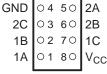
#### **FEATURES**

- Available in the Texas Instruments
   NanoFree™ Package
- Operates at 0.8 V to 2.7 V
- Sub-1-V Operable
- Max t<sub>pd</sub> of 0.5 ns at 1.8 V
- Low Power Consumption, 10 μA at 2.7 V
- High On-Off Output Voltage Ratio
- · High Degree of Linearity
- Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II
- ESD Performance Tested Per JESD 22
  - 2000-V Human-Body Model (A114-B, Class II)
  - 200-V Machine Model (A115-A)
  - 1000-V Charged-Device Model (C101)

# 1A 1 8 V<sub>CC</sub> 1B 2 7 1C 2C 3 6 2B GND 4 5 2A





## **DESCRIPTION/ORDERING INFORMATION**

This dual analog switch is operational at 0.8-V to 2.7-V  $V_{CC}$ , but is designed specifically for 1.1-V to 2.7-V  $V_{CC}$  operation.

The SN74AUC2G66 can handle both analog and digital signals. It permits signals with amplitudes of up to 2.7-V (peak) to be transmitted in either direction.

NanoFree™ package technology is a major breakthrough in IC packaging concepts, using the die as the package.

Applications include signal gating, chopping, modulation or demodulation (modem), and signal multiplexing for analog-to-digital and digital-to-analog conversion systems.

#### ORDERING INFORMATION

| T <sub>A</sub> | PACKAGE <sup>(1)</sup>   |              | ORDERABLE PART NUMBER | TOP-SIDE MARKING <sup>(2)</sup> |
|----------------|--|--------------|-----------------------|---------------------------------|
|                | NanoFree™ – WCSP (DSBGA)<br>0.23-mm Large Bump – YZP (Pb-free) | Reel of 3000 | SN74AUC2G66YZPR       | U6_                             |
| -40°C to 85°C  | SSOP - DCT   | Reel of 3000 | SN74AUC2G66DCTR       | U66                             |
|                | VSSOP - DCU  | Reel of 3000 | SN74AUC2G66DCUR       | U66_                            |

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

(2) DCT: The actual top-side marking has three additional characters that designate the year, month, and assembly/test site. DCU: The actual top-side marking has one additional character that designates the assembly/test site. YZP: The actual top-side marking has three preceding characters to denote year, month, and sequence code, and one following character to designate the assembly/test site. Pin 1 identifier indicates solder-bump composition (1 = SnPb, • = Pb-free).

#### **FUNCTION TABLE**

| CONTROL<br>INPUT<br>(C) | SWITCH |
|-------------------------|--------|
| L                       | OFF    |
| Н                       | ON     |

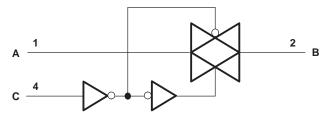
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Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

NanoFree is a trademark of Texas Instruments.



# **LOGIC DIAGRAM (POSITIVE LOGIC)**



# Absolute Maximum Ratings(1)

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

|                  |   |                                       | MIN             | MAX                   | UNIT |
|------------------|---|---------------------------------------|-----------------|-----------------------|------|
| $V_{CC}$         | Supply voltage range <sup>(2)</sup>               |                                       | -0.5            | 3.6                   | V    |
| $V_{I}$          | Input voltage range (2)(3)                        |                                       |                 | 3.6                   | V    |
| V <sub>I/O</sub> | Switch I/O voltage range (2)(3)                   | Switch I/O voltage range (2)(3)       |                 | V <sub>CC</sub> + 0.5 | V    |
| I <sub>IK</sub>  | Control input clamp current                       | V <sub>1</sub> < 0                    |                 | -50                   | mA   |
| I <sub>IOK</sub> | I/O port diode current                            | $V_{I/O}$ < 0 or $V_{I/O}$ > $V_{CC}$ |                 | ±50                   | mA   |
| I <sub>T</sub>   | On-state switch current                           | $V_{I/O} = 0 \text{ to } V_{CC}$      |                 | ±50                   | mA   |
|                  | Continuous current through V <sub>CC</sub> or GND |                                       |                 | ±100                  | mA   |
|                  |   | DCT package                           |                 | 220                   |      |
| $\theta_{JA}$    | Package thermal impedance (4)                     | DCU package                           |                 | 227                   | °C/W |
|                  |   | YZP package                           |                 | 102                   |      |
| T <sub>stg</sub> | Storage temperature range                         | ·                                     | <del>-</del> 65 | 150                   | °C   |

<sup>(1)</sup> 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.

<sup>(2)</sup> All voltages are with respect to ground unless otherwise specified.

