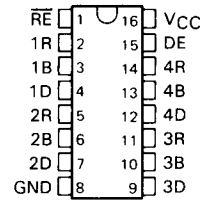
- P-N-P Inputs for Minimal Input Loading (200 μA Maximum)
- High-Speed Schottky Circuitry
- 3-State Outputs for Driver and Receiver
- Party-Line (Data-Bus) Operation
- Single 5-V Supply
- Designed to Be Interchangeable with Signetics N8T26, also Called 8T26

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 μA. 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)

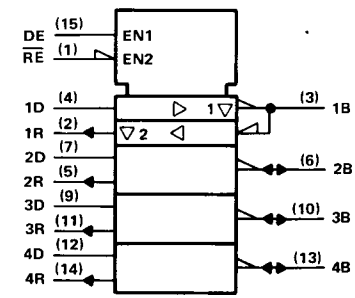
INPUT		OUTPUT
DE	D	B
H	L	H
H	H	L
L	X	Z

FUNCTION TABLE (RECEIVER)

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

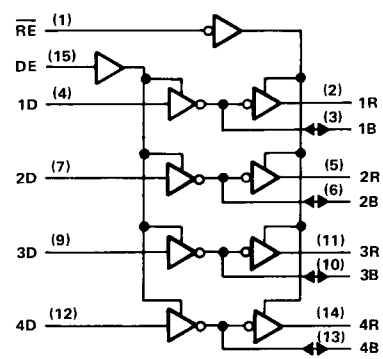
H = high level
L = low level
X = irrelevant
Z = high impedance

logic symbol†

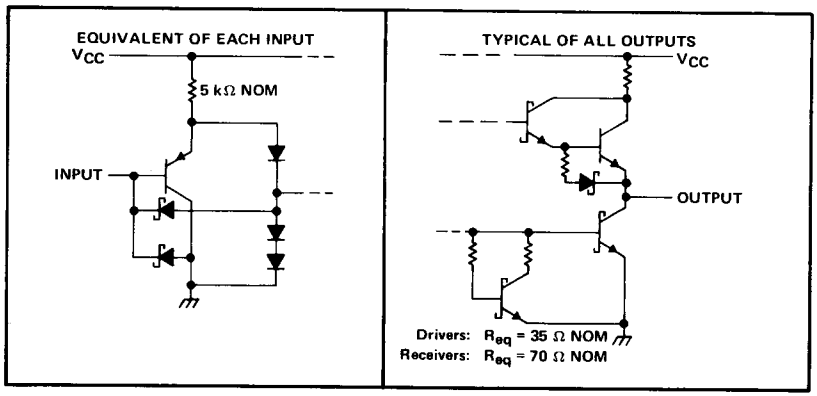


† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



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, $\overline{RE}$	2			V
Low-level input voltage, V_{IL}	B, D, DE, $\overline{RE}$			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

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

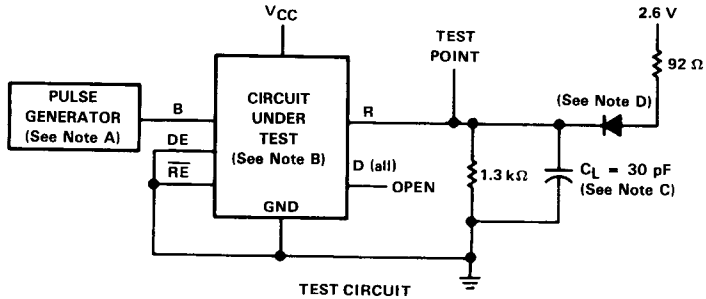
PARAMETER			TEST CONDITIONS			MIN	TYP†	MAX	UNIT
V_{IK}	Input clamp voltage	B,D,DE,$\overline{RE}$	I_I = −5 mA					−1	V
V_{OH}	High-level output voltage	B	V_{IH} = 2 V,	V_{IL} = 0.85 V,	I_{OH} = −10 mA	2.6	3.1		V
		R	V_{IL} = 0.85 V	I_{OH} −2 mA		2.6	3.1		
V_{OL}	Low-level output voltage	B	V_{IH} = 2 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.

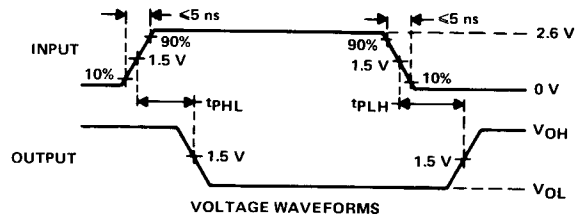
switching characteristics, V_{CC} = 5 V, T_A = 25°C

PARAMETER		FROM	TO	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH}	Propagation delay time, low-to-high-level output	B	R	C_L = 30 pF,		8	18	ns
t_{PHL}	Propagation delay time, high-to-low-level output			See Figure 1		7	10	
t_{PLH}	Propagation delay time, low-to-high-level output	D	B	C_L = 300 pF,		14	20	ns
t_{PHL}	Propagation delay time, high-to-low-level output			See Figure 2		12	20	
t_{PLZ}	Output disable time from low level	$\overline{RE}$	R	C_L = 30 pF,		9	17	ns
t_{PZL}	Output enable time to low level			See Figure 3		15	30	
t_{PLZ}	Output disable time from low level	DE	B	C_L = 300 pF,		20	43	ns
t_{PZL}	Output enable time to low level			See Figure 4		20	38	

