

Data sheet acquired from Harris Semiconductor SCHS057C – Revised September 2003

CD4073B, CD4081B, CD4082B Types

CMOS AND Gates

High-Voltage Types (20-Volt Rating)

CD4073B Triple 3-Input AND Gate CD4081B Quad 2-Input AND Gate CD4082B Dual 4-Input AND Gate

CD4073B, CD4081B and CD-4082B AND gates provide the system designer with direct implementation of the AND function and supplement the existing family of CMOS gates.

The CD4073B, CD4081B, and CD4082B types are supplied in 14-lead hermetic dual-in-line ceramic packages (F3A suffix), 14-lead dual-in-line plastic packages (E suffix), 14-lead small-outline packages (M, MT, M96, and NSR suffixes), and 14-lead thin shrink small-outline packages (PW and PWR suffixes).

Features:

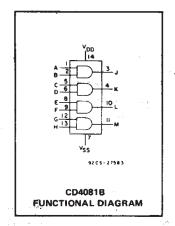
- Medium-Speed Operation tpLH, tpHL = 60 ns (typ.) at VDD = 10 V
- 100% tested for quiescent current at 20 V
- Maximum input current of 1 μA at 18 V over full package-temperature range; 100 nA at 18 V and 25°C
- Noise margin (full package-temperature range) =

1 V at V_{DD} = 5 V

2 V at V_{DD} = 10 V

2.5 V at VDD = 15 V

- Standardized, symmetrical output characteristics
- 5-V, 10-V, and 15-V parametric ratings
- Meets all requirements of JEDEC Tentative Standard No. 13B, "Standard Specifications for Discription of 'B' Series CMOS Devices"



MAXIMUM RATINGS, Absolute-Maximum Values:

DC SUPPLY-VOLTAGE HARGE, (VDD)
Voltages referenced to V _{SS} Terminal)0.5V to +20V
INPUT VOLTAGE RANGE, ALL INPUTS0.5V to V _{DD} +0.5V
DC INPUT CURRENT, ANY ONE INPUT
POWER: DISSIPATION PER PACKAGE-(PD):
For T _A = -55°C to +100°C
For T _A = +100 °C to +125°C Derate Linearity at 12mW/°C to 200mW
DEVICE DISSIPATION PER OUTPUT TRANSISTOR
FOR TA = FULL PACKAGE-TEMPERATURE RANGE (All Package Types)
OPERATING-TEMPERATURE RANGE (T _A)55°C to +125°C
STORAGE TEMPERATURE RANGE (T _{sto})65°C to +150°C
LEAD TEMPERATURE (DURING SOLDERING):
At distance 1/16 ± 1/32 inch (1.59 ± 0.79mm) from case for 10s max+265°C

V DD 14 D 2 C 3 B 4 B 5 F 10 VSS 92CS-27570 CD4082B FUNCTIONAL DIAGRAM

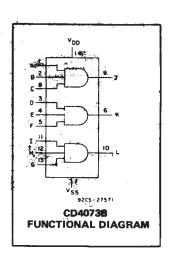
RECOMMENDED OPERATING CONDITIONS

For maximum reliability, nominal operating conditions should be selected so that operation is always within the following ranges:

CHADACTERISTIC	LIM	UNUTO	
CHARACTERISTIC	MIN.	MAX.	UNITS
Supply-Voltage Range (For T _A = Full Package Temperature Range)	3	18	٧

DYNAMIC ELECTRICAL CHARACTERISTICS at TA=25°C, Input t_r,t_f=20 ns, and CL=50 pF, R_L=200 k Ω

CHARACTE RÍSTIC	TEST COND	ITIONS	ALL T	LINUTO		
CHARACTEMPHE		V _{DD} Volts	TYP.	MAX.	UNITS	
Propagation Delay Time,		5 10 15	125 60 45	250 120 90	ns	
Transition Time, ^t THL ^{, t} TLH		10 15	100 50 40	200 100 80	ns	
Input Capacitance, C _{IN}	Any Input	_	5	7.5	ρF	



