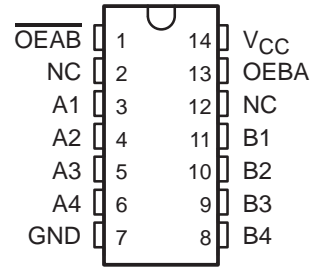- **Two-Way Asynchronous Communication Between Data Buses**
- **pnp Inputs Reduce dc Loading**
- **Package Options Include Plastic Small-Outline (D) Packages and Standard Plastic (N) 300-mil DIPs**

D OR N PACKAGE
(TOP VIEW)

$\overline{\text{OEAB}}$	1	14	V$_{CC}$
NC	2	13	OEBA
A1	3	12	NC
A2	4	11	B1
A3	5	10	B2
A4	6	9	B3
GND	7	8	B4

NC – No internal connection

description

This quadruple bus transceiver is designed for two-way asynchronous communication between data buses.

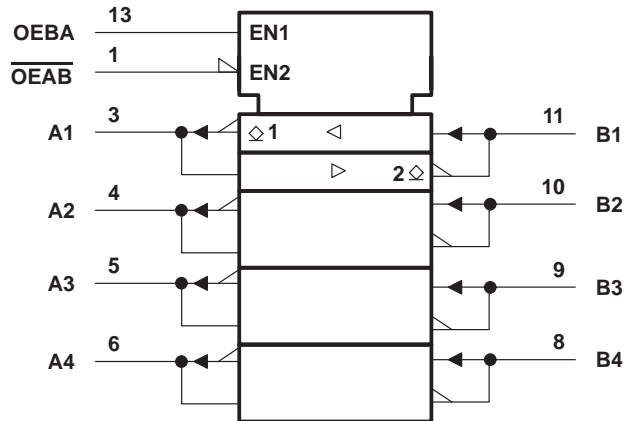The SN74ALS758 is characterized for operation from 0°C to 70°C.

FUNCTION TABLE

INPUTS		FUNCTION
$\overline{\text{OEAB}}$	OEBA	
L	L	$\overline{\text{A}}$ to B
H	H	$\overline{\text{B}}$ to A
H	L	Isolation
L	H	Latch A and B (A = $\overline{\text{B}}$)

logic symbol†

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

logic diagram (positive logic)

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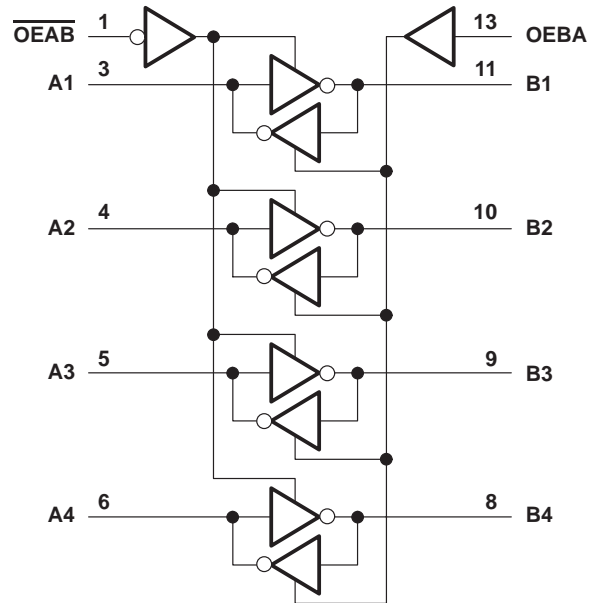
SN74ALS758
QUADRUPLE BUS TRANSCEIVER
WITH OPEN-COLLECTOR OUTPUTS
SDAS078B – DECEMBER 1983 – REVISED JANUARY 1995

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

Supply voltage, V_{CC} . . . . 7 V
Input voltage, V_I: All inputs and I/O ports . . . . 7 V
Operating free-air temperature range, T_A . . . . 0°C to 70°C
Storage temperature range . . . . −65°C to 150°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

recommended operating conditions

		MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			V
V_{IL}	Low-level input voltage			0.8	V
V_{OH}	High-level output voltage			5.5	V
I_{OL}	Low-level output current			24	mA
T_A	Operating free-air temperature	0		70	°C

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

PARAMETER		TEST CONDITIONS		MIN	TYP‡	MAX	UNIT
V_{IK}		$V_{CC} = 4.5$ V,	$I_I = -18$ mA			−1.2	V
I_{OH}		$V_{CC} = 4.5$ V,	$V_{OH} = 5.5$ V			0.1	mA
V_{OL}		$V_{CC} = 4.5$ V	$I_{OL} = 12$ mA		0.25	0.4	V
			$I_{OL} = 24$ mA		0.35	0.5	
I_I	Control inputs	$V_{CC} = 5.5$ V	$V_I = 7$ V			0.1	mA
	A or B ports		$V_I = 5.5$ V			0.1	
I_{IH}	Control inputs	$V_{CC} = 5.5$ V,	$V_I = 2.7$ V			20	µA
	A or B ports§					20	
I_{IL}	Control inputs	$V_{CC} = 5.5$ V,	$V_I = 0.4$ V			−0.1	mA
	A or B ports§					−0.1	
I_{CC}		$V_{CC} = 5.5$ V	Outputs high		6	10	mA
			Outputs low		10	16	

‡ All typical values are at $V_{CC} = 5$ V, $T_A = 25$°C.
§ For I/O ports, the parameters I_{IH} and I_{IL} include the off-state output current.

