

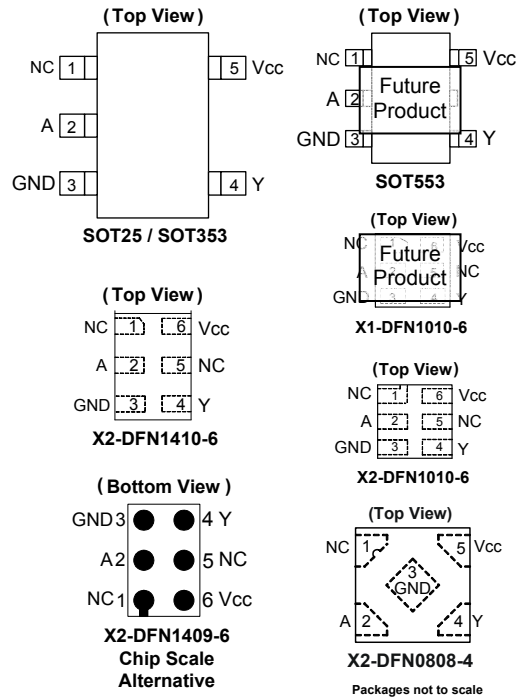
SINGLE SCHMITT-TRIGGER INVERTER

Description

The 74LVC1G14 is a single 1-input Schmitt-trigger inverter 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:

$$Y = \overline{A}$$

Pin Assignments



Features

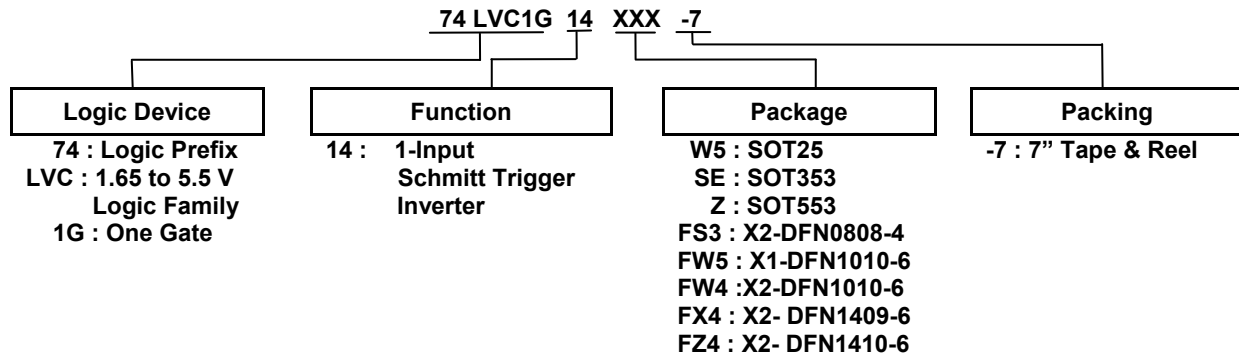
- Wide Supply Voltage Range from 1.65V to 5.5V
- ± 24mA Output Drive at 3.3V
- CMOS low power consumption
- IOFF Supports Partial-Power-Down Mode Operation
- Inputs accept up to 5.5V
- ESD Protection Exceeds JESD 22
 - 200-V Machine Model (A115)
 - 2000-V Human Body Model (A114)
- Latch-Up Exceeds 100mA per JESD 78, Class I
- Range of Package Options
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Applications

- Voltage Level Shifting
- General Purpose Logic
- Power Down Signal Isolation
- Wide array of products such as:
 - PCs, networking, notebooks, netbooks, PDAs
 - 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> 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 < 1000 ppm antimony compounds.

Ordering Information



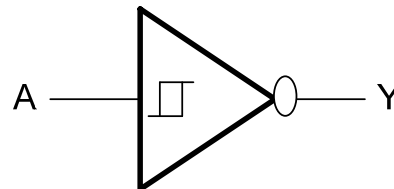
| Device | Package Code | Package (Notes 4,5) | Package Size | 7" Tape and Reel | |
|---|--------------|---|--|------------------|--------------------|
| | | | | Quantity | Part Number Suffix |
| 74LVC1G14W5-7 | W5 | SOT25 | 3.0mm X 2.8mm X 1.2mm 0.95mm lead pitch | 3000/Tape & Reel | -7 |
| 74LVC1G14SE-7 | SE | SOT353 | 2.0mm X 2.0mm X 1.1mm 0.65mm lead pitch | 3000/Tape & Reel | -7 |
| 74LVC1G14Z-7 Future Product | Z | SOT553 Future Product | 1.6mm X 1.6 mm X 0.62mm 0.5mm lead pitch | 4000/Tape & Reel | -7 |
| 74LVC1G14FS3-7 | FS3 | X2-DFN0808-4 | 0.9mm X 0.9 mm X 0.35mm 0.5mm pad pitch (diamond) | 5000/Tape & Reel | -7 |
| 74LVC1G14FW5-7 (Future Product) | FW5 | X1-DFN1010-6 (Future Product) | 1.0mm X 1.0mm X 0.5mm 0.35mm pad pitch | 5000/Tape & Reel | -7 |
| 74LVC1G14FW4-7 | FW4 | X2-DFN1010-6 | 1.0mm X 1.0mm X 0.4mm 0.35mm pad pitch | 5000/Tape & Reel | -7 |
| 74LVC1G14FX4-7 | FX4 | X2-DFN1409-6 (Chip scale alternative) | 1.4mm X 0.9mm X 0.4mm 0.5mm pad pitch | 5000/Tape & Reel | -7 |
| 74LVC1G14FZ4-7 | FZ4 | X2-DFN1410-6 | 1.4mm X 1.0mm X 0.4mm 0.5mm pad pitch | 5000/Tape & Reel | -7 |

