

SN75125, SN75127 SEVEN-CHANNEL LINE RECEIVERS

SLLS108B – D239, JANUARY 1977 – REVISED FEBRUARY 1993

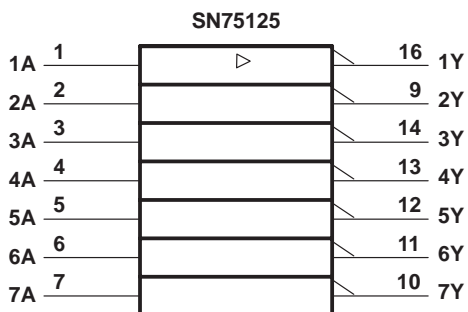
- Meets IBM 360/370 I/O Specification
- Input Resistance . . . 7 k Ω to 20 k Ω
- Output Compatible With TTL
- Schottky-Clamped Transistors
- Operates From Single 5-V Supply
- High Speed . . . Low Propagation Delay
- Ratio Specification for Propagation Delay Time, Low-to-High/High-to-Low
- Seven Channels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

description

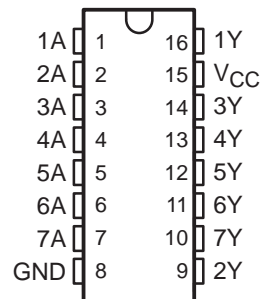
The SN75125 and SN75127 are monolithic seven-channel line receivers designed to satisfy the requirements of the IBM System 360/370 input/output interface specifications. Special low-power design and Schottky-clamped transistors allow for low supply-current requirements while maintaining fast switching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

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

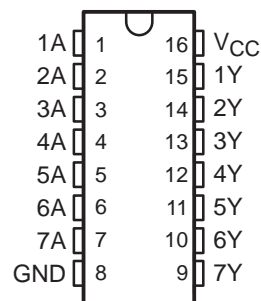
logic symbols†



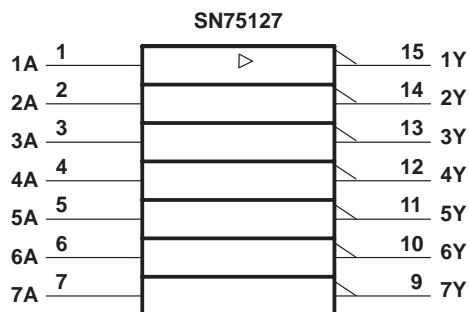
SN75125 . . . D OR N PACKAGE
(TOP VIEW)



