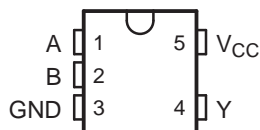


## FEATURES

- **Controlled Baseline**
  - One Assembly/Test Site, One Fabrication Site
- **Extended Temperature Performance of –55°C to 125°C**
- **Enhanced Diminishing Manufacturing Sources (DMS) Support**
- **Enhanced Product-Change Notification**
- **Qualification Pedigree <sup>(1)</sup>**
- **Supports 5-V  $V_{CC}$  Operation**
- **Inputs Accept Voltages to 5.5 V**
- **Max  $t_{pd}$  of 3.6 ns at 3.3 V**
- **Low Power Consumption, 10- $\mu$ A Max  $I_{CC}$**
- **$\pm$ 24-mA Output Drive at 3.3 V**
- **$I_{off}$  Supports Partial-Power-Down Mode Operation**
- **Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II**
- **ESD Protection Exceeds JESD 22**
  - 2000-V Human-Body Model (A114-A)
  - 200-V Machine Model (A115-A)
  - 1000-V Charged-Device Model (C101)

DBV OR DCK PACKAGE  
(TOP VIEW)



- (1) Component qualification in accordance with JEDEC and industry standards to ensure reliable operation over an extended temperature range. This includes, but is not limited to, Highly Accelerated Stress Test (HAST) or biased 85/85, temperature cycle, autoclave or unbiased HAST, electromigration, bond intermetallic life, and mold compound life. Such qualification testing should not be viewed as justifying use of this component beyond specified performance and environmental limits.

## DESCRIPTION/ORDERING INFORMATION

The SN74LVC1G08 performs the Boolean function  $Y = A \cdot B$  or  $Y = \overline{\overline{A} + \overline{B}}$  in positive logic.

This device is fully specified for partial-power-down applications using  $I_{off}$ . The  $I_{off}$  circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

## ORDERING INFORMATION

| $T_A$          | PACKAGE <sup>(1)</sup> |              | ORDERABLE PART NUMBER | TOP-SIDE MARKING |
|----------------|------------------------|--------------|-----------------------|------------------|
| –40°C to 85°C  | SOT (SC-70) – DCK      | Reel of 3000 | SN74LVC1G08IDCKREP    | CEO              |
| –55°C to 125°C | SOP (SOT-23) – DBV     | Reel of 3000 | SN74LVC1G08MDBVREP    | C080             |
|                | SOT (SC-70) – DCK      | Reel of 3000 | SN74LVC1G08MDCKREP    | BUB              |

- (1) Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at [www.ti.com/sc/package](http://www.ti.com/sc/package).

## FUNCTION TABLE

| INPUTS |   | OUTPUT |
|--------|---|--------|
| A      | B | Y      |
| H      | H | H      |
| L      | X | L      |
| X      | L | L      |



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

# SN74LVC1G08-EP SINGLE 2-INPUT POSITIVE-AND GATE

SCES454C–DECEMBER 2003–REVISED AUGUST 2006

## LOGIC DIAGRAM (POSITIVE LOGIC)



### Absolute Maximum Ratings<sup>(1)</sup>

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

|                  |   | MIN                | MAX                   | UNIT     |
|------------------|---|--------------------|-----------------------|----------|
| V <sub>CC</sub>  | Supply voltage range  | -0.5               | 6.5                   | V        |
| V <sub>I</sub>   | Input voltage range <sup>(2)</sup>  | -0.5               | 6.5                   | V        |
| V <sub>O</sub>   | Voltage range applied to any output in the high-impedance or power-off state <sup>(2)</sup> | -0.5               | 6.5                   | V        |
| V <sub>O</sub>   | Voltage range applied to any output in the high or low state <sup>(2)(3)</sup>              | -0.5               | V <sub>CC</sub> + 0.5 | V        |
| I <sub>IK</sub>  | Input clamp current   | V <sub>I</sub> < 0 |                       | -50 mA   |
| I <sub>OK</sub>  | Output clamp current  | V <sub>O</sub> < 0 |                       | -50 mA   |
| I <sub>O</sub>   | Continuous output current   |                    |                       | ±50 mA   |
|                  | Continuous current through V <sub>CC</sub> or GND   |                    |                       | ±100 mA  |
| θ <sub>JA</sub>  | Package thermal impedance <sup>(4)</sup>  | DBV package        |                       | 256 °C/W |
|                  |   | DCK package        |                       | 252 °C/W |
| T <sub>stg</sub> | Storage temperature range   | -65                | 150                   | °C       |