Notes: 4. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>
 5. The taping orientation is located on our website at <http://www.diodes.com/datasheets/ap02007.pdf>

Pin Descriptions

| Pin Name | Description |
|-----------------|----------------|
| 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 6, 7)

| Symbol | Description | Rating | Unit |
|------------------------------------|---|------------------------------|------|
| ESD HBM | Human Body Model ESD Protection | 2 | 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 _{GND} | 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 8)

| Symbol | Parameter | Min | Max | Unit | |
|-----------------|--------------------------------|-------------------------|-----------------|------|----|
| V _{CC} | Operating Voltage | Operating | 1.65 | 5.5 | V |
| | | Data retention only | 1.5 | — | V |
| 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 | — | -24 | |
| 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 | — | 24 | |
| T _A | Operating Free-Air Temperature | — | -40 | +125 | °C |

- Notes: 8. Unused inputs should be held at V_{CC} or Ground.

Electrical Characteristics
 $T_A = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ (All typical values are at $V_{CC} = 3.3\text{V}$, $T_A = +25^{\circ}\text{C}$)

| Symbol | Parameter | Test Conditions | V_{CC} | Min | Typ. | Max | Unit |
|-----------------|---|---|---------------|----------------|------|----------|---------------|
| V_{T+} | Positive-Going Input Threshold Voltage | — | 1.65V | 0.70 | — | 1.20 | — |
| | | — | 2.3V | 1.11 | — | 1.60 | — |
| | | — | 3V | 1.50 | — | 2.00 | — |
| | | — | 4.5V | 2.16 | — | 2.74 | — |
| | | — | 5.5V | 2.61 | — | 3.33 | — |
| V_{T-} | Negative- Going Input Threshold Voltage | — | 1.65V | 0.30 | — | 0.72 | — |
| | | — | 2.3V | 0.58 | — | 1.00 | — |
| | | — | 3V | 0.80 | — | 1.30 | — |
| | | — | 4.5V | 1.21 | — | 1.95 | — |
| | | — | 5.5V | 1.45 | — | 2.35 | — |
| ΔV_T | Hysteresis ($V_{T+} - V_{T-}$) | — | 1.65V | 0.30 | — | 0.62 | — |
| | | — | 2.3V | 0.40 | — | 0.80 | — |
| | | — | 3V | 0.35 | — | 1.00 | — |
| | | — | 4.5V | 0.55 | — | 1.10 | — |
| | | — | 5.5V | 0.60 | — | 1.20 | — |
| V_{OH} | High Level Output Voltage | $I_{OH} = -100\mu\text{A}$ | 1.65V to 5.5V | $V_{CC} - 0.1$ | — | — | V |
| | | $I_{OH} = -4\text{mA}$ | 1.65V | 1.2 | — | — | |
| | | $I_{OH} = -8\text{mA}$ | 2.3V | 1.9 | — | — | |
| | | $I_{OH} = -12\text{mA}$ | 2.7V | 2.2 | — | — | |
| | | $I_{OH} = -16\text{mA}$ | 3V | 2.4 | — | — | |
| | | $I_{OH} = -24\text{mA}$ | | 2.3 | — | — | |
| | | $I_{OH} = -32\text{mA}$ | 4.5V | 3.8 | — | — | |
| V_{OL} | Low-Level Output Voltage | $I_{OL} = 100\mu\text{A}$ | 1.65V to 5.5V | — | — | 0.1 | V |
| | | $I_{OL} = 4\text{mA}$ | 1.65V | — | — | 0.45 | |
| | | $I_{OL} = 8\text{mA}$ | 2.3V | — | — | 0.3 | |
| | | $I_{OL} = 12\text{mA}$ | 2.7V | — | — | 0.4 | |
| | | $I_{OL} = 16\text{mA}$ | 3V | — | — | 0.4 | |
| | | $I_{OL} = 24\text{mA}$ | | — | — | 0.55 | |
| | | $I_{OL} = 32\text{mA}$ | 4.5 | — | — | 0.55 | |
| I_I | Input Current | $V_I = 5.5\text{V}$ or GND | 0 to 5.5V | — | — | ± 5 | μA |
| I_{OFF} | Power Down Leakage Current | V_I or $V_O = 5.5\text{V}$ | 0 | — | — | ± 10 | μA |
| I_{CC} | Supply Current | $V_I = 5.5\text{V}$ of GND $I_O = 0$ | 1.65V to 5.5V | — | — | 10 | μA |
| ΔI_{CC} | Additional Supply Current | Input at $V_{CC} - 0.6\text{V}$ | 3V to 5.5V | — | — | 500 | μA |

