

Signetics

8T26A Bus Transceiver

3-State Quad Bus Transceiver

Product Specification

Military Logic Products

FEATURES

- High-speed Schottky quad transceiver
- 32mA Low-state drive
- 200 μ A bus loading
- Ideal for:
 - Half-duplex data transmission
 - Memory interface buffers
 - Data routing in bus oriented systems
 - High current drivers
 - MOS/CMOS-to-TTL interface

DESCRIPTION

The 8T26A consists of four pairs of 3-State logic elements configured as quad bus drivers/receivers, along with separate buffered receiver enable and driver enable lines. This single IC quad transceiver design distinguishes the 8T26 from conventional multi-IC implementations. In addition, the 8T26As ultra high-speed while driving heavy bus capacitance (300pF) makes these devices particularly suitable for memory systems and bidirectional data buses.

Both the driver and receiver gates have 3-State outputs and low-current PNP inputs. 3-State outputs provide the high switching speeds of totem-pole TTL circuits while offering the bus capability of open collector gates. PNP inputs reduce input loading to 200 μ A maximum.

ORDERING INFORMATION

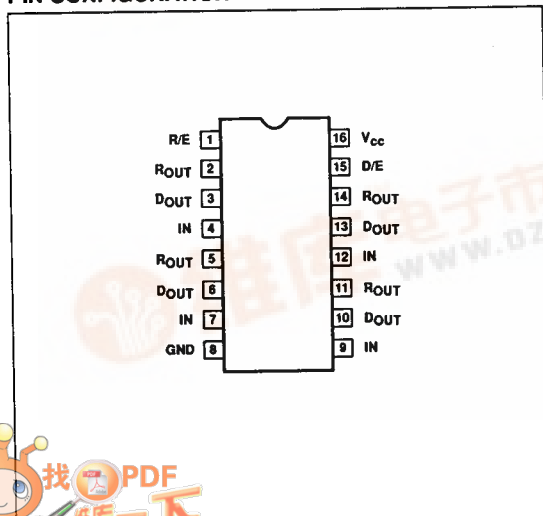
DESCRIPTION	ORDER CODE
Ceramic DIP	8T26A/BEA

INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

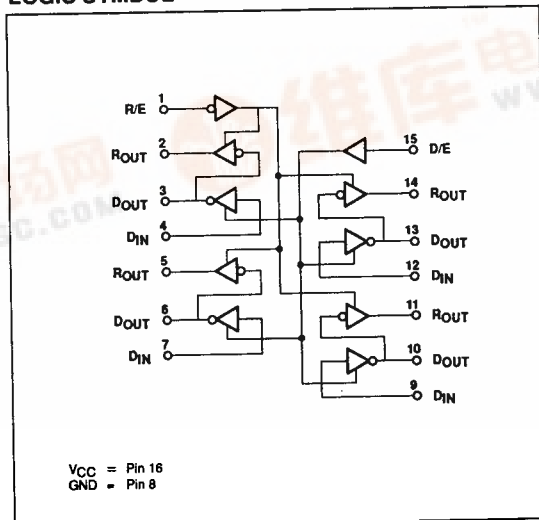
PINS	DESCRIPTION	8T
I _N	Input	0.5SUL
D/E, R/E	Inputs	0.5SUL
D _{OUT}	Output	16SUL
R _{OUT}	Output	6SUL

NOTE: A Unit Load (SUL) is 50 μ A I_H and -2.0mA I_L.

PIN CONFIGURATION



LOGIC SYMBOL



Bus Transceiver**8T26A****ABSOLUTE MAXIMUM RATINGS** (Over operating free-air temperature range unless otherwise noted.)

SYMBOL	PARAMETER	RATING	UNIT
V_{CC}	Supply voltage	7.0	V
V_I	Input voltage range	-0.5 to +5.5	V
I_I	Input current range	-30 to +5	mA
I_{OL}	Continuous range	100	mA
V_O	Voltage applied to output in High output state range	-0.5 to V_{CC}	V
T_{STG}	Storage temperature range	-65 to +150	°C

RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	LIMITS			UNIT
		Min	Nom	Max	
V_{CC}	Supply voltage	4.5	5.0	5.5	V
V_{IH}	High-level input voltage	2.0			V
V_{IL}	Low-level input voltage			+0.8	V
I_{IK}	Input clamp current			-18	mA
I_{OH}	High-level output current			-2	μA
I_{OL}	Low-level output current	Driver		32	mA
		Receiver		12	mA
T_A	Operating free-air temperature range	-55		+125	°C

DC ELECTRICAL CHARACTERISTICS (Over recommended operating free-air temperature range unless otherwise noted.)