- (1) 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.
- (2) The input and output negative-voltage ratings may be exceeded if the input and output current ratings are observed.
- (3) The value of V<sub>CC</sub> is provided in the recommended operating conditions table.
- (4) The package thermal impedance is calculated in accordance with JESD 51-7.

**Recommended Operating Conditions<sup>(1)</sup>**

|                 |                                    | MIN   | MAX                    | UNIT                   |      |
|-----------------|------------------------------------|---|------------------------|------------------------|------|
| V <sub>CC</sub> | Supply voltage                     | Operating                                       | 1.65                   | 5.5                    | V    |
|                 |                                    | Data retention only                             | 1.5                    |                        |      |
| V <sub>IH</sub> | High-level input voltage           | V <sub>CC</sub> = 1.65 V to 1.95 V              | 0.65 × V <sub>CC</sub> |                        | V    |
|                 |                                    | V <sub>CC</sub> = 2.3 V to 2.7 V                | 1.7                    |                        |      |
|                 |                                    | V <sub>CC</sub> = 3 V to 3.6 V                  | 2                      |                        |      |
|                 |                                    | V <sub>CC</sub> = 4.5 V to 5.5 V                | 0.7 × V <sub>CC</sub>  |                        |      |
| V <sub>IL</sub> | Low-level input voltage            | V <sub>CC</sub> = 1.65 V to 1.95 V              |                        | 0.35 × V <sub>CC</sub> | V    |
|                 |                                    | V <sub>CC</sub> = 2.3 V to 2.7 V                |                        | 0.7                    |      |
|                 |                                    | V <sub>CC</sub> = 3 V to 3.6 V                  |                        | 0.8                    |      |
|                 |                                    | V <sub>CC</sub> = 4.5 V to 5.5 V                |                        | 0.3 × V <sub>CC</sub>  |      |
| V <sub>I</sub>  | Input voltage                      | 0   | 5.5                    | V                      |      |
| V <sub>O</sub>  | Output voltage                     | 0   | V <sub>CC</sub>        | V                      |      |
| I <sub>OH</sub> | High-level output current          | V <sub>CC</sub> = 1.65 V                        |                        | –4                     | mA   |
|                 |                                    | V <sub>CC</sub> = 2.3 V                         |                        | –8                     |      |
|                 |                                    | V <sub>CC</sub> = 3 V                           |                        | –16                    |      |
|                 |                                    |   |                        | –24                    |      |
|                 |                                    | V <sub>CC</sub> = 4.5 V                         |                        | –32                    |      |
| I <sub>OL</sub> | Low-level output current           | V <sub>CC</sub> = 1.65 V                        |                        | 4                      | mA   |
|                 |                                    | V <sub>CC</sub> = 2.3 V                         |                        | 8                      |      |
|                 |                                    | V <sub>CC</sub> = 3 V                           |                        | 16                     |      |
|                 |                                    |   |                        | 24                     |      |
|                 |                                    | V <sub>CC</sub> = 4.5 V                         |                        | 32                     |      |
| Δt/Δv           | Input transition rise or fall rate | V <sub>CC</sub> = 1.8 V ± 0.15 V, 2.5 V ± 0.2 V |                        | 20                     | ns/V |
|                 |                                    | V <sub>CC</sub> = 3.3 V ± 0.3 V                 |                        | 10                     |      |
|                 |                                    | V <sub>CC</sub> = 5 V ± 0.5 V                   |                        | 5                      |      |
| T <sub>A</sub>  | Operating free-air temperature     | I temperature                                   | –40                    | 85                     | °C   |
|                 |                                    | M temperature                                   | –55                    | 125                    |      |

