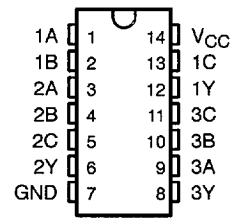
- *EPIC*™ (Enhanced-Performance Implanted CMOS) Submicron Process
- Typical V_{OLP} (Output Ground Bounce) < 0.8 V at V_{CC} = 3.3 V, T_A = 25°C
- Typical V_{OHV} (Output V_{OH} Undershoot) > 2 V at V_{CC} = 3.3 V, T_A = 25°C
- Package Options Include Plastic Small-Outline (D), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages

D, DB, OR PW PACKAGE
(TOP VIEW)



description

This triple 3-input positive-NAND gate is designed for 2.7-V to 3.6-V V_{CC} operation.

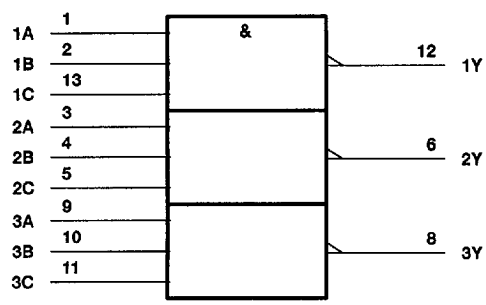
The SN74LVC10 performs the Boolean functions $Y = \overline{A \bullet B \bullet C}$ or $Y = \overline{A} + \overline{B} + \overline{C}$ in positive logic.

The SN74LVC10 is characterized for operation from –40°C to 85°C.

FUNCTION TABLE
(each gate)

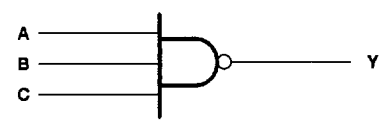
INPUTS			OUTPUT
A	B	C	Y
H	H	H	L
L	X	X	H
X	L	X	H
X	X	L	H

logic symbol†



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

logic diagram, each gate (positive logic)



PRODUCT PREVIEW

EPIC is a trademark of Texas Instruments Incorporated.

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

Supply voltage range, V_{CC} ..... −0.5 V to 4.6 V
Input voltage range, V_I ..... −0.5 V to 4.6 V
Output voltage range, V_O (see Note 1) ..... −0.5 V to V_{CC} + 0.5 V
Input clamp current, I_{IK} ($V_I < 0$) ..... −50 mA
Output clamp current, I_{OK} ($V_O < 0$ or $V_O > V_{CC}$) ..... ±50 mA
Continuous output current, I_O (V_O = 0 to V_{CC}) ..... ±50 mA
Continuous current through V_{CC} or GND ..... ±100 mA
Maximum power dissipation at T_A = 55°C (in still air): D package ..... 1.25 W
DB or PW package ..... 0.5 W
Storage temperature range ..... −65°C to 150°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTE 1: This value is limited to 4.6 V maximum.

recommended operating conditions (see Note 2)

			MIN	MAX	UNIT
V_{CC}	Supply voltage		2.7	3.6	V
V_{IH}	High-level input voltage	V_{CC} = 2.7 V to 3.6 V	2		V
V_{IL}	Low-level input voltage	V_{CC} = 2.7 V to 3.6 V		0.8	V
V_I	Input voltage		0	V_{CC}	V
V_O	Output voltage		0	V_{CC}	V
I_{OH}	High-level output current	V_{CC} = 2.7 V		−12	mA
		V_{CC} = 3 V		−24	
I_{OL}	Low-level output current	V_{CC} = 2.7 V		12	mA
		V_{CC} = 3 V		24	
$\Delta t/\Delta v$	Input transition rise or fall rate		0	10	ns/V
T_A	Operating free-air temperature		−40	85	°C

NOTE 2: Unused or floating inputs must be held high or low.

PRODUCT PREVIEW

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

PARAMETER	TEST CONDITIONS		V_{CC}‡	T_A = −40°C to 85°C		UNIT
				MIN	MAX	
V_{OH}	I_{OH} = −100 µA		MIN to MAX	V_{CC}−0.2		V
	I_{OH} = −12 mA		2.7 V	2.2		
			3 V	2.4		
	I_{OH} = −24 mA		3 V	2		
V_{OL}	I_{OL} = 100 µA		MIN to MAX		0.2	V
	I_{OL} = 12 mA		2.7 V		0.4	
	I_{OL} = 24 mA		3 V		0.55	
I_I	$V_I = V_{CC}$ or GND		3.6 V		±5	µA
I_{CC}	$V_I = V_{CC}$ or GND,	I_O = 0	3.6 V		20	µA
ΔI_{CC}	V_{CC} = 3 V to 3.6 V, Other inputs at V_{CC} or GND	One input at V_{CC} − 0.6 V,			500	µA
C_i	$V_I = V_{CC}$ or GND		3.3 V			pF

‡ For conditions shown as MIN or MAX, use the appropriate values under recommended operating conditions.