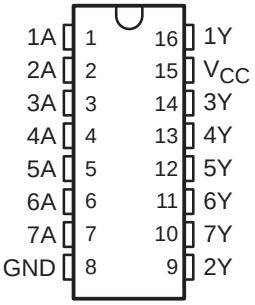
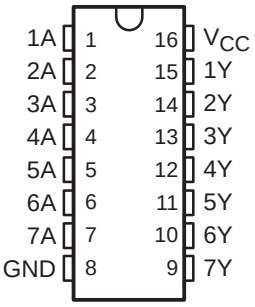
- **Meets IBM 360/370 I/O Specification**
- **Input Resistance . . . 7 kΩ to 20 kΩ**
- **Output Compatible With TTL**
- **Schottky-Clamped Transistors**
- **Operates From Single 5-V Supply**
- **High Speed . . . Low Propagation Delay**
- **Ratio Specification for Propagation Delay Time, Low-to-High/High-to-Low**
- **Seven Channels in One 16-Pin Package**
- **Standard V_{CC} and Ground Positioning on SN75127**

SN75125 . . . D OR N PACKAGE
(TOP VIEW)



SN75127 . . . D OR N PACKAGE
(TOP VIEW)



THE SN75125 IS NOT RECOMMENDED FOR NEW DESIGN

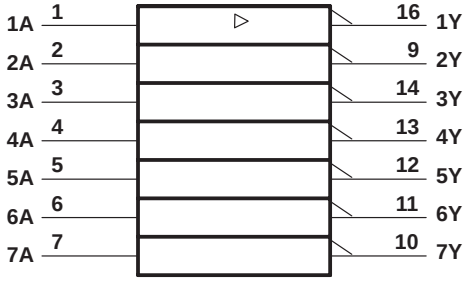
description

The SN75125 and SN75127 are monolithic seven-channel line receivers designed to satisfy the requirements of the IBM System 360/370 input/output interface specifications. Special low-power design and Schottky-clamped transistors allow for low supply-current requirements while maintaining fast switching speeds and high-current TTL outputs.

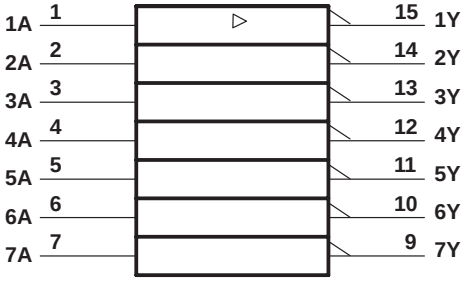
The SN75125 and SN75127 are characterized for operation from 0°C to 70°C.