 <sup>(3)</sup> The input negative-voltage and output voltage ratings may be exceeded if the input and output current ratings are observed.
 (4) The package thermal impedance is calculated in accordance with JESD 51-7.

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

|                  |                                    |   | MIN                    | MAX                  | UNIT |
|------------------|------------------------------------|---|------------------------|----------------------|------|
| $V_{CC}$         | Supply voltage                     |   | 0.8                    | 2.7                  | V    |
|                  |                                    | V <sub>CC</sub> = 0.8 V                           | V <sub>CC</sub>        |                      |      |
| $V_{IH}$         | High-level input voltage           | V <sub>CC</sub> = 1.1 V to 1.95 V                 | 0.65 × V <sub>CC</sub> |                      | V    |
|                  |                                    | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$        | 1.7                    |                      |      |
|                  |                                    | V <sub>CC</sub> = 0.8 V                           |                        | 0                    |      |
| $V_{IL}$         | Low-level input voltage            | V <sub>CC</sub> = 1.1 V to 1.95 V                 |                        | $0.35 \times V_{CC}$ | V    |
|                  | L Low-level input voltage          | V <sub>CC</sub> = 2.3 V to 2.7 V                  |                        | 0.7                  |      |
| V <sub>I/O</sub> | I/O port voltage                   |   | 0                      | V <sub>CC</sub>      | V    |
| $V_{I}$          | Control input voltage              |   | 0                      | 3.6                  | V    |
|                  |                                    | $V_{CC} = 0.8 \text{ V to } 1.65 \text{ V}^{(2)}$ |                        | 20                   |      |
| Δt/Δν            | Input transition rise or fall rate | $V_{CC} = 1.65 \text{ V to } 2.3 \text{ V}^{(3)}$ |                        | 20                   | ns/V |
|                  |                                    | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}^{(3)}$  |                        | 20                   |      |
| T <sub>A</sub>   | Operating free-air temperature     |   | -40                    | 85                   | °C   |

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.
 The data was taken at C<sub>L</sub> = 15 pF, R<sub>L</sub> = 2 kΩ (see Figure 1).
 The data was taken at C<sub>L</sub> = 30 pF, R<sub>L</sub> = 500 Ω (see Figure 1).

## **Electrical Characteristics**

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

|                      | PARAMETER                               | TEST CONDITION  | NS                    | V <sub>cc</sub> | MIN TYP(1) | MAX                 | UNIT |
|----------------------|---|---|-----------------------|-----------------|------------|---------------------|------|
|                      |   | $V_I = V_{CC}$ or GND,  | $I_S = 4 \text{ mA}$  | 1.1 V           | 17         | 40                  |      |
| r <sub>on</sub>      | On-state switch resistance              | $V_C = V_{IH}$  | IS = 4 IIIA           | 1.65 V          | 7          | 20                  | Ω    |
|                      |   | (see Figure 1 and Figure 2)                                       | $I_S = 8 \text{ mA}$  | 2.3 V           | 4          | 15                  |      |
|                      |   | $V_I = V_{CC}$ to GND,  | $I_S = 4 \text{ mA}$  | 1.1 V           | 131        | 180                 | Ω    |
| r <sub>on(p)</sub>   | Peak on resistance                      | $V_C = V_{IH}$  | IS - 4 IIIA           | 1.65 V          | 32         | 80                  |      |
|                      |   | (see Figure 1 and Figure 2)                                       | $I_S = 8 \text{ mA}$  | 2.3 V           | 15         | 20                  |      |
|                      | Difference of                           | $V_{I} = V_{CC}$ to GND,  | 1 4 50 1              | 1.1 V           |            | 3                   |      |
| $\Delta r_{on}$      | on-state resistance<br>between switches | $V_C = V_{IH}$  | $I_S = 4 \text{ mA}$  | 1.65 V          |            | 1                   | Ω    |
|                      |   | (see Figure 1 and Figure 2)                                       | $I_S = 8 \text{ mA}$  | 2.3 V           |            | 1                   |      |
|                      |   | $V_I = V_{CC}$ and $V_O = GND$ , or                               |                       |                 |            | ±1                  |      |
| I <sub>S(off)</sub>  | Off-state switch leakage current        | $V_I = GND$ and $V_O = V_{CC}$ ,<br>$V_C = V_{IL}$ (see Figure 3) |                       | 2.7 V           |            | ±0.1 <sup>(2)</sup> | μА   |
|                      | On-state switch leakage current         | $V_I = V_{CC}$ or GND, $V_C = V_{IH}$ , $V_C$                     | / <sub>O</sub> = Open | 2.7 V           |            | ±1                  | μΑ   |
| I <sub>S(on)</sub>   | On-state switch leakage current         | (see Figure 4)  |                       | 2.7 V           |            | ±0.1 <sup>(2)</sup> | μΑ   |
| I <sub>I</sub>       | Control input current                   | $V_I = V_{CC}$ or GND   |                       | 0 to 2.7 V      |            | ±5                  | μΑ   |
| I <sub>CC</sub>      | Supply current                          | $V_I = V_{CC}$ or GND,  | I <sub>O</sub> = 0    | 0.8 V to 2.7 V  |            | 10                  | μΑ   |
| C <sub>ic</sub>      | Control input capacitance               |   |                       | 2.5 V           | 2.5        |                     | pF   |
| C <sub>io(off)</sub> | Switch input/output capacitance         |   |                       | 2.5 V           | 3          |                     | pF   |
| C <sub>io(on)</sub>  | Switch input/output capacitance         |   |                       | 2.5 V           | 7          |                     | pF   |

