

## 8T26A Bus Transceiver

3-State Quad Bus Transceiver

Product Specification

Military Logic Products

### FEATURES

- High-speed Schottky quad transceiver
- 32mA Low-state drive
- 200 $\mu$ 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 $\mu$ A maximum.

### ORDERING INFORMATION

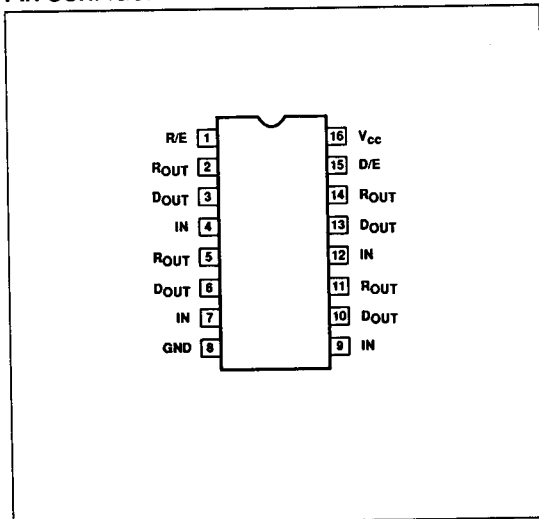
DESCRIPTION	ORDER CODE
Ceramic DIP	8T26A/BEA

### INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

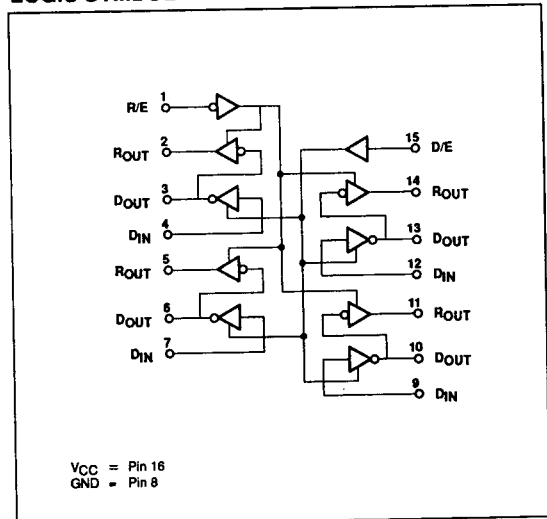
PINS	DESCRIPTION	8T
$I_N$	Input	0.5SUL
D/E, R/E	Inputs	0.5SUL
DOUT	Output	16SUL
ROUT	Output	6SUL

NOTE: A Unit Load (SUL) is 50 $\mu$ A  $I_H$  and -2.0mA  $I_{L1}$ .

### 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		Driver	-2	$\mu$ A
$I_{OL}$	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 <sup>1</sup>	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	$\mu$ A	
$I_{OZL}$	Off-state output current, Low-level voltage applied	$V_{CC} = \text{Max}, V_O = 0.5\text{V}$		-100	$\mu$ A	
$I_{IH}$	High-level input current	$V_{CC} = \text{Max}, V_I = 4.5\text{V}$		25	$\mu$ A	
$I_{IL}$	Low-level input current	$V_{CC} = \text{Max}, V_I = 0.5\text{V}$	Driver, receiver		-200	$\mu$ A
			Disabled		-25	$\mu$ A
$I_{OS}$	Short-circuit output current <sup>2</sup>	$V_{CC} = \text{Max}$	Driver	-50	-150	mA
			Receiver	-30	-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