SYMBOL	PARAMETER	TEST CONDITIONS ¹	LIMITS		UNIT
			Min	Max	
V_{IH}	Input High voltage	Guaranteed input High threshold voltage	2.0		V
V_{IL}	Input Low voltage	Guaranteed input Low threshold voltage		0.8	V
V_{IK}	Input clamp diode voltage	$V_{CC} = \text{Min}, I_{IK} = -18\text{mA}$		-1.2	V
V_{BD}	Input breakdown voltage	$V_{CC} = \text{Max}, I_I = 1\text{mA}$	5.5		V
V_{OH}	High-level output voltage, Driver outputs	$V_{CC} = \text{Min}, I_{OH} = -2\text{mA}$	2.4		V
V_{OH}	High-level output voltage, Receiver outputs	$V_{CC} = 5.0\text{V}, I_{OH} = -100\mu\text{A}$	3.0		V
V_{OL}	Low-level output voltage, Driver outputs	$V_{CC} = \text{Min}, I_{OL} = 32\text{mA}$		0.5	V
V_{OL}	Low-level output voltage, Receiver outputs	$V_{CC} = \text{Min}, I_{OL} = 12\text{mA}$		0.5	V
I_{OZH}	Off-state output current, High-level voltage applied	$V_{CC} = \text{Max}, V_O = 2.4\text{V}$		100	μA
I_{OZL}	Off-state output current, Low-level voltage applied	$V_{CC} = \text{Max}, V_O = 0.5\text{V}$		-100	μA
I_{IH}	High-level input current	$V_{CC} = \text{Max}, V_I = 4.5\text{V}$		25	μA
I_{IL}	Low-level input current	$V_{CC} = \text{Max}, V_I = 0.5\text{V}$			
		Driver, receiver		-200	μA
I_{OS}	Short-circuit output current ²	$V_{CC} = \text{Max}$		-25	μA
			Driver	-150	mA
			Receiver	-100	mA
I_{CC}	Supply current	$V_{CC} = \text{Max}$		87	mA

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AC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS		UNIT
			Min	Max	
t_{PHL}	Propagation delay, D_{OUT} to R_{OUT}	$C_L = 30\text{pF}$		14	ns
t_{PHL}	Propagation delay, D_{IN} to D_{OUT}	$C_L = 300\text{pF}$		14	ns
t_{PLH}	Propagation delay, D_{OUT} to R_{OUT}	$C_L = 30\text{pF}$		14	ns
t_{PLH}	Propagation delay, D_{IN} to D_{OUT}	$C_L = 300\text{pF}$		14	ns
t_{PZL}	Data enable to data output, Hi-Z to 0	$C_L = 300\text{pF}$		25	ns
t_{PLZ}	Data enable to data output, 0 to Hi-Z	$C_L = 300\text{pF}$		20	ns
t_{PZL}	Receive enable to receive output, Hi-Z to 0	$C_L = 30\text{pF}$		20	ns
t_{PLZ}	Receive enable to receive output, 0 to Hi-Z	$C_L = 30\text{pF}$		15	ns

AC ELECTRICAL CHARACTERISTICS $T_A = -55^\circ\text{C}$ and $+125^\circ\text{C}$, $V_{CC} = 5.0\text{V}^3$

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS		UNIT
			Min	Max	
t_{PHL}	Propagation delay, D_{OUT} to R_{OUT}	$C_L = 30\text{pF}$		18	ns
t_{PHL}	Propagation delay, D_{IN} to D_{OUT}	$C_L = 300\text{pF}$		18	ns
t_{PLH}	Propagation delay, D_{OUT} to R_{OUT}	$C_L = 30\text{pF}$		18	ns
t_{PLH}	Propagation delay, D_{IN} to D_{OUT}	$C_L = 300\text{pF}$		18	ns
t_{PZL}	Data enable to data output, Hi-Z to 0	$C_L = 300\text{pF}$		35	ns
t_{PLZ}	Data enable to data output, 0 to Hi-Z	$C_L = 300\text{pF}$		26	ns
t_{PZL}	Receive enable to receive output, Hi-Z to 0	$C_L = 30\text{pF}$		38	ns
t_{PLZ}	Receive enable to receive output, 0 to Hi-Z	$C_L = 30\text{pF}$		19	ns