<sup>(1)</sup>  $t_a$  = 25°C (2) The data was taken at C<sub>L</sub> = 15 pF, R<sub>L</sub> = 2 k $\Omega$  (see Figure 1).



## **Switching Characteristics**

over recommended operating free-air temperature range,  $C_L = 15 \text{ pF}$  (unless otherwise noted) (see Figure 5)

| PARAMETER                      | FROM<br>(INPUT) | TO<br>(OUTPUT) | V <sub>CC</sub> = 0.8 V | V <sub>CC</sub> = ± 0.7 |     | V <sub>CC</sub> = 0.1 |     |     | c = 1.8<br>0.15 \ |     | V <sub>CC</sub> = 2<br>± 0.2 |     | UNIT |
|--------------------------------|-----------------|----------------|-------------------------|-------------------------|-----|-----------------------|-----|-----|-------------------|-----|------------------------------|-----|------|
|                                | (INFO1)         | (0011-01)      | TYP                     | MIN                     | MAX | MIN                   | MAX | MIN | TYP               | MAX | MIN                          | MAX |      |
| t <sub>pd</sub> <sup>(1)</sup> | A or B          | B or A         | 1                       |                         | 0.6 |                       | 0.5 |     |                   | 0.5 |                              | 0.4 | ns   |
| t <sub>en</sub>                | С               | A or B         | 5                       | 0.5                     | 3   | 0.5                   | 2.1 | 0.5 | 0.9               | 1.6 | 0.5                          | 1.4 | ns   |
| t <sub>dis</sub>               | С               | A or B         | 5.3                     | 0.5                     | 4   | 0.5                   | 3   | 0.5 | 2.6               | 3.3 | 0.5                          | 2.7 | ns   |

<sup>(1)</sup> The propagation delay is the calculated RC time constant of the typical on-state resistance of the switch and the specified load capacitance when driven by an ideal voltage source (zero output impedance).

# **Switching Characteristics**

over recommended operating free-air temperature range,  $C_L = 30 \text{ pF}$  (unless otherwise noted) (see Figure 5)

| PARAMETER                      | FROM<br>(INPUT) | TO<br>(OUTPUT) | V <sub>CC</sub> = 1.8 V<br>± 0.15 V |     |     | V <sub>CC</sub> = 2.5 V<br>± 0.2 V |     | UNIT |
|--------------------------------|-----------------|----------------|-------------------------------------|-----|-----|------------------------------------|-----|------|
|                                | (INPUT)         | (OUTPUT)       | MIN                                 | TYP | MAX | MIN                                | MAX |      |
| t <sub>pd</sub> <sup>(1)</sup> | A or B          | B or A         |                                     |     | 0.7 |                                    | 0.7 | ns   |
| t <sub>en</sub>                | С               | A or B         | 0.5                                 | 1.6 | 2.7 | 0.5                                | 2.3 | ns   |
| t <sub>dis</sub>               | С               | A or B         | 0.5                                 | 2.7 | 3.4 | 0.5                                | 2   | ns   |

<sup>(1)</sup> The propagation delay is the calculated RC time constant of the typical on-state resistance of the switch and the specified load capacitance when driven by an ideal voltage source (zero output impedance).