(1) All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

# SN74LVC1G08-EP

## SINGLE 2-INPUT POSITIVE-AND GATE

SCES454C—DECEMBER 2003—REVISED AUGUST 2006

### Electrical Characteristics

over recommended operating free-air temperature range for both I temp =  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$  and M temp =  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  (unless otherwise noted)

| PARAMETER       |               | TEST CONDITIONS   | $V_{CC}$        | MIN            | TYP <sup>(1)</sup> | MAX      | UNIT          |
|-----------------|---------------|---|-----------------|----------------|--------------------|----------|---------------|
| $V_{OH}$        |               | $I_{OH} = -100\ \mu\text{A}$  | 1.65 V to 5.5 V | $V_{CC} - 0.1$ |                    |          | V             |
|                 |               | $I_{OH} = -4\ \text{mA}$  | 1.65 V          | 1.2            |                    |          |               |
|                 |               | $I_{OH} = -8\ \text{mA}$  | 2.3 V           | 1.9            |                    |          |               |
|                 |               | $I_{OH} = -16\ \text{mA}$   | 3 V             | 2.4            |                    |          |               |
|                 |               | $I_{OH} = -24\ \text{mA}$   |                 | 2.3            |                    |          |               |
|                 |               | $I_{OH} = -32\ \text{mA}$   | 4.5 V           | 3.8            |                    |          |               |
| $V_{OL}$        |               | $I_{OL} = 100\ \mu\text{A}$   | 1.65 V to 5.5 V |                |                    | 0.1      | V             |
|                 |               | $I_{OL} = 4\ \text{mA}$   | 1.65 V          |                |                    | 0.45     |               |
|                 |               | $I_{OL} = 8\ \text{mA}$   | 2.3 V           |                |                    | 0.3      |               |
|                 |               | $I_{OL} = 16\ \text{mA}$  | 3 V             |                |                    | 0.4      |               |
|                 |               | $I_{OL} = 24\ \text{mA}$  |                 |                |                    | 0.55     |               |
|                 |               | $I_{OL} = 32\ \text{mA}$  | 4.5 V           |                |                    | 0.55     |               |
| $I_I$           | A or B inputs | $V_I = 5.5\ \text{V}$ or GND  | 0 to 5.5 V      |                |                    | $\pm 5$  | $\mu\text{A}$ |
| $I_{off}$       |               | $V_I$ or $V_O = 5.5\ \text{V}$  | 0               |                |                    | $\pm 10$ | $\mu\text{A}$ |
| $I_{CC}$        |               | $V_I = 5.5\ \text{V}$ or GND, $I_O = 0$                                 | 1.65 V to 5.5 V |                |                    | 10       | $\mu\text{A}$ |
| $\Delta I_{CC}$ |               | One input at $V_{CC} - 0.6\ \text{V}$ , Other inputs at $V_{CC}$ or GND | 3 V to 5.5 V    |                |                    | 500      | $\mu\text{A}$ |
| $C_i$           |               | $V_I = V_{CC}$ or GND   | 3.3 V           |                |                    | 4        | pF            |

(1) All typical values are at  $V_{CC} = 3.3\ \text{V}$ ,  $T_A = 25^{\circ}\text{C}$ .

