

CMOS DUAL 2-TO-4 LINE DECODERS

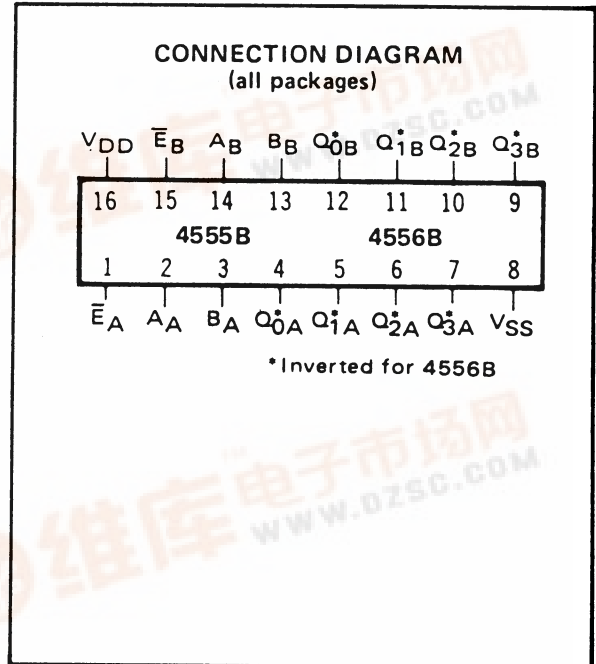
FEATURES

- ◆ 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:

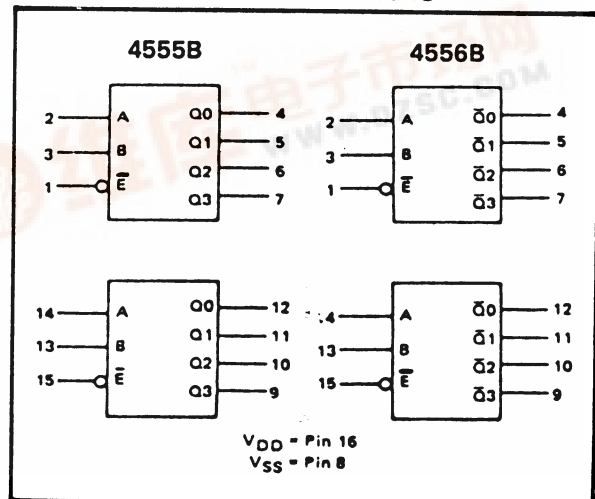
DC Supply Voltage $V_{DD} - V_{SS}$ 3 to 15 Vdc

Operating Temperature T_A

C -55 to +125 °C

E -40 to +85 °C

BLOCK DIAGRAMS



ELECTRICAL CHARACTERISTICS

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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	
			—	20	—	0.2	20	—	600	

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

² T_{LOW} = -55°C for C

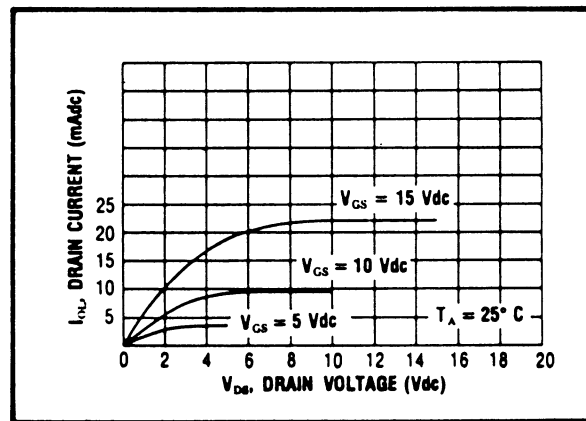
= -40°C for E

T_{HIGH} = +125°C for C

= + 85°C for E

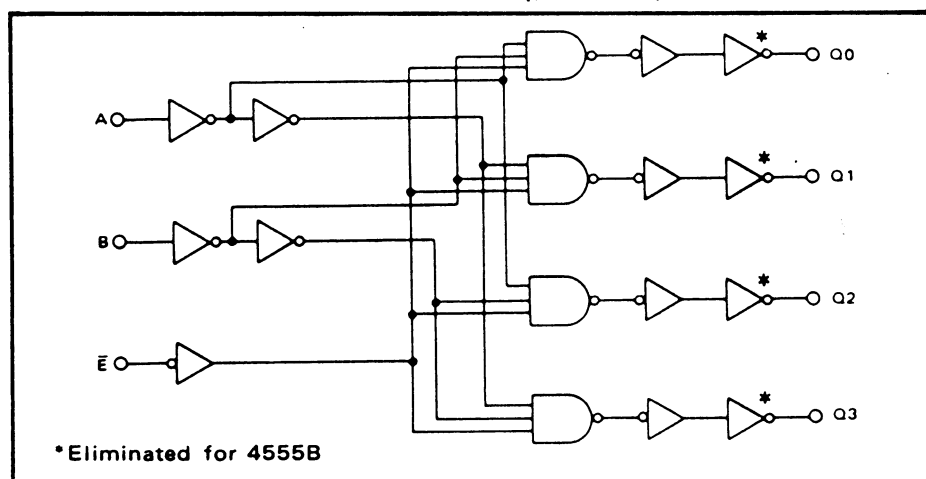
DYNAMIC CHARACTERISTICS (C_L = 50pF, T_A = 25°C)

