



**THE DATASHEET OF
74LVC1G04Z-7**



Description

The 74LVC1G04 is a single inverter gate with a standard push-pull output. The device is designed for operation with a power supply range of 1.65V to 5.5V. The inputs are tolerant to 5.5V allowing this device to be used in a mixed voltage environment. The device is fully specified for partial power down applications using I_{OFF}. The I_{OFF} circuitry disables the output preventing damaging current backflow when the device is powered down.

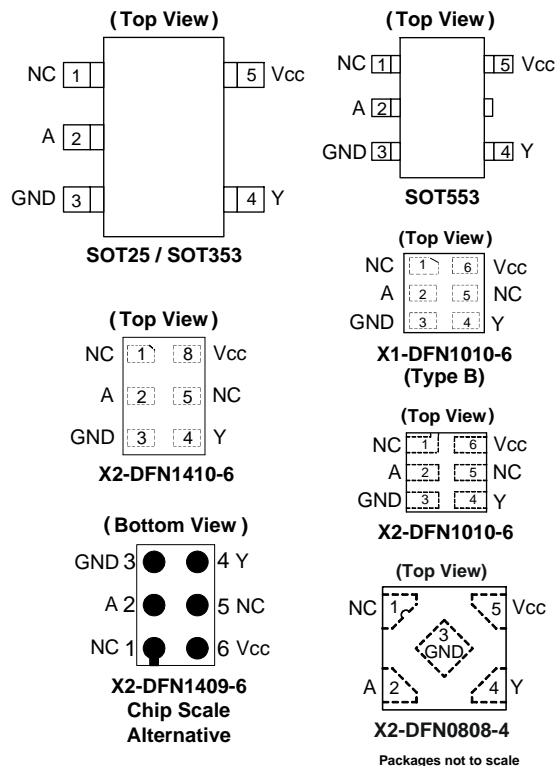
The gate performs the positive Boolean function:

$$Y = \bar{A}$$

Features

- Wide Supply Voltage Range from 1.65 to 5.5V
- ± 24mA Output Drive at 3.3V
- CMOS Low Power Consumption
- I_{OFF} Supports Partial-Power-Down Mode Operation
- Inputs Accept Up to 5.5V
- ESD Protection Tested per JESD 22
 - Exceeds 200-V Machine Model (A115)
 - Exceeds 2000-V Human Body Model (A114)
 - Exceeds 1000-V Charged Device Model (C101)
- Latch-Up Exceeds 100mA per JESD 78, Class I
- Range of Package Options
- Direct Interface with TTL Levels
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Pin Assignments



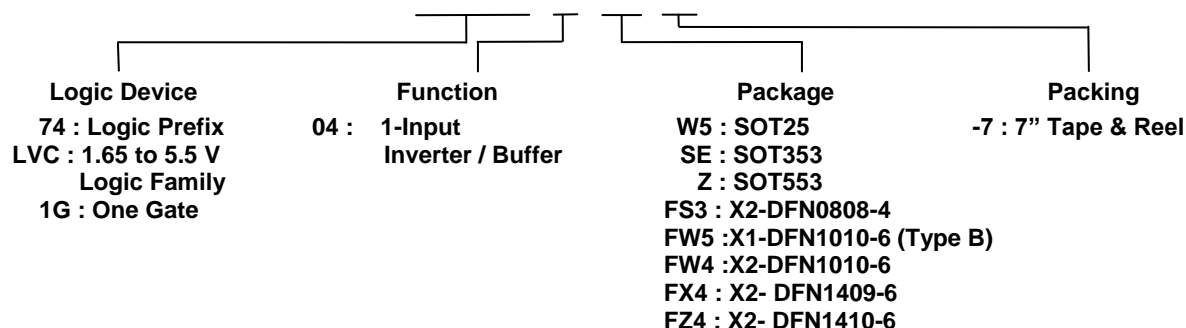
Applications

- Voltage Level Shifting
- General Purpose Logic
- Power Down Signal Isolation
- Wide Array of Products Such as.
 - PCs, Networking, Notebooks, Netbooks, PDAs
 - Tablet Computers, E-readers
 - Computer Peripherals, Hard Drives, CD/DVD ROM
 - TV, DVD, DVR, Set Top Box
 - Cell Phones, Personal Navigation / GPS
 - MP3 Players, Cameras, Video Recorders

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Ordering Information (Note 4)