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



**THE SN75125 IS NOT
RECOMMENDED FOR NEW DESIGN**

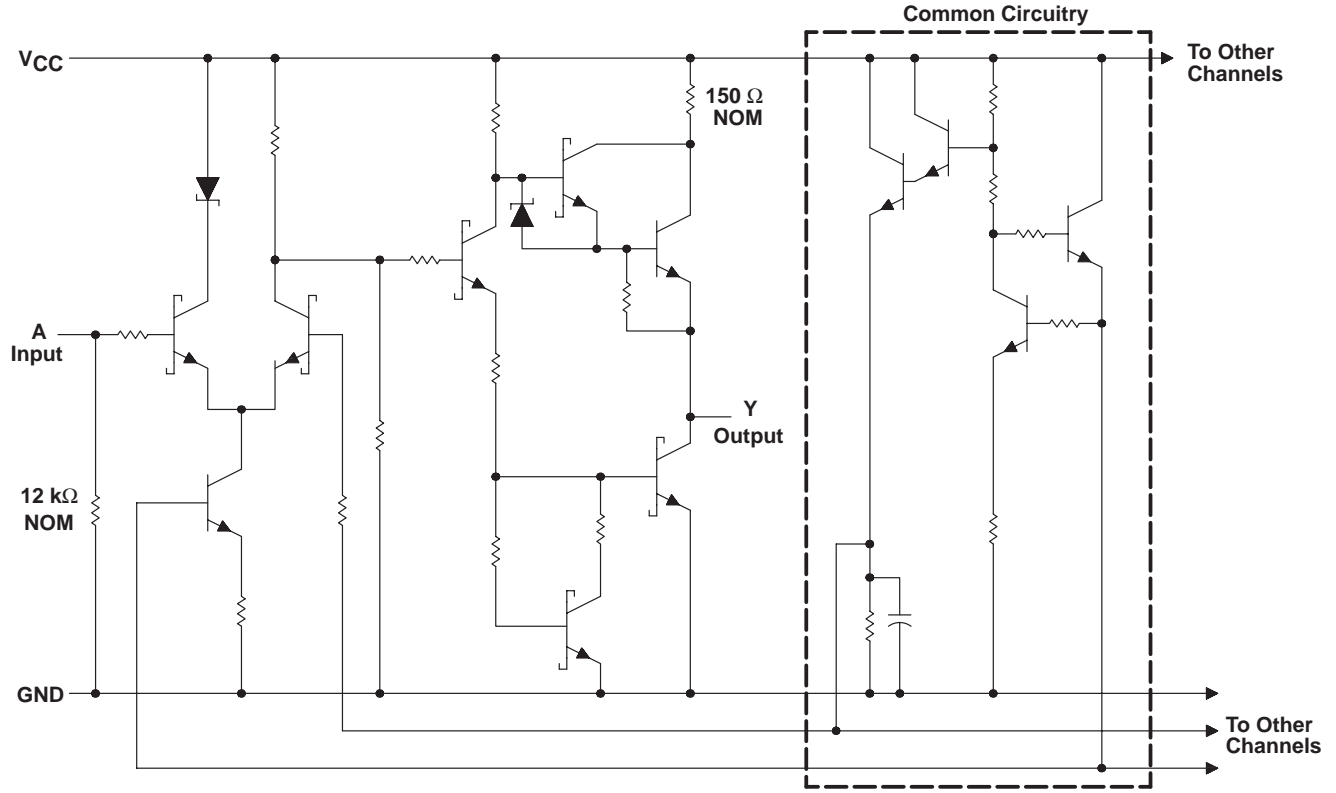


† These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

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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: 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	$T_A \leq 25^\circ\text{C}$ POWER RATING	OPERATING FACTOR ABOVE $T_A = 25^\circ\text{C}$	$T_A = 70^\circ\text{C}$ POWER RATING
D	950 mW	7.6 mW/°C	608 mW
N	1050 mW	9.2 mW/°C	736 mW

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

[†] All typical values are at $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$.

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

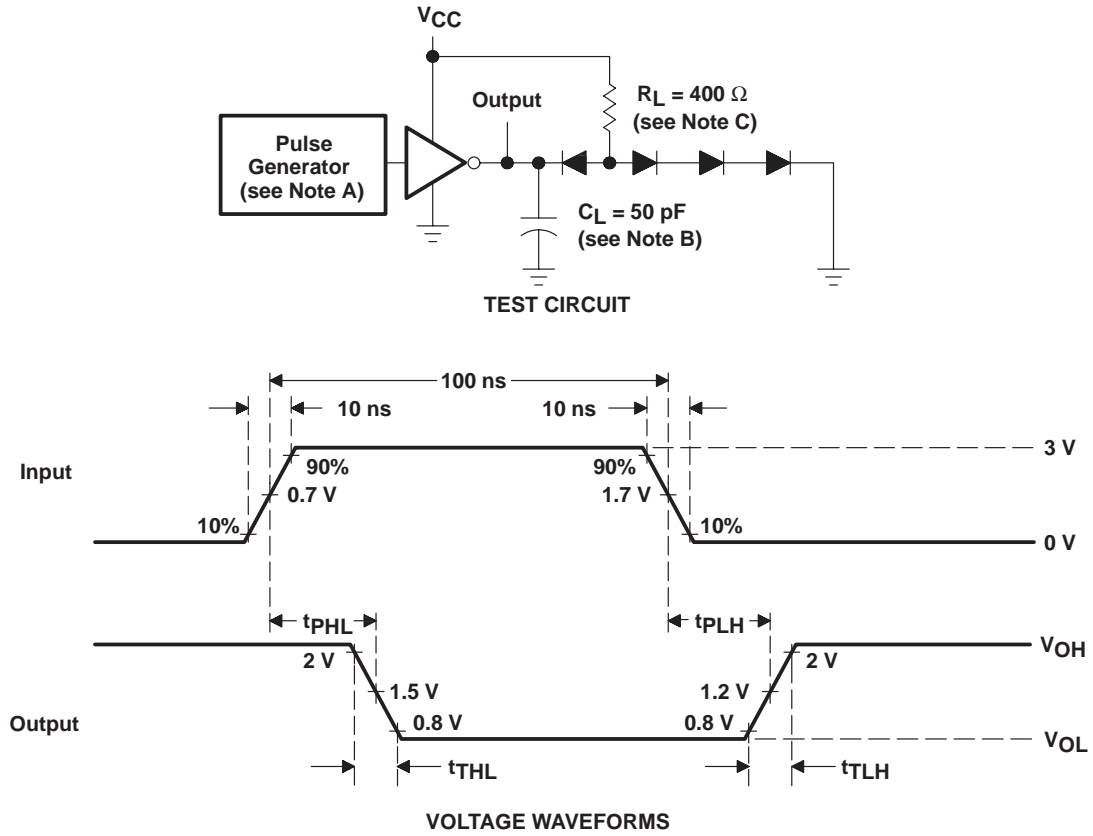
switching characteristics, $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{PLH} Propagation delay time, low-to-high-level output	$R_L = 400\ \Omega$, $C_L = 50\text{ pF}$, 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