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



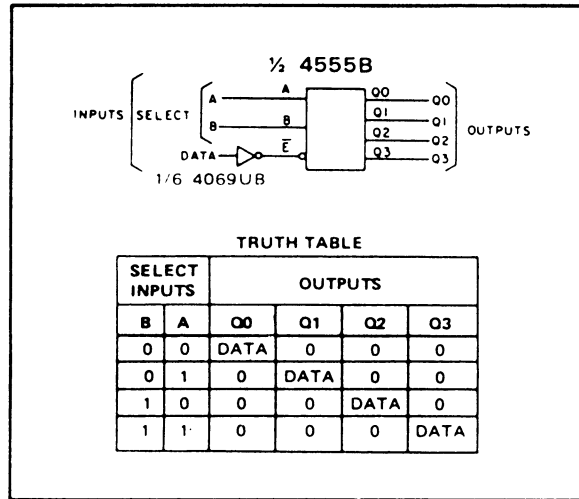
Typical N-Channel
Sink Current Characteristics

LOGIC DIAGRAM (½ of Dual)

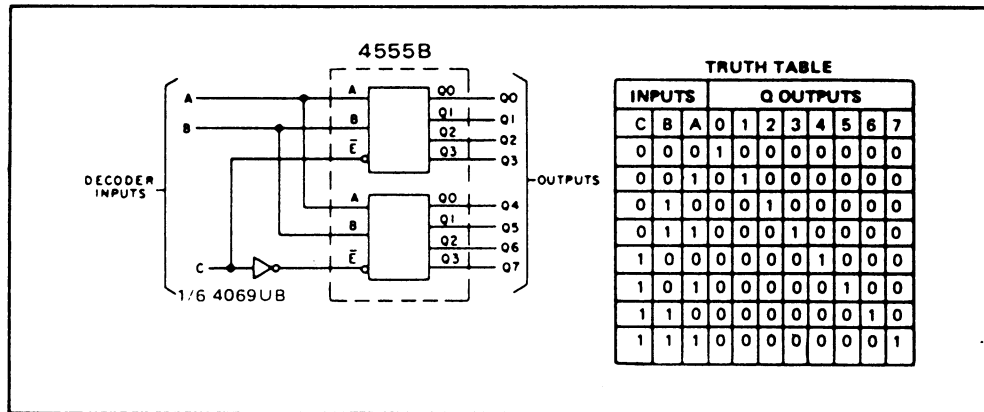


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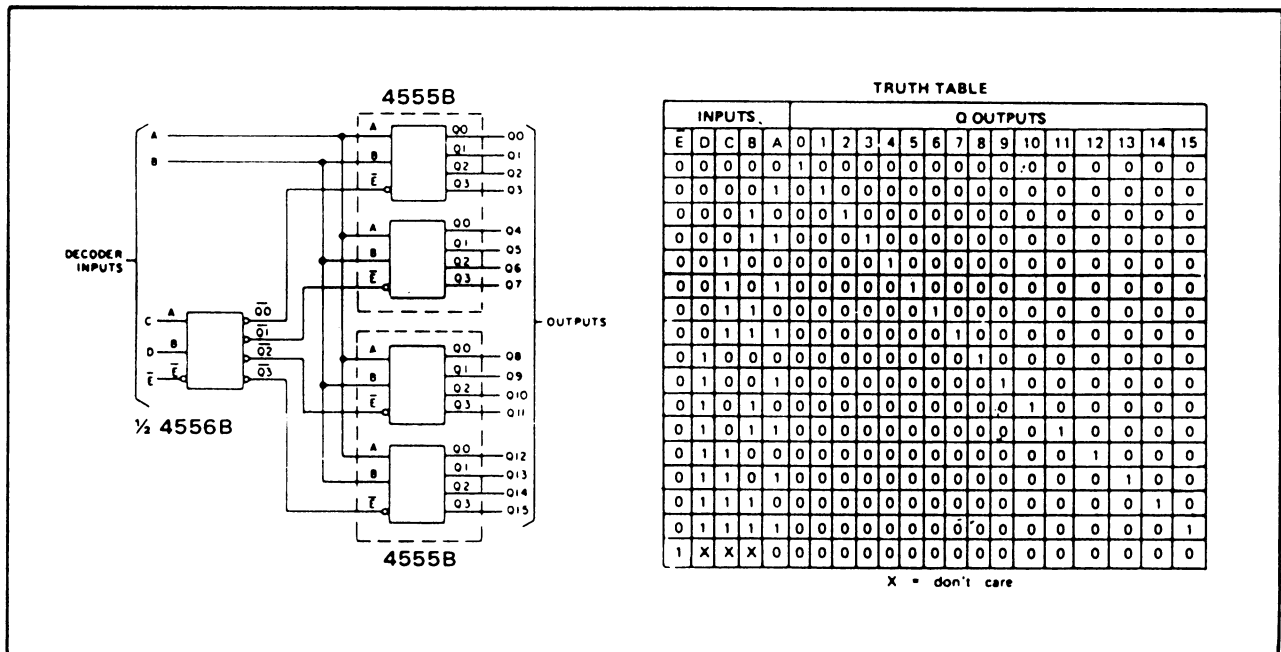
APPLICATIONS INFORMATION



1-of-4 Line Data Demultiplexer Using 4555B



1-of-8 Decoder Using 4555B



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