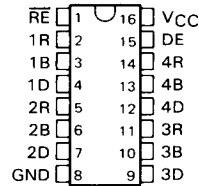


N8T26 QUADRUPLE BUS TRANSCIVER WITH 3-STATE OUTPUTS

D2462, MAY 1978—REVISED SEPTEMBER 1986

- P-N-P Inputs for Minimal Input Loading (200 μ A Maximum)
- High-Speed Schottky Circuitry
- 3-State Outputs for Driver and Receiver
- Party-Line (Data-Bus) Operation
- Single 5-V Supply
- Designed to Be Interchangeable with Signetics N8T26, also Called 8T26

D, J, OR N PACKAGE
(TOP VIEW)



description

The N8T26 is a quadruple transceiver utilizing Schottky-diode-clamped transistors. Both the driver and receiver have 3-state outputs. With p-n-p inputs, the input loading is reduced to a maximum input current of 200 μ A. This device is capable of high switching rates into high-capacitance loads and are suitable for driving long bus lines.

The N8T26 is characterized for operation from 0°C to 70°C.

FUNCTION TABLE (DRIVER)

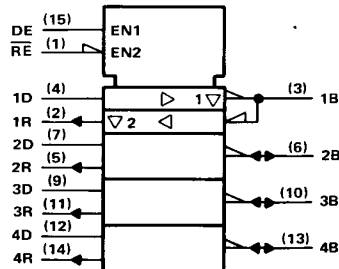
INPUT		OUTPUT
DE	D	B
H	L	H
H	H	L
L	X	Z

FUNCTION TABLE (RECEIVER)

INPUT		OUTPUT
RE	B	R
L	L	H
L	H	L
H	X	Z

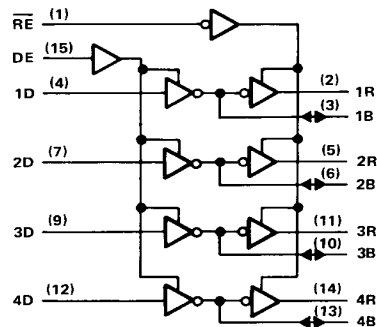
H = high level
L = low level
X = irrelevant
Z = high impedance

logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

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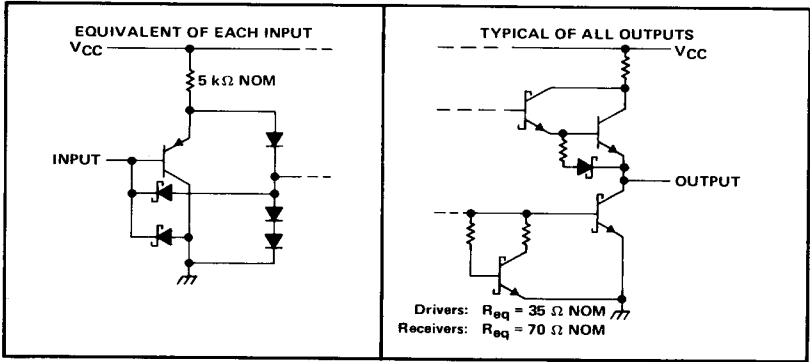
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N8T26
QUADRUPLER BUS TRANSCEIVER
WITH 3-STATE OUTPUTS

schematics of inputs and outputs



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, V _{CC} (see Note 1)	7 V
Input voltage	5.5 V
Continuous total power dissipation	See Dissipation Rating Table
Operating free-air temperature range	0°C to 70°C
Storage temperature range	−65°C to 150°C
Lead temperature 1,6 mm (1/16 inch) from case for 60 seconds: J package	300°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds: D or N package	260°C

NOTE 1: Voltage values are with respect to network ground terminal.