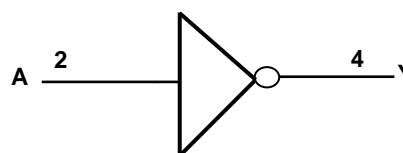
74 LVC1G 04 XXX -7


| Part Number | Package Code | Package (Notes 5 & 6) | Package Size | 7" Tape and Reel | |
|----------------|--------------|--|---|-------------------|--------------------|
| | | | | Quantity | Part Number Suffix |
| 74LVC1G04W5-7 | W5 | SOT25 | 3.0mm x 2.8mm x 1.2mm 0.95 mm lead pitch | 3,000/Tape & Reel | -7 |
| 74LVC1G04SE-7 | SE | SOT353 | 2.0mm x 2.0mm x 1.1mm 0.65 mm lead pitch | 3,000/Tape & Reel | -7 |
| 74LVC1G04Z-7 | Z | SOT553 | 1.6mm x 1.6 mm x 0.62mm 0.5 mm lead pitch | 4,000/Tape & Reel | -7 |
| 74LVC1G04FS3-7 | FS3 | X2-DFN0808-4 | 0.8mm x 0.8 mm x 0.35mm 0.5 mm pad pitch (diamond) | 5,000/Tape & Reel | -7 |
| 74LVC1G04FW5-7 | FW5 | X1-DFN1010-6 (Type B) | 1.0mm x 1.0mm x 0.5mm 0.35 mm pad pitch | 5,000/Tape & Reel | -7 |
| 74LVC1G04FW4-7 | FW4 | X2-DFN1010-6 | 1.0mm x 1.0mm x 0.4mm 0.35 mm pad pitch | 5,000/Tape & Reel | -7 |
| 74LVC1G04FX4-7 | FX4 | X2-DFN1409-6 Chip scale alternative | 1.4mm x 0.9mm x 0.4mm 0.5 mm pad pitch | 5,000/Tape & Reel | -7 |
| 74LVC1G04FZ4-7 | FZ4 | X2-DFN1410-6 | 1.4mm x 1.0mm x 0.4mm 0.5 mm pad pitch | 5,000/Tape & Reel | -7 |

Notes: 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
 5. Pad layout as shown on Diodes Inc. suggested pad layout document which can be found on our website at <http://www.diodes.com/package-outlines.html>
 6. The taping orientation is located on our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Pin Descriptions

| Pin Name | Description |
|-----------------|----------------|
| NC | No Connection |
| A | Data Input |
| GND | Ground |
| Y | Data Output |
| V _{CC} | Supply Voltage |

Logic Diagram

Function Table

| Inputs | Output |
|--------|--------|
| A | Y |
| H | L |
| L | H |

Absolute Maximum Ratings (Notes 7 & 8) (@T_A = +25°C, unless otherwise specified.)

| Symbol | Description | Rating | Unit |
|-----------------------------------|---|------------------------------|------|
| ESD HBM | Human Body Model ESD Protection | 2 | kV |
| ESD CDM | Charged Device Model ESD Protection | 1 | kV |
| ESD MM | Machine Model ESD Protection | 200 | V |
| V _{CC} | Supply Voltage Range | -0.5 to 6.5 | V |
| V _I | Input Voltage Range | -0.5 to 6.5 | V |
| V _O | Voltage Applied to Output in High Impedance or I _{OFF} State | -0.5 to 6.5 | V |
| V _O | Voltage Applied to Output in High or Low State. | -0.5 to V _{CC} +0.5 | V |
| I _{IK} | Input Clamp Current V _I < 0 | -50 | mA |
| I _{OK} | Output Clamp Current | -50 | mA |
| I _O | Continuous Output Current | ±50 | mA |
| I _{CC} , I _{GN} | Continuous Current Through V _{CC} or GND | ±100 | mA |
| T _J | Operating Junction Temperature | -40 to +150 | °C |
| T _{STG} | Storage Temperature | -65 to +150 | °C |

- Notes:
- Stresses beyond the absolute maximum may result in immediate failure or reduced reliability. These are stress values and device operation should be within recommend values.
 - Forcing the maximum allowed voltage could cause a condition exceeding the maximum current or conversely forcing the maximum current could cause a condition exceeding the maximum voltage. The ratings of both current and voltage must be maintained within the controlled range.

Recommended Operating Conditions (Note 9) (@T_A = +25°C, unless otherwise specified.)

| Symbol | Parameter | Min | Max | Unit | |
|-----------------|------------------------------------|---|------------------------|------------------------|------|
| V _{CC} | Operating Voltage | Operating | 1.65 | 5.5 | V |
| | | Data retention only | 1.5 | — | V |
| V _{IH} | High-Level Input Voltage | V _{CC} = 1.65V to 1.95V | 0.65 x V _{CC} | — | V |
| | | V _{CC} = 2.3V to 2.7V | 1.7 | — | |
| | | V _{CC} = 3V to 3.6V | 2 | — | |
| | | V _{CC} = 4.5V to 5.5V | 0.7 x V _{CC} | — | |
| V _{IL} | Low-Level Input Voltage | V _{CC} = 1.65V to 1.95V | — | 0.35 x V _{CC} | V |
| | | V _{CC} = 2.3V to 2.7V | — | 0.7 | |
| | | V _{CC} = 3V to 3.6V | — | 0.8 | |
| | | V _{CC} = 4.5V to 5.5V | — | 0.3 x V _{CC} | |
| V _I | Input Voltage | 0 | 5.5 | V | |
| V _O | Output Voltage | 0 | V _{CC} | V | |
| I _{OH} | High-Level Output Current | V _{CC} = 1.65V | — | -4 | mA |
| | | V _{CC} = 2.3V | — | -8 | |
| | | V _{CC} = 2.7V | — | -12 | |
| | | V _{CC} = 3V | — | -16 | |
| | | V _{CC} = 4.5V | — | -32 | |
| I _{OL} | Low-Level Output Current | V _{CC} = 1.65V | — | 4 | mA |
| | | V _{CC} = 2.3V | — | 8 | |
| | | V _{CC} = 2.7V | — | 12 | |
| | | V _{CC} = 3V | — | 16 | |
| | | V _{CC} = 4.5V | — | 32 | |
| Δt/ΔV | Input Transition Rise or Fall Rate | V _{CC} = 1.8V ± 0.15V, 2.5V ± 0.2V | — | 20 | ns/V |
| | | V _{CC} = 3.3V ± 0.3V | — | 10 | |
| | | V _{CC} = 5V ± 0.5V | — | 5 | |
| T _A | Operating Free-Air Temperature | — | -40 | +125 | °C |

