0	1	0
0->1	1	X	0	1	1
0->1	X	0	1	1	0
0->1	X	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.021	1.185	0.570	0.781	1.051	0.251	0.350	0.463
D	0.020							
Q								
SIN	0.020							
SMC	0.031							
XR	0.036							

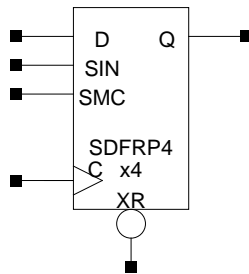
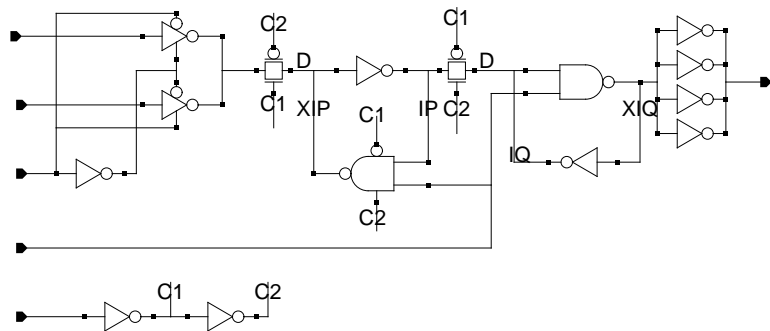
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.446	0.655	0.927	0.404	0.586	0.835
XR	=>	Q				0.227	0.327	0.465
D	<=	C	0.228	0.474	0.513	0.228	0.474	0.513
D	<=	C				0.023	0.116	-0.040
SIN	<=	C				0.227	0.472	0.516
SIN	<=	C				0.024	0.117	-0.036
SMC	<=	C				0.256	0.542	0.579
SMC	<=	C				-0.006	0.106	-0.055
XR	<=	C				-0.124	-0.134	-0.221
XR	<=	C				0.234	0.374	0.414
C		(low)				0.312	0.561	0.693
C		(high)				0.446	0.786	0.927
XR		(low)				0.542	1.027	1.285

series : TSMC035

function : Scan D-flip flop with low reset XR,x4 powered

macro name	SDFRP4	size [um]	36.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	Q
X	X	X	X	0	0
1->0	X	X	X	1	hold
0->1	0	X	0	1	0
0->1	1	X	0	1	1
0->1	X	0	1	1	0
0->1	X	1	1	1	1

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.021	2.362	0.285	0.391	0.529	0.129	0.182	0.244
D	0.020							
Q								
SIN	0.020							
SMC	0.031							
XR	0.039							

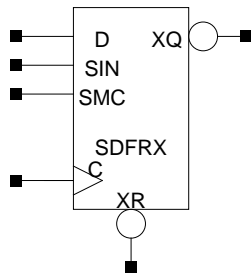
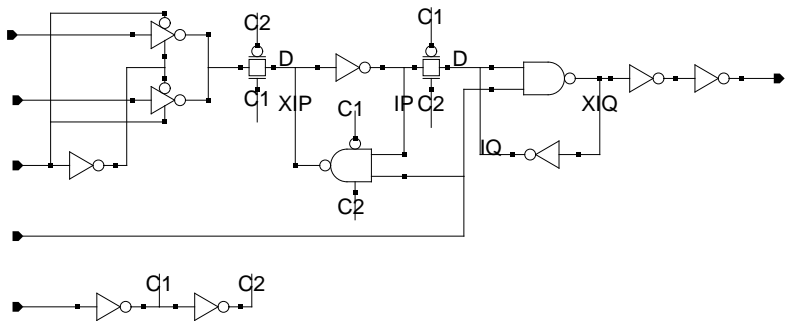
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.511	0.751	1.061	0.452	0.662	0.946
XR	=>	Q				0.284	0.409	0.582
D	<=	C		setup time		0.228	0.474	0.513
D	<=	C				0.023	0.116	-0.040
SIN	<=	C				0.227	0.472	0.516
SIN	<=	C				0.024	0.117	-0.036
SMC	<=	C				0.256	0.542	0.579
SMC	<=	C				-0.006	0.106	-0.055
XR	<=	C				-0.124	-0.134	-0.221
XR	<=	C				0.234	0.374	0.414
C		(low)				0.312	0.561	0.693
C		(high)				0.511	0.901	1.061
XR		(low)				0.642	1.209	1.505

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out

macro name	SDFRX	size [um]	33.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	0.571	1.140	1.560	2.099	0.497	0.691	0.911
D	0.020							
SIN	0.020							
SMC	0.031							
XQ								
XR	0.037							

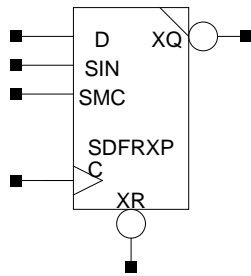
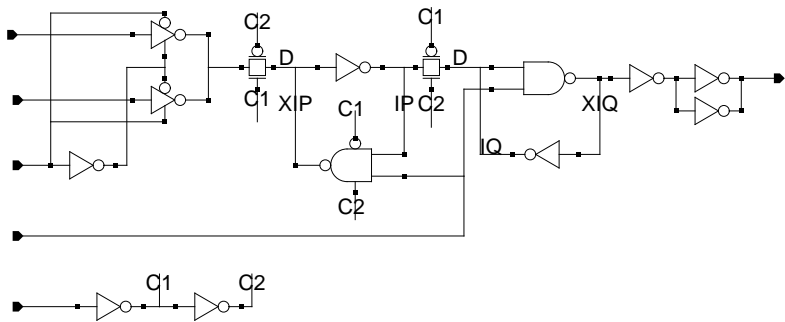
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.432	0.633	0.902	0.450	0.667	0.958
XR	=>	XQ	0.260	0.377	0.536			
D	<=	C	setup time			0.230	0.476	0.517
D	<=	C	hold time			0.021	0.114	-0.040
SIN	<=	C	setup time			0.229	0.474	0.520
SIN	<=	C	hold time			0.022	0.116	-0.037
SMC	<=	C	setup time			0.259	0.544	0.583
SMC	<=	C	hold time			-0.009	0.105	-0.055
XR	<=	C	release time			-0.121	-0.132	-0.217
XR	<=	C	removable time			0.231	0.373	0.413
C		(low)	minimum pulse width			0.308	0.556	0.686
C		(high)	minimum pulse width			0.450	0.800	0.958
XR		(low)	minimum pulse width			0.488	0.928	1.165