CD4073B, CD4081B, CD4082B Types

STATIC ELECTRICAL CHARACTERISTICS

CHARACTER-	CONE	OITION	18	LIMITS AT INDICATED TEMPERATURES (°C			LIMITS AT INDICATED TEMPERATURES (°C)					
ISTIC	Vo	VIN	VDD	+25						UNITS		
	(v)	(V)	(V)	-55	-40	+85	+125	Min.	Тур.	Max.	1	
Quiescent Device	1	0,5	5	0.25	0.25	7.5	7.5	_	0.01	0.25	1	
Current,	+	0,10	10	0.5	0.5	15	15	_	0.01	0.5		
IDD Max.		0,15	15	1	1	30	30	-	0,01	1	. µА	
3-		0,20	20	5	5	150	150	_	0.02	5	,	
Output Low	0.4	0,5	5	0.64	0.61	0.42	0.36	0.51	1		mA	
(Sink) Current	0,5	0,10	10	1.6	1.5	1.1	0.9	1.3	2.6	-		
1OL Min.	1.5	0,15	15	4.2	4	2.8	2.4	3 4	6.8	_		
Output High (Source)	4.6	0,5	5	-0.64	-0.61	-0.42	-0.36	-0.51	-1	-		
	2.5	0,5	5	2	-1.8	-1.3	-1.15	-1.6	-3.2	_		
Current, IOH Min.		0,10	10	,- 1.6	-1.5	-1.1	-0.9	-1.3	-2.6			
TOH WITH	13.5	0,15	- 15	-4.2	-4	-2.8	2.4	-3.4	- 6.8	-		
Output Voltage:		0,5	5		0	.05			0	0.05		
Low-Level,		0,10	10	0.05					0	0.05		
VOL Max	i .	0,15	15		0.05				0	0.05	·v	
Dutput Voltäge:		0,5	5		4	.95		4.95	5		. · V	
High-Level,	-	0,10	10		9	.95		9.95	10	-	1	
VOH Min.	# ·	0,15	15		14	.95		14.95	15	_		
Input Low	0.5	_	5	·	1	.5		_	_	1.5		
Voltage,	1	. –	10			3		_	_	3		
VIL Max.	1.5	_	15	15	4		_	_	4			
Input High	0.5,4.5	, -	5		3	3.5		3.5	_	_	٧	
Voltage,	1,9		10			7		7				
V _{IH} Min.	1.5,13.5		15			1		11	_	_	1	
Input Current IşN Max.		0,18	18	±0.1	±0.1	±1	±1	_	±10 ⁻⁵	±0.1	μΑ	

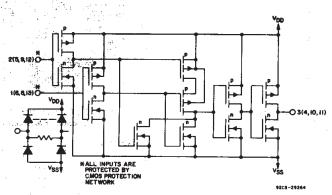


Fig. 1 - Schematic diagram for CD4081B (1 of 4 identical gates).

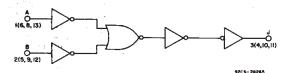


Fig. 2 - Logic diagram for CD4081B (1 of 4 identical gates).

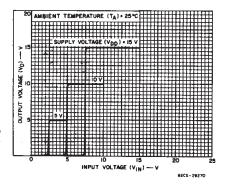


Fig. 3 - Typical voltage transfer characteristics.

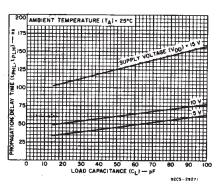


Fig. 4 — Typical propagation delay time as a function of load capacitance.

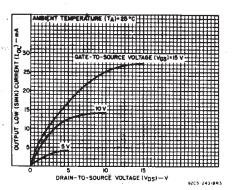


Fig. 5 — Typical output low (sink) current characteristics.

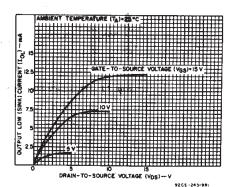


Fig. 6 — Minimum output low (sink) current characteristics.

CD4073B, CD4081B, CD4082B Types

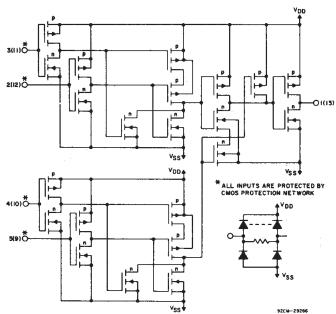


Fig. 7 — Schematic diagram for CD4082B (1 of 2 identical gates).

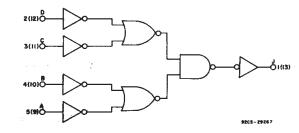


Fig. 9 - Logic diagram for CD4082B (1 of 2 identical gates).

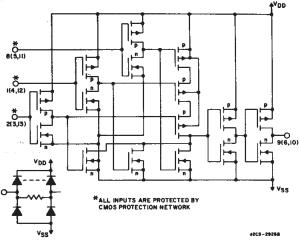


Fig. 11 — Schematic diagram for CD4073B (1 of 3 identical gates).

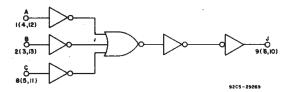


Fig. 13 — Logic diagram for CD4073B (1 of 3 identical gates).

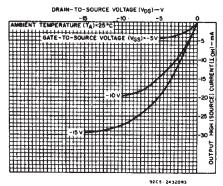


Fig. 8 - Typical output high (source) current characteristics.