# **Analog Switch Characteristics**

 $T_A = 25^{\circ}C$ 

| PARAMETER          | FROM<br>(INPUT) | TO<br>(OUTPUT) | TEST CONDITIONS                          | V <sub>cc</sub> | TYP  | UNIT |
|--------------------|-----------------|----------------|--|-----------------|------|------|
|                    |                 |                |  | 0.8 V           | 101  |      |
|                    |                 |                | $C_L = 50 \text{ pF}, R_L = 600 \Omega,$ | 1.1 V           | 150  |      |
|                    |                 |                | f <sub>in</sub> = sine wave              | 1.4 V           | 175  |      |
|                    |                 |                | (see Figure 6)                           | 1.65 V          | 250  |      |
| Frequency response |                 |                |  | 2.3 V           | 400  |      |
| (switch ON)        | A or B          | B or A         |  | 0.8 V           | 450  | MHz  |
|                    |                 |                | $C_L = 5 \text{ pF}, R_L = 50 \Omega,$   | 1.1 V           | >500 |      |
|                    |                 |                | f <sub>in</sub> = sine wave              | 1.4 V           | >500 |      |
|                    |                 |                | (see Figure 6)                           | 1.65 V          | >500 |      |
|                    |                 |                |  | 2.3 V           | >500 |      |
|                    |                 |                |  | 0.8 V           | -60  | dB   |
|                    |                 |                | $C_L = 50 \text{ pF}, R_L = 600 \Omega,$ | 1.1 V           | -60  |      |
|                    |                 |                | f <sub>in</sub> = 1 MHz (sine wave)      | 1.4 V           | -60  |      |
|                    |                 |                | (see Figure 7)                           | 1.65 V          | -60  |      |
| Crosstalk          | A == D          | D A            |  | 2.3 V           | -60  |      |
| (between switches) | A or B          | B or A         |  | 0.8 V           | -65  |      |
|                    |                 |                | $C_L = 5 \text{ pF}, R_L = 50 \Omega,$   | 1.1 V           | -65  |      |
|                    |                 |                | f <sub>in</sub> = 1 MHz (sine wave)      | 1.4 V           | -65  |      |
|                    |                 |                | (see Figure 7)                           | 1.65 V          | -65  |      |
|                    |                 |                |  | 2.3 V           | -65  |      |

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# **Analog Switch Characteristics (continued)**

T<sub>A</sub> = 25°C

| PARAMETER                               | FROM<br>(INPUT) | TO<br>(OUTPUT) | TEST CONDITIONS                                  | V <sub>cc</sub> | TYP         | UNIT |
|---|-----------------|----------------|--|-----------------|-------------|------|
|   |                 |                |  | 0.8 V           | 9           |      |
| Crosstalk                               |                 |                | $C_L = 50 \text{ pF}, R_L = 600 \Omega,$         | 1.1 V           | 14          | mV   |
| (control input to signal                | С               | A or B         | f <sub>in</sub> = 1 MHz (square wave)            | 1.4 V           | 15          |      |
| output)                                 |                 |                | (see Figure 8)                                   | 1.65 V          | 16          |      |
|   |                 |                |  | 2.3 V           | 20          |      |
|   |                 |                |  | 0.8 V           | -50         |      |
| Feedthrough attenuation<br>(switch OFF) |                 |                | $C_L = 50 \text{ pF}, R_L = 600 \Omega,$         | 1.1 V           | <b>–</b> 50 |      |
|   | A or B          | B or A         | f <sub>in</sub> = 1 MHz (sine wave)              | 1.4 V           | <b>–</b> 50 |      |
|   |                 |                | (see Figure 9)                                   | 1.65 V          | -50         | dB   |
|   |                 |                |  | 2.3 V           | -50         |      |
|   | A OF B          |                |  | 0.8 V           | -60         |      |
|   |                 |                | $C_L = 5 \text{ pF}, R_L = 50 \Omega,$           | 1.1 V           | -60         |      |
|   |                 |                | f <sub>in</sub> = 1 MHz (sine wave)              | 1.4 V           | -60         |      |
|   |                 |                | (see Figure 9)                                   | 1.65 V          | -60         |      |
|   |                 |                |  | 2.3 V           | -60         |      |
|   |                 |                |  | 0.8 V           | 7           |      |
|   |                 |                | $C_L = 50 \text{ pF}, R_L = 10 \text{ k}\Omega,$ | 1.1 V           | 0.256       |      |
|   | A or B          | B or A         | f <sub>in</sub> = 1 kHz (sine wave)              | 1.4 V           | 0.04        |      |
|   |                 |                | (see Figure 10)                                  | 1.65 V          | 0.03        |      |
| 0' " "                                  |                 |                |  | 2.3 V           | 0.01        | 0.4  |
| Sine-wave distortion                    |                 |                |  | 0.8 V           | 3.7         | %    |
|   |                 |                | $C_L = 50 \text{ pF}, R_L = 10 \text{ k}\Omega,$ | 1.1 V           | 0.4         |      |
|   | A or B          | B or A         | f <sub>in</sub> = 10 kHz (sine wave)             | 1.4 V           | 0.04        |      |
|   |                 |                | (see Figure 10)                                  | 1.65 V          | 0.02        |      |
|   |                 |                |  | 2.3 V           | 0.02        |      |