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out,powered

macro name	SDFRXP	size [um]	34.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	1.188	0.570	0.780	1.050	0.250	0.347	0.459
D	0.020							
SIN	0.020							
SMC	0.031							
XQ								
XR	0.037							

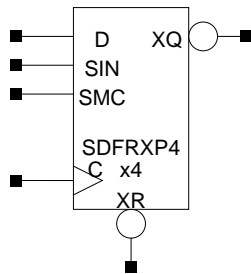
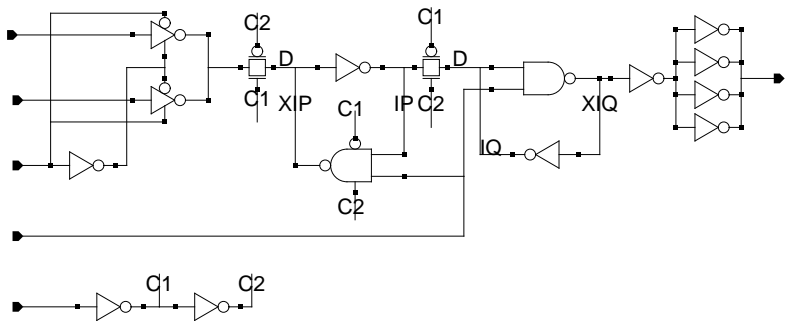
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.445	0.655	0.928	0.468	0.692	0.994
XR	=>	XQ	0.278	0.400	0.565			
D	<=	C	setup time			0.230	0.476	0.517
D	<=	C	hold time			0.021	0.114	-0.040
SIN	<=	C	setup time			0.229	0.474	0.520
SIN	<=	C	hold time			0.022	0.116	-0.037
SMC	<=	C	setup time			0.259	0.544	0.583
SMC	<=	C	hold time			-0.009	0.105	-0.055
XR	<=	C	release time			-0.121	-0.132	-0.217
XR	<=	C	removable time			0.231	0.373	0.413
C		(low)	minimum pulse width			0.308	0.556	0.686
C		(high)	minimum pulse width			0.468	0.831	0.994
XR		(low)	minimum pulse width			0.487	0.927	1.165

series : TSMC035

function : Scan D-flip flop with low reset XR,inverted out,x4 powered

macro name	SDFRXP4	size [um]	37.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	2.400	0.285	0.391	0.527	0.128	0.179	0.237
D	0.020							
SIN	0.020							
SMC	0.031							
XQ								
XR	0.035							

**AC Characteristic**

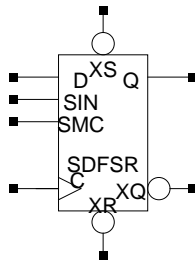
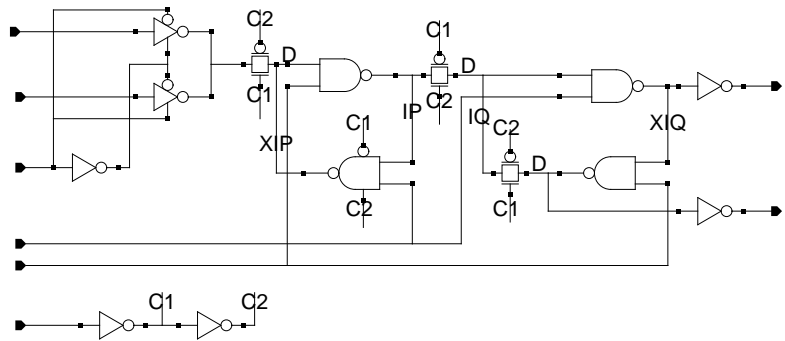
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.488	0.709	1.004	0.504	0.752	1.080
XR	=>	XQ	0.322	0.459	0.644			
D	<=	C	setup time			0.230	0.476	0.517
D	<=	C	hold time			0.021	0.114	-0.040
SIN	<=	C	setup time			0.229	0.474	0.520
SIN	<=	C	hold time			0.022	0.116	-0.037
SMC	<=	C	setup time			0.259	0.544	0.583
SMC	<=	C	hold time			-0.009	0.105	-0.055
XR	<=	C	release time			-0.121	-0.132	-0.217
XR	<=	C	removable time			0.231	0.373	0.413
C	(low)		minimum pulse width			0.308	0.556	0.686
C	(high)		minimum pulse width			0.504	0.902	1.080
XR	(low)		minimum pulse width			0.486	0.927	1.164



series : TSMC035

function : Scan D-flip flop with low reset XR,low set XS

macro name	SDFSR	size [um]	39.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.017	0.568	1.141	1.563	2.106	0.498	0.692	0.916
D	0.020							
Q								
SIN	0.020							
SMC	0.031	0.569	1.140	1.562	2.105	0.498	0.694	0.920
XQ								
XR	0.036							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.430	0.622	0.900	0.449	0.652	0.946
XR	=>	Q	0.252	0.332	0.444	0.210	0.317	0.457
XS	=>	Q	0.397	0.636	0.955			
C	=>	XQ	0.548	0.808	1.182	0.507	0.748	1.096
XR	=>	XQ	0.324	0.538	0.850			
XS	=>	XQ	0.209	0.348	0.561	0.242	0.389	0.604
D	<=	C	setup time			0.256	0.535	0.574
D	<=	C	hold time			0.043	0.141	0.007
SIN	<=	C	setup time			0.255	0.533	0.577
SIN	<=	C	hold time			0.044	0.142	0.010
SMC	<=	C	setup time			0.285	0.603	0.644

**series : TSMC035**

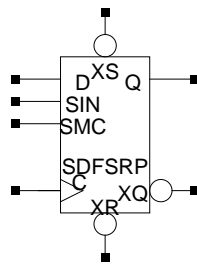
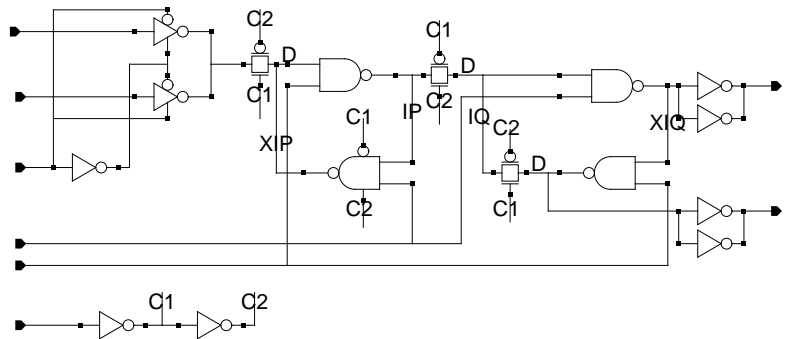
**function : Scan D-flip flop with low reset XR,low set XS**

