# 74LVC2G14

## Dual inverting Schmitt trigger with 5 V tolerant input

**Rev. 7 — 30 November 2011** **Product data sheet**

## 1. General description

The 74LVC2G14 provides two inverting buffers with Schmitt-trigger input. It is capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

The inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of this device in a mixed 3.3 V and 5 V environment. Schmitt-trigger action at the inputs makes the circuit tolerant of slower input rise and fall time. This device is fully specified for partial power-down applications using $I_{OFF}$. The $I_{OFF}$ circuitry disables the output, preventing the damaging backflow current through the device when it is powered down.

## 2. Features and benefits

- Wide supply voltage range from 1.65 V to 5.5 V
- 5 V tolerant inputs for interfacing with 5 V logic
- High noise immunity
- Complies with JEDEC standard:
  - JESD8-7 (1.65 V to 1.95 V)
  - JESD8-5 (2.3 V to 2.7 V)
  - JESD8B/JESD36 (2.7 V to 3.6 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
- ±24 mA output drive ($V_{CC}$ = 3.0 V)
- CMOS low power consumption
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- Unlimited rise and fall times
- Input accepts voltages up to 5 V
- Multiple package options
- Specified from –40 °C to +85 °C and –40 °C to +125 °C.

## 3. Applications

- Wave and pulse shaper
- Astable multivibrator
- Monostable multivibrator

## 4. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74LVC2G14GW | −40 °C to +125 °C | SC-88 | plastic surface-mounted package; 6 leads | SOT363 |
| 74LVC2G14GV | −40 °C to +125 °C | TSOP6 | plastic surface-mounted package (TSOP6); 6 leads | SOT457 |
| 74LVC2G14GM | −40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | SOT886 |
| 74LVC2G14GF | −40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1 × 0.5 mm | SOT891 |
| 74LVC2G14GN | −40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm | SOT1115 |
| 74LVC2G14GS | −40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm | SOT1202 |

## 5. Marking

**Table 2. Marking codes**

| Type number | Marking code[1] |
|---|---|
| 74LVC2G14GW | VK |
| 74LVC2G14GV | V14 |
| 74LVC2G14GM | VK |
| 74LVC2G14GF | VK |
| 74LVC2G14GN | VK |
| 74LVC2G14GS | VK |

[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

## 6. Functional diagram

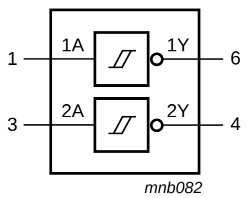


**Fig 1. Logic symbol**

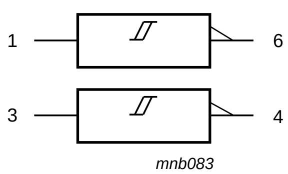


**Fig 2. IEC logic symbol**

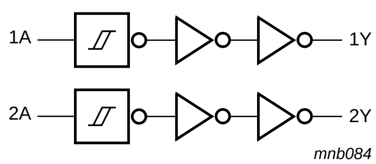


**Fig 3. Logic diagram**


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# 7. Pinning information

## 7.1 Pinning

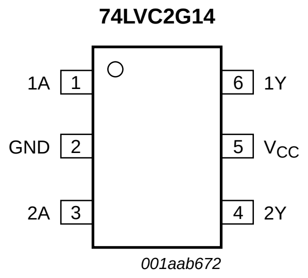


Fig 4. Pin configuration SOT363 and SOT457

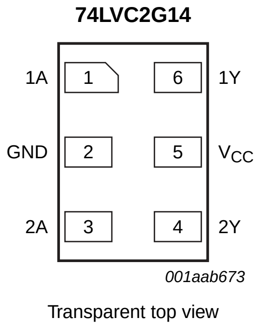


Fig 5. Pin configuration SOT886

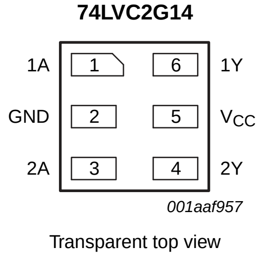


Fig 6. Pin configuration SOT891, SOT1115 and SOT1202

## 7.2 Pin description

**Table 3. Pin description**

| Symbol | Pin | Description |
|---|---|---|
| 1A | 1 | data input |
| GND | 2 | ground (0 V) |
| 2A | 3 | data input |
| 2Y | 4 | data output |
| $V_{CC}$ | 5 | supply voltage |
| 1Y | 6 | data input |

# 8. Functional description

**Table 4. Function table[1]**

| Input | Output |
|---|---|
| **nA** | **nY** |
| L | H |
| H | L |

[1] H = HIGH voltage level;
L = LOW voltage level.


