

CMOS DUAL 2-TO-4 LINE DECODERS

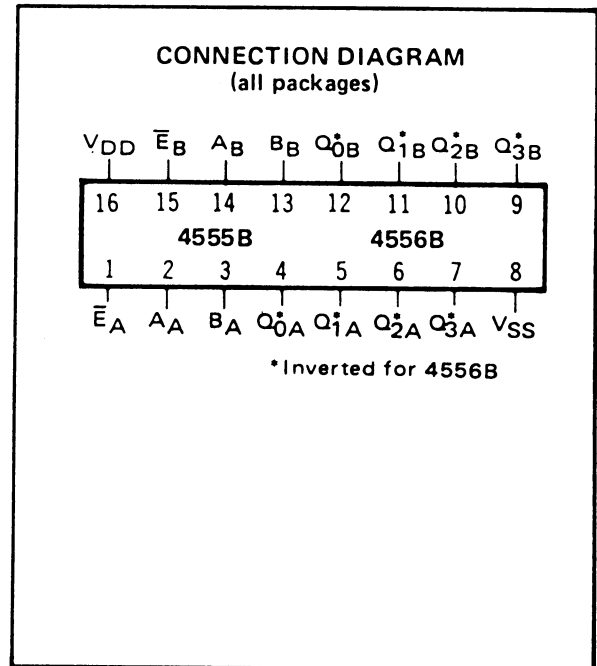
FEATURES

- ◆ Buffered Outputs
- ◆ Selected Output Active High (4555B) or Active Low (4556B)
- ◆ Expandable

DESCRIPTION

The 4555B and 4556B are constructed with complementary MOS (CMOS) enhancement-mode devices. Each decoder/demultiplexer has two Select inputs (A and B), an active-low Enable input (E), and four mutually-exclusive outputs (Q0, Q1, Q2, Q3). The 4555B has the selected output go to the "high" state, and the 4556B has the selected output go to the "low" state. Expanded decoding such as binary-to-hexadecimal (1-of-16), etc., can be achieved by using other 4555B or 4556B devices.

Applications include code conversion, address decoding, memory selection control, and demultiplexing (using the Enable input as a data input) in digital data transmission systems.



TRUTH TABLE

Inputs			Outputs 4555B				Outputs 4556B			
Enable	Select		Q3	Q2	Q1	Q0	$\bar{Q}3$	$\bar{Q}2$	$\bar{Q}1$	$\bar{Q}0$
\bar{E}	B	A								
0	0	0	0	0	0	1	1	1	1	0
0	0	1	0	0	1	0	1	1	0	1
0	1	0	0	1	0	0	1	0	1	1
0	1	1	1	0	0	0	0	1	1	1
1	X	X	0	0	0	0	1	1	1	1

X = Don't Care

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

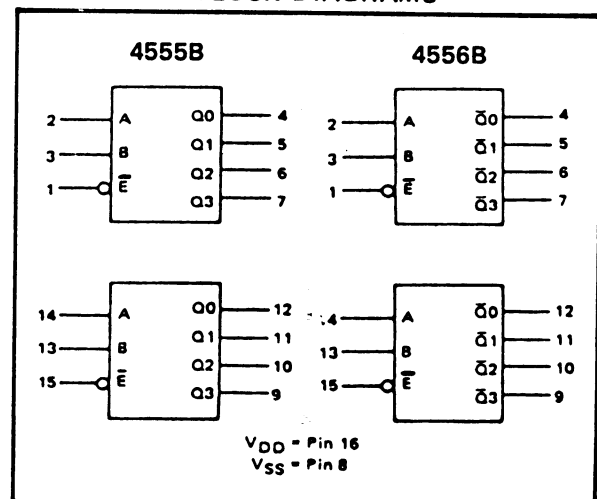
DC Supply Voltage $V_{DD} - V_{SS}$ 3 to 15 Vdc

Operating Temperature T_A

C -55 to +125 °C

E -40 to +85 °C

BLOCK DIAGRAMS



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}	V _{IN} = V _{SS} or V _{DD} All valid inputs combinations	-	5	-	0.05	5	-	150	μAdc
			-	10	-	0.1	10	-	300	
			-	15	-	0.2	20	-	600	

