CMOS QUAD EXCLUSIVE-NOR GATE

FEATURES

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

DESCRIPTION

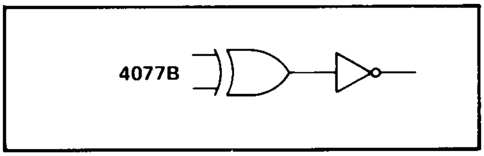
The 4077B contains four independent exclusive-NOR gates integrated on a single monolithic silicon chip. Each exclusive-NOR gate consists of five N-channel and five P-channel enhancement-mode transistors, plus output buffering devices.

TRUTH TABLE
(one of four gates)

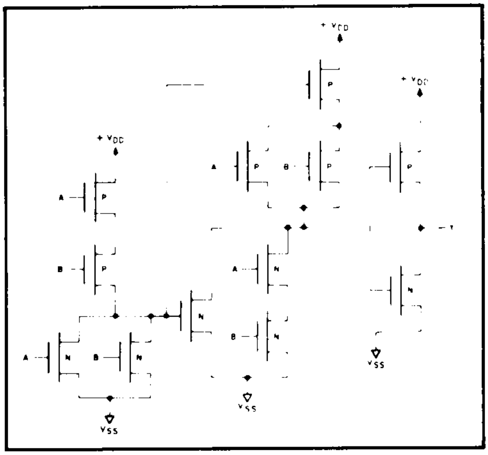
A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Where 1 = High Level
0 = Low Level

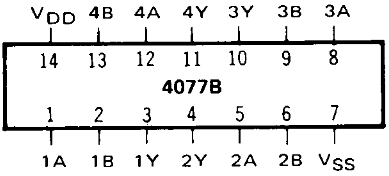
LOGIC DIAGRAM
(one of four gates)



SCHEMATIC DIAGRAM
(one of four gates)



CONNECTION DIAGRAM
(all packages)



Add suffix for package:

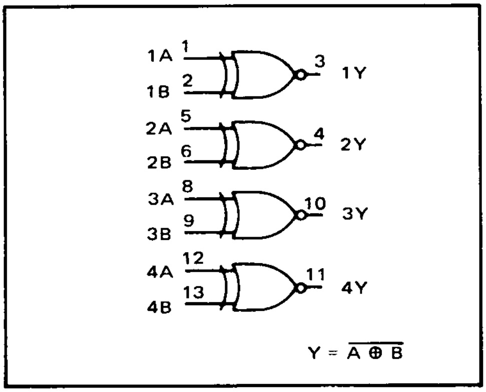
C	14-pin Cerdip
D	14-pin Ceramic
E	14-pin Epoxy
F	14-pin Flat
H	Chip

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

DC Supply Voltage	$V_{DD} - V_{SS}$	3 to 15	Vdc
Operating Temperature	T_A		
C, D, F, H Device		-55 to +125	°C
E Device		-40 to +85	°C

FUNCTION DIAGRAM



$Y = \overline{A \oplus B}$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS [1]

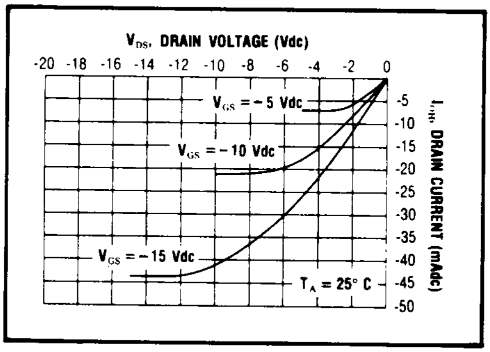
PARAMETER		V_{DD} (Vdc)	CONDITIONS	T_{LOW} [2]		+25°C			T_{HIGH} [2]		Units
				Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
QUIESCENT DEVICE CURRENT	I_{DD}	5 10 15	$V_{IN} = V_{SS}$ or V_{DD} All valid input combinations	– – –	0.05 0.10 0.20	– – –	0.0005 0.001 0.002	0.05 0.10 0.20	– – –	1.5 3.0 6.0	μAdc

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

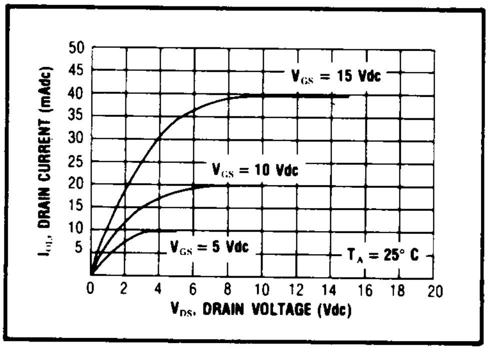
[2] T_{LOW} = -55°C for C, D, F, H device.
= -40°C for E device.
T_{HIGH} = +125°C for C, D, F, H device.
= + 85°C for E device.

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

PARAMETER		V_{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME	t_{PLH}, t_{PHL}	5 10 15	– – –	150 65 50	300 130 100	ns
OUTPUT TRANSITION TIME	t_{TLH}, t_{THL}	5 10 15	– – –	100 50 40	200 100 80	ns



Typical P-Channel
Source Current Characteristics



Typical N-Channel
Sink Current Characteristics