Note: 9. Unused inputs should be held at V_{CC} or Ground.

Electrical Characteristics (All typical values are at $V_{CC} = 3.3V$, $T_A = +25^\circ C$)

| Symbol | Parameter | Test Conditions | V_{CC} | -40°C to +85°C | | | -40°C to +125°C | | Unit |
|-----------------|----------------------------|----------------------------------|---------------|----------------|-----------|----------|-----------------|-----------|---------|
| | | | | Min | Typ. | Max | Min | Max | |
| V_{OH} | High-Level Output Voltage | $I_{OH} = -100\mu A$ | 1.65V to 5.5V | $V_{CC} - 0.1$ | — | — | $V_{CC} - 0.1$ | — | V |
| | | $I_{OH} = -4mA$ | 1.65V | 1.2 | — | — | 0.95 | — | |
| | | $I_{OH} = -8mA$ | 2.3V | 1.9 | — | — | 1.7 | — | |
| | | $I_{OH} = -12mA$ | 2.7V | 2.2 | — | — | 1.9 | — | |
| | | $I_{OH} = -16mA$ | 3V | 2.4 | — | — | 2.2 | — | |
| | | $I_{OH} = -24mA$ | | 2.3 | — | — | 2.0 | — | |
| | | $I_{OH} = -32mA$ | 4.5V | 3.8 | — | — | 3.4 | — | |
| V_{OL} | Low-Level Output Voltage | $I_{OL} = 100\mu A$ | 1.65V to 5.5V | — | — | 0.1 | — | 0.1 | V |
| | | $I_{OL} = 4mA$ | 1.65V | — | — | 0.45 | — | 0.7 | |
| | | $I_{OL} = 8mA$ | 2.3V | — | — | 0.3 | — | 0.45 | |
| | | $I_{OL} = 12mA$ | 2.7V | — | — | 0.4 | — | 0.6 | |
| | | $I_{OL} = 16mA$ | 3V | — | — | 0.4 | — | 0.6 | |
| | | $I_{OL} = 24mA$ | | — | — | 0.55 | — | 0.8 | |
| | | $I_{OL} = 32mA$ | 4.5V | — | — | 0.55 | — | .8 | |
| I_I | Input Current | $V_I = 5.5V$ or GND | 0 to 5.5V | — | ± 0.1 | ± 5 | — | ± 100 | μA |
| I_{OFF} | Power Down Leakage Current | V_I or $V_O = 5.5V$ | 0V | — | — | ± 10 | — | ± 200 | μA |
| I_{CC} | Supply Current | $V_I = 5.5V$ or GND $I_O = 0$ | 5.5V | — | 0.1 | 10 | — | 200 | μA |
| ΔI_{CC} | Additional Supply Current | Input at $V_{CC} - 0.6V$ | 3V to 5.5V | — | — | 500 | — | 5,000 | μA |
| C_i | Input Capacitance | $V_i = V_{CC} -$ or GND | 3.3V | — | 5 | — | — | — | pF |

Package Characteristics (All typical values are at $V_{CC} = 3.3V$, $T_A = +25^\circ C$)

| Symbol | Parameter | Test Conditions | V_{CC} | Min | Typ | Max | Unit |
|---------------|--|-----------------------|-----------|-----|-----|-----|--------------|
| θ_{JA} | Thermal Resistance Junction-to-Ambient | SOT25 | (Note 10) | — | 204 | — | $^\circ C/W$ |
| | | SOT353 | | — | 371 | — | |
| | | SOT553 | | — | 231 | — | |
| | | X2-DFN0808-4 | | — | 400 | — | |
| | | X1-DFN1010-6 (Type B) | | — | 435 | — | |
| | | X2-DFN1010-6 | | — | 445 | — | |
| | | X2-DFN1409-6 | | — | 470 | — | |
| | | X2-DFN1410-6 | | — | 460 | — | |
| θ_{JC} | Thermal Resistance Junction-to-Case | SOT25 | (Note 10) | — | 52 | — | $^\circ C/W$ |
| | | SOT353 | | — | 143 | — | |
| | | SOT553 | | — | 105 | — | |
| | | X2-DFN0808-4 | | — | 225 | — | |
| | | X1-DFN1010-6 (Type B) | | — | 250 | — | |
| | | X2-DFN1010-6 | | — | 250 | — | |
| | | X2-DFN1409-6 | | — | 275 | — | |
| | | X2-DFN1410-6 | | — | 265 | — | |

Note: 10. Test condition for each of the 8 package types: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Switching Characteristics

Figure 1 Typical Values at $T_A = +25^\circ\text{C}$ and nominal voltages 1.8V, 2.5V, 2.7V, 3.3V, and 5.0V.