logic symbols†

SN75125

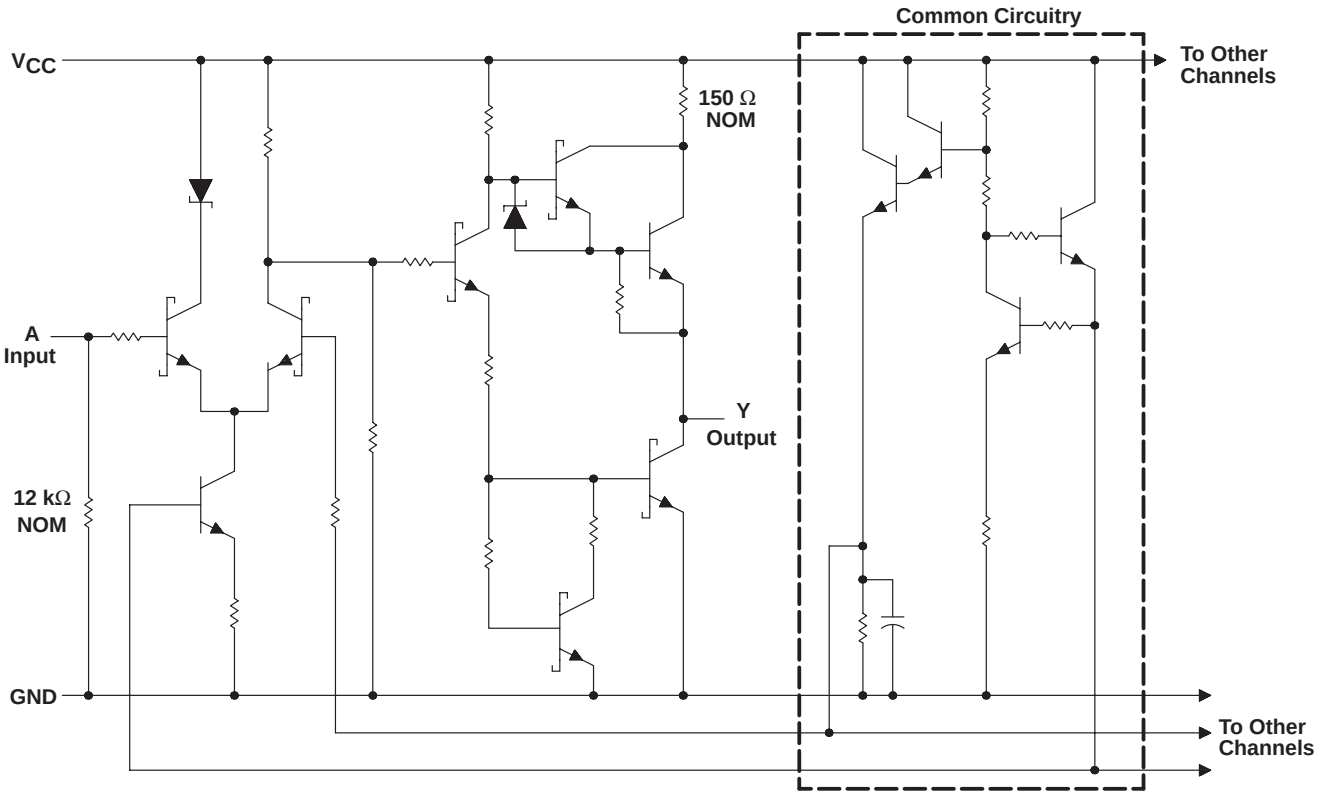


SN75127



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

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: SN75125 . . . . . – 0.15 V to 7 V
SN75127 . . . . . – 2 V to 7 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 10 seconds . . . . . 260°C

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

DISSIPATION RATING TABLE

PACKAGE	$T_A \le 25°C$ POWER RATING	OPERATING FACTOR ABOVE $T_A = 25°C$	$T_A = 70°C$ POWER RATING
D	950 mW	7.6 mW/°C	608 mW
N	1050 mW	9.2 mW/°C	736 mW