SMC	<=	C	hold time	0.013	0.132	-0.008
XR	<=	C	release time	0.018	0.144	0.115
XR	<=	C	removable time	0.111	0.217	0.115
XS	<=	C	release time	0.076	0.184	0.115
XS	<=	C	removable time	0.114	0.249	0.198
XS	<=	XR	recovery time	0.151	0.326	0.293
XR	<=	XS	recovery time	0.114	0.248	0.181
C		(low)	minimum pulse width	0.363	0.654	0.789
C		(high)	minimum pulse width	0.548	0.970	1.182
XR		(low)	minimum pulse width	0.398	0.718	0.902
XS		(low)	minimum pulse width	0.454	0.803	0.955

series : TSMC035

function : Scan D-flip flop with low reset XR,low set XS,powered

macro name	SDFSRP	size [um]	42.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.017	1.177	0.571	0.782	1.055	0.252	0.351	0.465
D	0.020							
Q								
SIN	0.020							
SMC	0.031	1.175	0.571	0.781	1.054	0.251	0.353	0.472
XQ								
XR	0.038							
XS	0.040							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.456	0.662	0.950	0.470	0.682	0.992
XR	=>	Q	0.286	0.374	0.495	0.232	0.348	0.499
XS	=>	Q	0.426	0.714	1.112			
C	=>	XQ	0.621	0.915	1.333	0.566	0.839	1.228
XR	=>	XQ	0.404	0.648	0.997			
XS	=>	XQ	0.245	0.386	0.598	0.266	0.416	0.633
D	<=	C		setup time		0.256	0.535	0.574
D	<=	C		hold time		0.043	0.141	0.007
SIN	<=	C		setup time		0.255	0.533	0.577
SIN	<=	C		hold time		0.044	0.142	0.010
SMC	<=	C		setup time		0.285	0.603	0.644

**series : TSMC035**

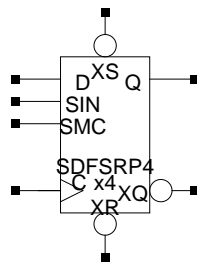
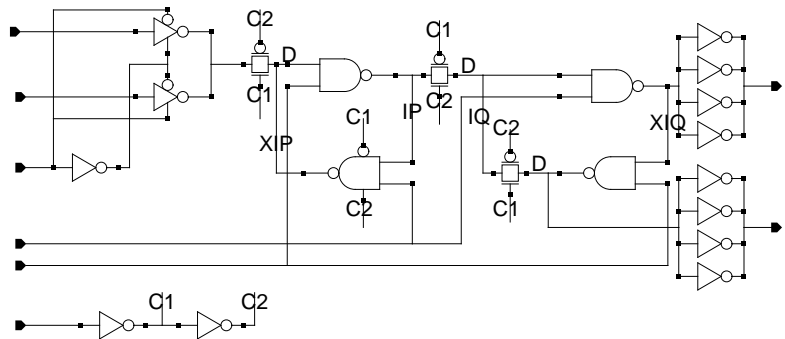
**function : Scan D-flip flop with low reset XR,low set XS,powered**

SMC	<=	C	hold time	0.013	0.132	-0.008
XR	<=	C	release time	0.018	0.144	0.115
XR	<=	C	removable time	0.111	0.217	0.115
XS	<=	C	release time	0.077	0.185	0.115
XS	<=	C	removable time	0.114	0.249	0.198
XS	<=	XR	recovery time	0.179	0.341	0.275
XR	<=	XS	recovery time	0.148	0.299	0.232
C		(low)	minimum pulse width	0.363	0.654	0.789
C		(high)	minimum pulse width	0.621	1.099	1.333
XR		(low)	minimum pulse width	0.474	0.841	0.997
XS		(low)	minimum pulse width	0.533	0.940	1.112

series : TSMC035

function : Scan D-flip flop with low reset XR,low set XS,x4 powered

macro name	SDFSRP4	size [um]	48.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.017	2.331	0.283	0.391	0.532	0.130	0.184	0.246
D	0.020							
Q								
SIN	0.020							
SMC	0.031	2.302	0.283	0.390	0.532	0.129	0.186	0.256
XQ								
XR	0.037							
XS	0.035							

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.518	0.750	1.074	0.520	0.762	1.107
XR	=>	Q	0.357	0.467	0.615	0.287	0.427	0.611
XS	=>	Q	0.485	0.875	1.439			
C	=>	XQ	0.773	1.144	1.657	0.688	1.029	1.508
XR	=>	XQ	0.547	0.870	1.314			
XS	=>	XQ	0.318	0.476	0.709	0.325	0.494	0.738
D	<=	C	setup time			0.256	0.535	0.574
D	<=	C	hold time			0.043	0.141	0.007
SIN	<=	C	setup time			0.255	0.533	0.577
SIN	<=	C	hold time			0.044	0.142	0.010
SMC	<=	C	setup time			0.284	0.603	0.644

**series : TSMC035**

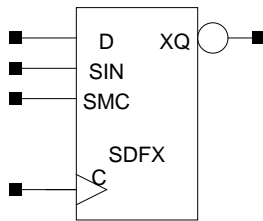
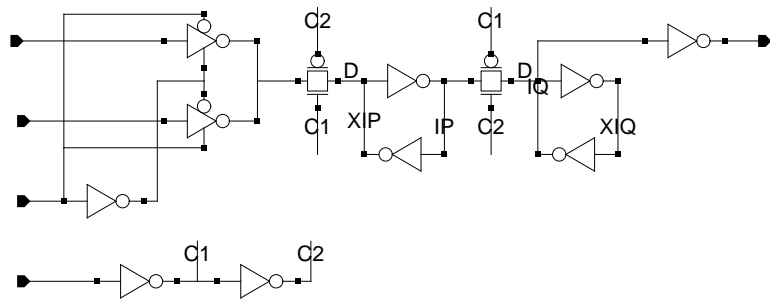
**function : Scan D-flip flop with low reset XR,low set XS,x4 powered**