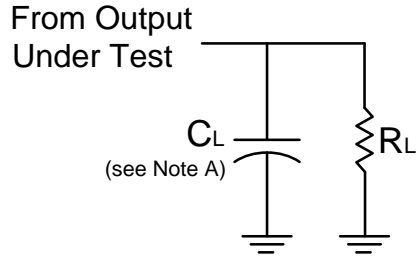
| Parameter | From Input | To Output | V_{CC} | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ | | | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ | | Unit |
|-----------|------------|-----------|--------------------------------|---|-----|-----|--|-----|------|
| | | | | Min | Typ | Max | Min | Max | |
| t_{pd} | A or B | Y | $1.8\text{V} \pm 0.15\text{V}$ | 1.0 | 3.0 | 7.5 | 1.0 | 9.5 | ns |
| | | | $2.5\text{V} \pm 0.2\text{V}$ | 0.5 | 2.0 | 5.0 | 0.5 | 6.5 | |
| | | | 2.7V | 0.5 | 2.3 | 5.2 | 0.5 | 7.0 | |
| | | | $3.3\text{V} \pm 0.3\text{V}$ | 0.5 | 2.0 | 4.2 | 0.5 | 5.5 | |
| | | | $5.0\text{V} \pm 0.5\text{V}$ | 0.5 | 1.6 | 3.7 | 0.5 | 5.0 | |

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 | $f = 10\text{MHz}$ | 16 | 16 | 16 | 16 | pF |

Parameter Measurement Information



| V _{CC} | Inputs | | V _M | C _L | R _L |
|-----------------|-----------------|--------------------------------|--------------------|----------------|----------------|
| | V _I | t _r /t _f | | | |
| 1.8V ± 0.15V | V _{CC} | ≤2ns | V _{CC} /2 | 30pF | 1kΩ |
| 2.5V ± 0.2V | V _{CC} | ≤2ns | V _{CC} /2 | 30pF | 500Ω |
| 2.7V | V _{CC} | ≤2.5ns | 1.5V | 50pF | 500Ω |
| 3.3V ± 0.3V | 3.0V | ≤2.5ns | 1.5V | 50pF | 500Ω |
| 5.0V ± 0.5V | V _{CC} | ≤2.5ns | V _{CC} /2 | 50pF | 500Ω |

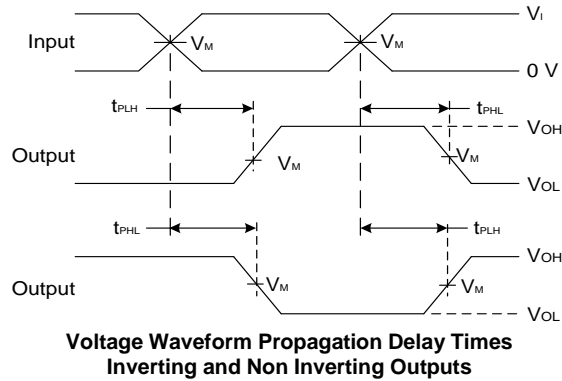
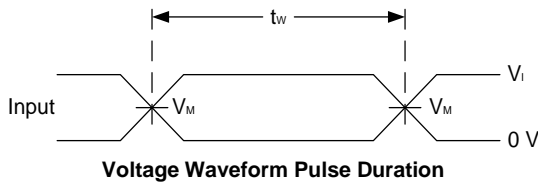
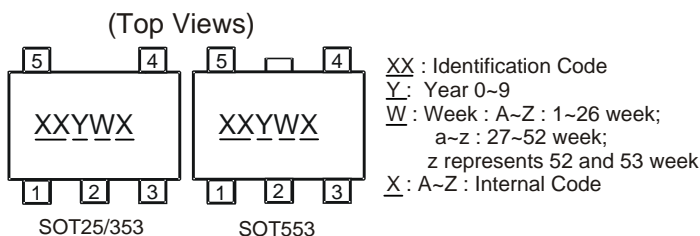


Figure 1 Load Circuit and Voltage Waveforms

- Notes:
- A. Includes test lead and test apparatus capacitance.
 - B. All pulses are supplied at pulse repetition rate ≤ 10MHz.
 - C. t_{PLH} and t_{PHL} are the same as t_{PD}.

