

CMOS NOR GATES

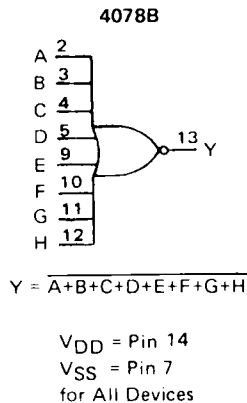
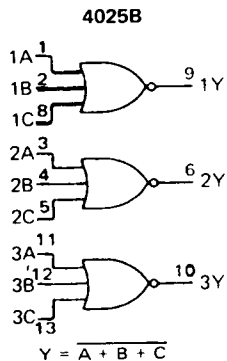
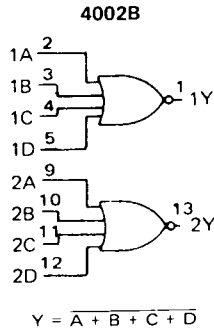
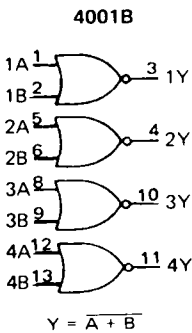
- 4001B – Quad 2-Input NOR
- 4002B – Dual 4-Input NOR
- 4025B – Triple 3-Input NOR
- 4078B – 8-Input NOR

FEATURES

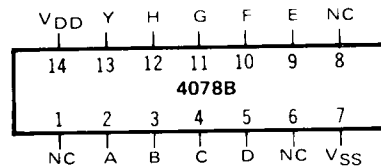
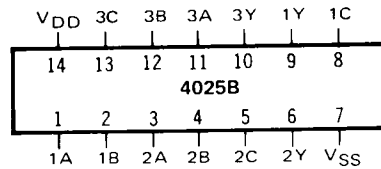
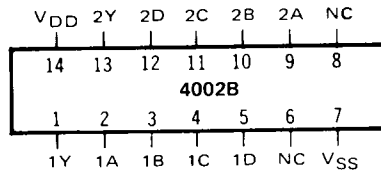
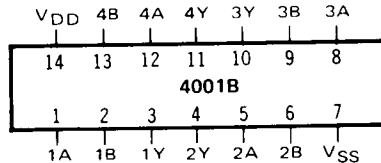
- ◆ Buffered Outputs
- ◆ Diode Protection on all Inputs
- ◆ Fully "B" - Series Compatible

| Inputs | Output |
|------------------------|--------|
| 0 0 . . . 0 | 1 |
| All other combinations | 0 |

FUNCTION DIAGRAMS



CONNECTION DIAGRAMS
(all packages)



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 |

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} | 5 10 15 | 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 | |

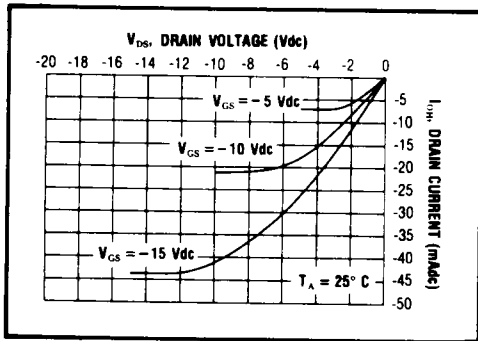
NOTES: ¹ Remaining Static Electrical Characteristics are listed under "4000B Series Family Specifications."

² T_{LOW} = -55°C for C, D, F, H device.
= -40°C for E device.

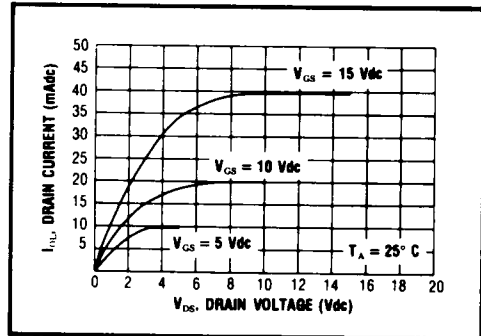
T_{HIGH} = +125°C for C, D, F, H device.
= + 85°C for E device.

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 | - | 125 | 250 | ns |
| | | 10 | - | 60 | 120 | |
| | | 15 | - | 45 | 90 | |
| OUTPUT TRANSITION TIME | t _{TLH} , t _{THL} | 5 | - | 100 | 200 | ns |
| | | 10 | - | 50 | 100 | |
| | | 15 | - | 40 | 80 | |

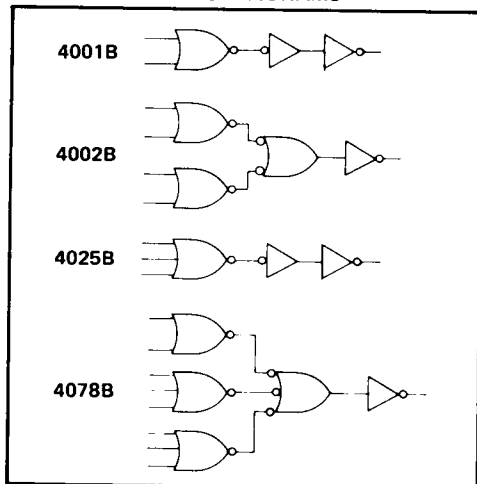


Typical P-Channel
Source Current Characteristics



Typical N-Channel
Sink Current Characteristics

LOGIC DIAGRAMS



SCHEMATIC DIAGRAM 4002B (1 of 2 gates)