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PARAMETER MEASUREMENT INFORMATION



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

Figure 1. Tests Circuit and Voltage Waveforms

TYPICAL CHARACTERISTICS

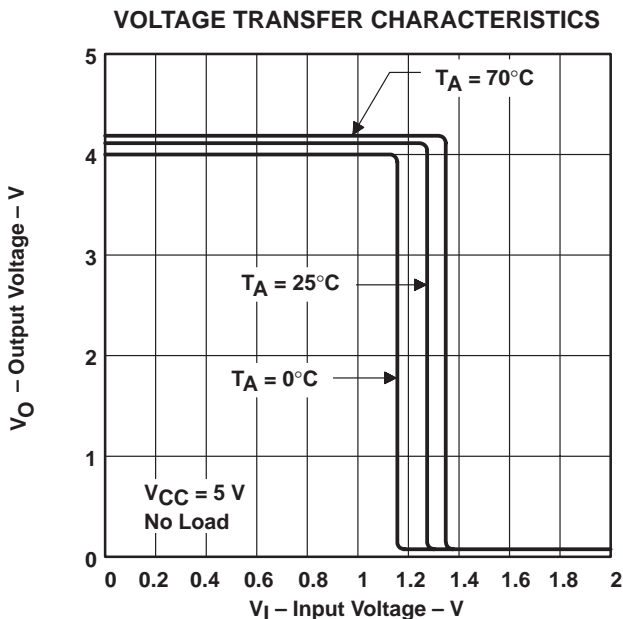


Figure 2

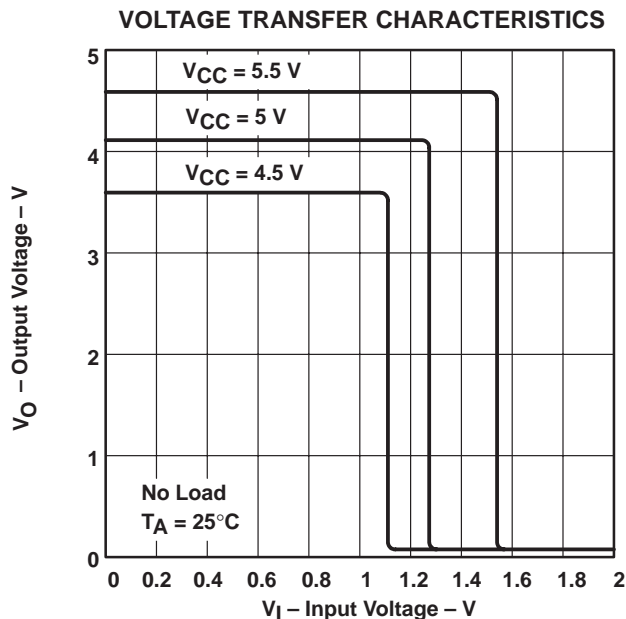


Figure 3

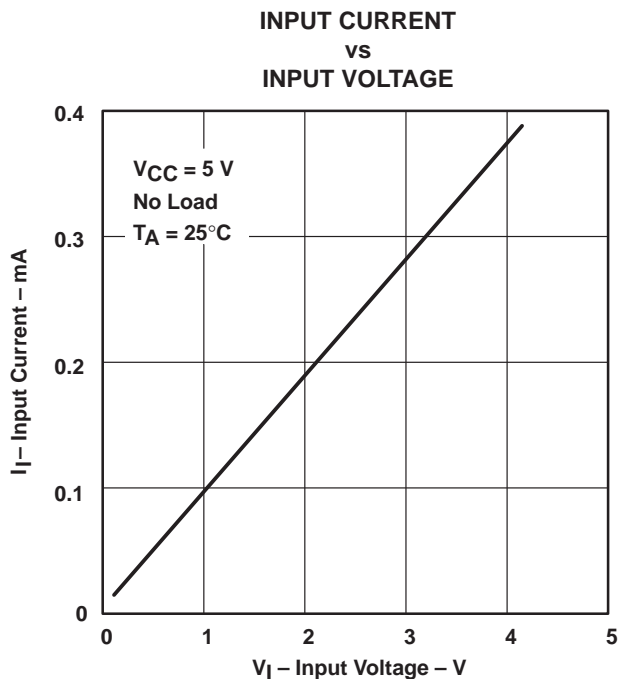


Figure 4