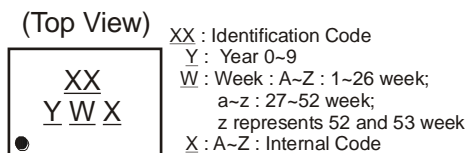
Marking Information

(1) SOT25, SOT353 and SOT553



| Part Number | Package | Identification Code |
|---------------|---------|---------------------|
| 74LVC1G04W5-7 | SOT25 | UU |
| 74LVC1G04SE-7 | SOT353 | UU |
| 74LVC1G04Z-7 | SOT553 | UU |

(2) DFN Packages

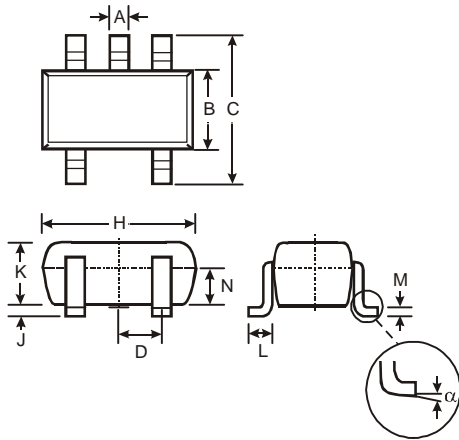


| Part Number | Package | Identification Code |
|----------------|-----------------------|---------------------|
| 74LVC1G04FS3-7 | X2-DFN0808-4 | WU |
| 74LVC1G04FW5-7 | X1-DFN1010-6 (Type B) | V4 |
| 74LVC1G04FW4-7 | X2-DFN1010-6 | UU |
| 74LVC1G04FX4-7 | X2-DFN1409-6 | MC |
| 74LVC1G04FZ4-7 | X2-DFN1410-6 | UU |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT25

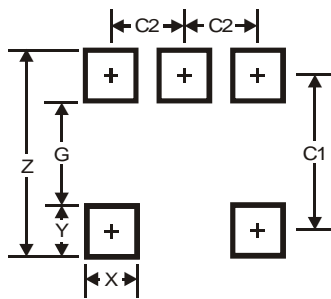


| SOT25 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 0.35 | 0.50 | 0.38 |
| B | 1.50 | 1.70 | 1.60 |
| C | 2.70 | 3.00 | 2.80 |
| D | - | - | 0.95 |
| H | 2.90 | 3.10 | 3.00 |
| J | 0.013 | 0.10 | 0.05 |
| K | 1.00 | 1.30 | 1.10 |
| L | 0.35 | 0.55 | 0.40 |
| M | 0.10 | 0.20 | 0.15 |
| N | 0.70 | 0.80 | 0.75 |
| α | 0° | 8° | - |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT25

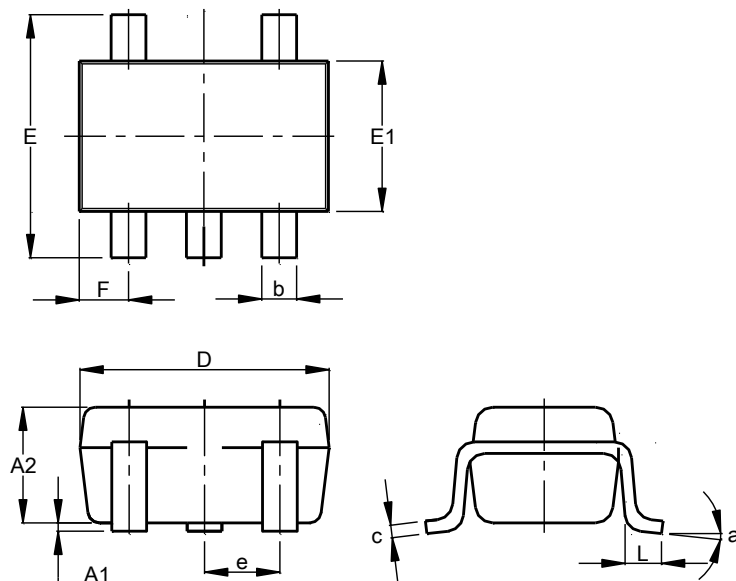


| Dimensions | Value |
|------------|-------|
| Z | 3.20 |
| G | 1.60 |
| X | 0.55 |
| Y | 0.80 |
| C1 | 2.40 |
| C2 | 0.95 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT353

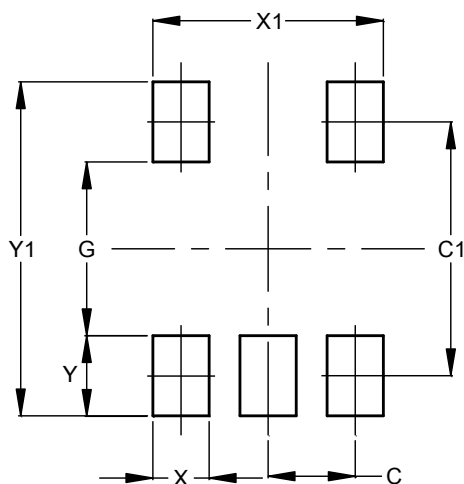


| SOT353 | | | |
|----------------------|-----------|------|-------|
| Dim | Min | Max | Typ |
| A1 | 0.00 | 0.10 | 0.05 |
| A2 | 0.90 | 1.00 | 1.00 |
| b | 0.10 | 0.30 | 0.25 |
| c | 0.10 | 0.22 | 0.11 |
| D | 1.80 | 2.20 | 2.15 |
| E | 2.00 | 2.20 | 2.10 |
| E1 | 1.15 | 1.35 | 1.30 |
| e | 0.650 BSC | | |
| F | 0.40 | 0.45 | 0.425 |
| L | 0.25 | 0.40 | 0.30 |
| a | 0° | 8° | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT353