### Switching Characteristics

over recommended operating free-air temperature range of I temp =  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ ,  $C_L = 15\ \text{pF}$  (unless otherwise noted) (see [Figure 1](#))

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $V_{CC} = 1.8\ \text{V} \pm 0.15\ \text{V}$ |     | $V_{CC} = 2.5\ \text{V} \pm 0.2\ \text{V}$ |     | $V_{CC} = 3.3\ \text{V} \pm 0.3\ \text{V}$ |     | $V_{CC} = 5\ \text{V} \pm 0.5\ \text{V}$ |     | UNIT |
|-----------|--------------|-------------|---|-----|--|-----|--|-----|--|-----|------|
|           |              |             | MIN   | MAX | MIN  | MAX | MIN  | MAX | MIN                                      | MAX |      |
| $t_{pd}$  | A or B       | Y           | 1.5   | 7.2 | 0.7  | 4.4 | 0.8  | 3.6 | 0.8                                      | 3.4 | ns   |

### Switching Characteristics

over recommended operating free-air temperature range of I temp =  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ ,  $C_L = 30\ \text{pF}$  or  $50\ \text{pF}$  (unless otherwise noted) (see [Figure 2](#))

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $V_{CC} = 1.8\ \text{V} \pm 0.15\ \text{V}$ |     | $V_{CC} = 2.5\ \text{V} \pm 0.2\ \text{V}$ |     | $V_{CC} = 3.3\ \text{V} \pm 0.3\ \text{V}$ |     | $V_{CC} = 5\ \text{V} \pm 0.5\ \text{V}$ |     | UNIT |
|-----------|--------------|-------------|---|-----|--|-----|--|-----|--|-----|------|
|           |              |             | MIN   | MAX | MIN  | MAX | MIN  | MAX | MIN                                      | MAX |      |
| $t_{pd}$  | A or B       | Y           | 2.4   | 8   | 1.1  | 5.5 | 1  | 4.5 | 1  | 4   | ns   |

### Switching Characteristics

over recommended operating free-air temperature range of M temp =  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ ,  $C_L = 50\ \text{pF}$  (unless otherwise noted) (see [Figure 2](#))

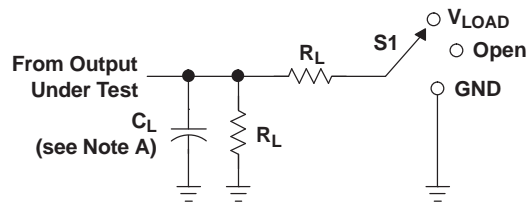
| PARAMETER | FROM (INPUT) | TO (OUTPUT) | $V_{CC} = 1.8\ \text{V} \pm 0.15\ \text{V}$ |     | $V_{CC} = 2.5\ \text{V} \pm 0.2\ \text{V}$ |     | $V_{CC} = 3.3\ \text{V} \pm 0.3\ \text{V}$ |     | $V_{CC} = 5\ \text{V} \pm 0.5\ \text{V}$ |     | UNIT |
|-----------|--------------|-------------|---|-----|--|-----|--|-----|--|-----|------|
|           |              |             | MIN   | MAX | MIN  | MAX | MIN  | MAX | MIN                                      | MAX |      |
| $t_{pd}$  | A or B       | Y           | 2.4   | 11  | 1.1  | 7.5 | 1  | 6.5 | 1  | 5   | ns   |

**Operating Characteristics**

$T_A = 25^\circ\text{C}$

| PARAMETER                              | TEST CONDITIONS     | $V_{CC} = 1.8\text{ V}$ | $V_{CC} = 2.5\text{ V}$ | $V_{CC} = 3.3\text{ V}$ | $V_{CC} = 5\text{ V}$ | UNIT |
|--|---------------------|-------------------------|-------------------------|-------------------------|-----------------------|------|
|  |                     | TYP                     | TYP                     | TYP                     | TYP                   |      |
| $C_{pd}$ Power dissipation capacitance | $f = 10\text{ MHz}$ | 21                      | 24                      | 26                      | 31                    | pF   |

