

## CMOS STROBED HEX INVERTER/BUFFER

### FEATURES

- ◆ 3-State Outputs with Separate Disable Control
- ◆ Common Input Inhibit Line
- ◆ TTL Output Drive Guaranteed Over Temperature Range
- ◆ Output Impedance  $< 200 \Omega$  @ 5Vdc Guaranteed Over Temperature Range

### DESCRIPTION

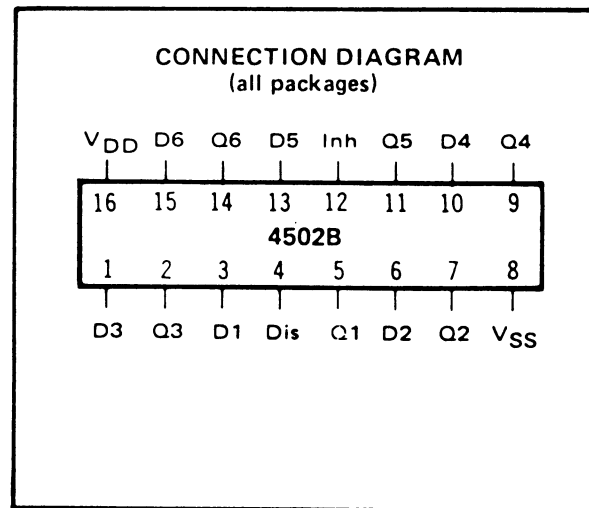
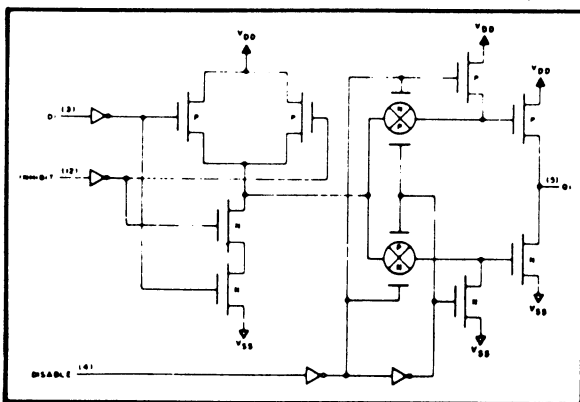
The 4502B is a Strobed Hex Inverter/Buffer with a common Data Input Inhibit Control and a common Output Disable Control. The 3-state output allows common bus configurations.

### TRUTH TABLE

$D_n$	Inhibit	Disable	$Q_n$
0	0	0	1
1	0	0	0
X	1	0	0
X	X	1	High Impedance

X = Don't Care

### SCHEMATIC DIAGRAM (1 of 6 buffers)



### RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

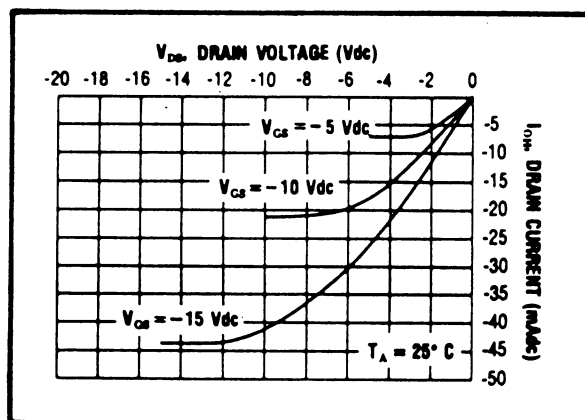
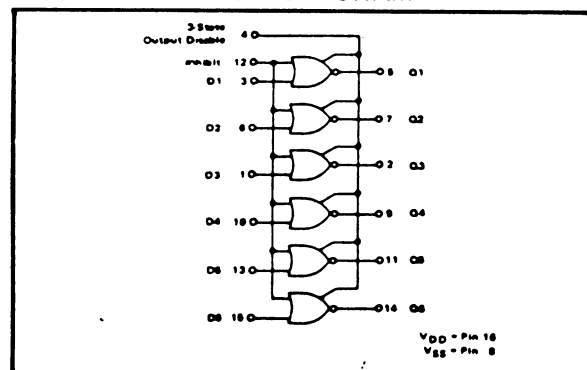
DC Supply Voltage  $V_{DD} - V_{SS}$  3 to 15 Vdc

