

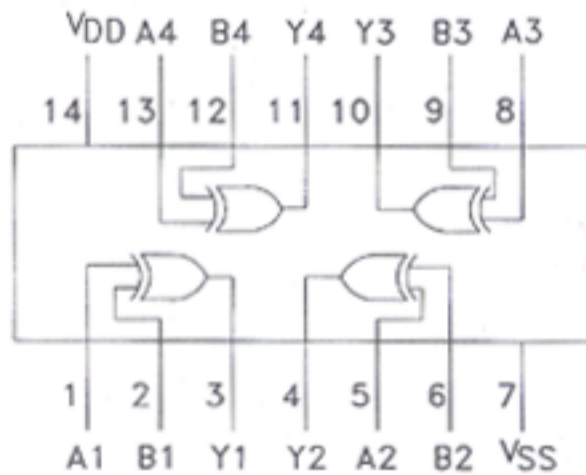
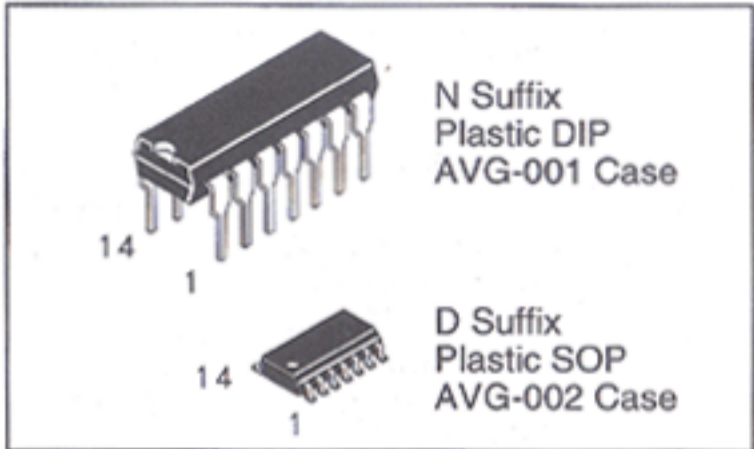
Quad Exclusive "OR" Gates

DV4070B

This quad exclusive OR gate is constructed with MOS P-Channel and N-Channel enhancement mode devices in a single monolithic structure. The DV4070B is recommended for use where low power dissipation and/or high noise immunity is desired.

- Supply voltage range = 3.0 Vdc to 18 Vdc
- All outputs buffered
- Capable of driving 4 Low Power TTL loads or one LS TTL load over the rated temperature range
- Diode protection on all inputs
- Highest noise immunity at 12V supply

4070B



TRUTH TABLE

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

ABSOLUTE MAXIMUM RATINGS

Maximum ratings are those values beyond which damage to the device may occur.

Symbol	Parameter	Value	Unit
V _{DD}	Supply Voltage (Referenced to V _{SS})	-0.5 to +18.0	V
V _{IN} , V _{OUT}	Input or Output Voltage	-0.5 to V _{DD} +0.5	V
I _{IN} , I _{OUT}	DC Current Into or Out of Any Pin	± 10	mA
P _D	Power Dissipation in Still Air, Derating: 12 mW/°C from 65° to 85°C	500	mW
T _{STG}	Storage Temperature Range	-65 to +150	°C
TL	Lead Temperature, (8 Second Soldering)	260	°C

ELECTRICAL CHARACTERISTICS (Voltages Referenced to V_{SS})

Symbol	Parameter	V _{DD}	Guaranteed Limits						Unit		
			-40°C		25°C			85°C			
			Min	Max	Min	Typ	Max	Min		Max	
V _{OL}	Output Voltage V _{IN} =V _{DD} or 0	"0" Level	5.0	-	0.05	-	0	0.05	-	0.05	V _{dc}
			10	-	0.05	-	0	0.05	-	0.05	
			15	-	0.05	-	0	0.05	-	0.05	
V _{OH}	V _{IN} = 0 or V _{DD}	"1" Level	5.0	4.95	-	4.95	5.0	-	4.95	-	V _{dc}
			10	9.95	-	9.95	10	-	9.95	-	
			15	14.95	-	14.95	15	-	14.95	-	
V _{IL}	Input Voltage (V _O =4.5 or 0.5 V _{dc}) (V _O =9.0 or 1.0 V _{dc}) (V _O =13.5 or 1.5 V _{dc})	"0" Level	5.0	-	1.5	-	2.25	1.5	-	1.5	V _{dc}
			10	-	3.0	-	4.50	3.0	-	3.0	
			15	-	4.0	-	6.75	4.0	-	4.0	
V _{IH}	(V _O =0.5 or 4.5 V _{dc}) (V _O =1.0 or 9.0 V _{dc}) (V _O =1.5 or 13.5 V _{dc})	"1" Level	5.0	3.5	-	3.5	2.75	-	3.5	-	V _{dc}
			10	7.0	-	7.0	5.50	-	7.0	-	
			15	11	-	11	8.25	-	11	-	
I _{OH}	Output Drive Current (V _{OH} = 2.5 V _{dc}) (V _{OH} = 4.6 V _{dc}) (V _{OH} = 9.5 V _{dc}) (V _{OH} = 13.5 V _{dc})	Source	5.0	-2.5	-	-2.1	-4.2	-	-1.7	-	mAdc
			5.0	-0.52	-	-0.44	-0.88	-	-0.36	-	
			10	-1.3	-	-1.1	-2.25	-	-0.9	-	
			15	-3.6	-	-3.0	-8.8	-	-2.4	-	
I _{OL}	(V _{OL} = 0.4 V _{dc}) (V _{OL} = 0.5 V _{dc}) (V _{OL} = 1.5 V _{dc})	Sink	5.0	0.52	-	0.44	0.88	-	0.36	-	mAdc
			10	1.3	-	1.1	2.25	-	0.9	-	
			15	3.6	-	3.0	8.8	-	2.4	-	
I _{IN}	Input Current	15	-	±0.3	-	±0.00001	±0.3	-	±1.0	µAdc	
C _{IN}	Input Capacitance V _{IN} =0	-	-	-	-	5.0	7.5	-	-	pF	
I _{DD}	Quiescent Current (Per Package)		5.0	-	1	-	0.0005	1.0	-	7.5	µAdc
			10	-	2	-	0.0010	2.0	-	15	
			15	-	4	-	0.0015	4.0	-	30	

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

Symbol	Characteristics	V _{DD}	Min	Typ	Max	Unit
t _{TLH} , t _{THL}	Output Rise and Fall Time	5.0	-	100	200	ns
		10	-	50	100	
		15	-	40	80	
t _{PLH} , t _{PHL}	Propagation Delay Time,	5.0	-	175	350	ns
		10	-	75	150	
		15	-	55	110	

SWITCHING WAVEFORMS