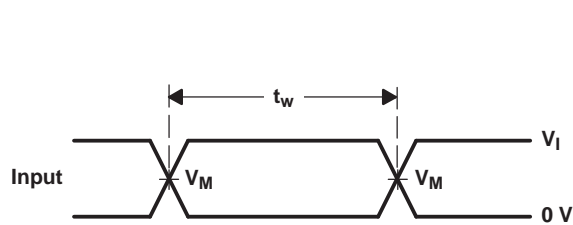
PARAMETER MEASUREMENT INFORMATION



LOAD CIRCUIT

| TEST              | S1         |
|-------------------|------------|
| $t_{PLH}/t_{PHL}$ | Open       |
| $t_{PLZ}/t_{PZL}$ | $V_{LOAD}$ |
| $t_{PHZ}/t_{PZH}$ | GND        |

| $V_{CC}$                         | INPUTS   |                      | $V_M$      | $V_{LOAD}$        | $C_L$ | $R_L$        | $V_{\Delta}$ |
|----------------------------------|----------|----------------------|------------|-------------------|-------|--------------|--------------|
|                                  | $V_I$    | $t_r/t_f$            |            |                   |       |              |              |
| $1.8\text{ V} \pm 0.15\text{ V}$ | $V_{CC}$ | $\leq 2\text{ ns}$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 15 pF | 1 M $\Omega$ | 0.15 V       |
| $2.5\text{ V} \pm 0.2\text{ V}$  | $V_{CC}$ | $\leq 2\text{ ns}$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 15 pF | 1 M $\Omega$ | 0.15 V       |
| $3.3\text{ V} \pm 0.3\text{ V}$  | 3 V      | $\leq 2.5\text{ ns}$ | 1.5 V      | 6 V               | 15 pF | 1 M $\Omega$ | 0.3 V        |
| $5\text{ V} \pm 0.5\text{ V}$    | $V_{CC}$ | $\leq 2.5\text{ ns}$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 15 pF | 1 M $\Omega$ | 0.3 V        |



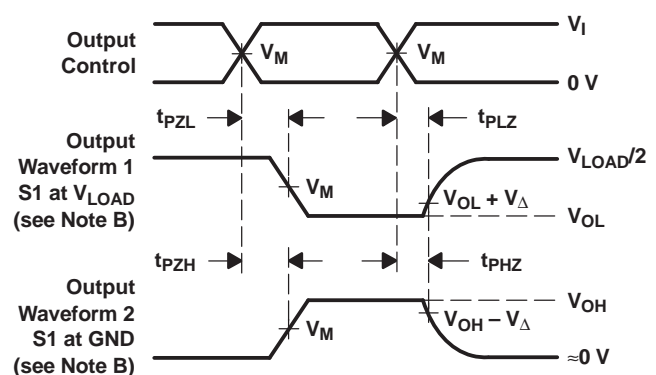
VOLTAGE WAVEFORMS  
PULSE DURATION



VOLTAGE WAVEFORMS  
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS  
PROPAGATION DELAY TIMES  
INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS  
ENABLE AND DISABLE TIMES  
LOW- AND HIGH-LEVEL ENABLING

- NOTES:
- A.  $C_L$  includes probe and jig capacitance.
  - B. Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
  - C. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 10\text{ MHz}$ ,  $Z_O = 50\ \Omega$ .
  - D. The outputs are measured one at a time, with one transition per measurement.
  - E.  $t_{PLZ}$  and  $t_{PHZ}$  are the same as  $t_{dis}$ .
  - F.  $t_{PZL}$  and  $t_{PZH}$  are the same as  $t_{en}$ .
  - G.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{pd}$ .
  - H. All parameters and waveforms are not applicable to all devices.

