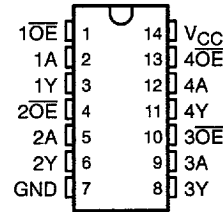


SN74LVC125 QUADRUPLE BUS BUFFER GATE WITH 3-STATE OUTPUTS

SCAS290 – JANUARY 1993 – REVISED MARCH 1994

- **EPIC™** (Enhanced-Performance Implanted CMOS) Submicron Process
- Typical V_{OLP} (Output Ground Bounce) $< 0.8\text{ V}$ at $V_{CC} = 3.3\text{ V}$, $T_A = 25^\circ\text{C}$
- Typical V_{OHV} (Output V_{OH} Undershoot) $> 2\text{ V}$ at $V_{CC} = 3.3\text{ V}$, $T_A = 25^\circ\text{C}$
- 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 quadruple bus buffer gate is designed for 2.7-V to 3.6-V V_{CC} operation.

The SN74LVC125 features independent line drivers with 3-state outputs. Each output is disabled when the associated output-enable ($\overline{OE}$) input is high.

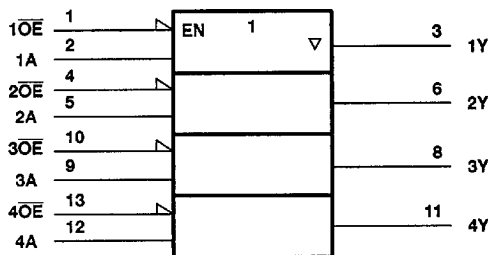
To ensure the high-impedance state during power up or power down, $\overline{OE}$ should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sourcing capability of the driver.

The SN74LVC125 is characterized for operation from -40°C to 85°C .

FUNCTION TABLE
(each buffer)

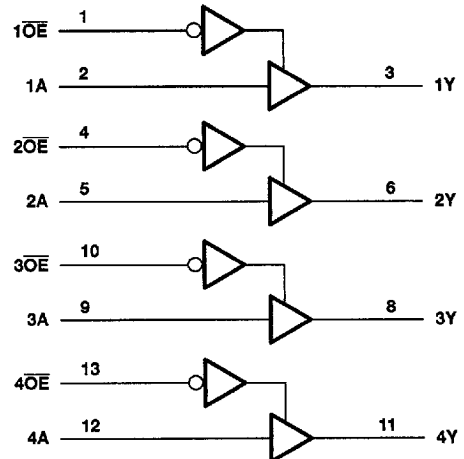
INPUTS		OUTPUT
$\overline{OE}$	A	Y
L	H	H
L	L	L
H	X	Z

logic symbol



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

logic diagram (positive logic)



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PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.

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SN74LVC125
QUADRUPLE BUS BUFFER GATE
WITH 3-STATE OUTPUTS

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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 $T_A = 55^\circ\text{C}$ (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

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SN74LVC125
QUADRUPLE BUS BUFFER GATE
WITH 3-STATE OUTPUTS

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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 _{OZ}	V _O = V _{CC} or GND	3.6 V	±10		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, One input at V _{CC} – 0.6 V, Other inputs at V _{CC} or GND		500		μA
C _i	V _I = V _{CC} or GND	3.3 V			pF
C _o	V _O = V _{CC} or GND	3.3 V			pF

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

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