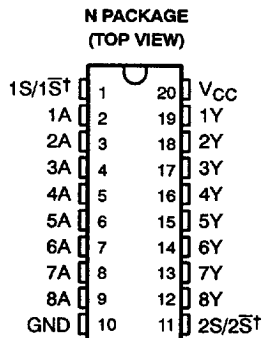


SN75128, SN75129 EIGHT-CHANNEL LINE RECEIVERS

SLLS076A – D2305, JANUARY 1977 – REVISED MARCH 1993

- Meets IBM 360/370 I/O Specification
- Input Resistance . . . 7 kΩ to 20 kΩ
- Output Compatible With TTL
- Schottky-Clamped Transistors
- Operates From a Single 5-V Supply
- High Speed . . . Low Propagation Delay
- Ratio Specification . . . t_{PLH} / t_{PHL}
- Common Strobe for Each Group of Four Receivers
- SN75128 . . . Active-High Strobes
SN75129 . . . Active-Low Strobes



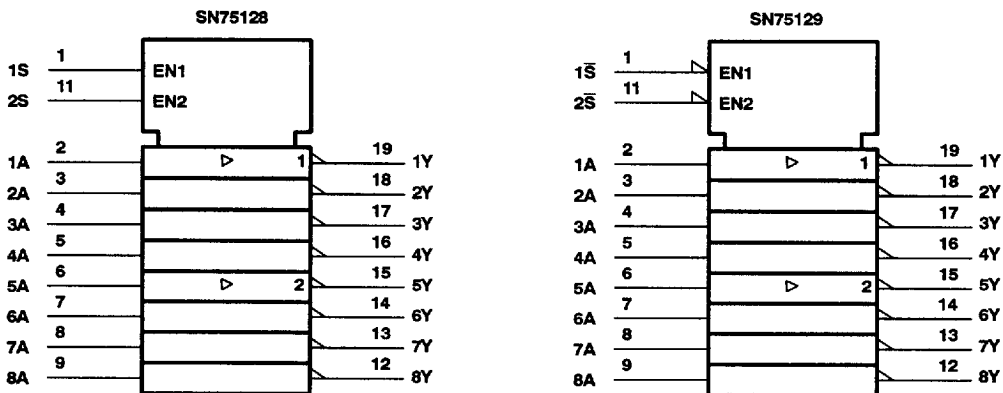
† S and \bar{S} for SN75128 and SN75129, respectively

description

The SN75128 and SN75129 are eight-channel line receivers designed to satisfy the requirements of the input-output interface specification for IBM 360/370. Both devices feature common strobes for each group of four devices. The SN75128 has active-high strobes; the SN75129 has active-low strobes. Special low-power design and Schottky-diode-clamped transistors allow low supply-current requirements while maintaining fast switching speeds and high-current TTL outputs.

The SN75128 and SN75129 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.

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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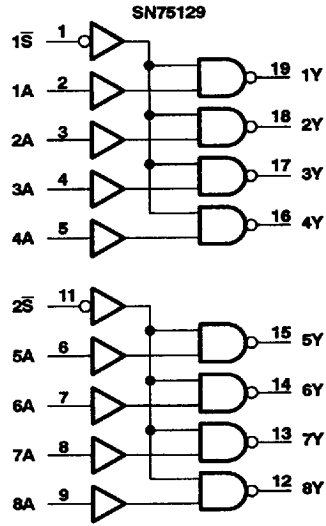
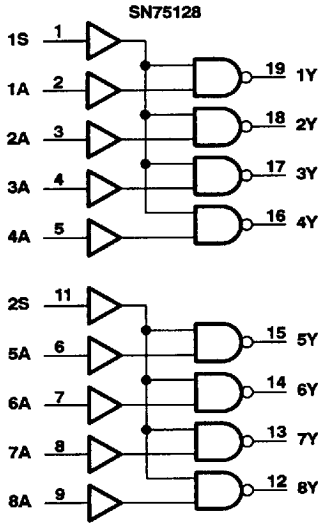
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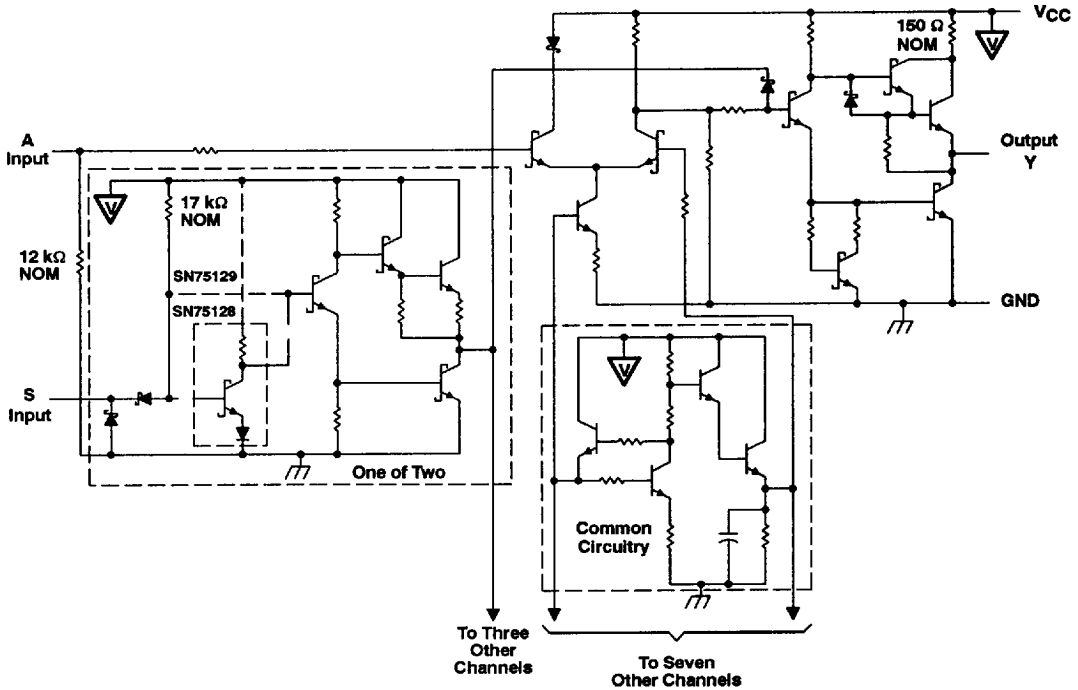
SN75128, SN75129 EIGHT-CHANNEL LINE RECEIVERS