Figure 1. Load Circuit and Voltage Waveforms

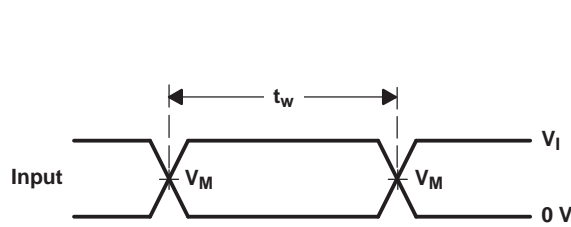
PARAMETER MEASUREMENT INFORMATION



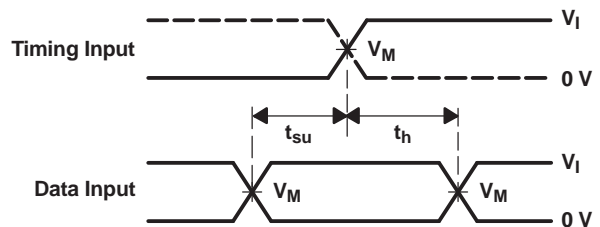
LOAD CIRCUIT

| TEST              | S1         |
|-------------------|------------|
| $t_{PLH}/t_{PHL}$ | Open       |
| $t_{PLZ}/t_{PZL}$ | $V_{LOAD}$ |
| $t_{PHZ}/t_{PZH}$ | GND        |

| $V_{CC}$                         | INPUTS   |                      | $V_M$      | $V_{LOAD}$        | $C_L$ | $R_L$        | $V_{\Delta}$ |
|----------------------------------|----------|----------------------|------------|-------------------|-------|--------------|--------------|
|                                  | $V_I$    | $t_r/t_f$            |            |                   |       |              |              |
| $1.8\text{ V} \pm 0.15\text{ V}$ | $V_{CC}$ | $\leq 2\text{ ns}$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 30 pF | 1 k $\Omega$ | 0.15 V       |
| $2.5\text{ V} \pm 0.2\text{ V}$  | $V_{CC}$ | $\leq 2\text{ ns}$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 30 pF | 500 $\Omega$ | 0.15 V       |
| $3.3\text{ V} \pm 0.3\text{ V}$  | 3 V      | $\leq 2.5\text{ ns}$ | 1.5 V      | 6 V               | 50 pF | 500 $\Omega$ | 0.3 V        |
| $5\text{ V} \pm 0.5\text{ V}$    | $V_{CC}$ | $\leq 2.5\text{ ns}$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 50 pF | 500 $\Omega$ | 0.3 V        |



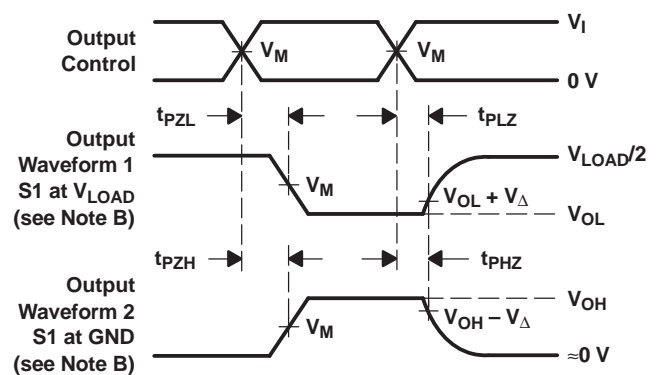
VOLTAGE WAVEFORMS  
PULSE DURATION



VOLTAGE WAVEFORMS  
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS  
PROPAGATION DELAY TIMES  
INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS  
ENABLE AND DISABLE TIMES  
LOW- AND HIGH-LEVEL ENABLING

- NOTES:
- A.  $C_L$  includes probe and jig capacitance.
  - B. Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
  - C. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 10\text{ MHz}$ ,  $Z_O = 50\ \Omega$ .
  - D. The outputs are measured one at a time, with one transition per measurement.
  - E.  $t_{PLZ}$  and  $t_{PHZ}$  are the same as  $t_{dis}$ .
  - F.  $t_{PZL}$  and  $t_{PZH}$  are the same as  $t_{en}$ .
  - G.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{pd}$ .
  - H. All parameters and waveforms are not applicable to all devices.