SMC	<=	C	hold time	0.013	0.132	-0.008
XR	<=	C	release time	0.018	0.144	0.115
XR	<=	C	removable time	0.111	0.217	0.115
XS	<=	C	release time	0.077	0.185	0.116
XS	<=	C	removable time	0.114	0.249	0.198
XS	<=	XR	recovery time	0.243	0.443	0.364
XR	<=	XS	recovery time	0.220	0.410	0.352
C		(low)	minimum pulse width	0.363	0.654	0.789
C		(high)	minimum pulse width	0.773	1.372	1.657
XR		(low)	minimum pulse width	0.629	1.112	1.314
XS		(low)	minimum pulse width	0.691	1.218	1.439

series : TSMC035

function : Scan D-flip flop,inverted out

macro name	SDFX	size [um]	25.500 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XQ
1->0	X	X	X	hold
0->1	0	X	0	1
0->1	1	X	0	0
0->1	X	0	1	1
0->1	X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018	0.571	1.140	1.560	2.099	0.501	0.697	0.922
D	0.020							
SIN	0.020							
SMC	0.030							
XQ								

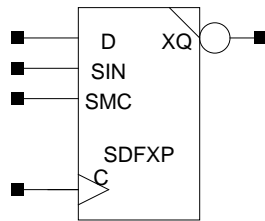
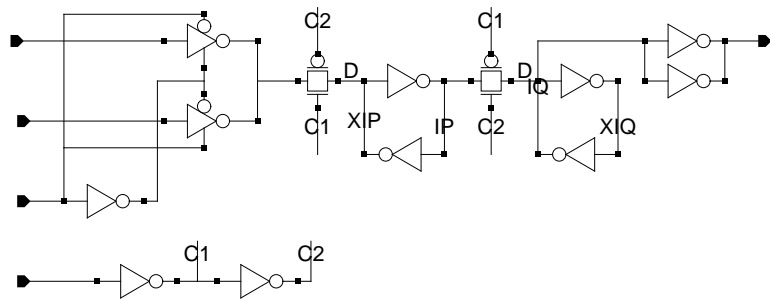
**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.305	0.446	0.624	0.325	0.489	0.712
D	<=	C	setup time			0.259	0.490	0.570
D	<=	C	hold time			-0.033	0.069	-0.096
SIN	<=	C	setup time			0.258	0.492	0.573
SIN	<=	C	hold time			-0.032	0.070	-0.093
SMC	<=	C	setup time			0.286	0.548	0.630
SMC	<=	C	hold time			-0.056	0.046	-0.110
C		(low)	minimum pulse width			0.278	0.497	0.616
C		(high)	minimum pulse width			0.325	0.587	0.712

series : TSMC035

function : Scan D-flip flop,inverted out,powered

macro name	SDFXP	size [um]	27.000 x 15.000
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**Symbol****Schematic****Truth Table**

C	D	SIN	SMC	XQ
1->0	X	X	X	hold
0->1	0	X	0	1
0->1	1	X	0	0
0->1	X	0	1	1
0->1	X	1	1	0

**Port Characteristic**

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.018							
D	0.020							
SIN	0.020							
SMC	0.030							
XQ		1.187	0.570	0.781	1.052	0.257	0.359	0.478

**AC Characteristic**

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.326	0.470	0.653	0.332	0.500	0.733
D	<=	C		setup time		0.259	0.490	0.570
D	<=	C		hold time		-0.032	0.069	-0.096
SIN	<=	C		setup time		0.258	0.492	0.573
SIN	<=	C		hold time		-0.032	0.071	-0.092
SMC	<=	C		setup time		0.286	0.548	0.629
SMC	<=	C		hold time		-0.055	0.047	-0.110
C		(low)		minimum pulse width		0.278	0.497	0.616
C		(high)		minimum pulse width		0.332	0.600	0.733

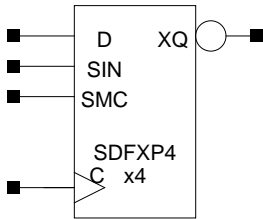


series : TSMC035

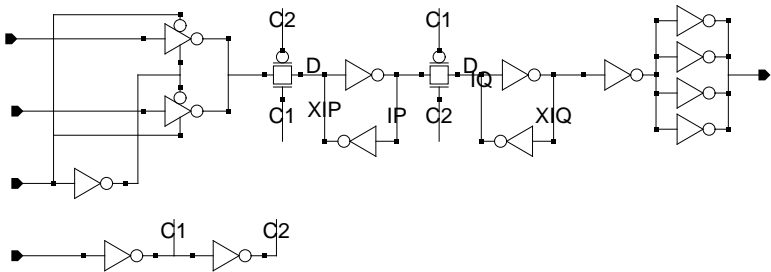
function : Scan D-flip flop,inverted out,x4 powered

macro name	SDFXP4	size [um]	33.000 x 15.000
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Symbol



Schematic



Truth Table

C	D	SIN	SMC	XQ
1->0	X	X	X	hold
0->1	0	X	0	1
0->1	1	X	0	0
0->1	X	0	1	1
0->1	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019	2.406	0.286	0.391	0.526	0.128	0.179	0.237
D	0.020							
SIN	0.020							
SMC	0.030							
XQ								

AC Characteristic

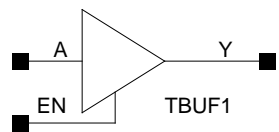
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.429	0.636	0.901	0.451	0.678	0.976
D	<=	C	setup time			0.259	0.490	0.570
D	<=	C	hold time			-0.033	0.068	-0.097
SIN	<=	C	setup time			0.258	0.492	0.573
SIN	<=	C	hold time			-0.032	0.069	-0.093
SMC	<=	C	setup time			0.287	0.548	0.630
SMC	<=	C	hold time			-0.056	0.045	-0.111
C		(low)	minimum pulse width			0.278	0.497	0.615
C		(high)	minimum pulse width			0.451	0.814	0.976

series : TSMC035

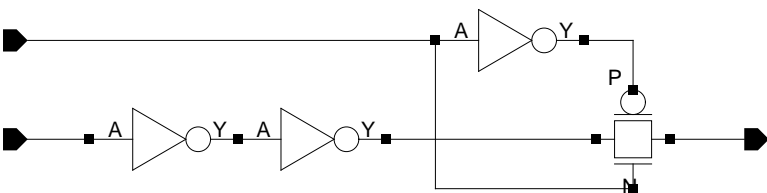
function : Tri-state buffer

macro name	TBUF1	size [um]	9.000 x 15.000
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Symbol



Schematic



Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.018	0.359	1.243	1.752	2.430	0.622	0.908	1.274
EN	0.024							
Y	0.022							