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logic diagrams (positive logic)



schematic (each driver)



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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage range, A, V_I	–0.15 V to 7 V
Input voltage, S, V_I	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

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

DISSIPATION RATING TABLE

PACKAGE	T _A ≤ 25°C POWER RATING	DERATING FACTOR ABOVE T _A = 25°C	T _A = 70°C POWER RATING
N	1150 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}	A	1.7		V
	S	2		
Low-level input voltage, V_{IL}	A	0.7		V
	S	0.7		
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
V_{IK} Input clamp voltage	S $V_{CC} = 4.5$ V, $I_I = -18$ mA			–1.5	V
I_{IH} High-level input current	A $V_{CC} = 5.5$ V, $V_I = 3.11$ V		0.3	0.42	mA
	S $V_{CC} = 5.5$ V, $V_I = 2.7$ V			20	μA
I_{IL} Low-level input current	A $V_{CC} = 5.5$ V, $V_I = 0.15$ V			30	μA
	S $V_{CC} = 5.5$ V, $V_I = 0.4$ V			–0.4	mA
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, $\Delta V_I = 0.15$ V to 4.15 V	7		20	kΩ
I_{CC} Supply current	SN75128 $V_{CC} = 5.5$ V, Strobe at 2.4 V, All A inputs at 0.7 V		19	31	mA
	SN75129 $V_{CC} = 5.5$ V, Strobe at 0.4 V, All A inputs at 0.7 V		19	31	
	SN75128 $V_{CC} = 5.5$ V, Strobe at 2.4 V, All A inputs at 4 V		32	53	
	SN75129 $V_{CC} = 5.5$ V, Strobe at 0.4 V, All A inputs at 4 V		32	53	

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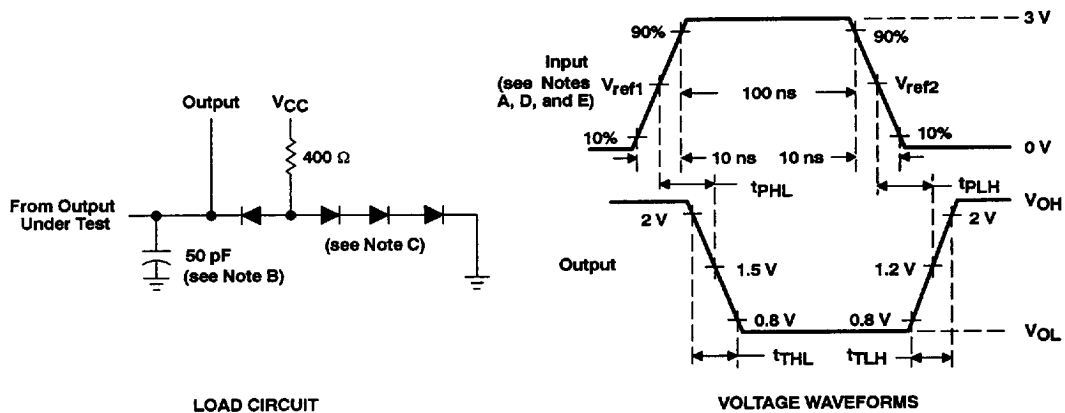
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switching characteristics, $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER	FROM	TEST CONDITIONS	MIN	TYP	MAX	MIN	TYP	MAX	UNIT
t_{PLH} Propagation delay time, low-to-high-level output	A	$R_L = 400\ \Omega$, $C_L = 50\ \text{pF}$, See Figure 1	7	14	25	7	14	25	ns
t_{PHL} Propagation delay time, high-to-low-level output			10	18	30	10	18	30	ns
t_{PLH} Propagation delay time, low-to-high-level output	S		26	40		20	35	ns	
t_{PHL} Propagation delay time, high-to-low-level output			22	35		16	30	ns	
$\frac{t_{PLH}}{t_{PHL}}$ Ratio of propagation delay times	A		0.5	0.8	1.3	0.5	0.8	1.3	
t_{TLH} Transition time, low-to-high-level output			1	7	12	1	7	12	ns
t_{THL} Transition time, high-to-low-level output		1	3	12	1	3	12	ns	