# **Operating Characteristics**

T<sub>A</sub> = 25°C

|          | PARAMETER                     | TEST<br>CONDITIONS | V <sub>CC</sub> = 0.8 V<br>TYP | V <sub>CC</sub> = 1.2 V<br>TYP | V <sub>CC</sub> = 1.5 V<br>TYP | V <sub>CC</sub> = 1.8 V<br>TYP | V <sub>CC</sub> = 2.5 V<br>TYP | UNIT |
|----------|-------------------------------|--------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|------|
| $C_{pd}$ | Power dissipation capacitance | f = 10 MHz         | 2.5                            | 2.5                            | 2.5                            | 2.5                            | 2.5                            | pF   |



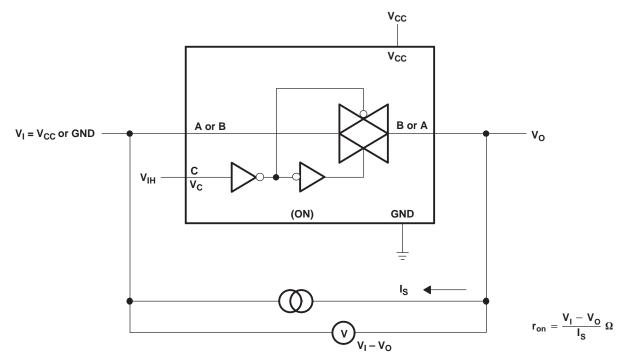


Figure 1. On-State Resistance Test Circuit

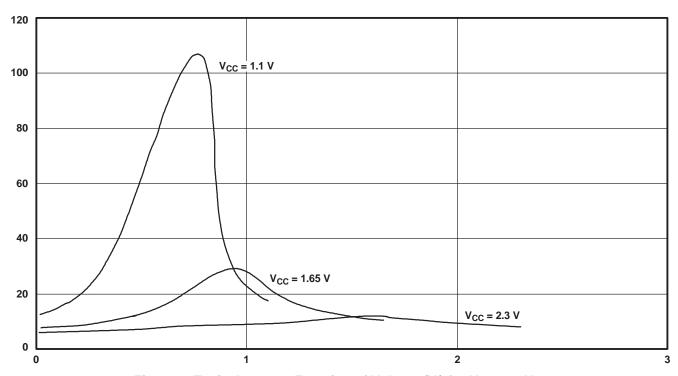


Figure 2. Typical  $r_{on}$  as a Function of Voltage (V<sub>I</sub>) for  $V_I = 0$  to  $V_{CC}$ 



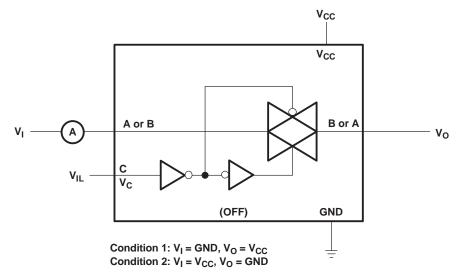


Figure 3. Off-State Switch Leakage-Current Test Circuit

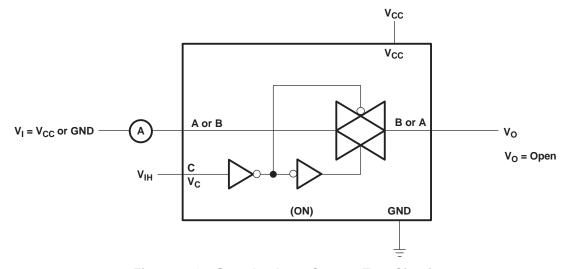
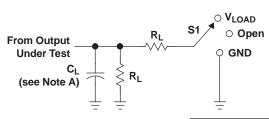