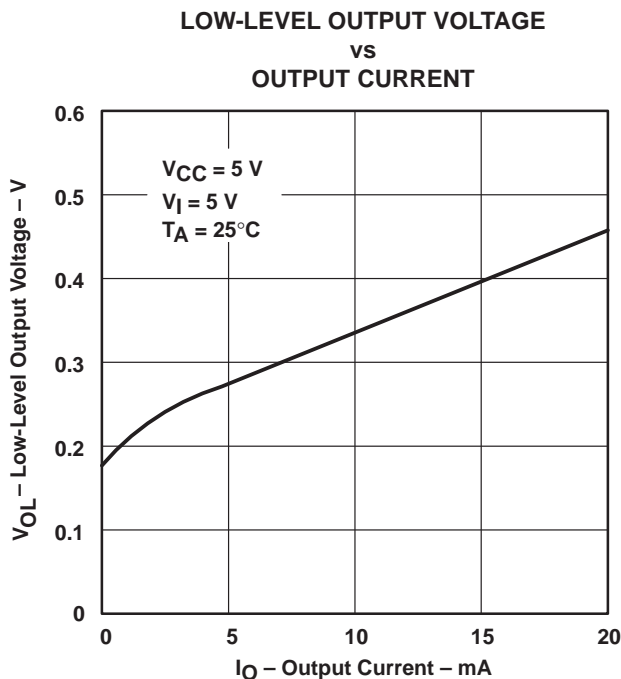


Figure 5

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TYPICAL CHARACTERISTICS

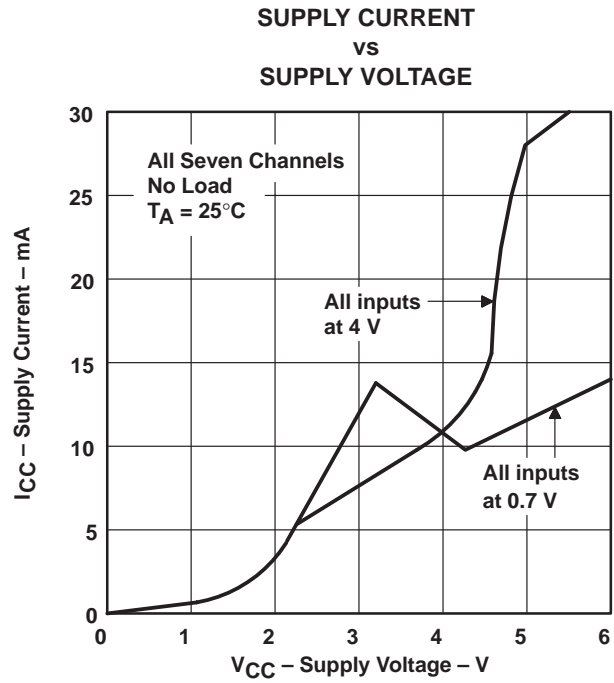


Figure 6

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
SN75127N	OBSOLETE	PDIP	N	16		TBD	Call TI	Call TI

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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