Electrical Characteristics $T_A = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ (All typical values are at $V_{CC} = 3.3\text{V}$, $T_A = +25^{\circ}\text{C}$)

| Symbol | Parameter | Test Conditions | V_{CC} | Min | Typ. | Max | Unit |
|-----------------|---|---|---------------|----------------|------|-----------|---------------|
| V_{T+} | Positive- Going Input Threshold Voltage | — | 1.65V | 0.70 | — | 1.20 | — |
| | | — | 2.3V | 1.11 | — | 1.60 | — |
| | | — | 3V | 1.50 | — | 2.00 | — |
| | | — | 4.5V | 2.16 | — | 2.74 | — |
| | | — | 5.5V | 2.61 | — | 3.33 | — |
| V_{T-} | Negative- Going Input Threshold Voltage | — | 1.65V | 0.30 | — | 0.75 | — |
| | | — | 2.3V | 0.58 | — | 1.03 | — |
| | | — | 3V | 0.80 | — | 1.33 | — |
| | | — | 4.5V | 1.21 | — | 1.95 | — |
| | | — | 5.5V | 1.45 | — | 2.35 | — |
| ΔV_T | Hysteresis ($V_{T+} - V_{T-}$) | — | 1.65V | 0.30 | — | 0.62 | — |
| | | — | 2.3V | 0.37 | — | 0.80 | — |
| | | — | 3V | 0.32 | — | 1.00 | — |
| | | — | 4.5V | 0.50 | — | 1.20 | — |
| | | — | 5.5V | 0.55 | — | 1.40 | — |
| V_{OH} | High Level Output Voltage | $I_{OH} = -100\mu\text{A}$ | 1.65V to 5.5V | $V_{CC} - 0.1$ | — | — | V |
| | | $I_{OH} = -4\text{mA}$ | 1.65V | 0.95 | — | — | |
| | | $I_{OH} = -8\text{mA}$ | 2.3V | 1.7 | — | — | |
| | | $I_{OH} = -12\text{mA}$ | 2.7V | 1.9 | — | — | |
| | | $I_{OH} = -16\text{mA}$ | 3V | 1.9 | — | — | |
| | | $I_{OH} = -24\text{mA}$ | | 2.0 | — | — | |
| | | $I_{OH} = -32\text{mA}$ | 4.5V | 3.4 | — | — | |
| V_{OL} | Low-Level Output Voltage | $I_{OL} = 100\mu\text{A}$ | 1.65V to 5.5V | — | — | 0.1 | V |
| | | $I_{OL} = 4\text{mA}$ | 1.65V | — | — | 0.7 | |
| | | $I_{OL} = 8\text{mA}$ | 2.3V | — | — | 0.45 | |
| | | $I_{OL} = 12\text{mA}$ | 2.7V | — | — | 0.6 | |
| | | $I_{OL} = 16\text{mA}$ | 3V | — | — | 0.6 | |
| | | $I_{OL} = 24\text{mA}$ | | — | — | 0.8 | |
| | | $I_{OL} = 32\text{mA}$ | 4.5V | — | — | 0.8 | |
| I_I | Input Current | $V_I = 5.5\text{V}$ or GND | 0 to 5.5V | — | — | ± 100 | μA |
| I_{OFF} | Power Down Leakage Current | V_I or $V_O = 5.5\text{V}$ | 0 | — | — | ± 200 | μA |
| I_{CC} | Supply Current | $V_I = 5.5\text{V}$ of GND $I_O = 0$ | 1.65V to 5.5V | — | — | 200 | μA |
| ΔI_{CC} | Additional Supply Current | Input at $V_{CC} - 0.6\text{V}$ | 3V to 5.5V | — | — | 5000 | μA |

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 9) | — | 204 | — | $^\circ C/W$ |
| | | SOT353 | | — | 371 | — | |
| | | SOT553 | | — | 231 | — | |
| | | X2-DFN0808-4 | | — | 400 | — | |
| | | X1-DFN1010-6 | | — | 435 | — | |
| | | X2-DFN1010-6 | | — | 445 | — | |
| | | X2-DFN1409-6 | | — | 470 | — | |
| | | X2-DFN1410-6 | | — | 460 | — | |
| θ_{JC} | Thermal Resistance Junction-to-Case | SOT25 | (Note 9) | — | 52 | — | $^\circ C/W$ |
| | | SOT353 | | — | 143 | — | |
| | | SOT553 | | — | 105 | — | |
| | | X2-DFN0808-4 | | — | 225 | — | |
| | | X1-DFN1010-6 | | — | 250 | — | |
| | | X2-DFN1010-6 | | — | 250 | — | |
| | | X2-DFN1409-6 | | — | 275 | — | |
| | | X2-DFN1410-6 | | — | 265 | — | |