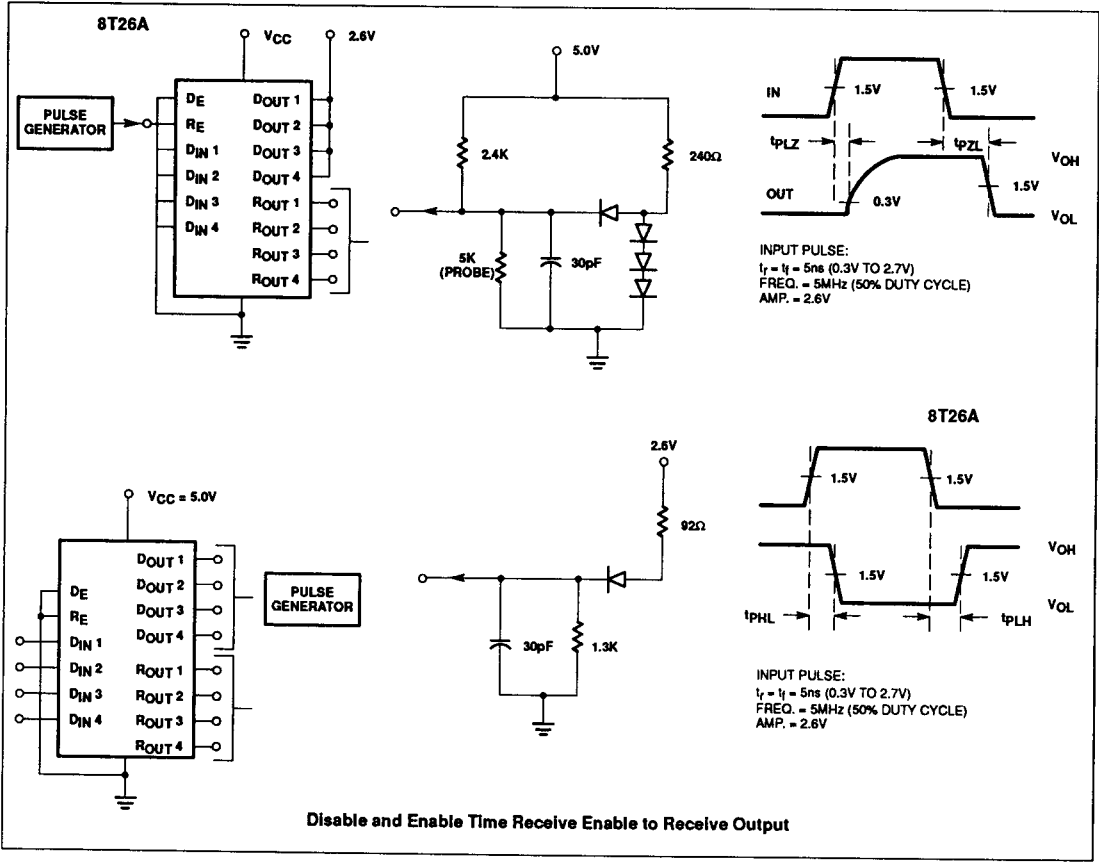
NOTES:

1. For conditions shown as Min or Max, use the appropriate value specified under recommended operating conditions for the applicable type.
2. Not more than one output should be shorted at a time and duration of the short circuit should not exceed one second.
3. These parameters are guaranteed, but not tested.