Figure 2. Load Circuit and Voltage Waveforms

**PACKAGING INFORMATION**

| Orderable Device   | Status<br>(1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan<br>(2)         | Lead/Ball Finish | MSL Peak Temp<br>(3) | Op Temp (°C) | Top-Side Markings<br>(4) | Samples                 |
|--------------------|---------------|--------------|-----------------|------|-------------|-------------------------|------------------|----------------------|--------------|--------------------------|-------------------------|
| 1P1G08MDBVREPG4    | ACTIVE        | SOT-23       | DBV             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | C08O                     | <a href="#">Samples</a> |
| SN74LVC1G08IDCKREP | ACTIVE        | SC70         | DCK             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -40 to 85    | CEO                      | <a href="#">Samples</a> |
| SN74LVC1G08MDBVREP | ACTIVE        | SOT-23       | DBV             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | C08O                     | <a href="#">Samples</a> |
| SN74LVC1G08MDCKREP | ACTIVE        | SC70         | DCK             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | BUB                      | <a href="#">Samples</a> |
| V62/04733-01XE     | ACTIVE        | SC70         | DCK             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -40 to 85    | CEO                      | <a href="#">Samples</a> |
| V62/04733-02XE     | ACTIVE        | SC70         | DCK             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | BUB                      | <a href="#">Samples</a> |
| V62/04733-02YE     | ACTIVE        | SOT-23       | DBV             | 5    | 3000        | Green (RoHS & no Sb/Br) | CU NIPDAU        | Level-1-260C-UNLIM   | -55 to 125   | C08O                     | <a href="#">Samples</a> |

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSELETE:** TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) Multiple Top-Side Markings will be inside parentheses. Only one Top-Side Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Top-Side Marking for that device.



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**OTHER QUALIFIED VERSIONS OF SN74LVC1G08-EP :**

- Catalog: [SN74LVC1G08](#)
- Automotive: [SN74LVC1G08-Q1](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects

## TAPE AND REEL INFORMATION



### QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



\*All dimensions are nominal

| Device             | Package Type | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|--------------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| SN74LVC1G08IDCKREP | SC70         | DCK             | 5    | 3000 | 179.0              | 8.4                | 2.2     | 2.5     | 1.2     | 4.0     | 8.0    | Q3            |
| SN74LVC1G08MDBVREP | SOT-23       | DBV             | 5    | 3000 | 179.0              | 8.4                | 3.2     | 3.2     | 1.4     | 4.0     | 8.0    | Q3            |
| SN74LVC1G08MDCKREP | SC70         | DCK             | 5    | 3000 | 179.0              | 8.4                | 2.2     | 2.5     | 1.2     | 4.0     | 8.0    | Q3            |

**TAPE AND REEL BOX DIMENSIONS**


\*All dimensions are nominal

| Device             | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|--------------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74LVC1G08IDCKREP | SC70         | DCK             | 5    | 3000 | 203.0       | 203.0      | 35.0        |
| SN74LVC1G08MDBVREP | SOT-23       | DBV             | 5    | 3000 | 203.0       | 203.0      | 35.0        |
| SN74LVC1G08MDCKREP | SC70         | DCK             | 5    | 3000 | 203.0       | 203.0      | 35.0        |

## GENERIC PACKAGE VIEW

DBV 5

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



Images above are just a representation of the package family, actual package may vary.  
Refer to the product data sheet for package details.

4073253/P

DBV0005A



# PACKAGE OUTLINE

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



4214839/C 04/2017

NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-178.

# EXAMPLE BOARD LAYOUT

DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE:15X



SOLDER MASK DETAILS

4214839/C 04/2017

NOTES: (continued)

- 4. Publication IPC-7351 may have alternate designs.
- 5. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:15X

4214839/C 04/2017

NOTES: (continued)

6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
7. Board assembly site may have different recommendations for stencil design.