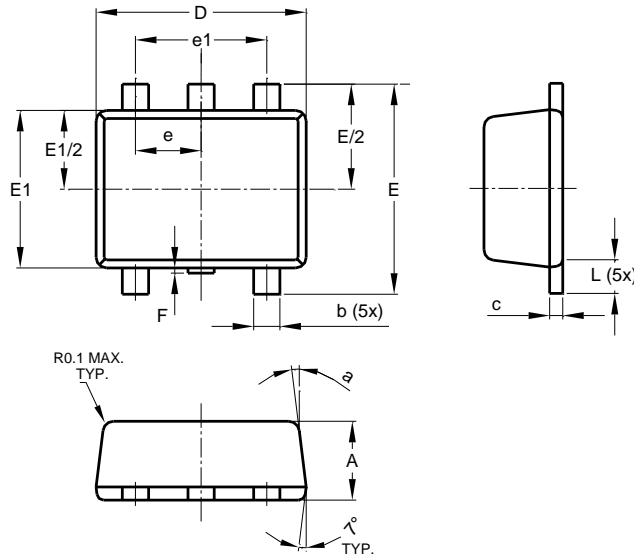


| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.650 |
| C1 | 1.900 |
| G | 1.300 |
| X | 0.420 |
| X1 | 1.720 |
| Y | 0.600 |
| Y1 | 2.500 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT553

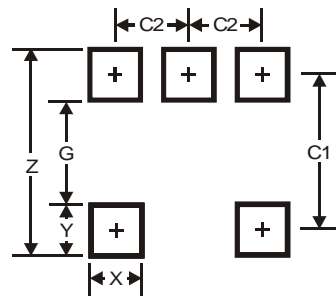


| SOT553 | | | |
|----------------------|----------|------|------|
| Dim | Min | Max | Typ |
| A | 0.55 | 0.62 | 0.60 |
| b | 0.15 | 0.30 | 0.20 |
| c | 0.10 | 0.18 | 0.15 |
| D | 1.50 | 1.70 | 1.60 |
| E | 1.55 | 1.70 | 1.60 |
| E1 | 1.10 | 1.25 | 1.20 |
| e | 0.50 BSC | | |
| e1 | 1.00 BSC | | |
| F | 0.00 | 0.10 | — |
| L | 0.10 | 0.30 | 0.20 |
| a | 6° | 8° | 7° |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT553

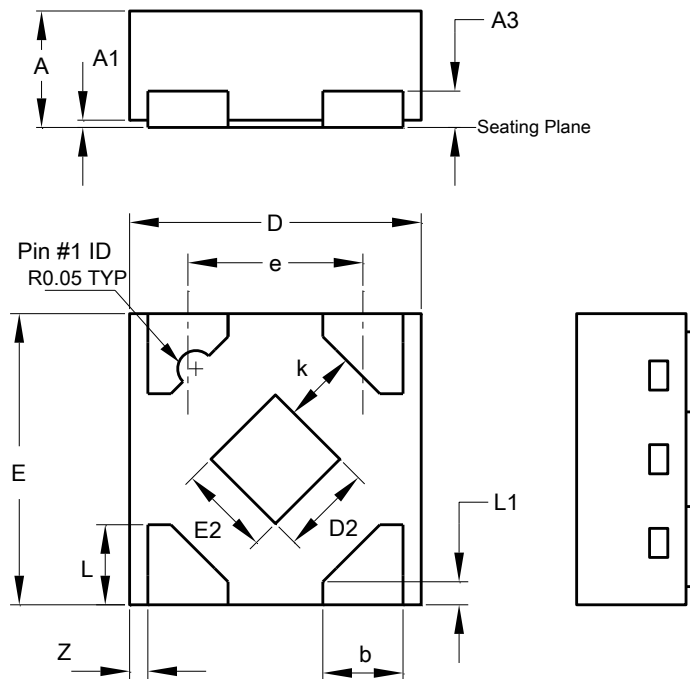


| Dimensions | Value |
|------------|-------|
| Z | 2.2 |
| G | 1.2 |
| X | 0.375 |
| Y | 0.5 |
| C1 | 1.7 |
| C2 | 0.5 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN0808-4