Operating Temperature  $T_A$

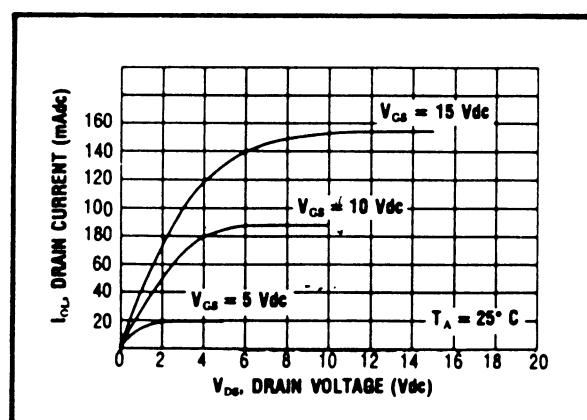
C -55 to +125 °C

E -40 to +85 °C

### LOGIC DIAGRAM



Typical P-Channel Source Current Characteristics



Typical N-Channel Sink Current Characteristics

## ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS<sup>1</sup>

PARAMETER	V <sub>DD</sub> (Vdc)	CONDITIONS	T <sub>LOW</sub> <sup>2</sup>		+25°C			T <sub>HIGH</sub> <sup>2</sup>		Units
			Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
QUIESCENT DEVICE CURRENT	I <sub>DD</sub>	V <sub>IN</sub> = V <sub>SS</sub> or V <sub>DD</sub> All valid input combinations	—	1.0	—	0.005	1.0	—	30	μA <sub>dc</sub>
			—	2.0	—	0.01	2.0	—	60	
			—	4.0	—	0.02	4.0	—	120	
OUTPUT LOW (SINK) CURRENT	I <sub>OL</sub>	V <sub>OL</sub> = 0.4V V <sub>OL</sub> = 0.5V V <sub>OL</sub> = 1.5V V <sub>IN</sub> = V <sub>SS</sub> or V <sub>DD</sub>	3.5	—	2.8	5.7	—	2.0	—	mA <sub>dc</sub>
			7.8	—	6.3	12.5	—	4.4	—	
			29	—	24.0	49	—	16	—	
3-STATE OUTPUT LEAKAGE CURRENT	I <sub>ZL</sub>		—	±0.1	—	±10 <sup>-4</sup>	±0.1	—	±1.0	μA <sub>dc</sub>

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

<sup>2</sup> T<sub>LOW</sub> = -55°C for C

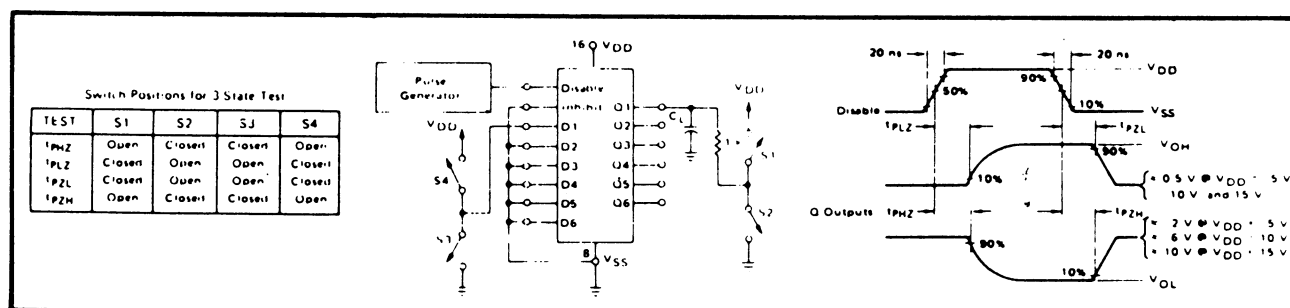
= -40°C for E

T<sub>HIGH</sub> = +125°C for C

= + 85°C for E

DYNAMIC CHARACTERISTICS (C<sub>L</sub> = 50pF, T<sub>A</sub> = 25°C)

PARAMETER	V <sub>DD</sub> (Vdc)	Min.	Typ.	Max.	Units		
PROPAGATION DELAY TIME From Data Inputs	t <sub>PLH</sub>	5	—	125	250	ns	
		10	—	60	120		
		15	—	45	90		
	From Disable	t <sub>PHL</sub>	5	—	100	200	ns
			10	—	50	100	
			15	—	40	80	
From Disable	t <sub>PHZ</sub> , t <sub>PLZ</sub> t <sub>PZH</sub> , t <sub>PZL</sub>	5	—	65	130	ns	
		10	—	30	60		
		15	—	25	50		
OUTPUT TRANSITION TIME	t <sub>TLH</sub>	5	—	100	200	ns	
		10	—	50	100		
		15	—	40	80		
	t <sub>THL</sub>	5	—	60	120	ns	
		10	—	30	60		
		15	—	20	40		



3-State AC Test Circuit and Waveforms (t<sub>PHZ</sub>, t<sub>PZH</sub>, t<sub>PLZ</sub>, t<sub>PZL</sub>)