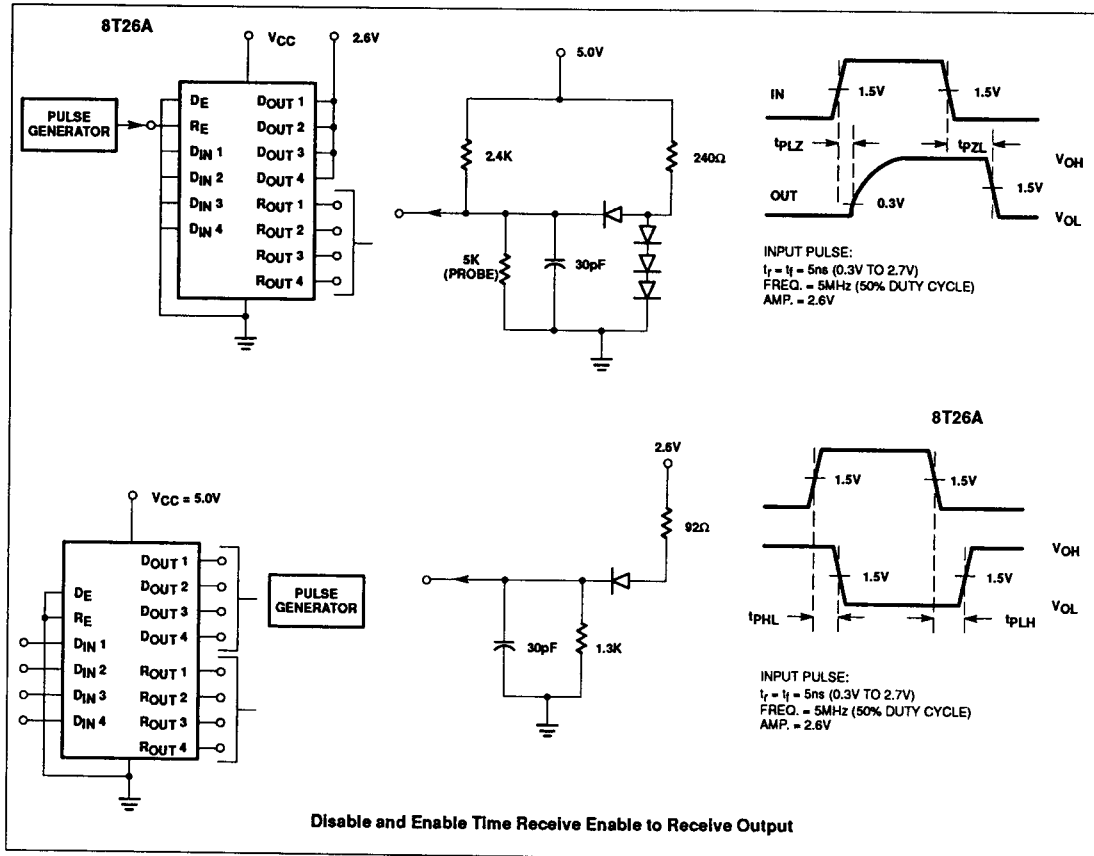
## NOTES:

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

# 8T26A

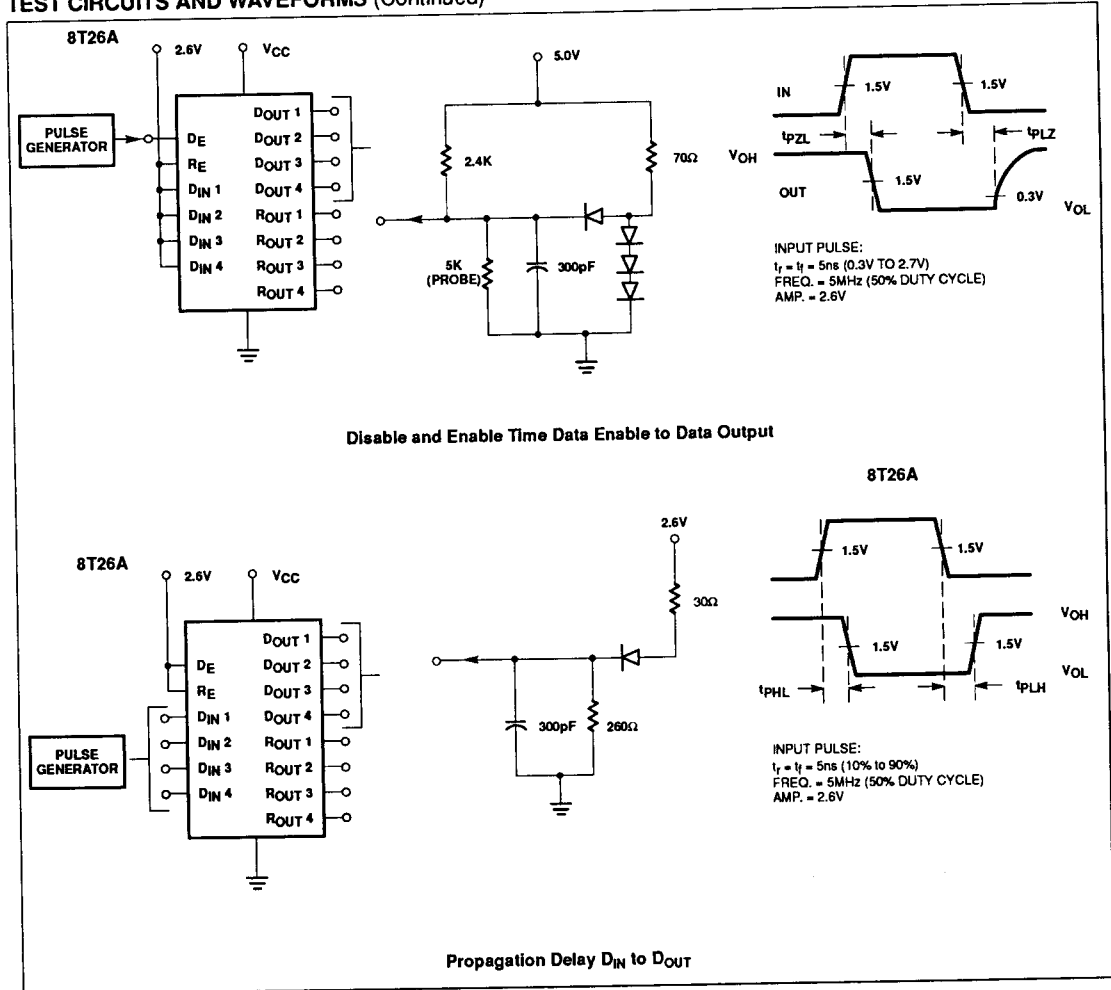
## TEST CIRCUITS AND WAVEFORMS



# Bus Transceiver

# 8T26A

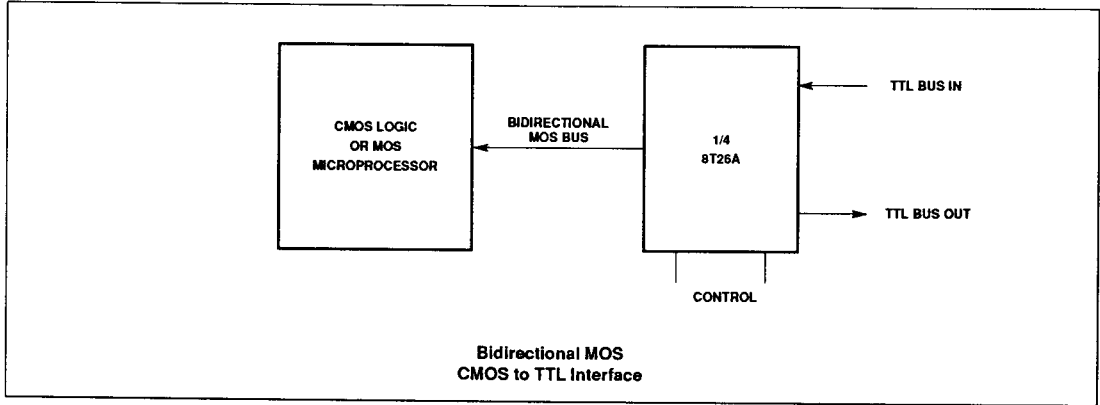
## TEST CIRCUITS AND WAVEFORMS (Continued)



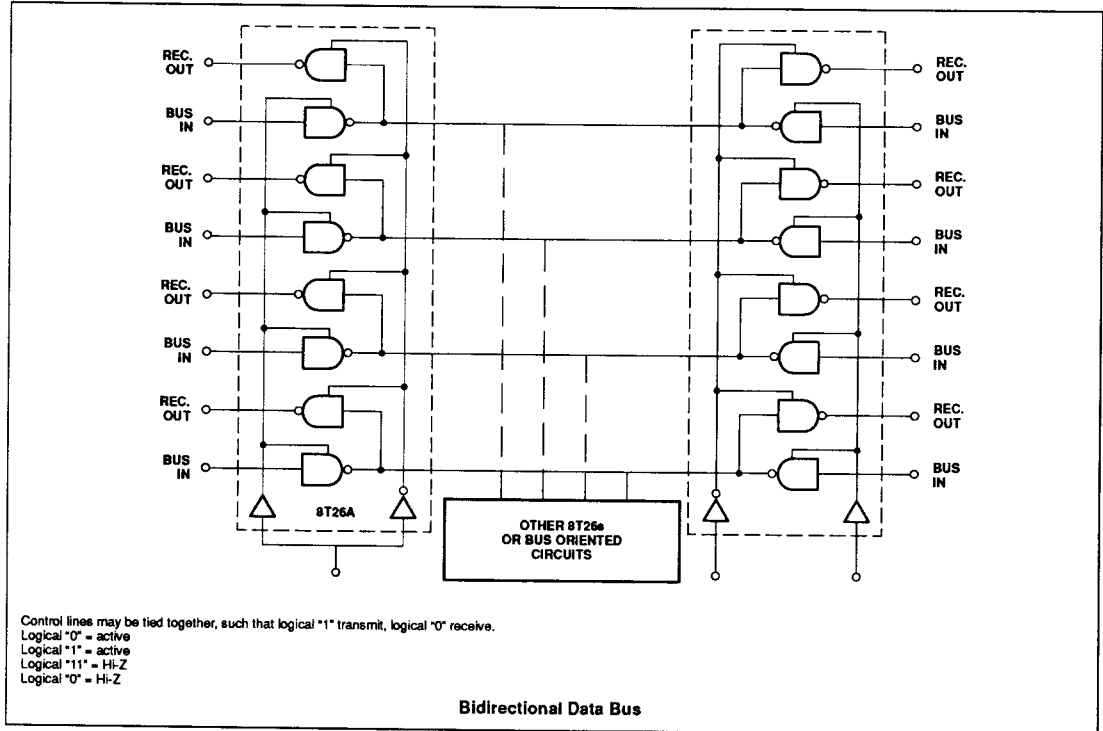
# Bus Transceiver

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## TYPICAL APPLICATION



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