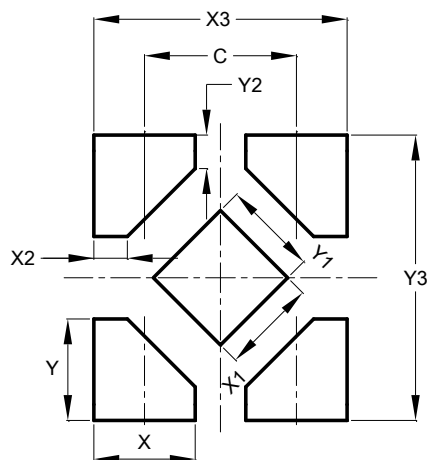


| X2-DFN0808-4 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.25 | 0.35 | 0.30 |
| A1 | 0 | 0.04 | 0.02 |
| A3 | - | - | 0.13 |
| b | 0.17 | 0.27 | 0.22 |
| D | 0.75 | 0.85 | 0.80 |
| D2 | 0.15 | 0.35 | 0.25 |
| E | 0.75 | 0.85 | 0.80 |
| E2 | 0.15 | 0.35 | 0.25 |
| e | - | - | 0.48 |
| k | 0.20 | - | - |
| L | 0.17 | 0.27 | 0.22 |
| L1 | 0.02 | 0.12 | 0.07 |
| z | - | - | 0.05 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN0808-4

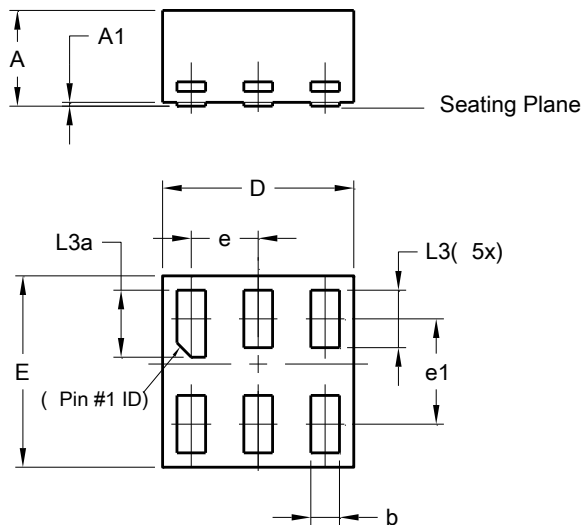


| Dimensions | Value |
|------------|-------|
| C | 0.480 |
| X | 0.320 |
| X1 | 0.300 |
| X2 | 0.106 |
| X3 | 0.800 |
| Y | 0.320 |
| Y1 | 0.300 |
| Y2 | 0.106 |
| Y3 | 0.900 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X1-DFN1010-6 (Type B)

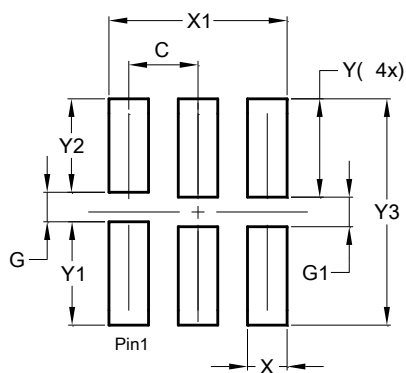


| X1-DFN1010-6 (Type B) | | | |
|--------------------------|----------|-------|------|
| Dim | Min | Max | Typ |
| A | - | 0.50 | 0.39 |
| A1 | - | 0.04 | - |
| b | 0.12 | 0.20 | 0.15 |
| D | 0.95 | 1.050 | 1.00 |
| E | 0.95 | 1.050 | 1.00 |
| e | 0.35 BSC | | |
| e1 | 0.55 BSC | | |
| L3 | 0.27 | 0.30 | 0.30 |
| L3a | 0.32 | 0.40 | 0.35 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X1-DFN1010-6 (Type B)

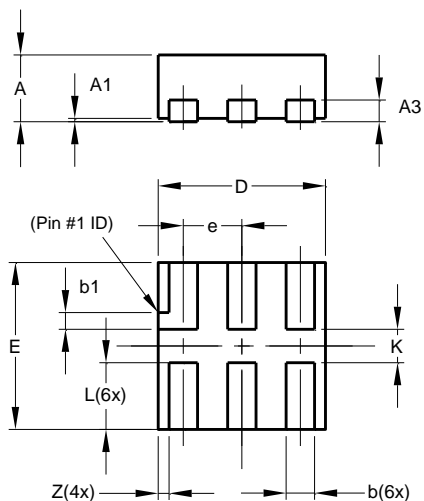


| Dimensions | Value (in mm) |
|------------|------------------|
| C | 0.350 |
| G | 0.150 |
| G1 | 0.150 |
| X | 0.200 |
| X1 | 0.900 |
| Y | 0.500 |
| Y1 | 0.525 |
| Y2 | 0.475 |
| Y3 | 1.150 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1010-6