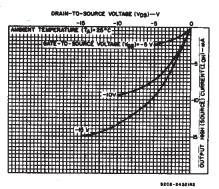


Fig. 10 — Minimum output high (source) current characteristics.

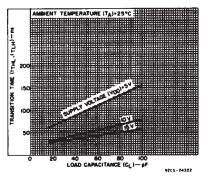


Fig. 12 — Typical transition time as a function of load capacitance

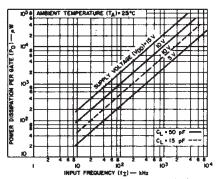


Fig. 14 — Typical dynamic power dissipation per gate as a function of frequency.

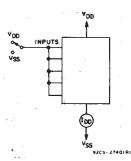


Fig. 15 - Quiescent device current test circuit.

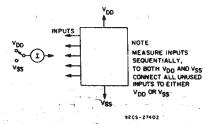


Fig. 16 - Input current test circuit.

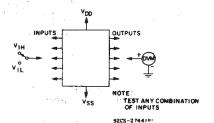
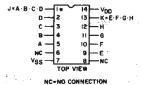


Fig. 17 - Input-voltage test circuit.

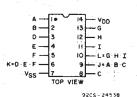
TERMINAL ASSIGNMENTS



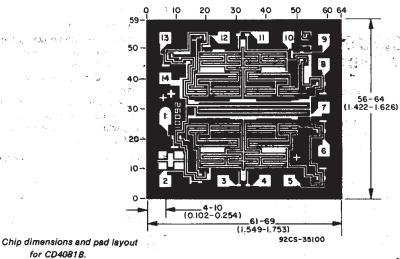
CD4081B

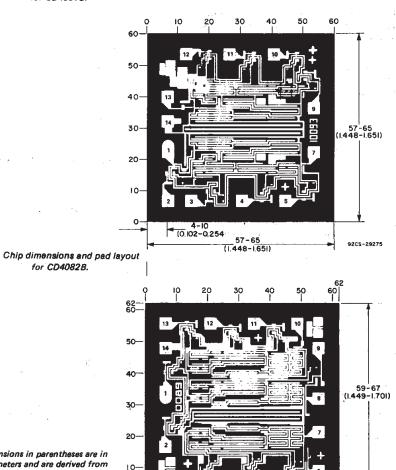


CD4082B



CD4073B





Dimensions in parentheses are in millimeters and are derived from the basic inch dimensions as indicated. Grid graduations are in mils (10⁻³ inch).

Chip dimensions and pad layout (0.102-0.254)

Chip dimensions and pad layout (1.449-1.701)





com 28-Feb-2005

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp (3)
7702402CA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
7705102CA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
7705902CA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4073BE	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
CD4073BF	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4073BF3A	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4073BM	ACTIVE	SOIC	D	14	50	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4073BM96	ACTIVE	SOIC	D	14	2500	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4073BMT	ACTIVE	SOIC	D	14	250	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4073BNSR	ACTIVE	SO	NS	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4073BPW	ACTIVE	TSSOP	PW	14	90	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
CD4073BPWR	ACTIVE	TSSOP	PW	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
CD4081BE	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
CD4081BF	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4081BF3A	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4081BFB3A	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4081BM	ACTIVE	SOIC	D	14	50	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4081BM96	ACTIVE	SOIC	D	14	2500	Pb-Free (RoHS)		Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4081BMT	ACTIVE	SOIC	D	14	250	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4081BNSR	ACTIVE	SO	NS	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4081BPW	ACTIVE	TSSOP	PW	14	90	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
CD4081BPWR	ACTIVE	TSSOP	PW	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
CD4082BE	ACTIVE	PDIP	N	14	25	Pb-Free (RoHS)	CU NIPDAU	Level-NC-NC-NC
CD4082BF	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4082BF3A	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
CD4082BM	ACTIVE	SOIC	D	14	50	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4082BM96	ACTIVE	SOIC	D	14	2500	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4082BMT	ACTIVE	SOIC	D	14	250	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM
CD4082BNSR	ACTIVE	SO	NS	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-2-260C-1 YEAR/ Level-1-235C-UNLIM



PACKAGE OPTION ADDENDUM

28-Feb-2005

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)
CD4082BPW	ACTIVE	TSSOP	PW	14	90	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
CD4082BPWR	ACTIVE	TSSOP	PW	14	2000	Pb-Free (RoHS)	CU NIPDAU	Level-1-250C-UNLIM
JM38510/17001BCA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
JM38510/17002BCA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC
JM38510/17003BCA	ACTIVE	CDIP	J	14	1	None	Call TI	Level-NC-NC-NC

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - May not be currently available - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.

None: Not yet available Lead (Pb-Free).