Figure 4. On-State Leakage-Current Test Circuit

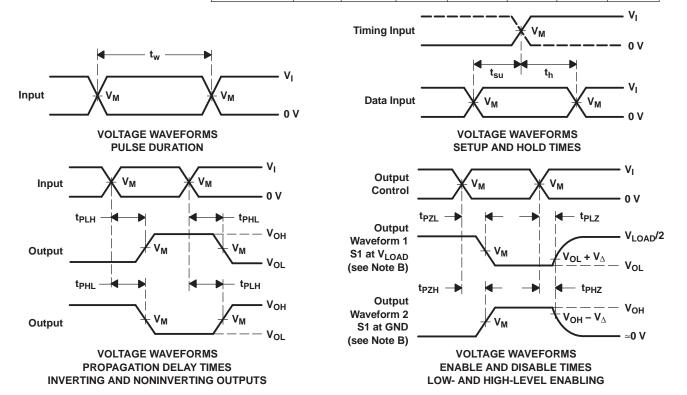




| TEST                               | S1                |
|------------------------------------|-------------------|
| t <sub>PLH</sub> /t <sub>PHL</sub> | Open              |
| $t_{PLZ}/t_{PZL}$                  | V <sub>LOAD</sub> |
| t <sub>PHZ</sub> /t <sub>PZH</sub> | GND               |

LOAD CIRCUIT

| .,                 | INPUTS          |                                | .,                 | .,                |       | _              | .,           |
|--------------------|-----------------|--------------------------------|--------------------|-------------------|-------|----------------|--------------|
| V <sub>CC</sub>    | VI              | t <sub>r</sub> /t <sub>f</sub> | V <sub>M</sub>     | V <sub>LOAD</sub> | CL    | R <sub>L</sub> | $V_{\Delta}$ |
| 0.8 V              | V <sub>CC</sub> | ≤ <b>2</b> ns                  | V <sub>CC</sub> /2 | 2×V <sub>CC</sub> | 15 pF | <b>2 k</b> Ω   | 0.1 V        |
| 1.2 V $\pm$ 0.1 V  | V <sub>CC</sub> | ≤2 ns                          | V <sub>CC</sub> /2 | $2 \times V_{CC}$ | 15 pF | <b>2 k</b> Ω   | 0.1 V        |
| 1.5 V $\pm$ 0.1 V  | V <sub>CC</sub> | ≤ <b>2</b> ns                  | V <sub>CC</sub> /2 | 2×V <sub>CC</sub> | 15 pF | <b>2 k</b> Ω   | 0.1 V        |
| 1.8 V $\pm$ 0.15 V | V <sub>CC</sub> | ≤ <b>2</b> ns                  | V <sub>CC</sub> /2 | 2×V <sub>CC</sub> | 15 pF | <b>2 k</b> Ω   | 0.15 V       |
| 2.5 V $\pm$ 0.2 V  | V <sub>CC</sub> | ≤2 ns                          | V <sub>CC</sub> /2 | 2×V <sub>CC</sub> | 15 pF | <b>2 k</b> Ω   | 0.15 V       |
| 1.8 V $\pm$ 0.15 V | V <sub>CC</sub> | ≤2 ns                          | V <sub>CC</sub> /2 | 2×V <sub>CC</sub> | 30 pF | <b>1 k</b> Ω   | 0.15 V       |
| 2.5 V $\pm$ 0.2 V  | V <sub>CC</sub> | ≤ <b>2</b> ns                  | V <sub>CC</sub> /2 | $2 \times V_{CC}$ | 30 pF | <b>500</b> Ω   | 0.15 V       |



- 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 MHz,  $Z_O$  = 50  $\Omega$ , slew rate  $\geq$  1 V/ns.
  - 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<sub>PZL</sub> and t<sub>PZH</sub> are the same as t<sub>en</sub>.
  - G.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{pd}$ .
  - H. All parameters and waveforms are not applicable to all devices.

Figure 5. Load Circuit and Voltage Waveforms



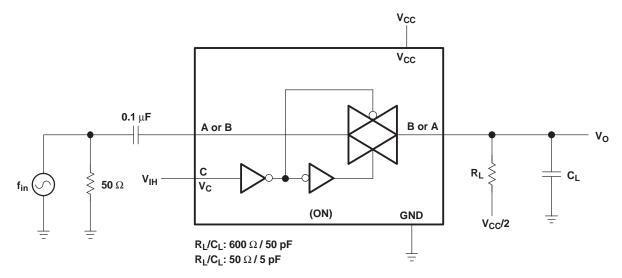


Figure 6. Frequency Response (Switch ON)