Bus Transceiver

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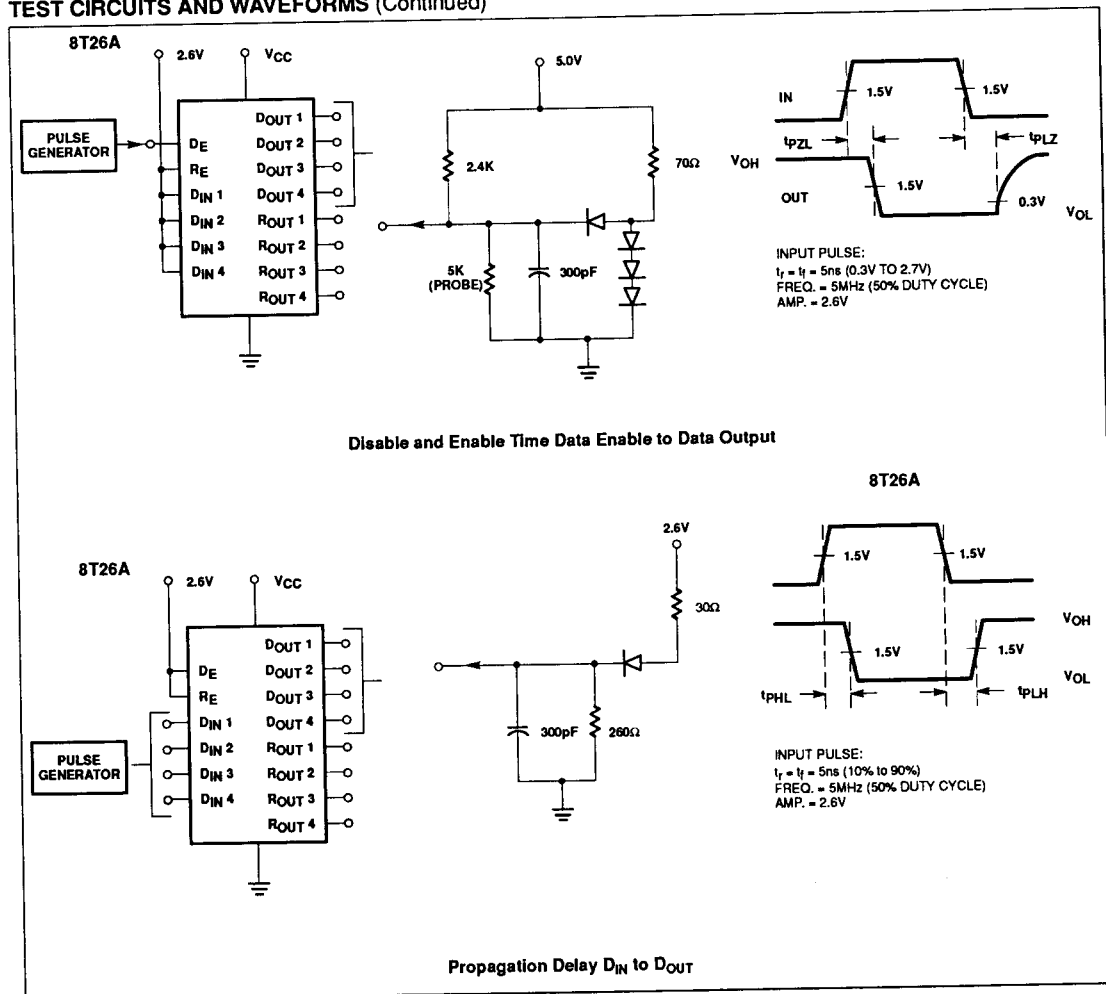
TEST CIRCUITS AND WAVEFORMS

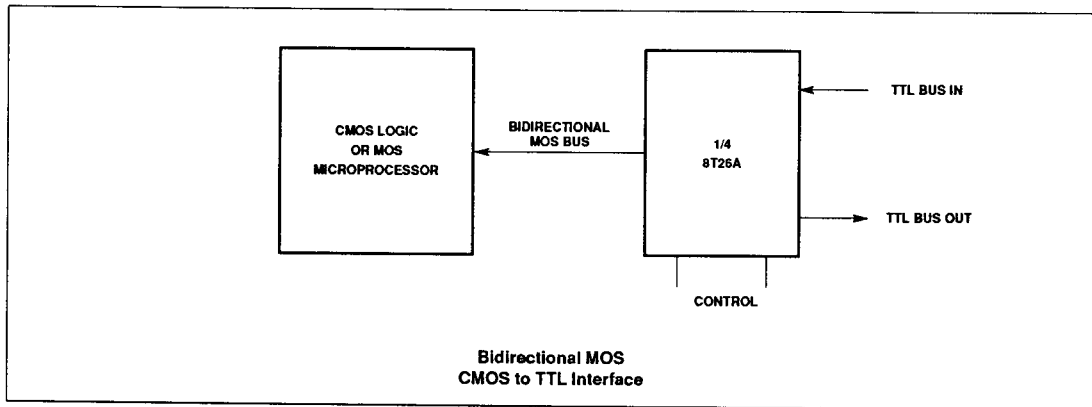


Bus Transceiver

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TEST CIRCUITS AND WAVEFORMS (Continued)



Bus Transceiver**8T26A****TYPICAL APPLICATION****TYPICAL APPLICATION**