Note: 9. 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

$T_A = -40^\circ C$ to $+85^\circ C$, $C_L = 15pF$ as noted (see Figure 1)

| Parameter | From Input | To Output | $V_{CC} = 1.8V \pm 0.15V$ | | $V_{CC} = 2.5V \pm 0.2V$ | | $V_{CC} = 3.3V \pm 0.3V$ | | $V_{CC} = 5V \pm 0.5V$ | | Unit |
|-----------|------------|-----------|---------------------------|-----|--------------------------|-----|--------------------------|-----|------------------------|-----|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Max | |
| t_{pd} | A | Y | 1.0 | 9.9 | 0.7 | 5.5 | 0.7 | 4.6 | 0.7 | 4.4 | ns |

$T_A = -40^\circ C$ to $+85^\circ C$, $C_L = 30$ or $50pF$ as noted (see Figure 2)

| Parameter | From Input | To Output | $V_{CC} = 1.8V \pm 0.15V$ | | $V_{CC} = 2.5V \pm 0.2V$ | | $V_{CC} = 3.3V \pm 0.3V$ | | $V_{CC} = 5V \pm 0.5V$ | | Unit |
|-----------|------------|-----------|---------------------------|-----|--------------------------|-----|--------------------------|-----|------------------------|-----|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Max | |
| t_{pd} | A | Y | 1.0 | 11 | 0.7 | 6.5 | 0.7 | 5.5 | 0.7 | 5 | ns |

$T_A = -40^\circ C$ to $+125^\circ C$, $C_L = 15pF$ as noted (see Figure 1)

| Parameter | From Input | To Output | $V_{CC} = 1.8V \pm 0.15V$ | | $V_{CC} = 2.5V \pm 0.2V$ | | $V_{CC} = 3.3V \pm 0.3V$ | | $V_{CC} = 5V \pm 0.5V$ | | Unit |
|-----------|------------|-----------|---------------------------|------|--------------------------|-----|--------------------------|-----|------------------------|-----|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Max | |
| t_{pd} | A | Y | 1.0 | 12.5 | 0.7 | 7.5 | 0.7 | 6.5 | 0.7 | 5.5 | ns |

$T_A = -40^\circ C$ to $+125^\circ C$, $C_L = 30$ or $50pF$ as noted (see Figure 2)

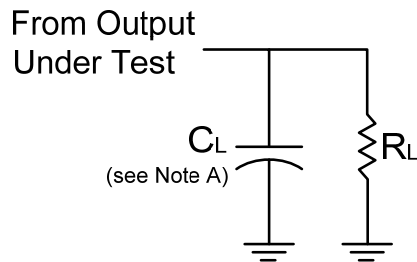
| Parameter | From Input | To Output | $V_{CC} = 1.8V \pm 0.15V$ | | $V_{CC} = 2.5V \pm 0.2V$ | | $V_{CC} = 3.3V \pm 0.3V$ | | $V_{CC} = 5V \pm 0.5V$ | | Unit |
|-----------|------------|-----------|---------------------------|------|--------------------------|-----|--------------------------|-----|------------------------|-----|------|
| | | | Min | Max | Min | Max | Min | Max | Min | Max | |
| t_{pd} | A | Y | 1.0 | 14.0 | 0.7 | 8.5 | 0.7 | 7.0 | 0.7 | 6.5 | ns |

Operating Characteristics

T_A = +25°C

| Parameter | | Test Conditions | V _{CC} = 1.8V | V _{CC} = 2.5V | V _{CC} = 3.3V | V _{CC} = 5V | Unit |
|-----------------|-------------------------------|-----------------|------------------------|------------------------|------------------------|----------------------|------|
| | | | Typ. | Typ. | Typ. | Typ. | |
| C _{pd} | Power Dissipation Capacitance | f = 10 MHz | 20 | 21 | 22 | 25 | 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 | 15pF | 1MΩ |
| 2.5V±0.2V | V _{CC} | ≤2ns | V _{CC} /2 | 15pF | 1MΩ |
| 3.3V±0.3V | 3V | ≤2.5ns | 1.5V | 15pF | 1MΩ |
| 5V±0.5V | V _{CC} | ≤2.5ns | V _{CC} /2 | 15pF | 1MΩ |