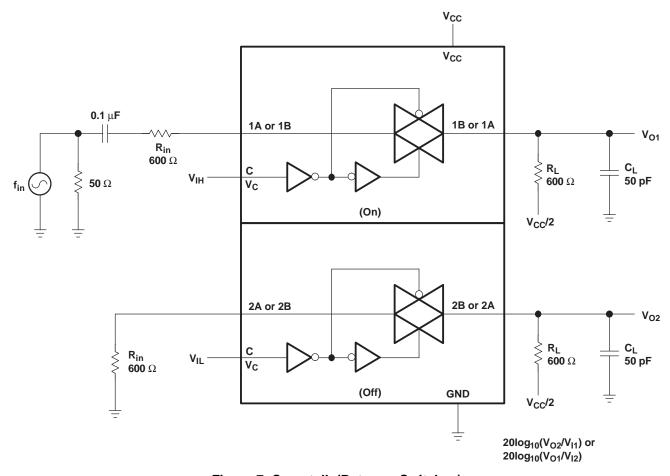


Figure 7. Crosstalk (Between Switches)



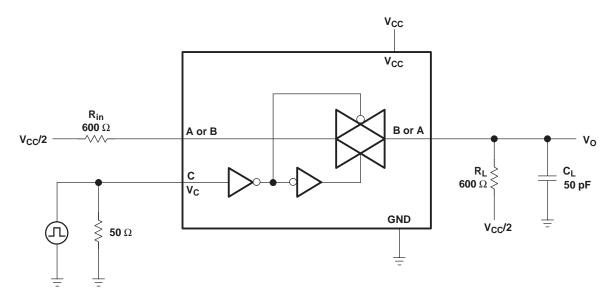


Figure 8. Crosstalk (Control Input - Switch Output)

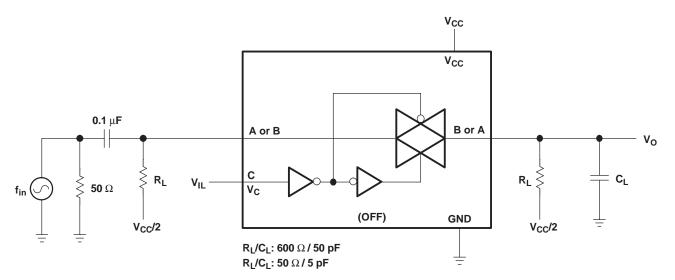


Figure 9. Feedthrough, Switch Off





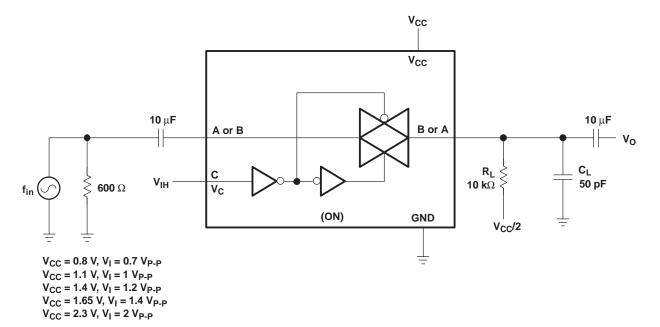


Figure 10. Sine-Wave Distortion

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#### PACKAGING INFORMATION

| Orderable Device  | Status (1) | Package Type | Package<br>Drawing | Pins | Package<br>Qty | Eco Plan     | Lead finish/<br>Ball material | MSL Peak Temp      | Op Temp (°C) | Device Marking<br>(4/5) | Samples |
|-------------------|------------|--------------|--------------------|------|----------------|--------------|-------------------------------|--------------------|--------------|-------------------------|---------|
|                   |            |              |                    |      |                |              | (6)                           |                    |              |                         |         |
| SN74AUC2G66DCTR   | ACTIVE     | SM8          | DCT                | 8    | 3000           | RoHS & Green | NIPDAU                        | Level-1-260C-UNLIM | -40 to 85    | U66                     | Samples |
|                   |            |              |                    |      |                |              |                               |                    |              | (R, Z)                  | Samples |
| SN74AUC2G66DCUR   | ACTIVE     | VSSOP        | DCU                | 8    | 3000           | RoHS & Green | NIPDAU   SN                   | Level-1-260C-UNLIM | -40 to 85    | (66, U66Q, U66R)        | Samples |
|                   |            |              |                    |      |                |              |                               |                    |              | (UR, UZ)                | Bampies |
| SN74AUC2G66DCURG4 | ACTIVE     | VSSOP        | DCU                | 8    | 3000           | RoHS & Green | NIPDAU                        | Level-1-260C-UNLIM | -40 to 85    | U66R                    | G 1     |
|                   |            |              |                    |      |                |              |                               |                    |              |                         | Samples |
| SN74AUC2G66YZPR   | ACTIVE     | DSBGA        | YZP                | 8    | 3000           | RoHS & Green | SNAGCU                        | Level-1-260C-UNLIM | -40 to 85    | U6N                     | G       |
|                   |            |              |                    |      |                |              | 0                             |                    |              |                         | Samples |

(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.