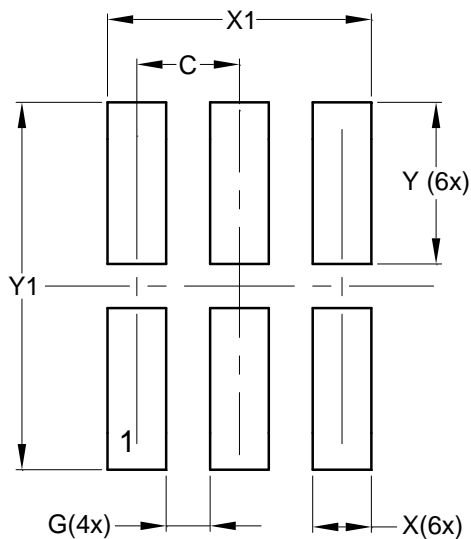


| X2-DFN1010-6 | | | |
|----------------------|------|------|-------|
| Dim | Min | Max | Typ |
| A | — | 0.40 | 0.39 |
| A1 | 0.00 | 0.05 | 0.02 |
| A3 | — | — | 0.13 |
| b | 0.14 | 0.20 | 0.17 |
| b1 | 0.05 | 0.15 | 0.10 |
| D | 0.95 | 1.05 | 1.00 |
| E | 0.95 | 1.05 | 1.00 |
| e | — | — | 0.35 |
| L | 0.35 | 0.45 | 0.40 |
| K | 0.15 | — | — |
| Z | — | — | 0.065 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1010-6

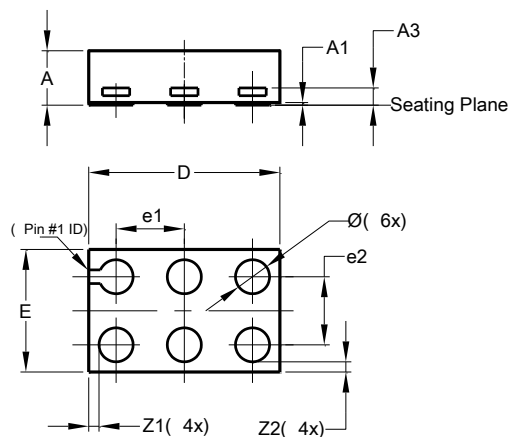


| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.350 |
| G | 0.150 |
| X | 0.200 |
| X1 | 0.900 |
| Y | 0.550 |
| Y1 | 1.250 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1409-6 CHIP SCALE ALTERNATIVE

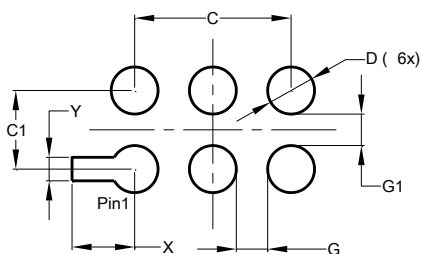


| X2-DFN1409-6 | | | |
|----------------------|------|------|-------|
| Dim | Min | Max | Typ |
| A | - | 0.40 | 0.39 |
| A1 | 0 | 0.05 | 0.02 |
| A3 | - | - | 0.13 |
| Ø | 0.20 | 0.30 | 0.25 |
| D | 1.35 | 1.45 | 1.40 |
| E | 0.85 | 0.95 | 0.90 |
| e1 | - | - | 0.50 |
| e2 | - | - | 0.50 |
| Z1 | - | - | 0.075 |
| Z2 | - | - | 0.075 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1409-6 CHIP SCALE ALTERNATIVE

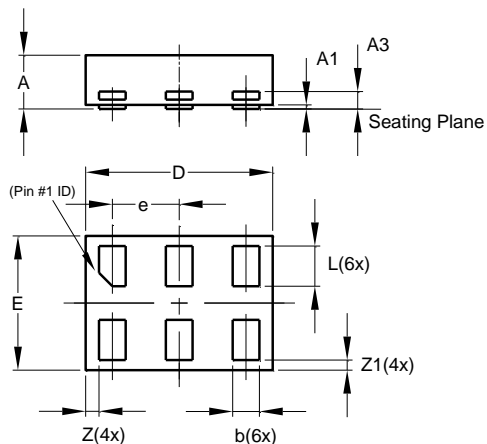


| Dimensions | Value (in mm) |
|------------|---------------|
| C | 1.000 |
| C1 | 0.500 |
| D | 0.300 |
| G | 0.200 |
| G1 | 0.200 |
| X | 0.400 |
| Y | 0.150 |

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1410-6

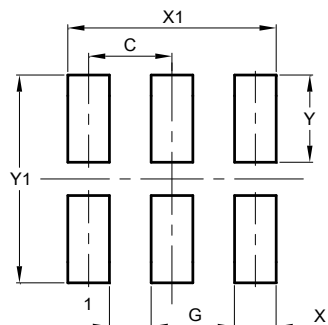


| X2-DFN1410-6 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | — | 0.40 | 0.39 |
| A1 | 0.00 | 0.05 | 0.02 |
| A3 | — | — | 0.13 |
| b | 0.15 | 0.25 | 0.20 |
| D | 1.35 | 1.45 | 1.40 |
| E | 0.95 | 1.05 | 1.00 |
| e | — | — | 0.50 |
| L | 0.25 | 0.35 | 0.30 |
| Z | — | — | 0.10 |
| Z1 | 0.045 | 0.105 | 0.075 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

X2-DFN1410-6



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.500 |
| G | 0.250 |
| X | 0.250 |
| X1 | 1.250 |
| Y | 0.525 |
| Y1 | 1.250 |

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