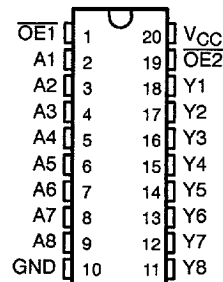


# SN74LVC540 OCTAL BUFFER/DRIVER WITH 3-STATE OUTPUTS

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- **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 (DW), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages

DB, DW, OR PW PACKAGE  
(TOP VIEW)



## description

This octal buffer/line driver is designed for 2.7-V to 3.6-V  $V_{CC}$  operation.

The SN74LVC540 is ideal for driving bus lines or buffer memory address registers. The device features inputs and outputs on opposite sides of the package that facilitate printed-circuit-board layout.

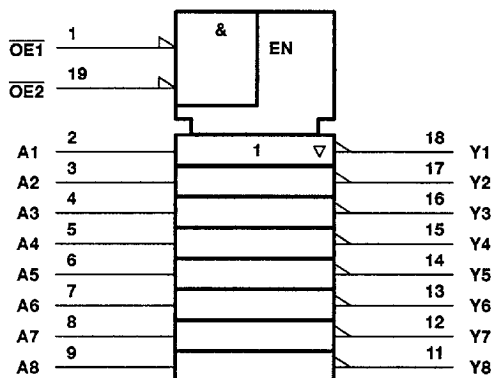
The 3-state control gate is a 2-input AND gate with active-low inputs so that if either output-enable ( $\overline{OE1}$  or  $\overline{OE2}$ ) input is high, all corresponding outputs are in the high-impedance state.

The SN74LVC540 is characterized for operation from  $-40^\circ\text{C}$  to  $85^\circ\text{C}$ .

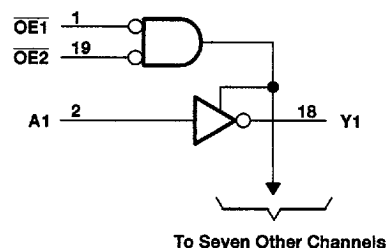
FUNCTION TABLE

| INPUTS           |                  |   | OUTPUT |
|------------------|------------------|---|--------|
| $\overline{OE1}$ | $\overline{OE2}$ | A | Y      |
| L                | L                | L | H      |
| L                | L                | H | L      |
| H                | X                | X | Z      |
| X                | H                | X | Z      |

## logic symbol†



## logic diagram (positive logic)



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

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**TEXAS  
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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): |                            |
| DB package                                                              | 0.6 W                      |
| DW package                                                              | 1.6 W                      |
| PW package                                                              | 0.7 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.

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

| PARAMETER        | TEST CONDITIONS                                                                                              | V <sub>CC</sub> †                       | T <sub>A</sub> = –40°C to 85°C |     | UNIT |
|------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------|-----|------|
|                  |                                                                                                              |                                         | MIN                            | MAX |      |
| V <sub>OH</sub>  | I <sub>OH</sub> = –100 μA                                                                                    | MIN to MAX                              | V <sub>CC</sub> –0.2           |     | V    |
|                  | I <sub>OH</sub> = –12 mA                                                                                     | 2.7 V                                   | 2.2                            |     |      |
|                  |                                                                                                              | 3 V                                     | 2.4                            |     |      |
|                  | I <sub>OH</sub> = –24 mA                                                                                     | 3 V                                     | 2                              |     |      |
| V <sub>OL</sub>  | I <sub>OL</sub> = 100 μA                                                                                     | MIN to MAX                              | 0.2                            |     | V    |
|                  | I <sub>OL</sub> = 12 mA                                                                                      | 2.7 V                                   | 0.4                            |     |      |
|                  | I <sub>OL</sub> = 24 mA                                                                                      | 3 V                                     | 0.55                           |     |      |
|                  | I <sub>I</sub>                                                                                               | V <sub>I</sub> = V <sub>CC</sub> or GND | 3.6 V                          | ±5  |      |
| I <sub>OZ</sub>  | V <sub>O</sub> = V <sub>CC</sub> or GND                                                                      | 3.6 V                                   | ±10                            |     | μA   |
| I <sub>CC</sub>  | V <sub>I</sub> = V <sub>CC</sub> or GND, I <sub>O</sub> = 0                                                  | 3.6 V                                   | 20                             |     | μA   |
| ΔI <sub>CC</sub> | V <sub>CC</sub> = 3 V to 3.6 V, One input at V <sub>CC</sub> – 0.6 V, Other inputs at V <sub>CC</sub> or GND |                                         | 500                            |     | μA   |
| C <sub>i</sub>   | V <sub>I</sub> = V <sub>CC</sub> or GND                                                                      | 3.3 V                                   |                                |     | pF   |
| C <sub>o</sub>   | V <sub>O</sub> = V <sub>CC</sub> 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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