

SN75ALS125, SN75ALS127 SEVEN-CHANNEL LINE RECEIVERS

SLLS027B – D2239, APRIL 1987 – REVISED AUGUST 1989

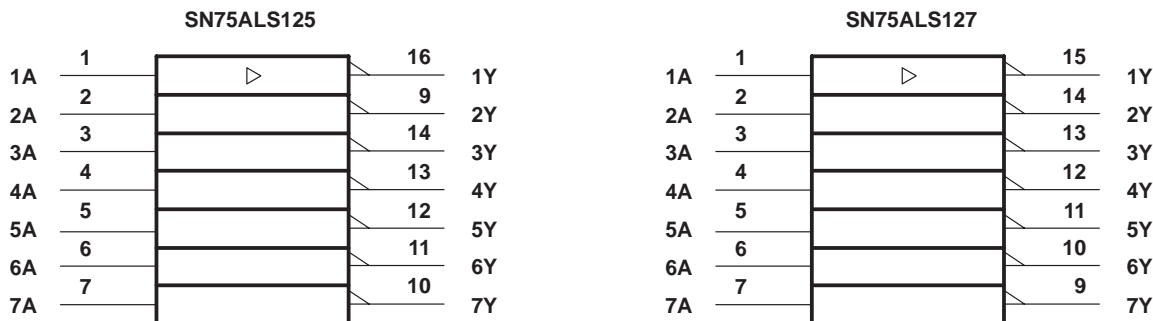
- Meets IBM 360/370 I/O Specification
- Input Resistance . . . 7 k Ω to 20 k Ω
- Output Compatible with TTL
- **IMPACT™** Low-Power Schottky Technology
- Operates from Single 5-V Supply
- High Speed . . . Low Propagation Delay
- Ratio Specification for Propagation Delay Time, Low-to-High/High-to-Low
- Glitch-Free Power-Up and Power-Down
- Seven Channels in One 16-Pin Package
- Standard V_{CC} and Ground Positioning on SN75ALS127

description

The SN75ALS125 and SN75ALS127 are monolithic seven-channel line receivers designed to satisfy the requirements of the IBM System 360/370 input/output interface specifications. Employing the IMPACT™ process allows low supply-current requirements while maintaining fast switching speeds and high-current TTL outputs.

The SN75ALS125 and SN75ALS127 are characterized for operation from 0°C to 70°C.

logic symbols†



† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

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PRODUCTION DATA information is 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.



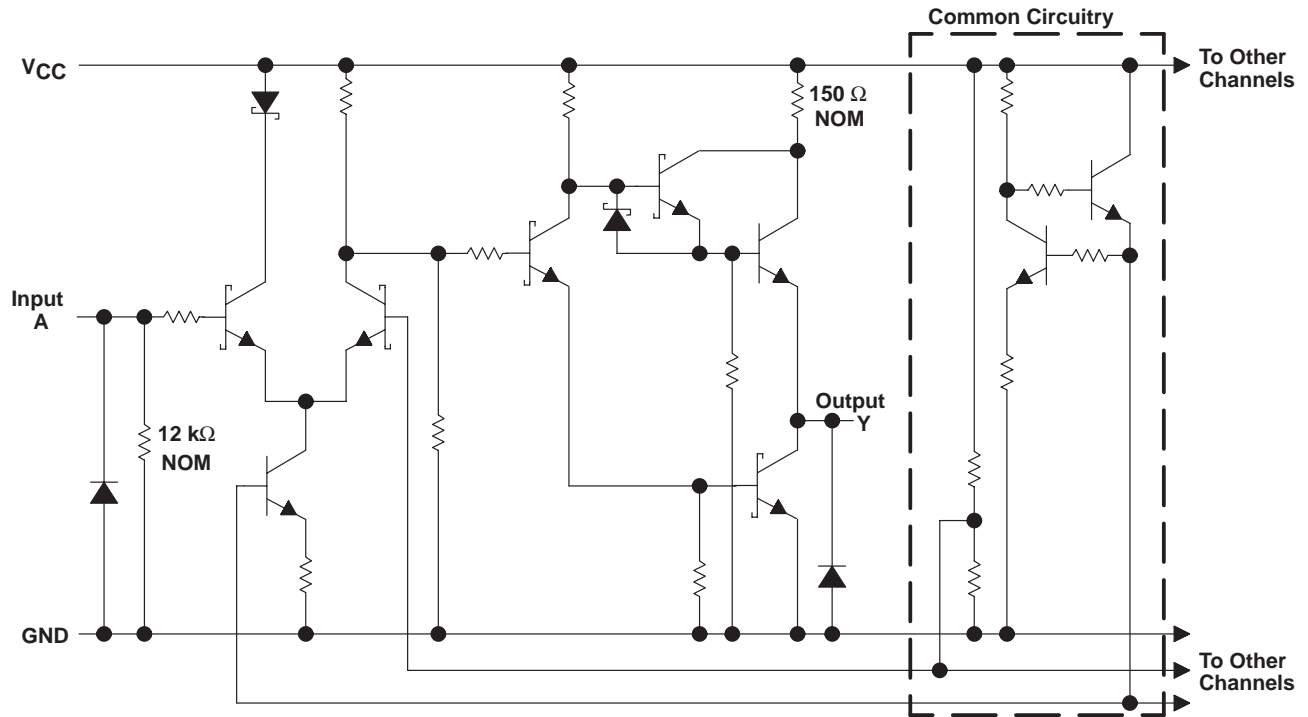
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schematic (each receiver)



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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage range	- 0.15 V to 7 V
Continuous total dissipation at (or below) 25°C free-air temperature (see Note 2):	
D package	950 mW
J package	1025 mW
N package	1150 mW
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

NOTES: 1. All voltage values are with respect to network ground terminal.