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	mA
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 (unless otherwise noted)

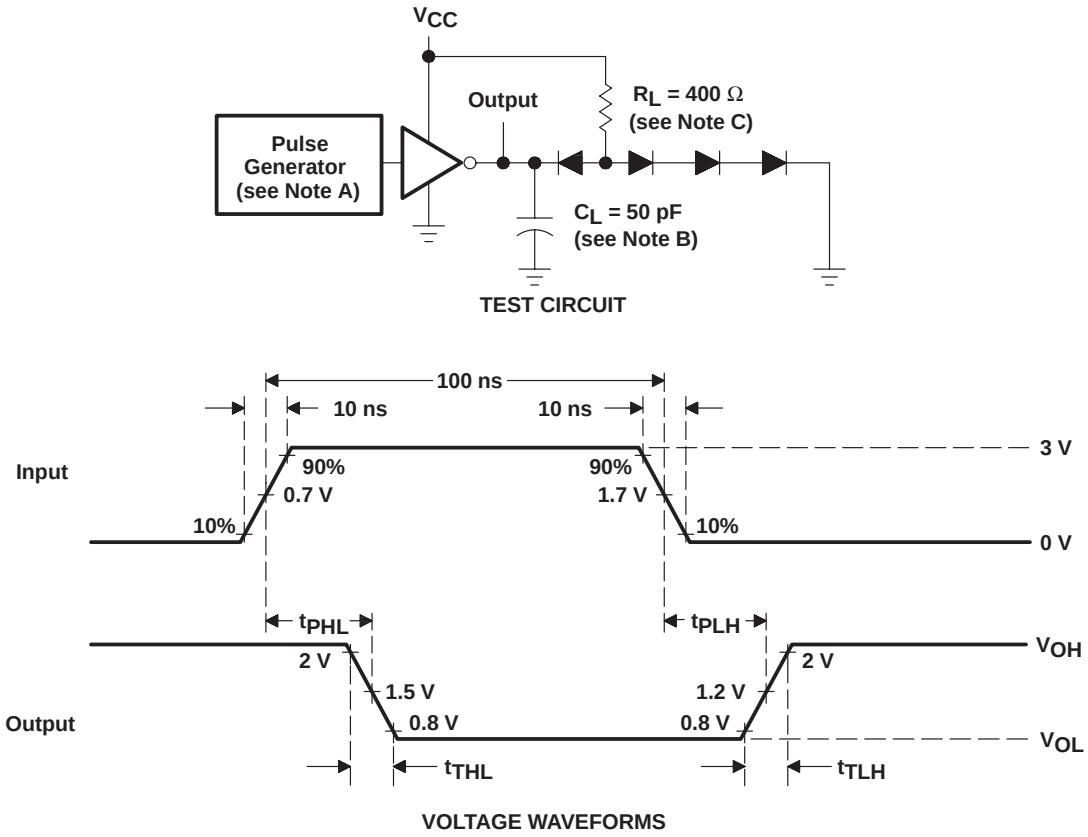
PARAMETER		TEST CONDITIONS			MIN	TYP†	MAX	UNIT
V_{OH}	High-level output voltage	V_{CC} = 4.5 V,	V_{IL} = 0.7 V,	I_{OH} = –0.4 mA	2.4	3.1		V
V_{OL}	Low-level output voltage	V_{CC} = 4.5 V,	V_{IH} = 1.7 V,	I_{OL} = 16 mA		0.4	0.5	V
I_{IH}	High-level input current	V_{CC} = 5.5 V,	V_I = 3.11 V			0.3	0.42	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 V, or open,		ΔV_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