PARAMETER MEASUREMENT INFORMATION

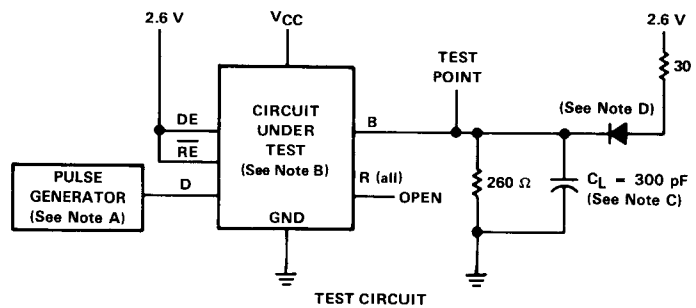


TEST CIRCUIT

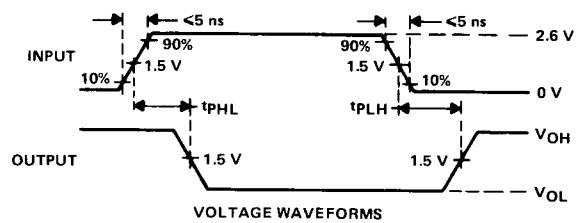


VOLTAGE WAVEFORMS

FIGURE 1. PROPAGATION DELAY TIMES FROM BUS TO RECEIVER OUTPUT



TEST CIRCUIT



VOLTAGE WAVEFORMS

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 ≤ 10 MHz, duty cycle = 50%, $Z_O \approx 50\ \Omega$.
B. All inputs and outputs not shown are open.
C. C_L includes probe and jig capacitance.
D. All diodes are 1N916 or 1N3064.

PARAMETER MEASUREMENT INFORMATION

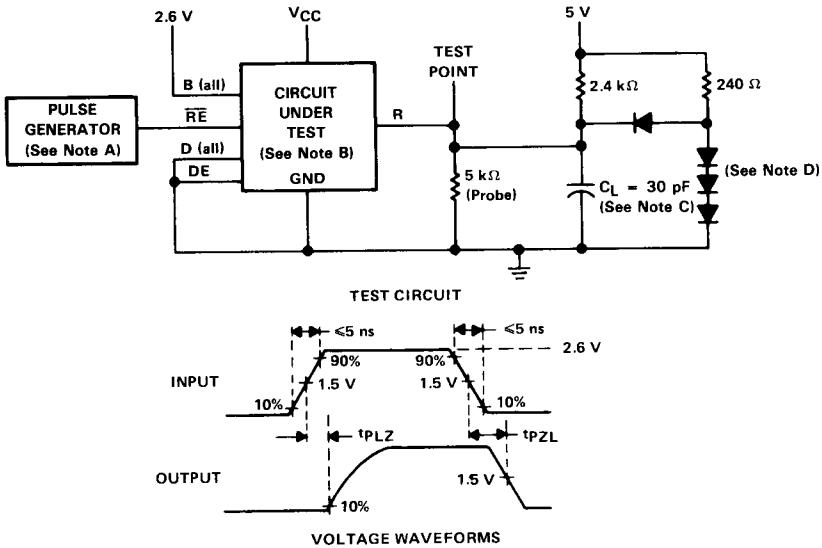


FIGURE 3. RECEIVER ENABLE AND DISABLE TIMES

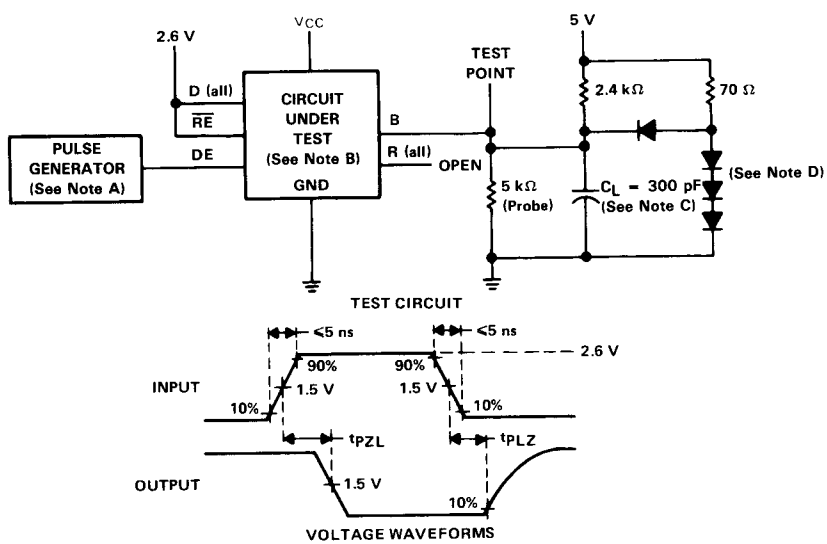


FIGURE 4. DRIVER ENABLE AND DISABLE TIMES

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