PARAMETER MEASUREMENT INFORMATION



- NOTES: A. Input pulses are supplied by a generator having the following characteristics: $Z_O = 50\ \Omega$, $PRR \leq 5\ \text{MHz}$.
 B. Includes probe and jig capacitance.
 C. All diodes are 1N3064 or equivalent.
 D. The strobe inputs of SN75129 are in phase with the output.
 E. $V_{ref1} = 0.7\ \text{V}$ and $V_{ref2} = 1.7\ \text{V}$ for testing data (A) inputs, $V_{ref1} = V_{ref2} = 1.3\ \text{V}$ for strobe inputs.

Figure 1. Load Circuit and Voltage Waveforms

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TYPICAL CHARACTERISTICS

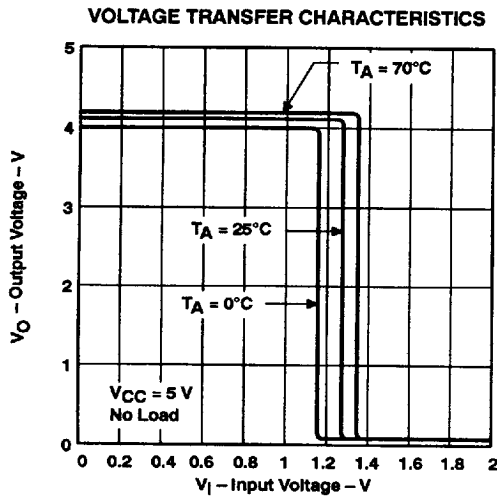


Figure 2

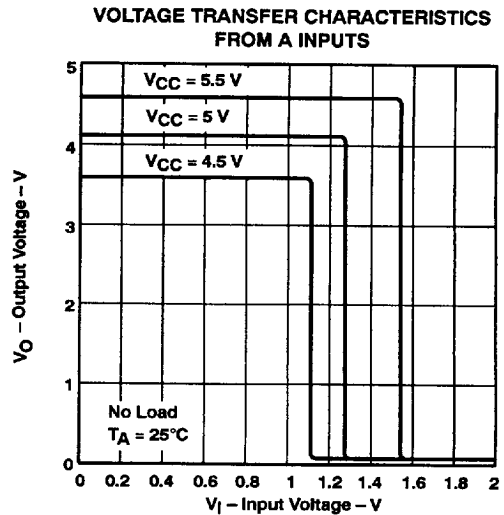


Figure 3

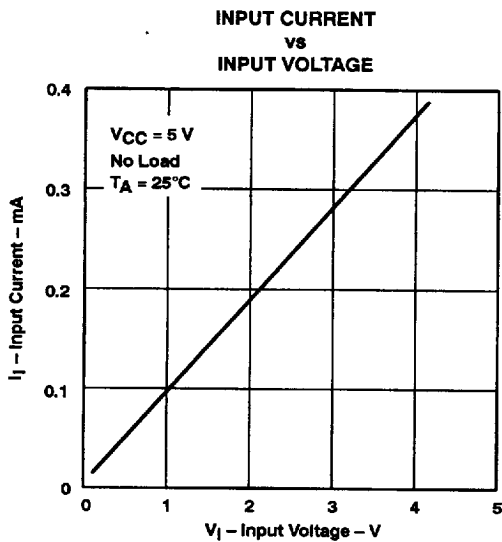


Figure 4

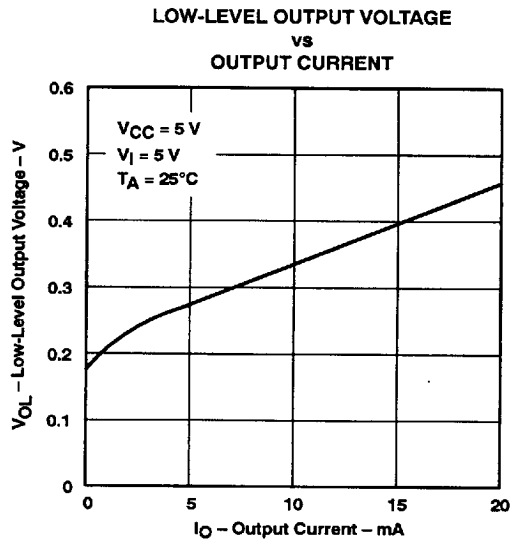


Figure 5



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