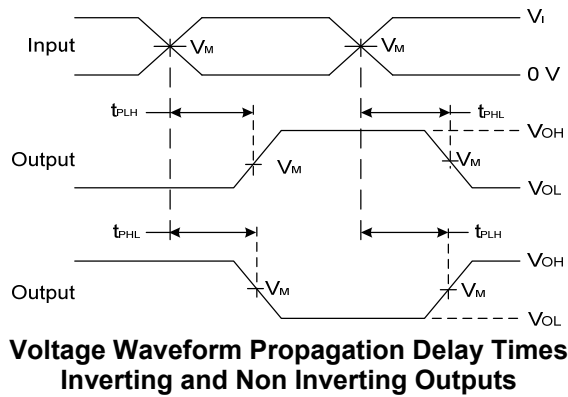
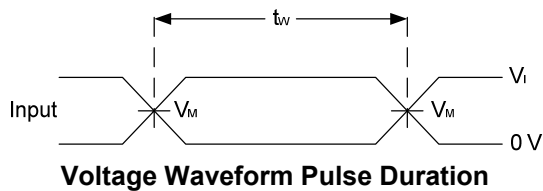
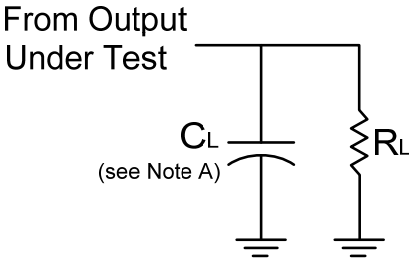


Figure 1. Load Circuit and Voltage Waveforms

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

Parameter Measurement Information (Cont.)



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

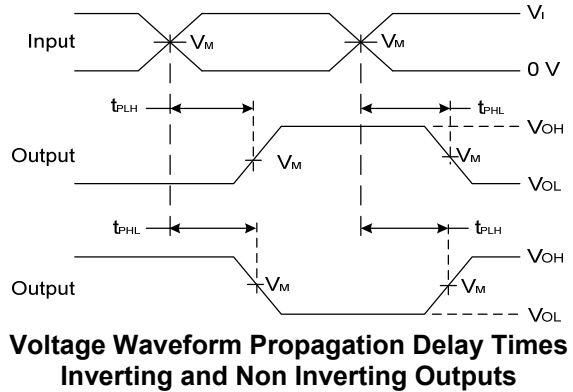
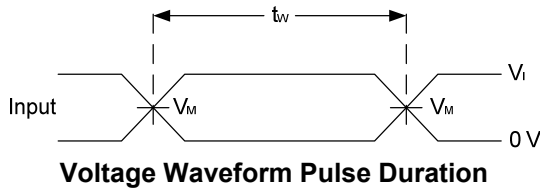
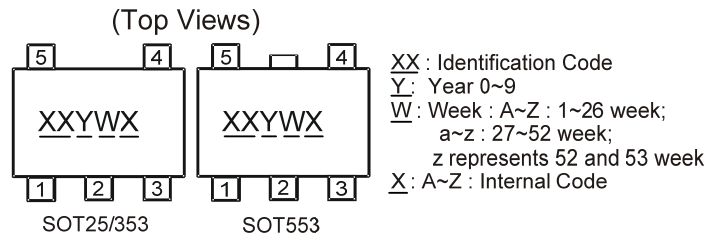


Figure 2. Load Circuit and Voltage Waveforms

- Notes:
- A. Includes test lead and test apparatus capacitance.
 - B. All pulses are supplied at pulse repetition rate $\leq 10MHz$.
 - C. Inputs are measured separately one transition per measurement.
 - D. t_{PLH} and t_{PHL} are the same as t_{PD} .

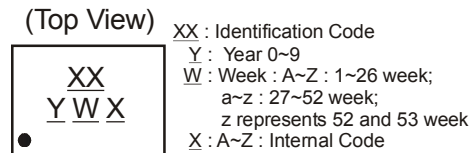
Marking Information

(1) SOT25, SOT353 and SOT553



| Part Number | Package | Identification Code |
|---------------|---------|---------------------|
| 74LVC1G14W5-7 | SOT25 | UP |
| 74LVC1G14SE-7 | SOT353 | UP |
| 74LVC1G14Z-7 | SOT553 | UP |

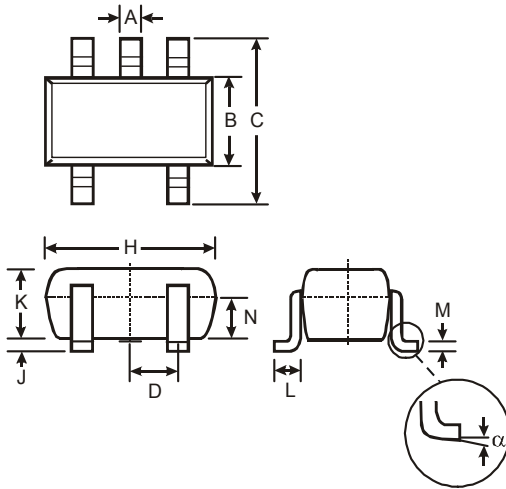
(2) DFN packages



| Part Number | Package | Identification Code |
|----------------|--------------|---------------------|
| 74LVC1G14FS3-7 | X2-DFN0808-4 | WP |
| 74LVC1G14FW5-7 | X1-DFN1010-6 | V8 |
| 74LVC1G14FW4-7 | X2-DFN1010-6 | UP |
| 74LVC1G14FX4-7 | X2-DFN1409-6 | MG |
| 74LVC1G14FZ4-7 | X2-DFN1410-6 | UP |