AC Characteristic

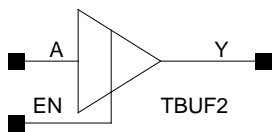
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.219	0.299	0.425	0.200	0.293	0.395
EN	=>	Y		tpLZ		0.168	0.168	0.152
EN	=>	Y		tpZH		0.304	0.366	0.435
EN	=>	Y		tpHZ		0.057	0.090	0.146
EN	=>	Y		tpZL		0.194	0.262	0.342
EN	=>	Y						

series : TSMC035

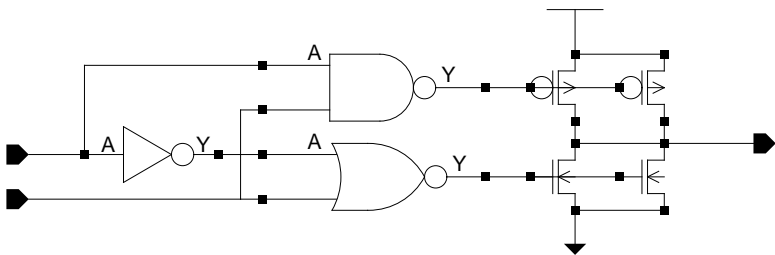
function : Tri-state buffer x 2

macro name	TBUF2	size [um]	15.000 x 15.000
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Symbol



Schematic



Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

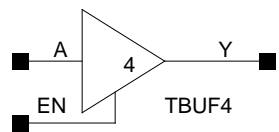
port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.046	1.187	0.571	0.781	1.051	0.252	0.351	0.465
EN	0.045							
Y	0.029							

AC Characteristic

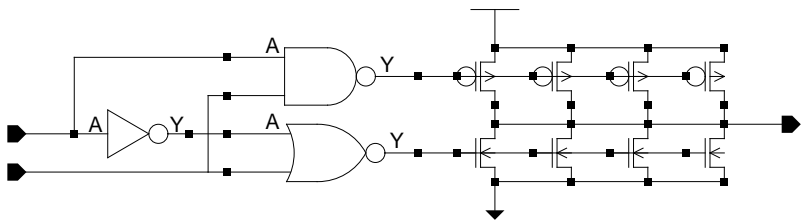
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.191	0.275	0.343	0.174	0.236	0.365
EN	=>	Y		tpLZ		0.167	0.248	0.359
EN	=>	Y		tpZH		0.203	0.270	0.340
EN	=>	Y		tpHZ		0.185	0.237	0.332
EN	=>	Y		tpZL		0.230	0.331	0.452
EN	=>	Y						

macro name	TBUF4	size [um]	18.000 x 15.000
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Symbol



Schematic



Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.045	2.398	0.287	0.392	0.528	0.131	0.184	0.246
EN	0.046							
Y	0.057							

AC Characteristic

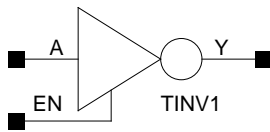
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.224	0.316	0.392	0.194	0.269	0.414
EN	=>	Y		tpLZ		0.187	0.275	0.395
EN	=>	Y		tpZH		0.227	0.305	0.390
EN	=>	Y		tpHZ		0.242	0.315	0.434
EN	=>	Y		tpZL		0.244	0.353	0.489

**series : TSMC035**

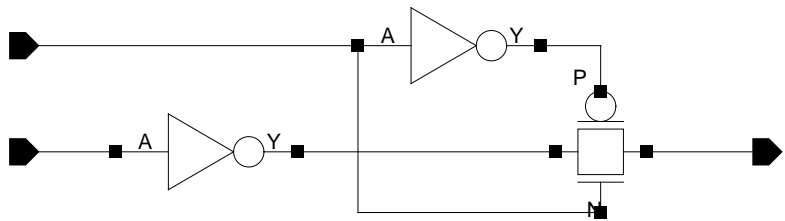
**function : Tri-state buffer,inverted out**

macro name	TINV1	size [um]	7.500 x 15.000
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***Symbol***



## Schematic



### Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022	0.362	1.243	1.752	2.429	0.622	0.908	1.274
EN	0.024							
Y	0.022							

### AC Characteristic

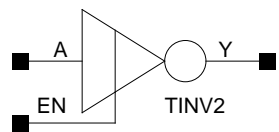
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.178	0.238	0.313	0.172	0.226	0.296
EN	=>	Y		tpLZ		0.168	0.168	0.152
EN	=>	Y		tpZH		0.304	0.366	0.435
EN	=>	Y		tpHZ		0.057	0.090	0.146
EN	=>	Y		tpZL		0.194	0.262	0.342

series : TSMC035

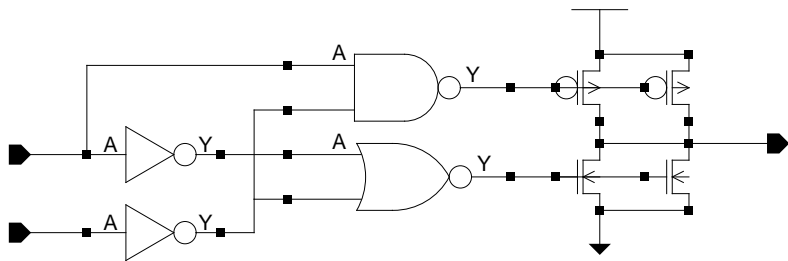
function : Tri-state buffer,inverted out x 2

macro name	TINV2	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	1.187	0.571	0.781	1.051	0.252	0.351	0.465
EN	0.045							
Y	0.028							

AC Characteristic

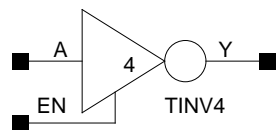
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.247	0.372	0.501	0.271	0.379	0.570
EN	=>	Y		tpLZ		0.170	0.250	0.361
EN	=>	Y		tpZH		0.203	0.270	0.339
EN	=>	Y		tpHZ		0.185	0.237	0.332
EN	=>	Y		tpZL		0.231	0.333	0.454

series : TSMC035

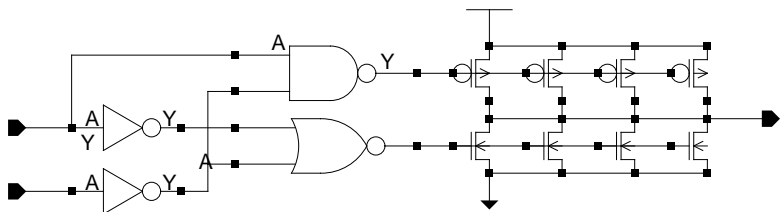
function : Tri-state buffer,inverted out x 4

macro name	TINV4	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023	2.399	0.287	0.392	0.528	0.130	0.184	0.246
EN	0.045							
Y	0.057							