DISSIPATION RATING TABLE

PACKAGE	T _A = 25°C POWER RATING	DERATING FACTOR ABOVE T _A = 25°C	T _A = 70°C POWER RATING
D	950 mW	7.6 mW/°C	608 mW
J	1025 mW	8.2 mW/°C	656 mW
N	1150 mW	9.2 mW/°C	736 mW

recommended operating conditions

		MIN	NOM	MAX	UNIT
Supply voltage, V _{CC}		4.75	5	5.25	V
High-level input voltage, V _{IH}	B, D, DE, RE	2			V
Low-level input voltage, V _{IL}	B, D, DE, RE			0.85	V
High-level output current, I _{OH}	Driver, B			−10	mA
	Receiver, R			−2	
Low-level output current, I _{OL}	Driver, B			40	mA
	Receiver, R			16	
Operating free-air temperature, T _A		0		70	°C

N8T26
QUADRUPLE BUS TRANSCEIVER
WITH 3-STATE OUTPUTS

electrical characteristics over recommended operating free-air temperature and supply voltage range (unless otherwise noted)

PARAMETER		TEST CONDITIONS		MIN	TYP [†]	MAX	UNIT
V _{IK}	Input clamp voltage	B, D, DE, $\overline{RE}$	I _I = -5 mA			-1	V
V _{OH}	High-level output voltage	B	V _{IH} = 2 V, V _{IL} = 0.85 V, I _{OH} = -10 mA	2.6	3.1		V
		R	V _{IL} = 0.85 V, I _{OH} = -2 mA	2.6	3.1		
V _{OL}	Low-level output voltage	B	V _{IH} = 2 V, I _{OL} = 40 mA			0.5	V
		R	V _{IH} = 2 V, V _{IL} = 0.85 V, I _{OL} = 16 mA			0.5	
I _{OZ}	Off-state (high-impedance state) output current	B, R	DE at 0.85 V, RE at 2 V, V _O = 2.6 V			100	μA
		R	RE at 2 V, V _O = 0.5 V			-100	
I _{IH}	High-level input current	D, DE, $\overline{RE}$	V _I = 5.25 V			25	μA
I _{IL}	Low-level input current	B, D, DE, $\overline{RE}$	V _I = 0.4 V			-200	μA
I _{OS}	Short-circuit output current [‡]	B	V _{CC} = 5.25 V	-50		-150	mA
		R		-30		-75	
I _{CC}	Supply current		V _{CC} = 5.25 V, No load			87	mA

[†]All typical values are at T_A = 25°C and V_{CC} = 5 V.

[‡]Only one output should be shorted to ground at a time, and duration of the short circuit should not exceed one second.

switching characteristics, V_{CC} = 5 V, T_A = 25°C

PARAMETER	FROM	TO	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{PLH}	B	R	C _L = 30 pF, See Figure 1	8	18		ns
t _{PHL}				7	10		
t _{PLH}	D	B	C _L = 300 pF, See Figure 2	14	20		ns
t _{PHL}				12	20		
t _{PLZ}	$\overline{RE}$	R	C _L = 30 pF, See Figure 3	9	17		ns
t _{PZL}				15	30		
t _{PLZ}	DE	B	C _L = 300 pF, See Figure 4	20	43		ns
t _{PZL}				20	38		