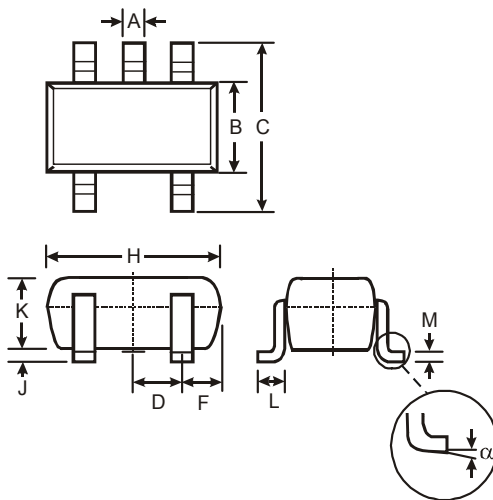
Package Outline Dimensions (All Dimensions in mm)

(1) Package Type: SOT25



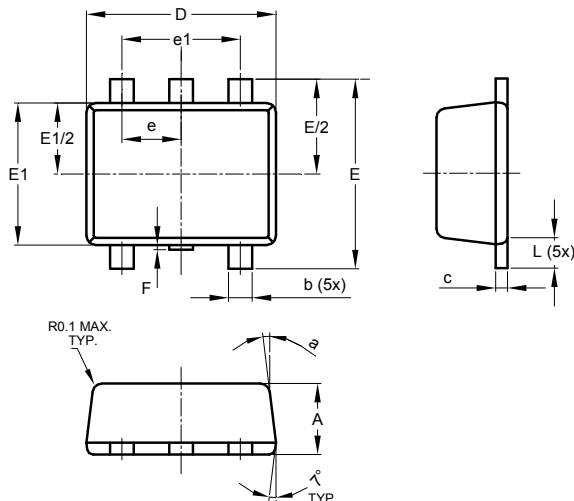
| SOT25 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 0.35 | 0.50 | 0.38 |
| B | 1.50 | 1.70 | 1.60 |
| C | 2.70 | 3.00 | 2.80 |
| D | — | — | 0.95 |
| H | 2.90 | 3.10 | 3.00 |
| J | 0.013 | 0.10 | 0.05 |
| K | 1.00 | 1.30 | 1.10 |
| L | 0.35 | 0.55 | 0.40 |
|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

(2) Package Type: SOT353



| SOT353 | | |
|----------------------|----------|------|
| Dim | Min | Max |
| A | 0.10 | 0.30 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Typ | |
| F | 0.40 | 0.45 |
| H | 1.80 | 2.20 |
| J | 0 | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.22 |
| α | 0° | 8° |
| All Dimensions in mm | | |

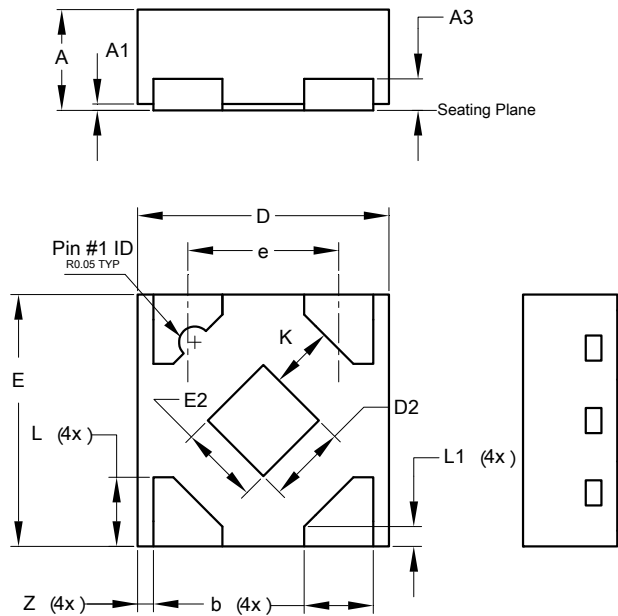
(3) Package Type: SOT553



| 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 | | | |

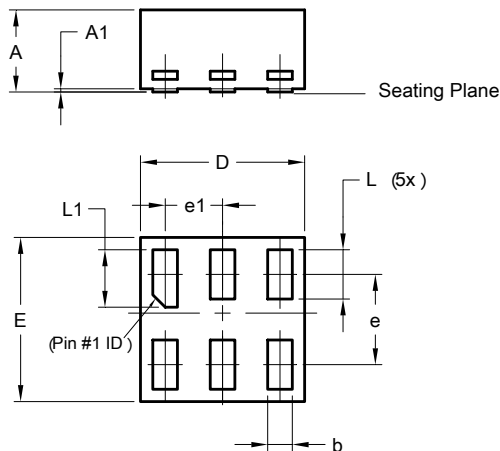
Package Outline Dimensions (cont.)