† All typical values are at V_{CC} = 5 V, T_A = 25°C.
‡ Not more than one output should be shorted at a time.

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

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

PARAMETER MEASUREMENT INFORMATION



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

Figure 1. Tests Circuit and Voltage Waveforms

TYPICAL CHARACTERISTICS

VOLTAGE TRANSFER CHARACTERISTICS

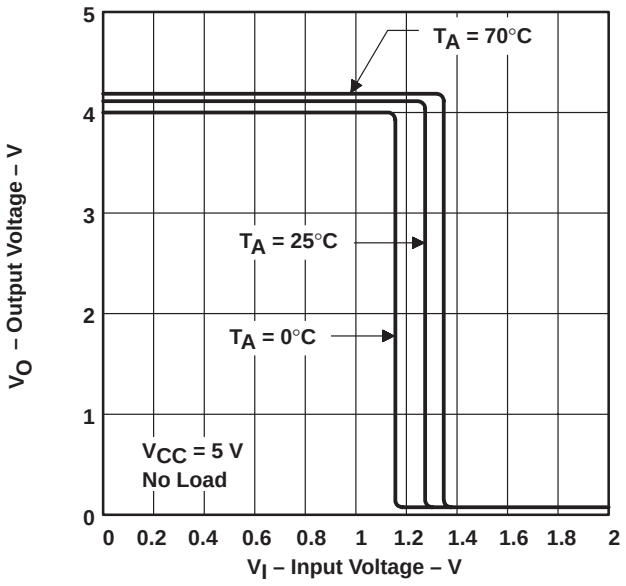


Figure 2

VOLTAGE TRANSFER CHARACTERISTICS

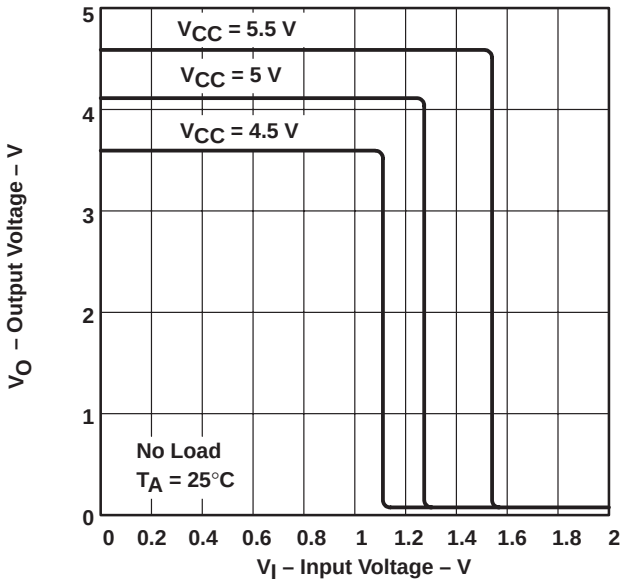


Figure 3

INPUT CURRENT vs INPUT VOLTAGE

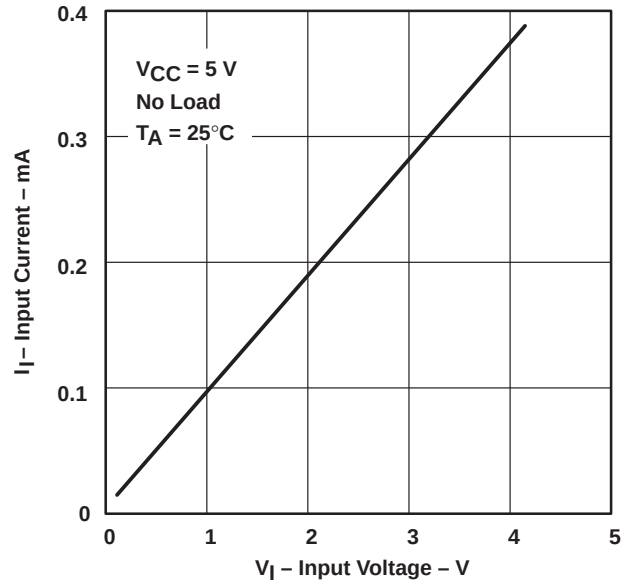


Figure 4

LOW-LEVEL OUTPUT VOLTAGE vs OUTPUT CURRENT

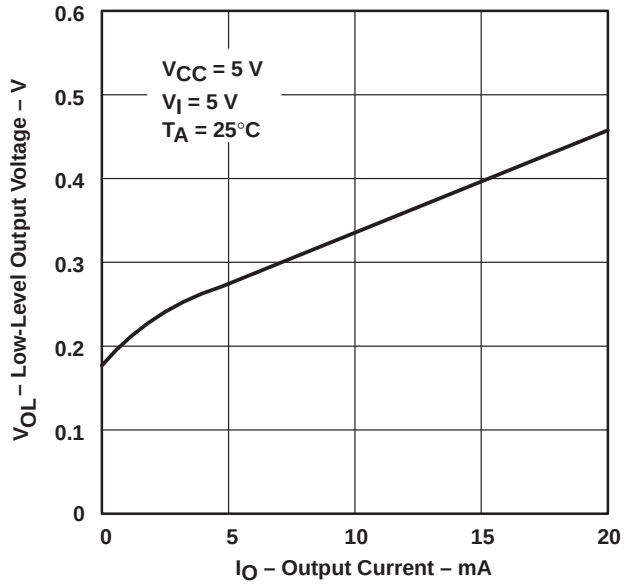


Figure 5

TYPICAL CHARACTERISTICS

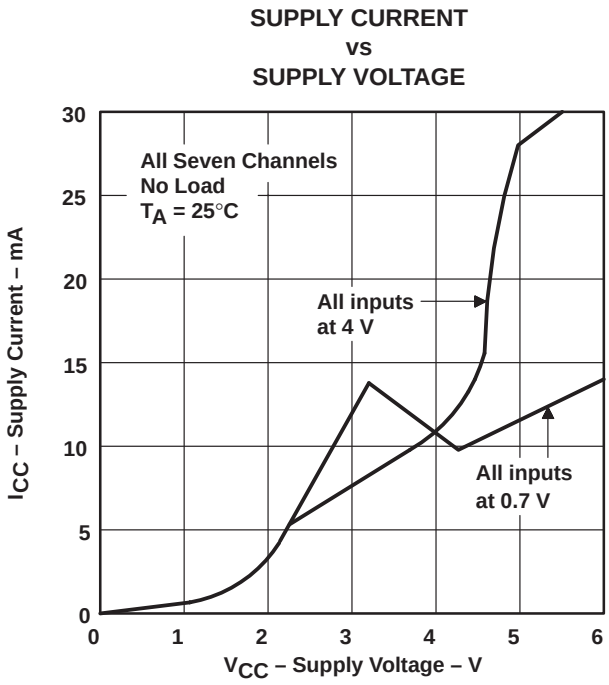


Figure 6

IMPORTANT NOTICE

Texas Instruments (TI) reserves the right to make changes to its products or to discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current and complete.

TI warrants performance of its semiconductor products and related software to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Certain applications using semiconductor products may involve potential risks of death, personal injury, or severe property or environmental damage ("Critical Applications").

TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS.

Inclusion of TI products in such applications is understood to be fully at the risk of the customer. Use of TI products in such applications requires the written approval of an appropriate TI officer. Questions concerning potential risk applications should be directed to TI through a local SC sales office.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards should be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein. Nor does TI warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used.