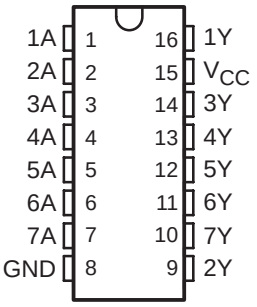
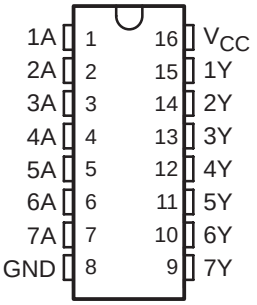
SLLS108B − D239, JANUARY 1977 − REVISED FEBRUARY 1993

- **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

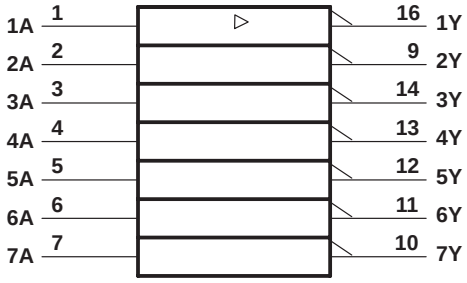
description

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.

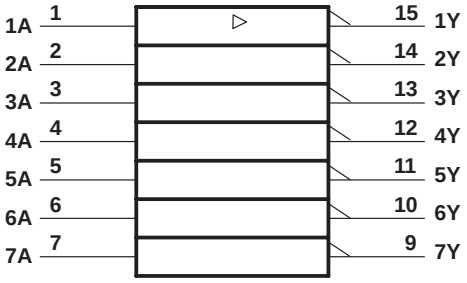
The SN75125 and SN75127 are characterized for operation from 0°C to 70°C.

logic symbols†

SN75125

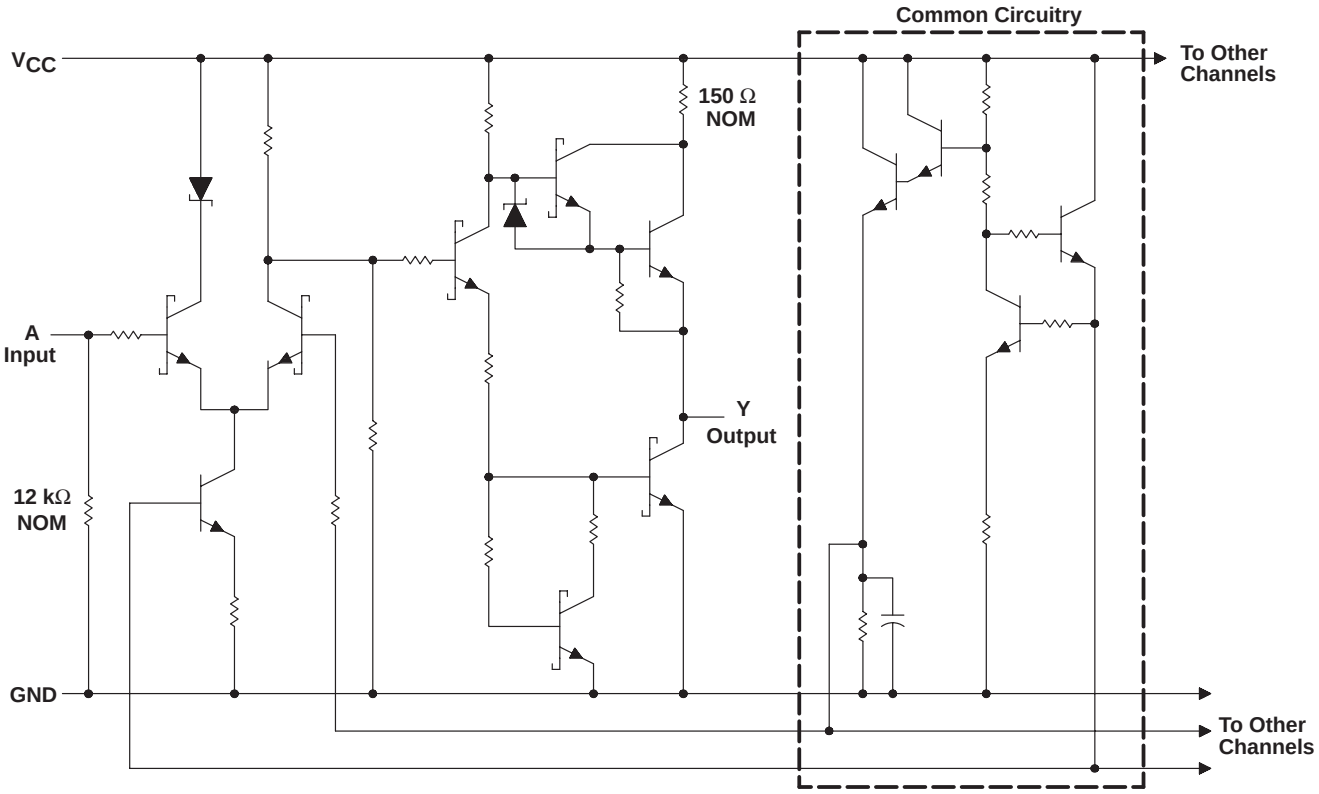


SN75127



† 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)