AC Characteristic

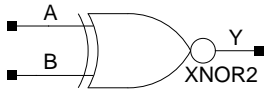
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.267	0.398	0.542	0.281	0.395	0.573
EN	=>	Y		tpLZ		0.198	0.290	0.414
EN	=>	Y		tpZH		0.228	0.306	0.391
EN	=>	Y		tpHZ		0.243	0.317	0.436
EN	=>	Y		tpZL		0.253	0.373	0.534

series : TSMC035

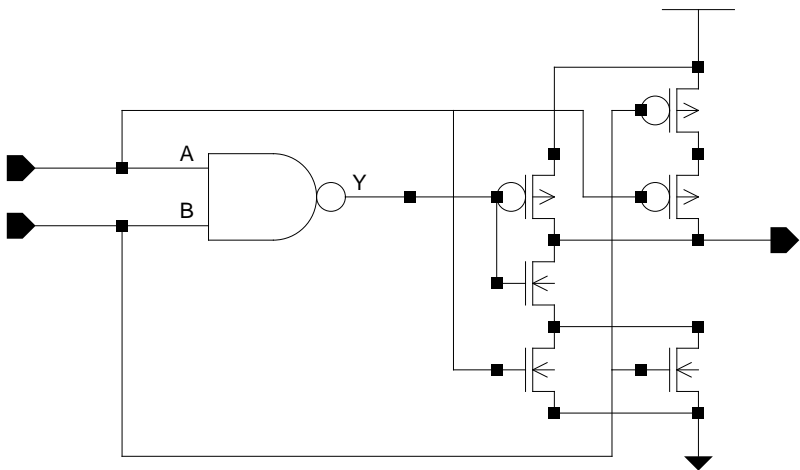
function : 2-input exclusive-NOR

macro name	XNOR2	size [um]	10.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.036	0.253	1.140	2.283	4.150	0.735	1.079	1.504
B	0.045							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.234	0.304	0.399	0.112	0.195	0.326
B	=>	Y	0.187	0.266	0.374	0.142	0.234	0.380

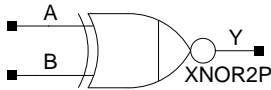


series : TSMC035

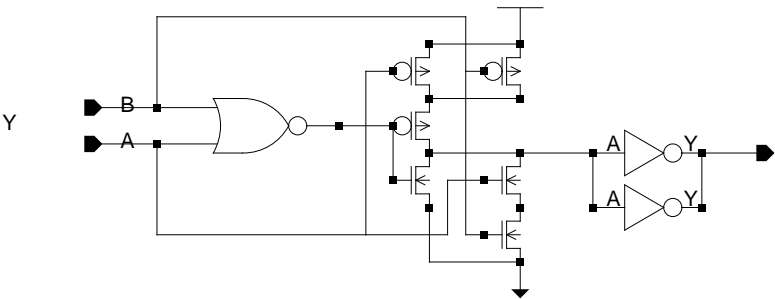
function : 2-input exclusive-NOR,powered

macro name	XNOR2P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	1.185	0.571	0.781	1.052	0.253	0.354	0.470
B	0.048							
Y								

AC Characteristic

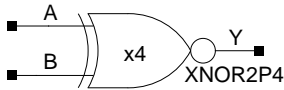
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.283	0.390	0.551	0.226	0.401	0.679
B	=>	Y	0.238	0.349	0.537	0.280	0.444	0.672

series : TSMC035

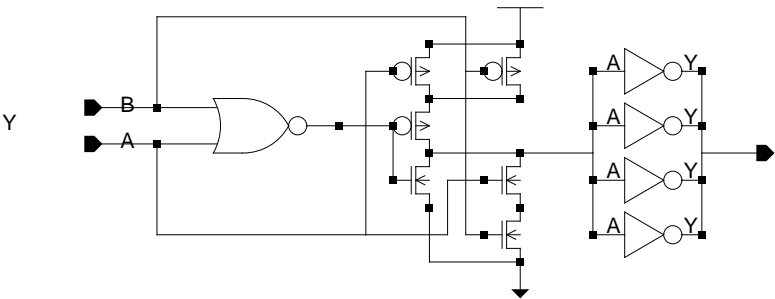
function : 2-input exclusive-NOR,x4 powered

macro name	XNOR2P4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	2.378	0.285	0.391	0.529	0.135	0.191	0.257
B	0.045							
Y								

AC Characteristic

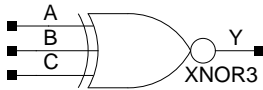
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.318	0.457	0.618	0.296	0.501	0.826
B	=>	Y	0.280	0.413	0.606	0.341	0.541	0.825

series : TSMC035

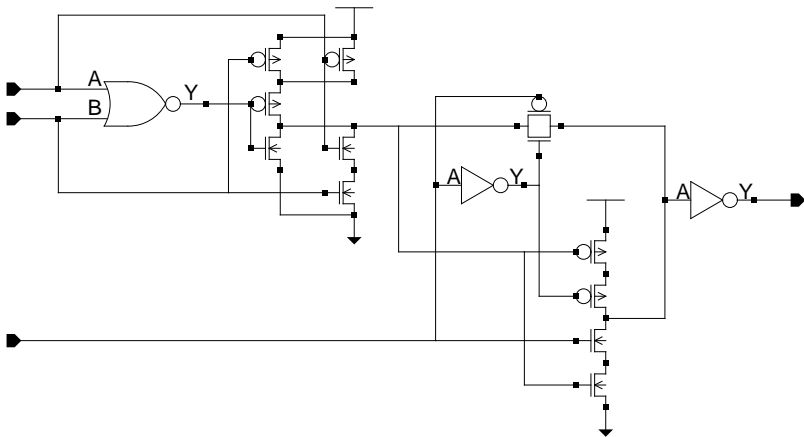
function : 3-input exclusive-NOR

macro name	XNOR3	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	1	0	1
1	0	1	1
0	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.043	0.568	1.140	1.560	2.102	0.499	0.700	0.935
B	0.039							
C	0.039							
Y								

