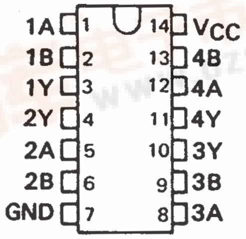
SN54LS266, SN74LS266
QUADRUPLE 2-INPUT EXCLUSIVE-NOR GATES WITH OPEN-COLLECTOR OUTPUTS

SDLS151 – DECEMBER 1972 – REVISED MARCH 1988

- **Can Be Used as a 4-Bit Digital Comparator**
- **Input Clamping Diodes Simplify System Design**
- **Fully Compatible with Most TTL Circuits**

SN54LS266 . . . J OR W PACKAGE
SN74LS266 . . . D OR N PACKAGE
(TOP VIEW)

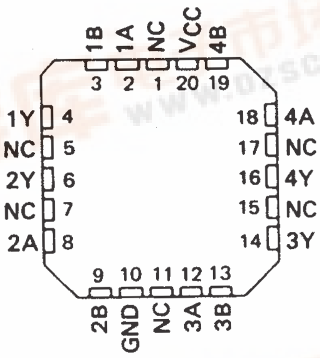


FUNCTION TABLE

INPUTS		OUTPUT
A	B	Y
L	L	H
L	H	L
H	L	L
H	H	H

H = high level, L = low level

SN54LS266 . . . FK PACKAGE
(TOP VIEW)



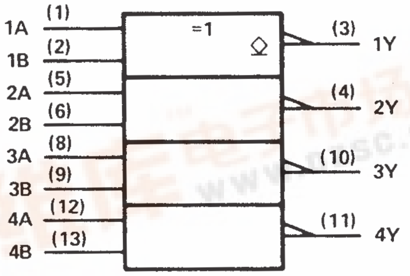
NC – No internal connection

description

The ’LS266 is comprised of four independent 2-input exclusive-NOR gates with open-collector outputs. The open-collector outputs permit tying outputs together for multiple-bit comparisons.

logic symbol (each gate)

logic symbol†



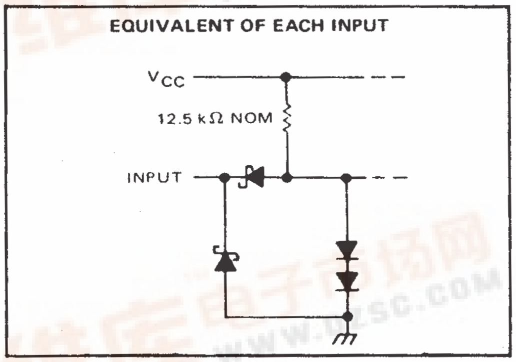
positive logic: $Y = \overline{A \oplus B} = AB + \overline{AB}$

† This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.

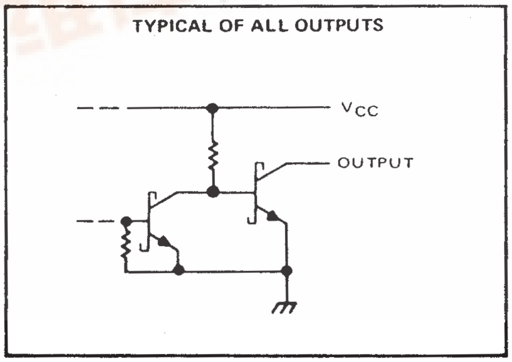
Pin numbers shown are for D, J, N, and W packages.

schematic of inputs and outputs

EQUIVALENT OF EACH INPUT



TYPICAL OF ALL OUTPUTS



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

Supply voltage, V_{CC} (see Note 1)		7 V
Input voltage		7 V
Operating free-air temperature range:	SN54LS266	−55°C to 125°C
	SN74LS266	0°C to 70°C
Storage temperature range		−65°C to 150°C

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

recommended operating conditions

	SN54LS266			SN74LS266			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output voltage, V_{OH}			5.5			5.5	V
Low-level output current, I_{OL}			4			8	mA
Operating free-air temperature, T_A	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS[†]		SN54LS266			SN74LS266			UNIT
				MIN	TYP[‡]	MAX	MIN	TYP[‡]	MAX	
V_{IH}	High-level input voltage			2			2			V
V_{IL}	Low-level input voltage					0.7			0.8	V
V_{IK}	Input clamp voltage	V_{CC} = MIN,	$I_I = -18$ mA			−1.5			−1.5	V
I_{OH}	High-level output current	V_{CC} = MIN, $V_{IL} = V_{IL}$ max,	V_{IH} = 2 V, V_{OH} = 5.5 V			100			100	μA
V_{OL}	Low-level output voltage	V_{CC} = MIN, V_{IH} = 2 V, $V_{IL} = V_{IL}$ max	I_{OL} = 4 mA		0.25	0.4		0.25	0.4	V
			I_{OL} = 8 mA					0.35	0.5	
I_I	Input current at maximum input voltage	V_{CC} = MAX,	V_I = 7 V			0.2			0.2	mA
I_{IH}	High-level input current	V_{CC} = MAX,	V_I = 2.7 V			40			40	μA
I_{IL}	Low-level input current	V_{CC} = MAX,	V_I = 0.4 V			−0.8			−0.8	mA
I_{CC}	Supply current	V_{CC} = MAX,	See Note 2		8	13		8	13	mA

[†] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable type.
[‡] All typical values are at V_{CC} = 5 V, T_A = 25°C.
NOTE 2: I_{CC} is measured with one input of each gate at 4.5 V, the other inputs grounded, and the outputs open.

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

PARAMETER[§]	FROM (INPUT)	TEST CONDITIONS		MIN	TYP	MAX	UNIT
t_{PLH}	A or B	Other input low	C_L = 15 pF, R_L = 2 kΩ, See Note 3		18	30	ns
t_{PHL}					18	30	
t_{PLH}	A or B	Other input high			18	30	ns
t_{PHL}					18	30	

[§] t_{PLH} = propagation delay time, low-to-high-level output
t_{PHL} = propagation delay time, high-to-low-level output
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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