DCK (R-PDSO-G5)

PLASTIC SMALL-OUTLINE PACKAGE

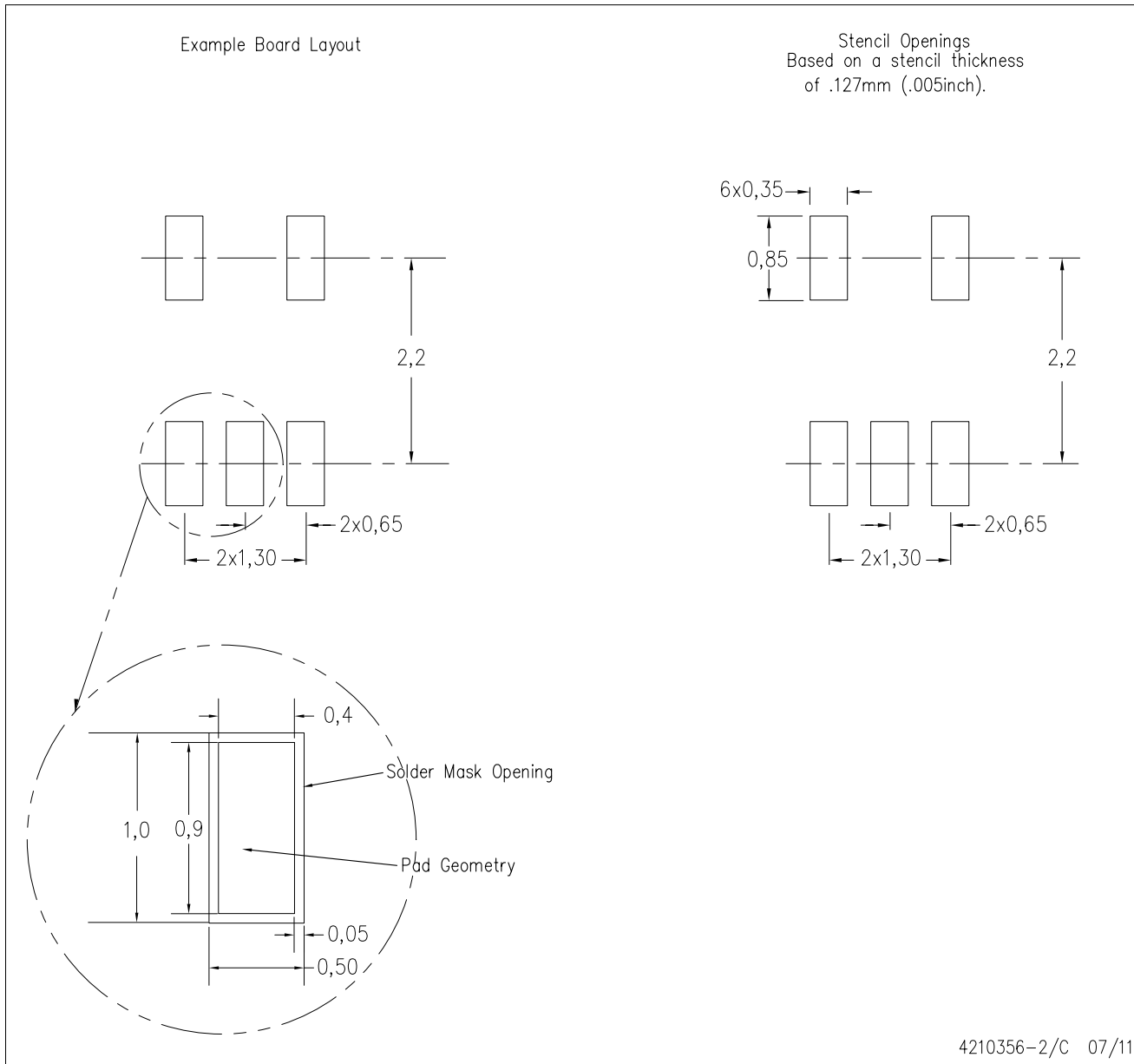


- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. Body dimensions do not include mold flash or protrusion. Mold flash and protrusion shall not exceed 0.15 per side.
  - D. Falls within JEDEC MO-203 variation AA.



DCK (R-PDSO-G5)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. Customers should place a note on the circuit board fabrication drawing not to alter the center solder mask defined pad.
  - D. Publication IPC-7351 is recommended for alternate designs.
  - E. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Example stencil design based on a 50% volumetric metal load solder paste. Refer to IPC-7525 for other stencil recommendations.

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