(4) Package Type 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 | | | |

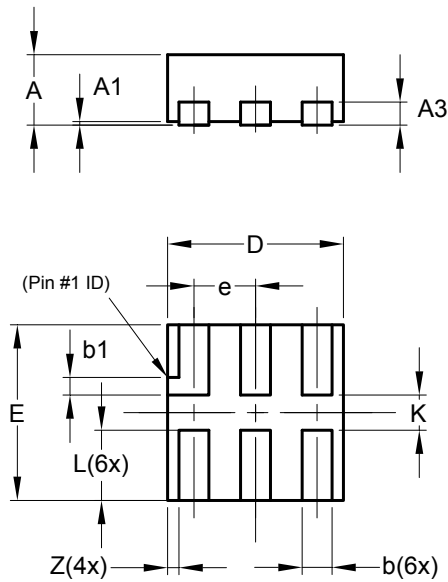
(5) Package Type: X1-DFN1010-6



| X1-DFN1010-6 | | | |
|----------------------|----------|-------|------|
| 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 | 0.55 BSC | | |
| e1 | 0.35 BSC | | |
| L | 0.27 | 0.35 | 0.30 |
| L1 | 0.32 | 0.40 | 0.35 |
| All Dimensions in mm | | | |

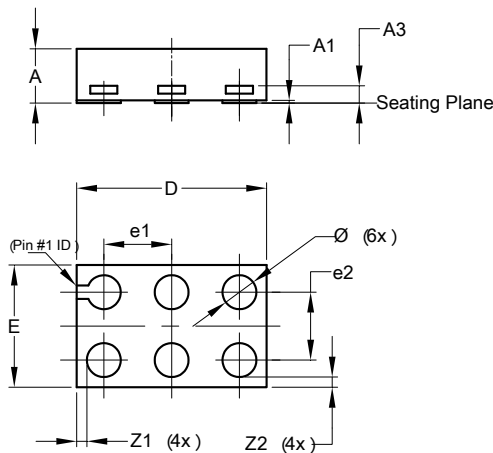
Package Outline Dimensions (cont.)

(6) Package Type X2-DFN1010-6



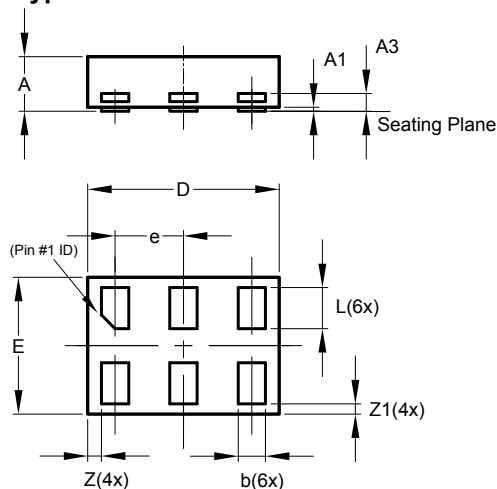
| X2-DFN1010-6 | | | |
|----------------------|------|------|-------|
| Dim | Min | Max | Typ |
| A | — | 0.40 | 0.39 |
| A1 | 0.00 | 0.05 | 0.02 |
| A3 | — | — | 0.13 |
| b | 0.14 | 0.20 | 0.17 |
| b1 | 0.05 | 0.15 | 0.10 |
| D | 0.95 | 1.05 | 1.00 |
| E | 0.95 | 1.05 | 1.00 |
| e | — | — | 0.35 |
|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

(7) Package Type: X2-DFN1409-6 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 |
| \emptyset | 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 | | | |

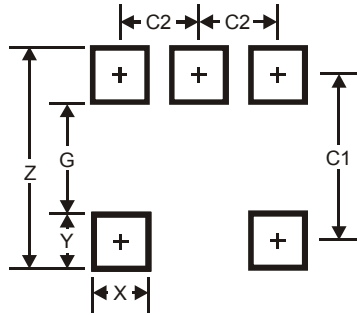
(8) Package Type: X2-DFN1410-6



| 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 | | | |

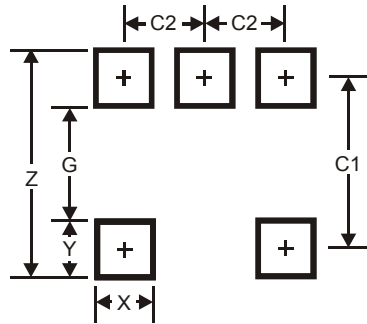
Suggested Pad Layout

(1) Package Type: SOT25



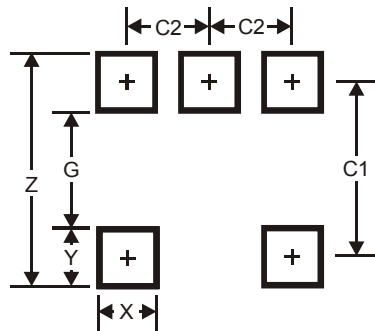
| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 3.20 |
| G | 1.60 |
| X | 0.55 |
| Y | 0.80 |
| C1 | 2.40 |
| C2 | 0.95 |

