

CMOS QUAD AND-OR SELECT GATE

FEATURES

- ◆ Replaces Three Simple Gate Packages
- ◆ Medium Speed Operation
- ◆ All Inputs Diode-Protected
- ◆ All Outputs Buffered

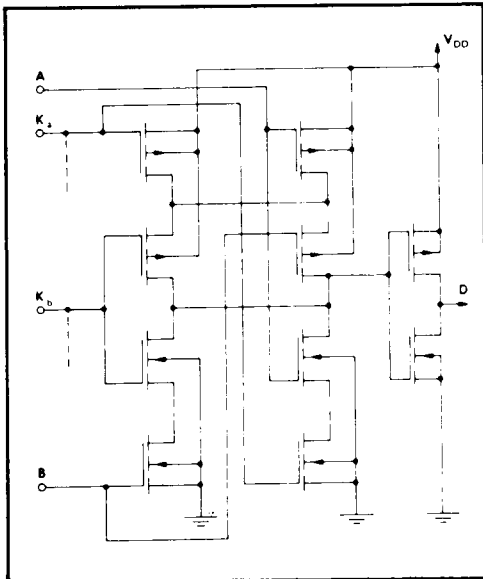
DESCRIPTION

The 4019B is comprised of four "AND-OR Select" gate configurations, each consisting of two 2-input AND gates driving a single 2-input OR gate. Selection is accomplished by control bits K_a and K_b . In addition to selection of either channel A or channel B information, the control bits can be applied simultaneously to accomplish the logical $A + B$ function.

TRUTH TABLE
(one of four gates)

K_a	K_b	D
0	0	0
1	0	A
0	1	B
1	1	A+B

SCHEMATIC DIAGRAM
(one of four gates)



CONNECTION DIAGRAM
(all packages)

V_{DD}	A_4	K_b	D_4	D_3	D_2	D_1	K_a
16	15	14	13	12	11	10	9
4019B							
1	2	3	4	5	6	7	8
B_4	A_3	B_3	A_2	B_2	A_1	B_1	V_{SS}

Add suffix for package:

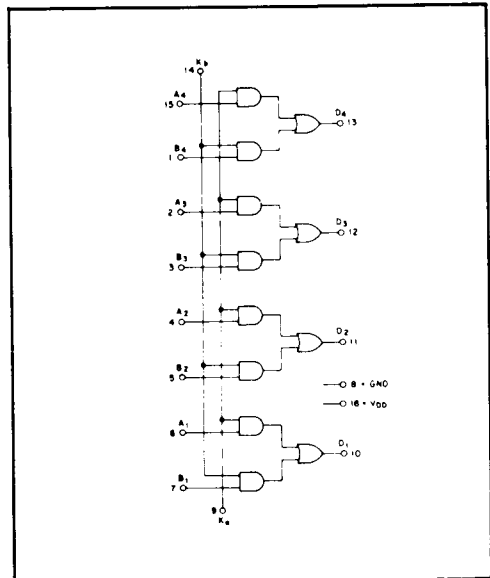
- C 16-pin Cerdip
- D 16-pin Ceramic
- E 16-pin Epoxy
- F 16-pin Flat
- H Chip

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

LOGIC DIAGRAM



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	V _{IN} = V _{SS} or V _{DD} All valid input combinations	-	1.0	-	0.005	1.0	-	30	μAdc
	10		-	2.0	-	0.01	2.0	-	60	
	15		-	4.0	-	0.02	4.0	-	120	

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

² T_{LOW} = -55°C for C, D, F, H device.

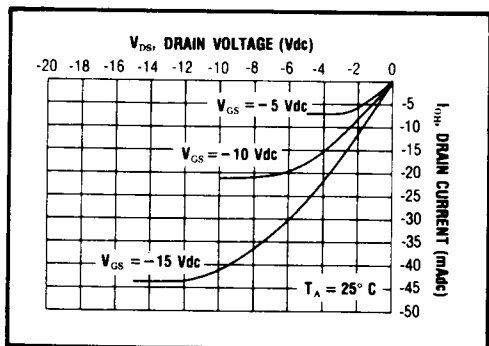
= -40°C for E device.

T_{HIGH} = +125°C for C, D, F, H device.

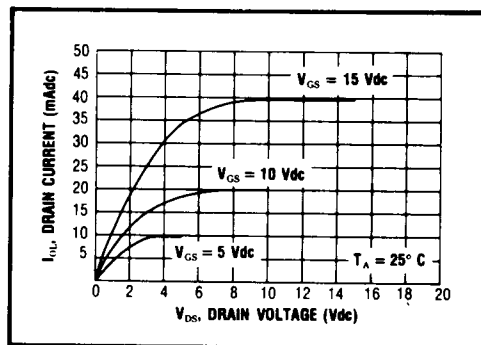
= + 85°C for E device.

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

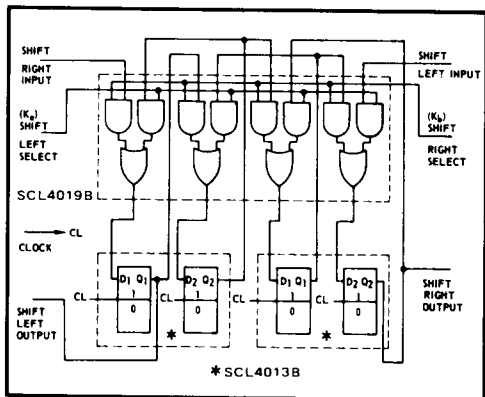
PARAMETER	V _{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME From Any Input t _{PLH} , t _{PHL}	5	-	150	300	ns
	10	-	60	120	
	15	-	50	100	
OUTPUT TRANSITION TIME t _{TLH} , t _{THL}	5	-	100	200	ns
	10	-	50	100	
	15	-	40	80	



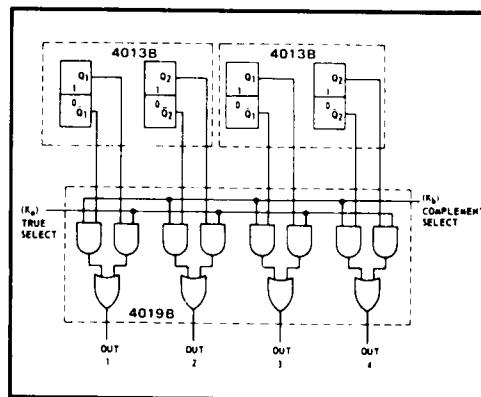
Typical P-Channel Source Current Characteristics



Typical N-Channel Sink Current Characteristics



"Shift left/shift right" register.



"True/complement" selector.