2. For operation above 25°C free-air temperature, derate the D package to 608 mW at 70°C at the rate of 7.6 mW/°C, the J package to 656 mW/°C at 70°C at the rate of 8.2 mW/°C, and the N package to 736 mW at 70°C at the rate of 9.2 mW/°C.

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recommended operating conditions

	MIN	NOM	MAX	UNIT
Supply voltage, V_{CC}	4.5	5	5.5	V
High-level input voltage, V_{IH}	1.7			V
Low-level input voltage, V_{IL}			0.7	V
High-level output current, I_{OH}			-0.4	V
Low-level output current, I_{OL}			16	mA
Operating free-air temperature, T_A	0		70	°C

electrical characteristics over recommended operating free-air temperature range

PARAMETER	TEST CONDITIONS	MIN	TYP†	MAX	UNIT
V_{OH} High-level output voltage	$V_{CC} = 4.5$ V, $V_{IL} = 0.7$ V, $I_{OH} = -0.4$ mA	2.4	3.1		V
V_{OL} Low-level output voltage	$V_{CC} = 4.5$ V, $V_{IH} = 1.7$ V, $I_{OL} = 16$ mA		0.4	0.5	V
I_{IH} High-level input current	$V_{CC} = 5.5$ V, $V_I = 3.11$ V		0.3	0.42	mA
I_{IL} Low-level input current	$V_{CC} = 5.5$ V, $V_I = 0.15$ V			30	μA
I_{OS} Short-circuit output current‡	$V_{CC} = 5.5$ V, $V_O = 0$	-18		-60	mA
r_i Input resistance	$V_{CC} = 4.5$ V, 0, or open, $\Delta V_I = 0.15$ V to 4.15 V	7		20	kΩ
I_{CC} Supply current	$V_{CC} = 5.5$ V, $I_{OH} = -0.4$ mA, All inputs at 0.7 V		15	25	mA
	$V_{CC} = 5.5$ V, $I_{OL} = 16$ mA, All inputs at 4 V		28	47	mA

switching characteristics over recommended operating temperature range, $V_{CC} = 5$ V

PARAMETER	TEST CONDITIONS	MIN	TYP†	MAX	UNIT
t_{PLH} Propagation delay time, low-to-high-level output	$R_L = 400$ Ω, $C_L = 50$ pF, See Figure 1	7	14	25	ns
t_{PHL} Propagation delay time, high-to-low-level output		10	18	30	ns
$\frac{t_{PLH}}{t_{PHL}}$ Ratio of propagation delay times		0.5	0.8	1.3	
t_{TLH} Transition time, low-to-high-level output		1	7	12	ns
t_{THL} Transition time, high-to-low-level output		1	3	12	ns

† All typical values are at $V_{CC} = 5$ V, $T_A = 25$ °C.

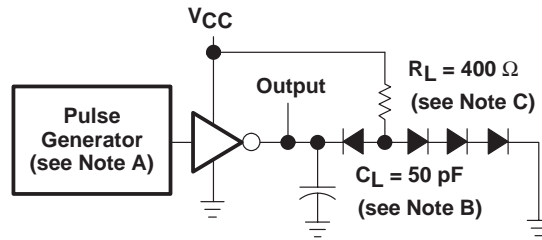
‡ Not more than one output should be shorted at a time.



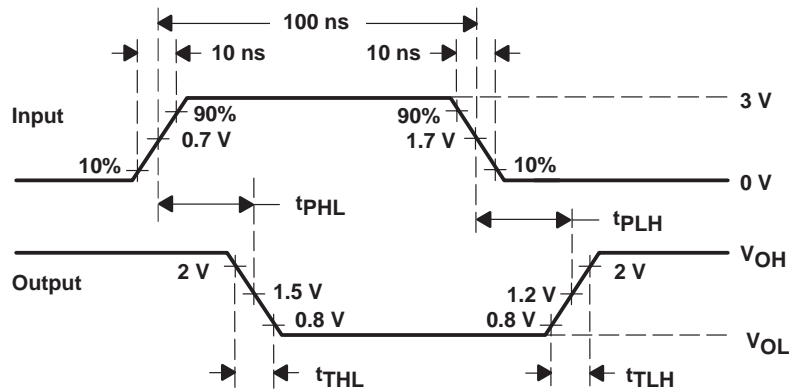
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PARAMETER MEASUREMENT INFORMATION



TEST CIRCUIT



VOLTAGE WAVEFORMS

- NOTES: A. The pulse generator has the following characteristics: $Z_0 \approx 50 \Omega$, $PRR \leq 5 \text{ MHz}$.
 B. C_L includes probe and jig capacitance.
 C. All diodes are 1N3064 or equivalent.

Figure 1

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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