

SN75ALS125, SN75ALS127 SEVEN-CHANNEL LINE RECEIVERS

SLLS027B – D2239, APRIL 1987 – REVISED AUGUST 1989

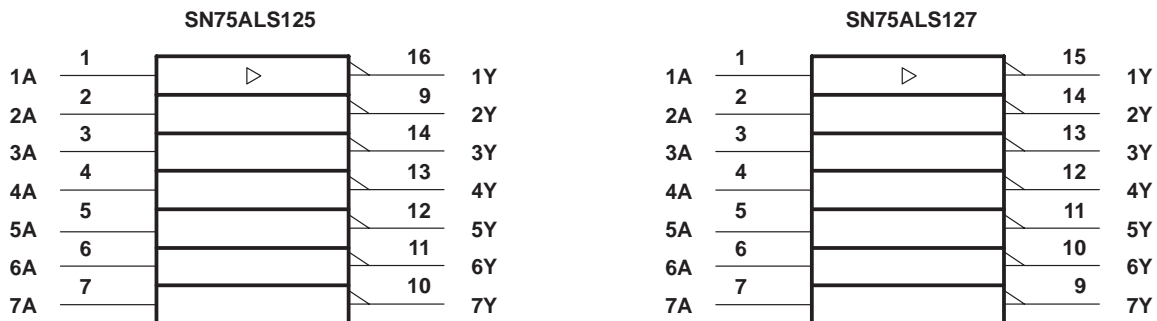
- Meets IBM 360/370 I/O Specification
- Input Resistance . . . 7 k Ω to 20 k Ω
- Output Compatible with TTL
- **IMPACT™** Low-Power Schottky Technology
- Operates from Single 5-V Supply
- High Speed . . . Low Propagation Delay
- Ratio Specification for Propagation Delay Time, Low-to-High/High-to-Low
- 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.

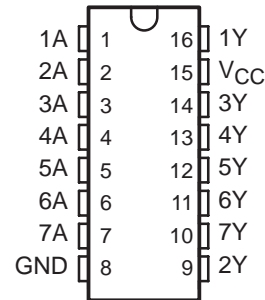
The SN75ALS125 and SN75ALS127 are characterized for operation from 0°C to 70°C.

logic symbols†

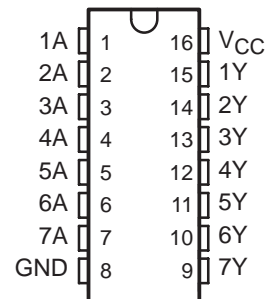


† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

SN75ALS125 . . . D, J, OR N PACKAGE
(TOP VIEW)



SN75ALS127 . . . D, J, OR N PACKAGE
(TOP VIEW)



IMPACT is a trademark of Texas Instruments Incorporated.

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.