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

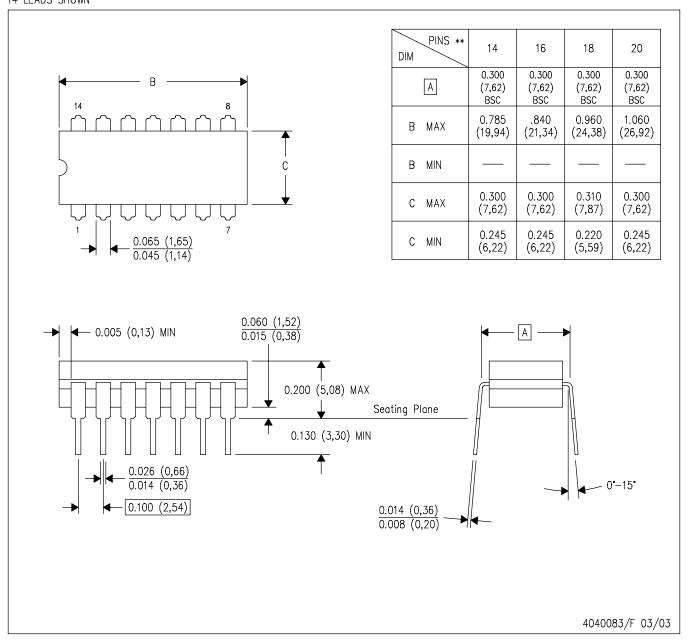
Green (RoHS & no Sb/Br): TI defines "Green" to mean "Pb-Free" and in addition, uses package materials that do not contain halogens, including bromine (Br) or antimony (Sb) above 0.1% of total product weight.

(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDECindustry standard classifications, and peak solder temperature.

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14 LEADS SHOWN



- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. This package is hermetically sealed with a ceramic lid using glass frit.
- D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
- E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN

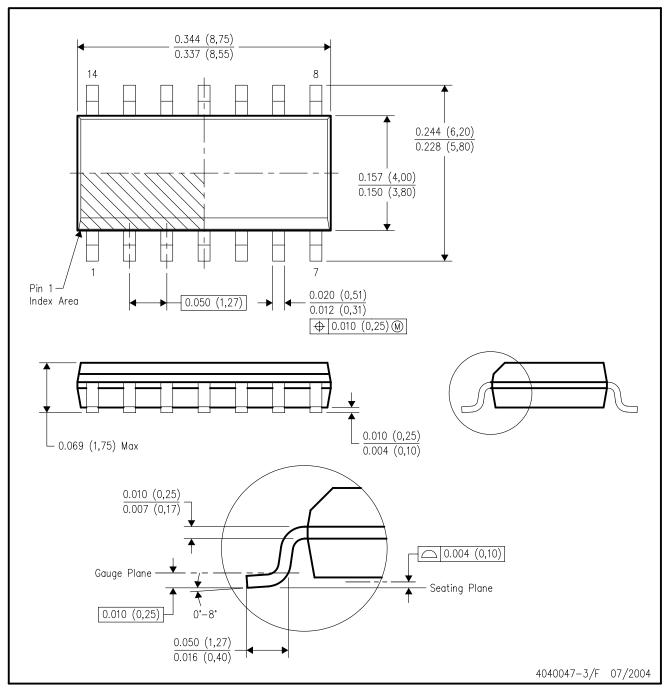


- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
- The 20 pin end lead shoulder width is a vendor option, either half or full width.



D (R-PDSO-G14)

PLASTIC SMALL-OUTLINE PACKAGE



- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
- D. Falls within JEDEC MS-012 variation AB.



MECHANICAL DATA

NS (R-PDSO-G**)

14-PINS SHOWN

PLASTIC SMALL-OUTLINE PACKAGE



- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



PW (R-PDSO-G**)

14 PINS SHOWN

PLASTIC SMALL-OUTLINE PACKAGE



NOTES: A. All linear dimensions are in millimeters.

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.

D. Falls within JEDEC MO-153

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CD4082BPW - http://www.ti.com/product/cd4082bpw?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4082BPWR - http://www.ti.com/product/cd4082bpwr?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4073BF - http://www.ti.com/product/cd4073bf?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4073BF3A - http://www.ti.com/product/cd4073bf3a?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4082BF - http://www.ti.com/product/cd4082bf?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4073BM96 - http://www.ti.com/product/cd4073bm96?HQS=TI-null-null-dscatalog-df-pf-null-wwe
CD4073BMT - http://www.ti.com/product/cd4073bmt?HQS=TI-null-null-dscatalog-df-pf-null-wwe
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CD4081B - http://www.ti.com/product/cd4081b?HQS=TI-null-null-dscatalog-df-pf-null-wwe
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