AC Characteristic

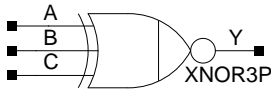
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.207	0.331	0.493	0.215	0.371	0.613
B	=>	Y	0.311	0.560	0.896	0.319	0.597	0.956
C	=>	Y	0.360	0.558	0.880	0.364	0.595	0.938

series : TSMC035

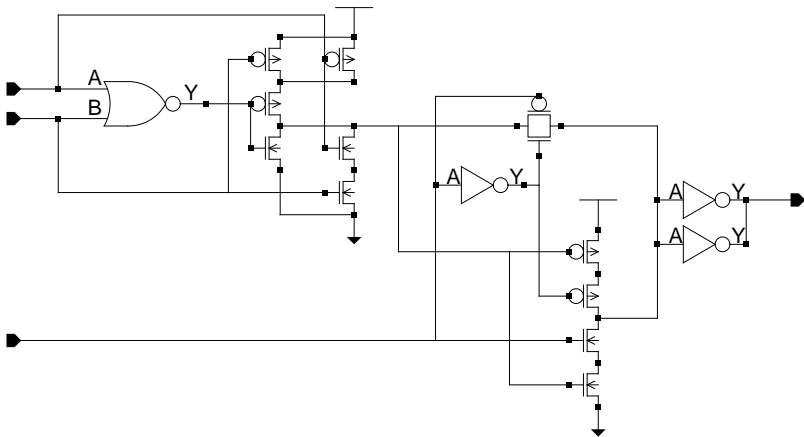
function : 3-input exclusive-NOR,powered

macro name	XNOR3P	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	1	0	1
1	0	1	1
0	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.035	1.169	0.570	0.782	1.055	0.254	0.363	0.495
B	0.040							
C	0.046							
Y								

AC Characteristic

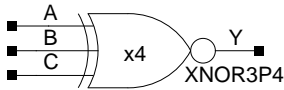
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.225	0.369	0.528	0.218	0.393	0.665
B	=>	Y	0.332	0.590	0.938	0.334	0.624	1.008
C	=>	Y	0.379	0.587	0.917	0.373	0.622	0.984

series : TSMC035

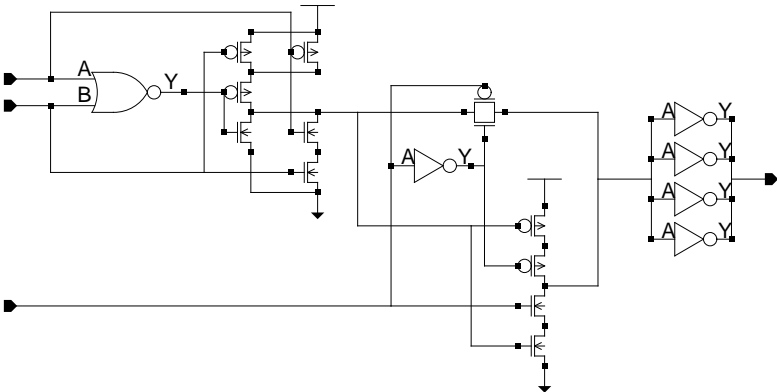
function : 3-input exclusive-NOR,x4 powered

macro name	XNOR3P4	size [um]	24.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
0	0	0	1
1	1	0	1
1	0	1	1
0	1	1	1
other states			0

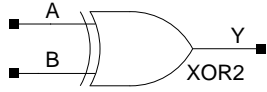
Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.037	2.275	0.285	0.393	0.535	0.136	0.202	0.289
B	0.033							
C	0.039							
Y								

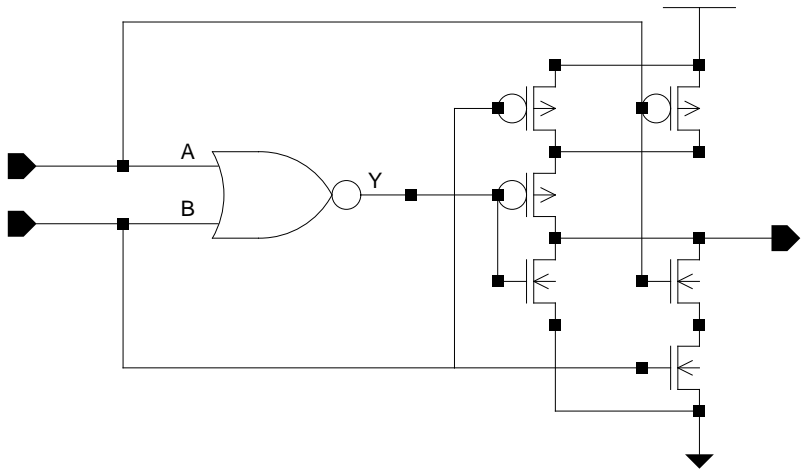
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.270	0.459	0.653	0.254	0.473	0.814
B	=>	Y	0.385	0.670	1.058	0.400	0.725	1.159
C	=>	Y	0.426	0.667	1.024	0.435	0.722	1.139

<b>macro name</b>	XOR2	<b>size [um]</b>	10.500 x 15.000
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**Symbol**

## Schematic



## Truth Table

A	B	Y
0	0	0
1	0	1
0	1	1
1	1	0

### Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.037	0.246	2.118	3.015	4.165	0.499	0.880	1.486
B	0.040							
Y								

### AC Characteristic

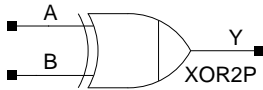
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.144	0.259	0.462	0.191	0.290	0.444
B	=>	Y	0.200	0.302	0.459	0.137	0.246	0.428

series : TSMC035

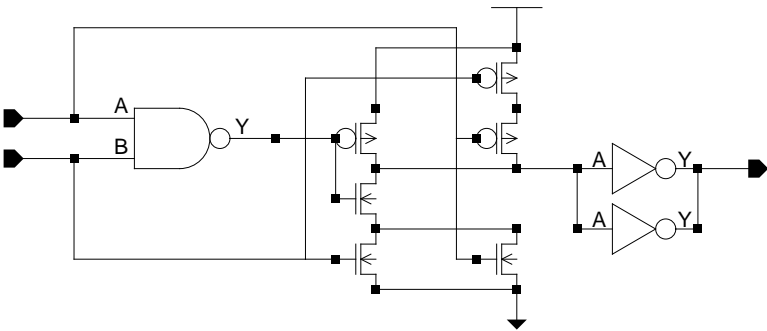
function : 2-input exclusive-OR,powered

macro name	XOR2P	size [um]	13.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	0
1	0	1
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.034	1.186	0.571	0.781	1.052	0.250	0.351	0.471
B	0.045							
Y								