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

² T_{LOW} = -55°C for C

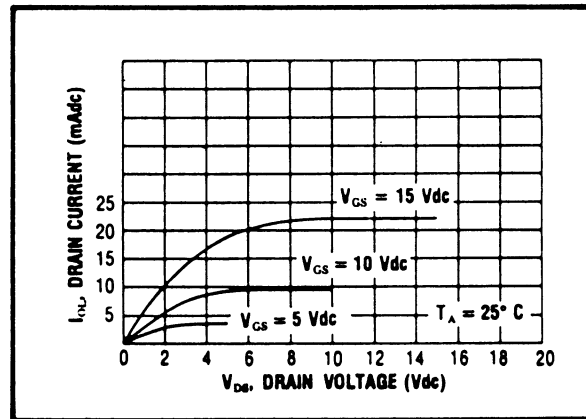
= -40°C for E

T_{HIGH} = +125°C for C

= + 85°C for E

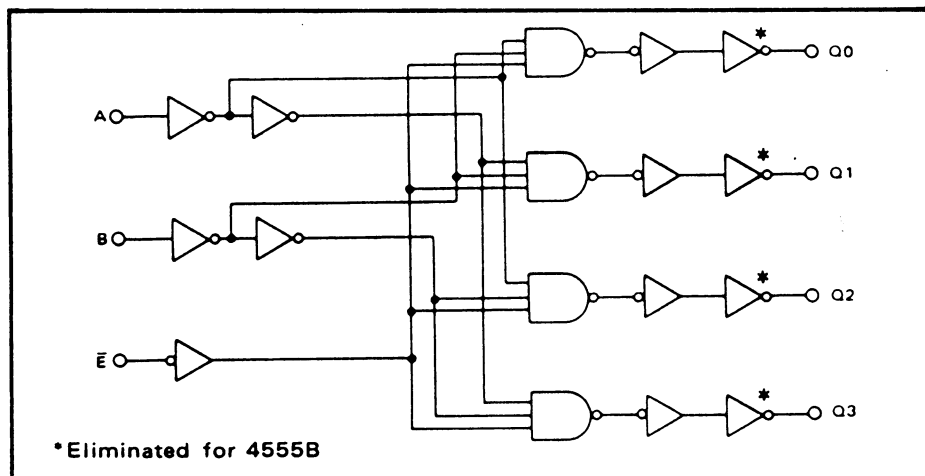
DYNAMIC CHARACTERISTICS (C_L = 50pF, T_A = 25°C)

PARAMETER	V _{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME 4555B	t _{PLH} , t _{PHL}	5	140	280	ns
		10	65	130	
		15	50	100	
4556B	t _{PLH} , t _{PHL}	5	160	320	ns
		10	75	150	
		15	50	100	
OUTPUT TRANSITION TIME	t _{TLH} , t _{THL}	5	100	200	ns
		10	50	100	
		15	40	80	