**TEXAS
INSTRUMENTS**

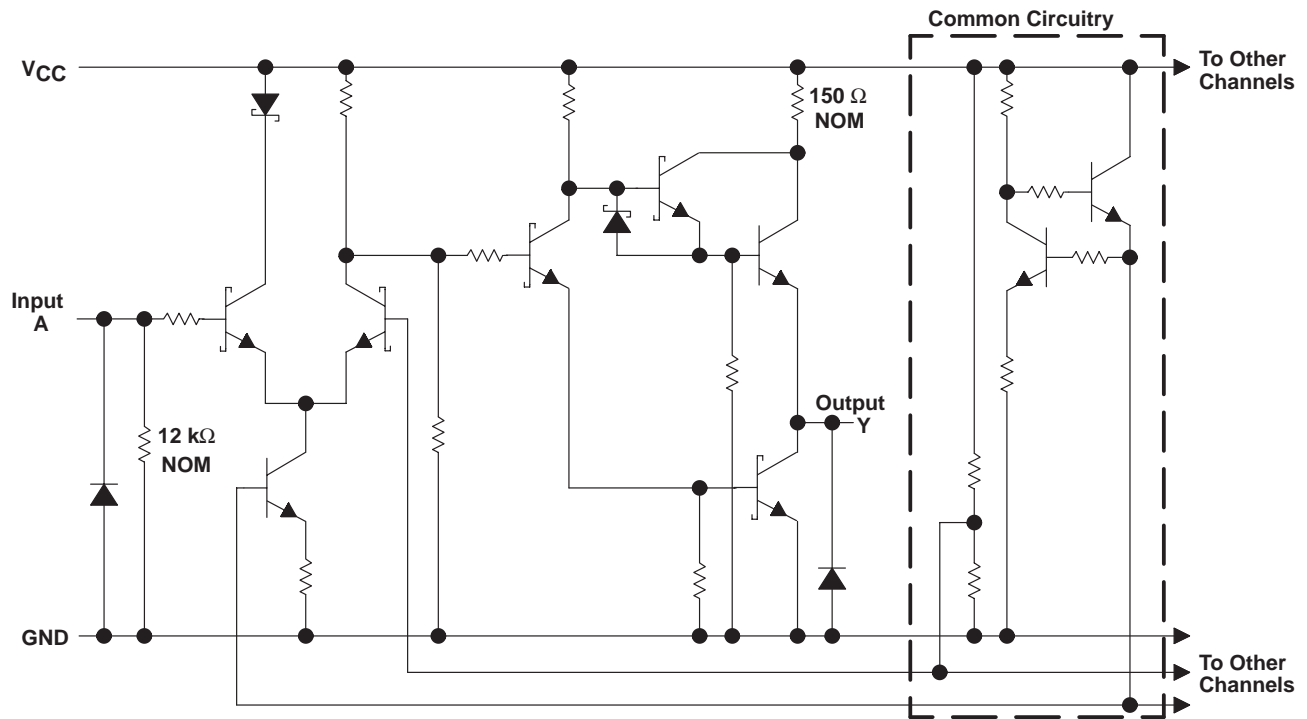
POST OFFICE BOX 655303 • DALLAS, TEXAS 75265
POST OFFICE BOX 1443 • HOUSTON, TEXAS 77001

Copyright © 1989, Texas Instruments Incorporated
BASIC5

SN75ALS125, SN75ALS127 SEVEN-CHANNEL LINE RECEIVERS

SLLS027B – D2239, APRIL 1987 – REVISED AUGUST 1989

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.

SN75ALS125, SN75ALS127 SEVEN-CHANNEL LINE RECEIVERS

SLLS027B – D2239, APRIL 1987 – REVISED AUGUST 1989

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.

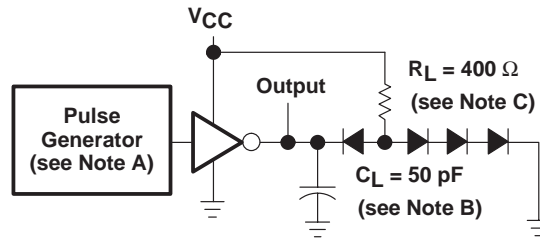
‡ Not more than one output should be shorted at a time.



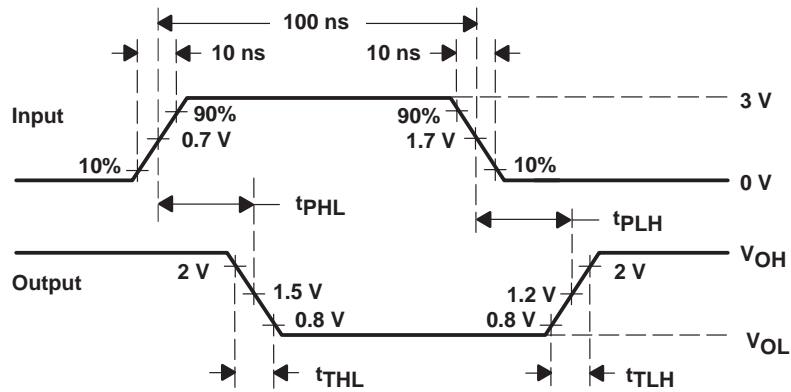
SN75ALS125, SN75ALS127 SEVEN-CHANNEL LINE RECEIVERS

SLLS027B – D2239, APRIL 1987 – REVISED AUGUST 1989

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

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Broadband	www.ti.com/broadband
Digital Control	www.ti.com/digitalcontrol
Medical	www.ti.com/medical
Military	www.ti.com/military
Optical Networking	www.ti.com/opticalnetwork
Security	www.ti.com/security
Telephony	www.ti.com/telephony
Video & Imaging	www.ti.com/video
Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2008, Texas Instruments Incorporated