AC Characteristic

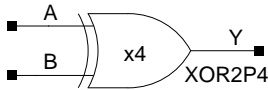
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.231	0.349	0.550	0.288	0.416	0.624
B	=>	Y	0.270	0.394	0.609	0.258	0.382	0.598

series : TSMC035

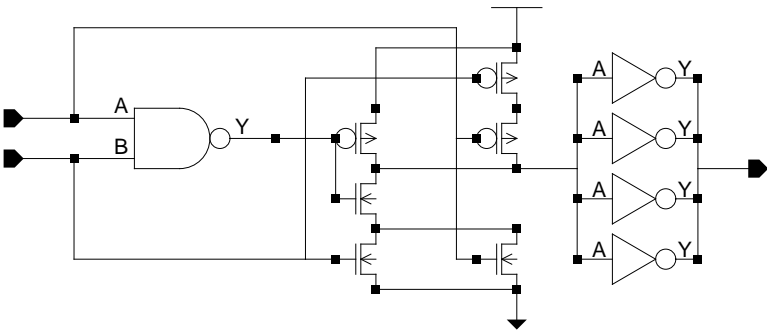
function : 2-input exclusive-OR,x4 powered

macro name	XOR2P4	size [um]	16.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	Y
0	0	0
1	0	1
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.036	2.379	0.286	0.392	0.529	0.129	0.186	0.258
B	0.042							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.289	0.421	0.632	0.323	0.493	0.770
B	=>	Y	0.328	0.463	0.696	0.296	0.457	0.742

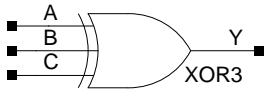


series : TSMC035

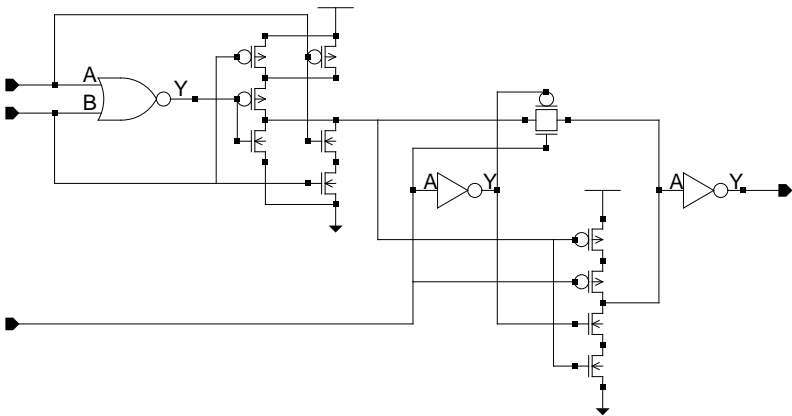
function : 3-input exclusive-OR

macro name	XOR3	size [um]	19.500 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.043	0.568	1.140	1.561	2.102	0.499	0.700	0.936
B	0.039							
C	0.039							
Y								

AC Characteristic

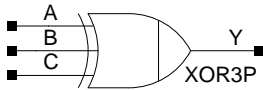
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.211	0.349	0.531	0.220	0.361	0.545
B	=>	Y	0.311	0.561	0.898	0.319	0.597	0.953
C	=>	Y	0.360	0.558	0.883	0.365	0.595	0.935

series : TSMC035

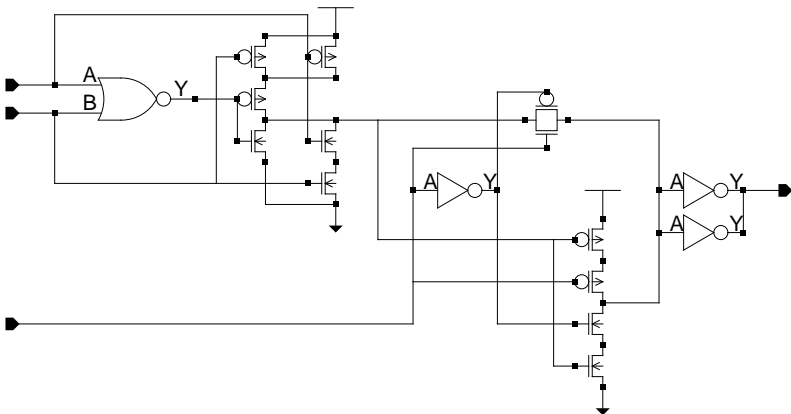
function : 3-input exclusive-OR,powered

macro name	XOR3P	size [um]	21.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040	1.169	0.570	0.782	1.055	0.254	0.363	0.495
B	0.040							
C	0.039							
Y								

AC Characteristic

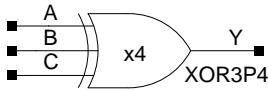
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.250	0.386	0.566	0.249	0.392	0.577
B	=>	Y	0.332	0.591	0.940	0.334	0.624	1.005
C	=>	Y	0.379	0.588	0.921	0.374	0.622	0.981

series : TSMC035

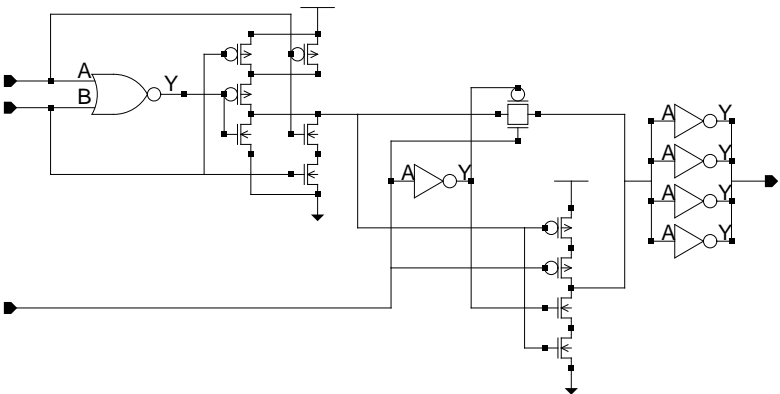
function : 3-input exclusive-OR,x4 powered

macro name	XOR3P4	size [um]	24.000 x 15.000
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Symbol



Schematic



Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.039	2.275	0.285	0.393	0.535	0.136	0.202	0.289
B	0.033							
C	0.039							
Y								

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.321	0.473	0.671	0.324	0.491	0.706
B	=>	Y	0.386	0.671	1.060	0.401	0.725	1.156
C	=>	Y	0.426	0.667	1.029	0.436	0.722	1.136