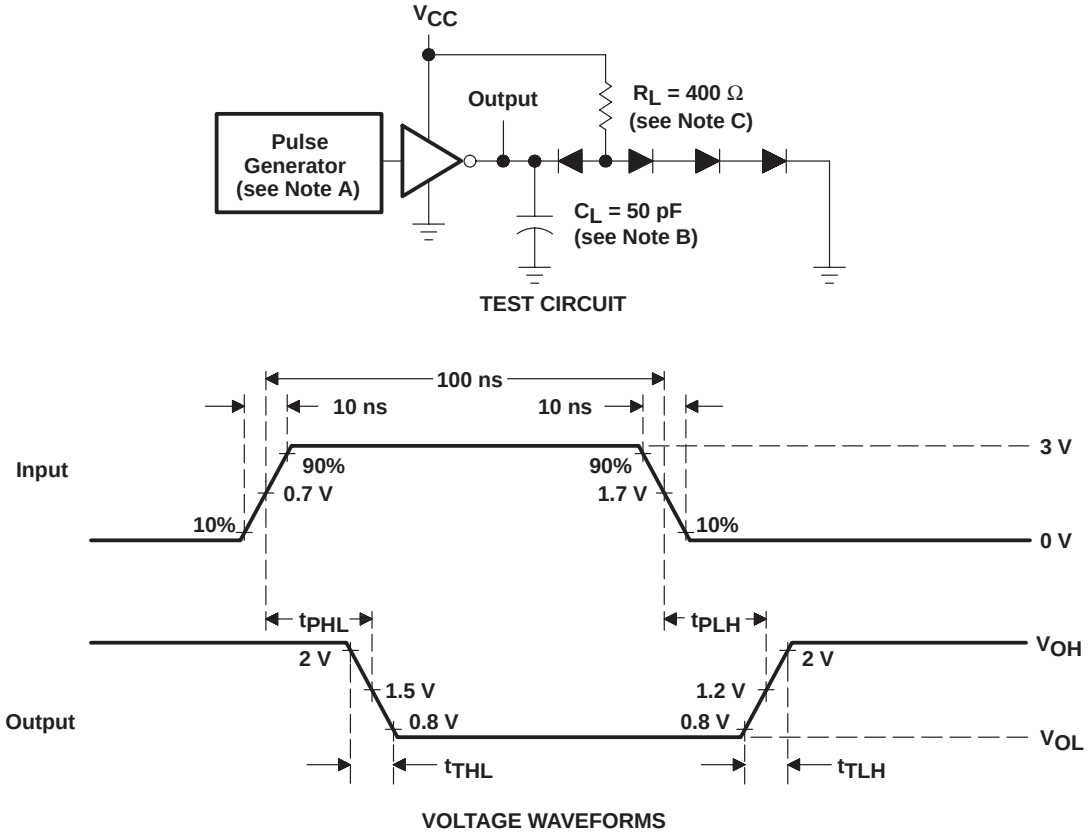
PARAMETER		TEST CONDITIONS			MIN	TYP†	MAX	UNIT
V_{OH}	High-level output voltage	V_{CC} = 4.5 V,	V_{IL} = 0.7 V,	I_{OH} = −0.4 mA	2.4	3.1		V
V_{OL}	Low-level output voltage	V_{CC} = 4.5 V,	V_{IH} = 1.7 V,	I_{OL} = 16 mA		0.4	0.5	V
I_{IH}	High-level input current	V_{CC} = 5.5 V,	V_I = 3.11 V			0.3	0.42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