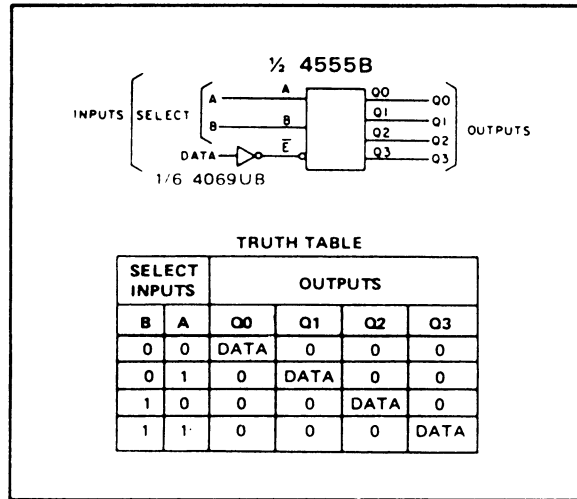


Typical N-Channel Sink Current Characteristics

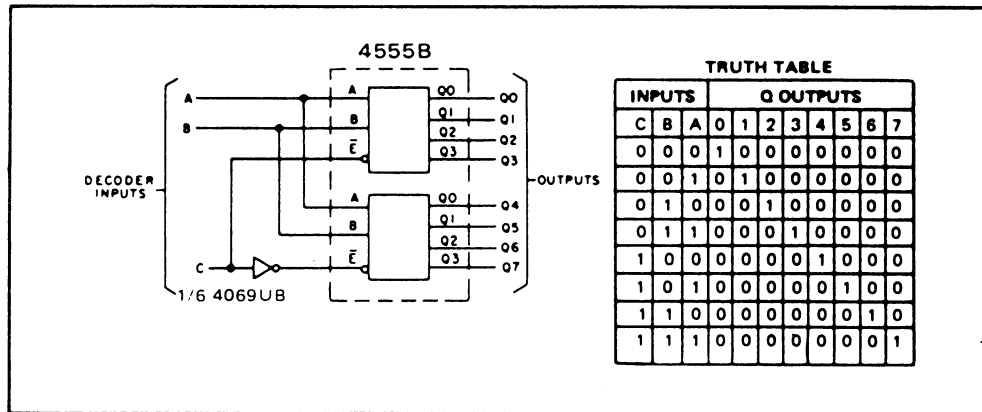
LOGIC DIAGRAM (½ of Dual)



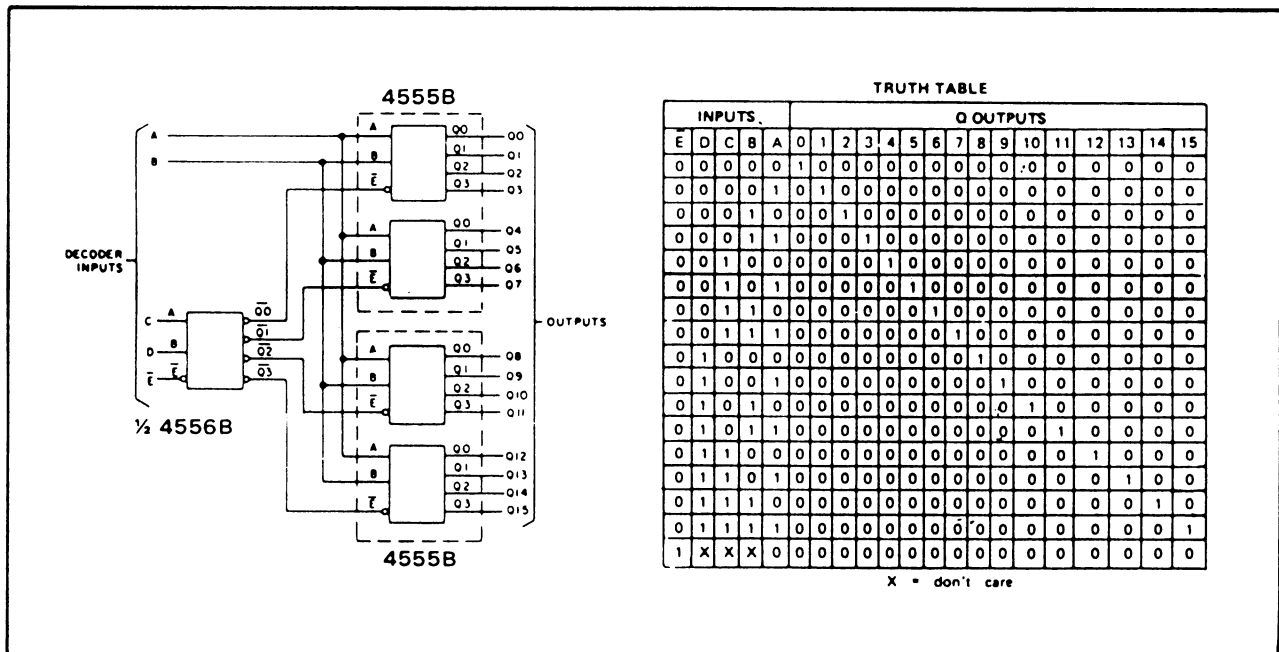
APPLICATIONS INFORMATION



1-of-4 Line Data Demultiplexer Using 4555B



1-of-8 Decoder Using 4555B



1-of-16 Decoder Using 4555B/ 4556B