

CMOS QUAD EXCLUSIVE-NOR GATE

FEATURES

- ◆ Buffered Outputs
- ◆ Diode Protection on all Inputs
- ◆ Fully "B"-Series Compatible

DESCRIPTION

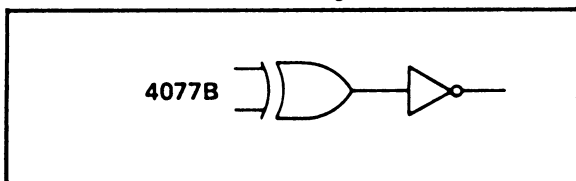
The 4077B contains four independent exclusive-NOR gates integrated on a single monolithic silicon chip. Each exclusive-NOR gate consists of five N-channel and five P-channel enhancement-mode transistors, plus output buffering devices.

TRUTH TABLE
(one of four gates)

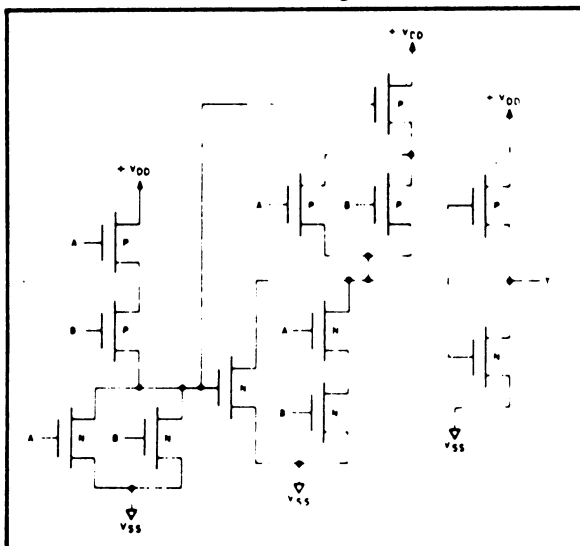
A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Where 1 = High Level
0 = Low Level

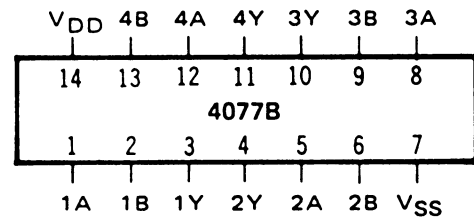
LOGIC DIAGRAM
(one of four gates)



SCHEMATIC DIAGRAM
(one of four gates)



CONNECTION DIAGRAM
(all packages)



Add suffix for package:

C 14-pin Cerdip

E 14-pin Epoxy

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

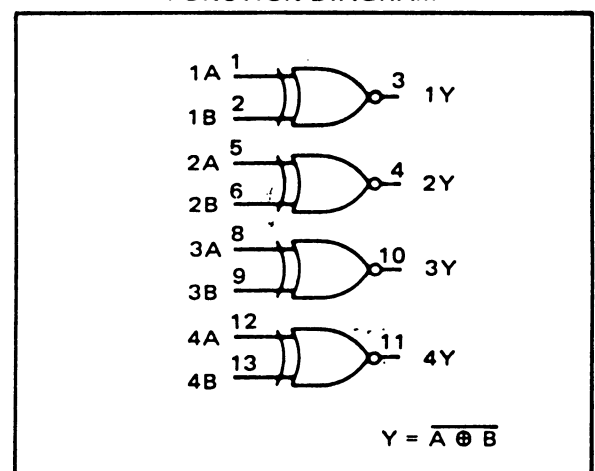
DC Supply Voltage $V_{DD} - V_{SS}$ 3 to 15 Vdc

Operating Temperature T_A

C -55 to +125 °C

E -40 to +85 °C

FUNCTION DIAGRAM



ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS¹

PARAMETER	V _{DD} (Vdc)	CONDITIONS	T _{LOW} ²		+25°C			T _{HIGH} ²		Units
			Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
QUIESCENT DEVICE CURRENT	I _{DD}	V _{IN} = V _{SS} or V _{DD} All valid input combinations	—	0.05	—	0.0005	0.05	—	1.5	μA _{dc}
			—	0.10	—	0.001	0.10	—	3.0	
			—	0.20	—	0.002	0.20	—	6.0	

NOTES: ¹ Remaining Static Electrical Characteristics are listed under "4000B Series Family Specifications".

² T_{LOW} = -55°C for C

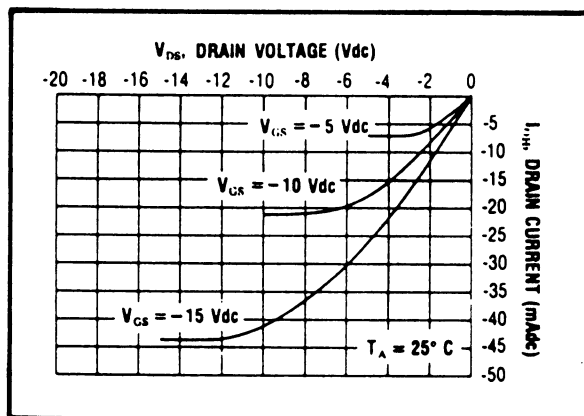
= -40°C for E

T_{HIGH} = +125°C for C

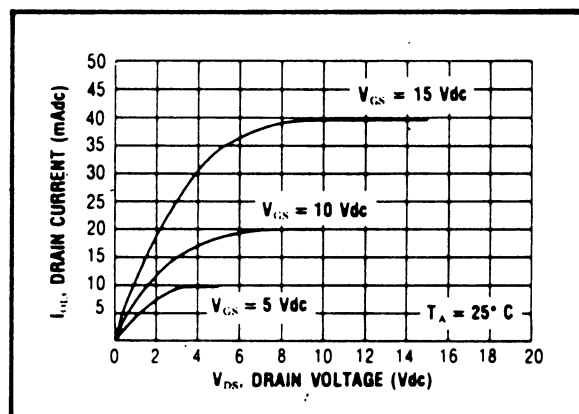
= +85°C for E

DYNAMIC CHARACTERISTICS (C_L = 50pF, T_A = 25°C)

PARAMETER	V _{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME	t _{PLH} , t _{PHL}	—	150	300	ns
		—	65	130	
		—	50	100	
OUTPUT TRANSITION TIME	t _{TLH} , t _{THL}	—	100	200	ns
		—	50	100	
		—	40	80	



Typical P-Channel
Source Current Characteristics



Typical N-Channel
Sink Current Characteristics