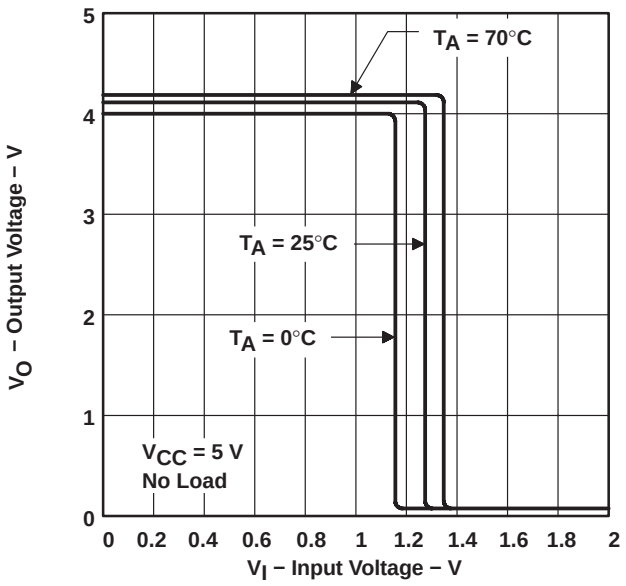


Figure 2

VOLTAGE TRANSFER CHARACTERISTICS

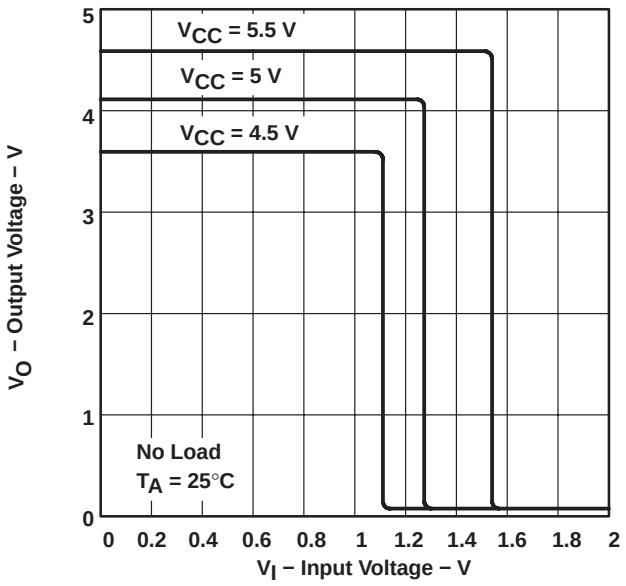


Figure 3

INPUT CURRENT vs INPUT VOLTAGE

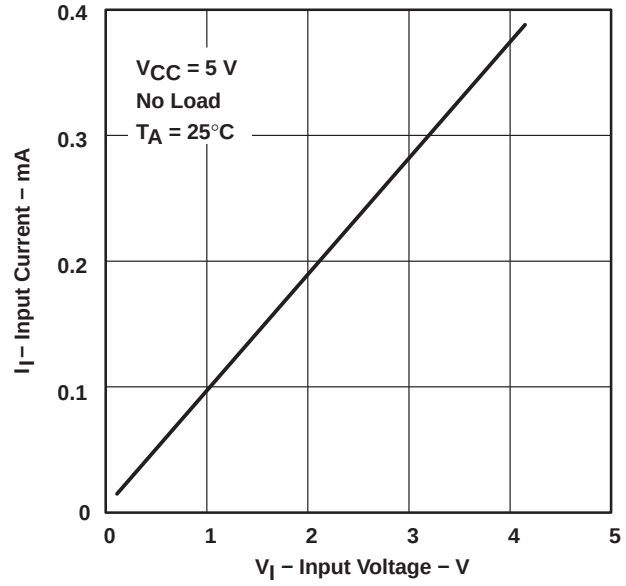


Figure 4

LOW-LEVEL OUTPUT VOLTAGE vs OUTPUT CURRENT

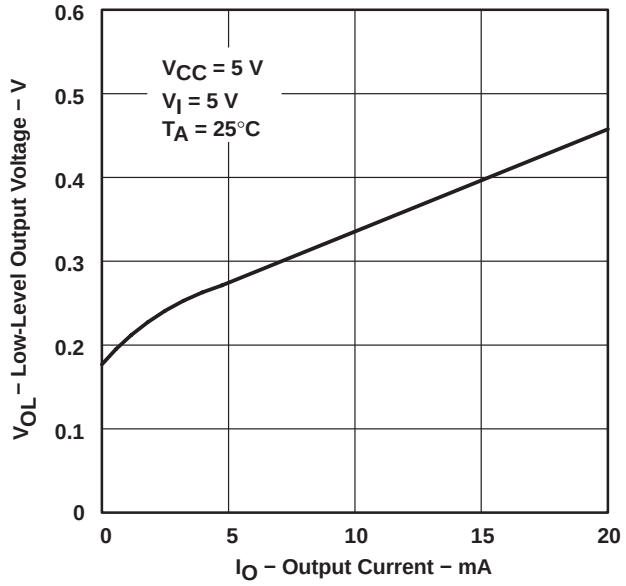


Figure 5

TYPICAL CHARACTERISTICS

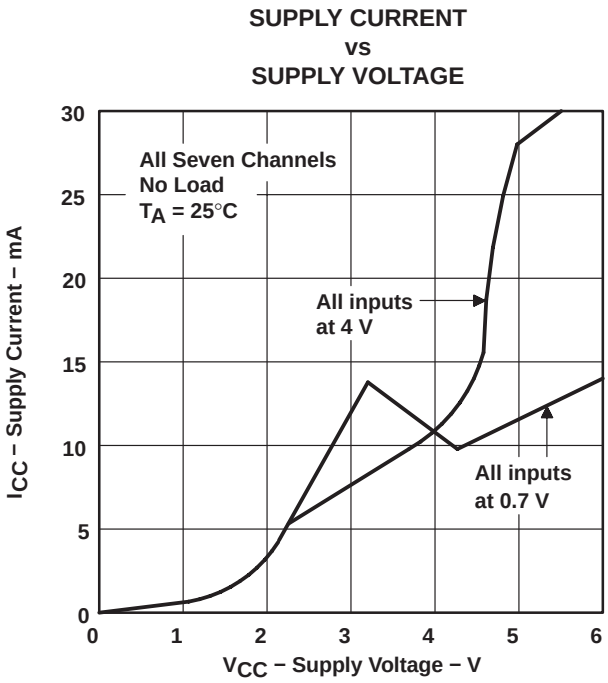


Figure 6

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