**TEXAS
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switching characteristics (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 680 Ω, T_A = MIN to MAX[†]		UNIT
			MIN	MAX	
t_{PLH}	A or B	B or A	10	28	ns
t_{PHL}			2	12	
t_{PLH}	OEBA	A	10	28	ns
t_{PHL}			6	21	
t_{PLH}	$\overline{OEAB}$	B	10	28	ns
t_{PHL}			6	21	

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
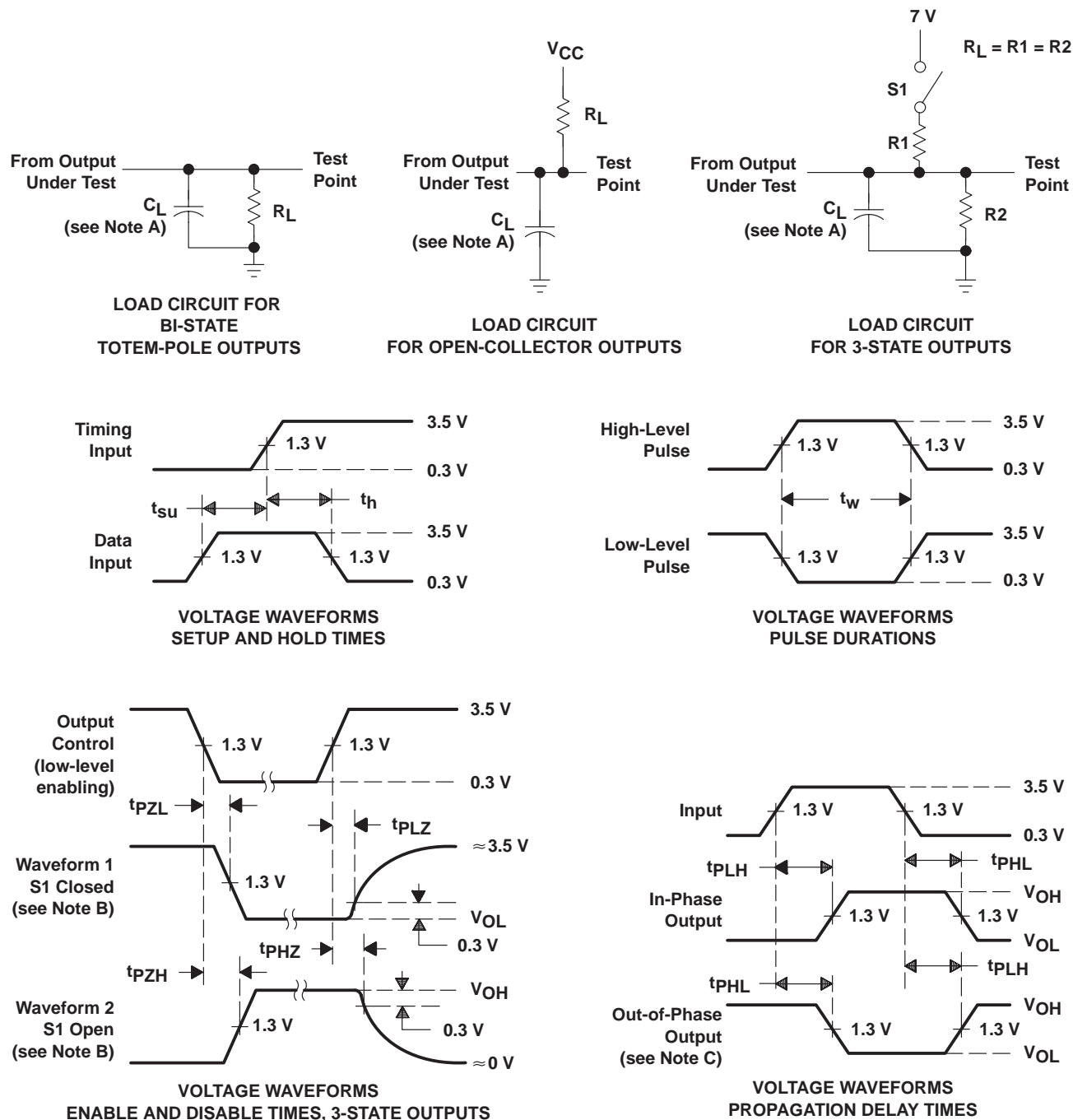
PARAMETER MEASUREMENT INFORMATION
SERIES 54ALS/74ALS AND 54AS/74AS DEVICES

**LOAD CIRCUIT FOR
BI-STATE
TOTEM-POLE OUTPUTS**

**LOAD CIRCUIT
FOR OPEN-COLLECTOR OUTPUTS**

**LOAD CIRCUIT
FOR 3-STATE OUTPUTS**

**VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES**

**VOLTAGE WAVEFORMS
PULSE DURATIONS**

**VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES, 3-STATE OUTPUTS**

**VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES**

NOTES: A. C_L includes probe and jig capacitance.
B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control.
Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
C. When measuring propagation delay items of 3-state outputs, switch S1 is open.
D. All input pulses have the following characteristics: PRR ≤ 1 MHz, $t_r = t_f = 2$ ns, duty cycle = 50%.
E. The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuits and Voltage Waveforms

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