N8T26 QUADRUPLE BUS TRANSCEIVER WITH 3-STATE OUTPUTS

PARAMETER MEASUREMENT INFORMATION

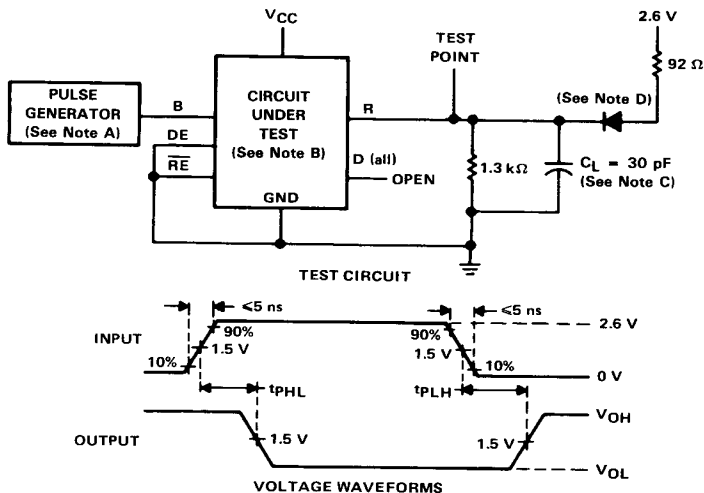


FIGURE 1. PROPAGATION DELAY TIMES FROM BUS TO RECEIVER OUTPUT

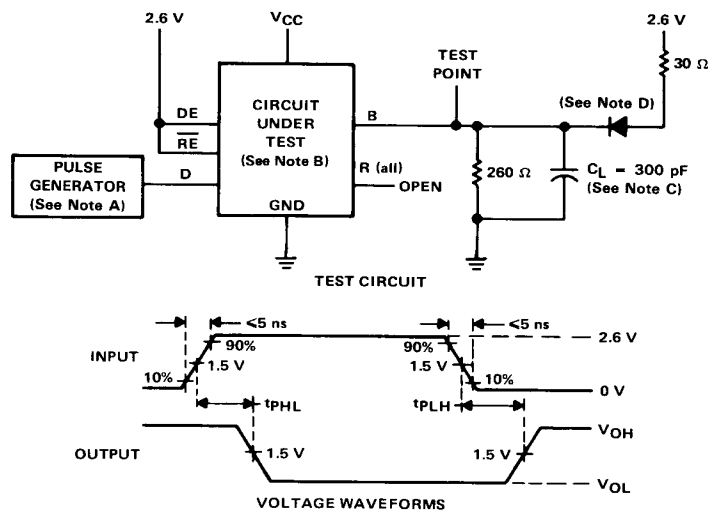


FIGURE 2. PROPAGATION DELAY TIMES FROM DRIVER INPUT TO BUS

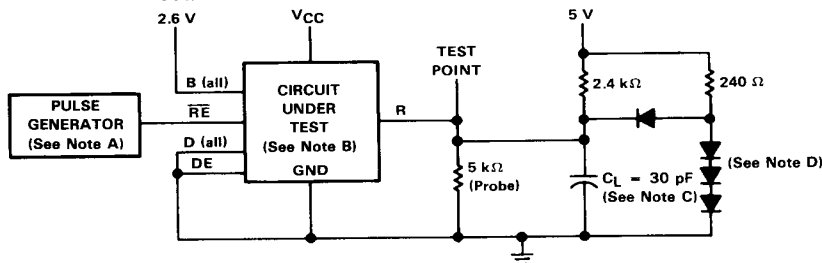
- NOTES: A. The pulse generator in Figures 1 and 2 has the following characteristics: PRR $\leq$ 10 MHz, duty cycle = 50%, $Z_o = 50 \Omega$.
 B. All inputs and outputs not shown are open.
 C. C_L includes probe and jig capacitance.
 D. All diodes are 1N916 or 1N3064.

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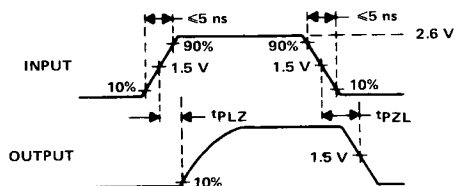
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N8T26 QUADRUPLE BUS TRANSCEIVER WITH 3-STATE OUTPUTS

PARAMETER MEASUREMENT INFORMATION

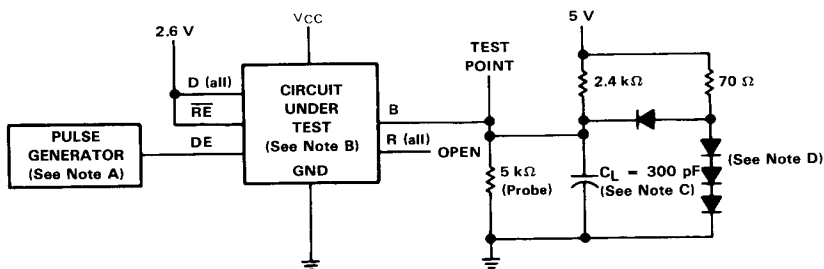


TEST CIRCUIT

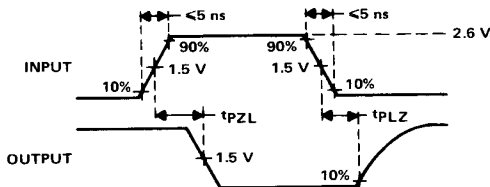


VOLTAGE WAVEFORMS

FIGURE 3. RECEIVER ENABLE AND DISABLE TIMES



TEST CIRCUIT



VOLTAGE WAVEFORMS

FIGURE 4. DRIVER ENABLE AND DISABLE TIMES

- NOTES: A. The pulse generator in Figures 3 and 4 has the following characteristics: PRR $\leq$ 5 MHz, duty cycle = 50%, $Z_0 \approx 50 \Omega$.
B. All inputs and outputs not shown are open.
C. C_L includes probe and jig capacitance.
D. All diodes are 1N916 or 1N3064.

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