(2) Package Type: SOT353



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.5 |
| G | 1.3 |
| X | 0.42 |
| Y | 0.6 |
| C1 | 1.9 |
| C2 | 0.65 |

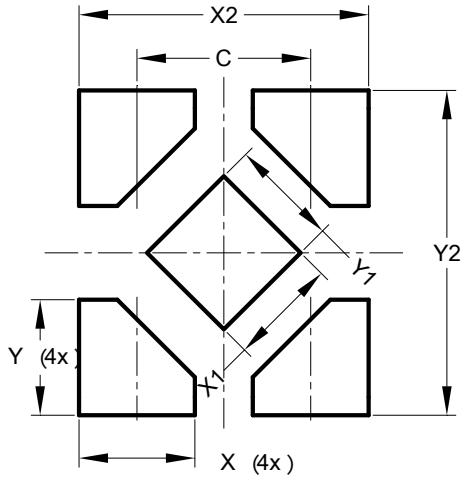
(3) Package Type: SOT553



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.2 |
| G | 1.2 |
| X | 0.375 |
| Y | 0.5 |
| C1 | 1.7 |
| C2 | 0.5 |

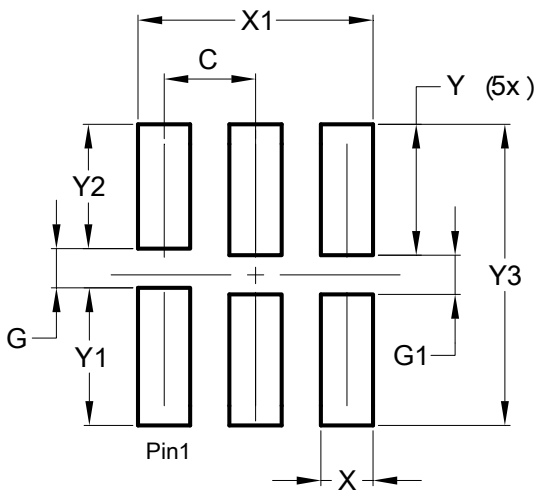
Suggested Pad Layout (cont.)

(4) Package Type X2-DFN0808-4



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.480 |
| X | 0.320 |
| X1 | 0.300 |
| X2 | 0.800 |
| Y | 0.320 |
| Y1 | 0.300 |
| Y2 | 0.900 |

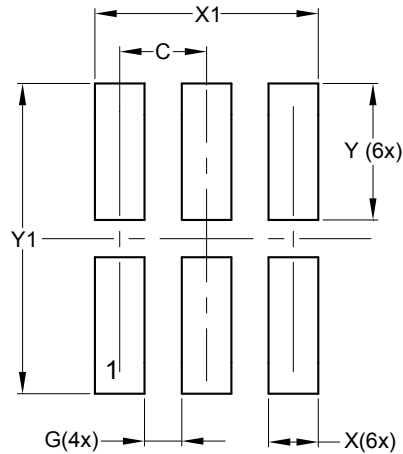
(5) Package Type X1-DFN1010-6



| 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 |

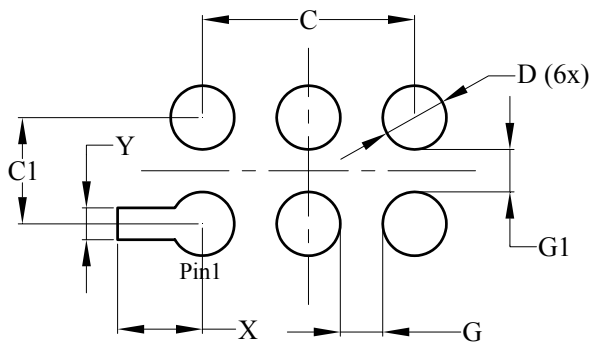
Suggested Pad Layout (cont.)

(6) (Package Type X2-DFN1010-6)



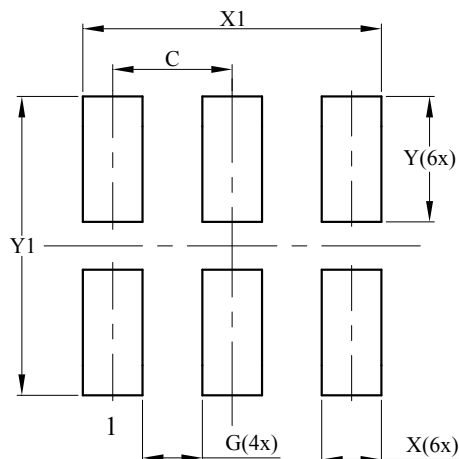
| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.350 |
| G | 0.150 |
| X | 0.200 |
| X1 | 0.900 |
| Y | 0.550 |
| Y1 | 1.250 |

(7) Package Type: X2-DFN1409-6



| 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 |

(8) Package Type: 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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