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

(2) RoHS: TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

Green: TI defines "Green" to mean the content of Chlorine (CI) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

- (3) MSL, Peak Temp. The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.
- (4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.
- (5) Multiple Device Markings will be inside parentheses. Only one Device 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 Device Marking for that device.
- (6) Lead finish/Ball material Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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# **PACKAGE OPTION ADDENDUM**

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continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.



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# TAPE AND REEL INFORMATION





| A0 | Dimension designed to accommodate the component width     |
|----|---|
| В0 | Dimension designed to accommodate the component length    |
| K0 | Dimension designed to accommodate the component thickness |
| W  | Overall width of the carrier tape                         |
| P1 | Pitch between successive cavity centers                   |

## QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



#### \*All dimensions are nominal

| Device            | Package<br>Type | Package<br>Drawing |   | SPQ  | Reel<br>Diameter<br>(mm) | Reel<br>Width<br>W1 (mm) | A0<br>(mm) | B0<br>(mm) | K0<br>(mm) | P1<br>(mm) | W<br>(mm) | Pin1<br>Quadrant |
|-------------------|-----------------|--------------------|---|------|--------------------------|--------------------------|------------|------------|------------|------------|-----------|------------------|
| SN74AUC2G66DCTR   | SM8             | DCT                | 8 | 3000 | 177.8                    | 12.4                     | 3.45       | 4.4        | 1.45       | 4.0        | 12.0      | Q3               |
| SN74AUC2G66DCTR   | SM8             | DCT                | 8 | 3000 | 180.0                    | 13.0                     | 3.35       | 4.5        | 1.55       | 4.0        | 12.0      | Q3               |
| SN74AUC2G66DCUR   | VSSOP           | DCU                | 8 | 3000 | 180.0                    | 9.0                      | 2.25       | 3.4        | 1.0        | 4.0        | 8.0       | Q3               |
| SN74AUC2G66DCUR   | VSSOP           | DCU                | 8 | 3000 | 180.0                    | 8.4                      | 2.25       | 3.35       | 1.05       | 4.0        | 8.0       | Q3               |
| SN74AUC2G66DCUR   | VSSOP           | DCU                | 8 | 3000 | 178.0                    | 9.5                      | 2.25       | 3.35       | 1.05       | 4.0        | 8.0       | Q3               |
| SN74AUC2G66DCURG4 | VSSOP           | DCU                | 8 | 3000 | 180.0                    | 8.4                      | 2.25       | 3.35       | 1.05       | 4.0        | 8.0       | Q3               |
| SN74AUC2G66YZPR   | DSBGA           | YZP                | 8 | 3000 | 178.0                    | 9.2                      | 1.02       | 2.02       | 0.63       | 4.0        | 8.0       | Q1               |



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# \*All dimensions are nominal

| Device            | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|-------------------|--------------|-----------------|------|------|-------------|------------|-------------|
| SN74AUC2G66DCTR   | SM8          | DCT             | 8    | 3000 | 183.0       | 183.0      | 20.0        |
| SN74AUC2G66DCTR   | SM8          | DCT             | 8    | 3000 | 182.0       | 182.0      | 20.0        |
| SN74AUC2G66DCUR   | VSSOP        | DCU             | 8    | 3000 | 182.0       | 182.0      | 20.0        |
| SN74AUC2G66DCUR   | VSSOP        | DCU             | 8    | 3000 | 202.0       | 201.0      | 28.0        |
| SN74AUC2G66DCUR   | VSSOP        | DCU             | 8    | 3000 | 202.0       | 201.0      | 28.0        |
| SN74AUC2G66DCURG4 | VSSOP        | DCU             | 8    | 3000 | 202.0       | 201.0      | 28.0        |
| SN74AUC2G66YZPR   | DSBGA        | YZP             | 8    | 3000 | 220.0       | 220.0      | 35.0        |





#### 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. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not
- exceed 0.15 mm per side.
  4. Reference JEDEC registration MO-187 variation CA.





NOTES: (continued)

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





NOTES: (continued)

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







#### NOTES:

- 1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.

  2. This drawing is subject to change without notice.

  3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not
- exceed 0.15 mm per side.
- 4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.





NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.





NOTES: (continued)

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





DIE SIZE BALL GRID ARRAY



## NOTES:

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- 2. This drawing is subject to change without notice.



DIE SIZE BALL GRID ARRAY



NOTES: (continued)

3. Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. For more information, see Texas Instruments literature number SNVA009 (www.ti.com/lit/snva009).



DIE SIZE BALL GRID ARRAY



NOTES: (continued)

4. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release.



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