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# 9. Limiting values

**Table 5. Limiting values**

*In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to GND (ground = 0 V).*

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | | –0.5 | +6.5 | V |
| $I_{IK}$ | input clamping current | $V_I < 0$ V | | –50 | - | mA |
| $V_I$ | input voltage | | [1] | –0.5 | +6.5 | V |
| $I_{OK}$ | output clamping current | $V_O > V_{CC}$ or $V_O < 0$ V | | - | ±50 | mA |
| $V_O$ | output voltage | Active mode | [1][2] | –0.5 | $V_{CC}$ + 0.5 | V |
| | | Power-down mode | [1][2] | –0.5 | +6.5 | V |
| $I_O$ | output current | $V_O$ = 0 V to $V_{CC}$ | | - | ±50 | mA |
| $I_{CC}$ | supply current | | | - | 100 | mA |
| $I_{GND}$ | ground current | | | –100 | - | mA |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = –40 °C to +125 °C | [3] | - | 250 | mW |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |

[1] The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

[2] When $V_{CC}$ = 0 V (Power-down mode), the output voltage can be 5.5 V in normal operation.

[3] For SC-88 and TSOP6 packages: above 87.5 °C the value of $P_{tot}$ derates linearly with 4.0 mW/K.
For XSON6 packages: above 118 °C the value of $P_{tot}$ derates linearly with 7.8 mW/K.

# 10. Recommended operating conditions

**Table 6. Recommended operating conditions**

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | 1.65 | - | 5.5 | V |
| $V_I$ | input voltage | | 0 | - | 5.5 | V |
| $V_O$ | output voltage | Active mode | 0 | - | $V_{CC}$ | V |
| | | Power-down mode; $V_{CC}$ = 0 V | 0 | - | 5.5 | V |
| $T_{amb}$ | ambient temperature | | –40 | - | +125 | °C |



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## 11. Static characteristics

**Table 7. Static characteristics**

*At recommended operating conditions; voltages are referenced to GND (ground = 0 V).*

| Symbol | Parameter | Conditions | Min | Typ [1] | Max | Unit |
|---|---|---|---|---|---|---|
| **$T_{amb}$ = –40 °C to +85 °C** | | | | | | |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | |
| | | $I_O$ = –100 µA; $V_{CC}$ = 1.65 V to 5.5 V | $V_{CC}$ – 0.1 | - | - | V |
| | | $I_O$ = –4 mA; $V_{CC}$ = 1.65 V | 1.2 | - | - | V |
| | | $I_O$ = –8 mA; $V_{CC}$ = 2.3 V | 1.9 | - | - | V |
| | | $I_O$ = –12 mA; $V_{CC}$ = 2.7 V | 2.2 | - | - | V |
| | | $I_O$ = –24 mA; $V_{CC}$ = 3.0 V | 2.3 | - | - | V |
| | | $I_O$ = –32 mA; $V_{CC}$ = 4.5 V | 3.8 | - | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | |
| | | $I_O$ = 100 µA; $V_{CC}$ = 1.65 V to 5.5 V | - | - | 0.1 | V |
| | | $I_O$ = 4 mA; $V_{CC}$ = 1.65 V | - | - | 0.45 | V |
| | | $I_O$ = 8 mA; $V_{CC}$ = 2.3 V | - | - | 0.3 | V |
| | | $I_O$ = 12 mA; $V_{CC}$ = 2.7 V | - | - | 0.4 | V |
| | | $I_O$ = 24 mA; $V_{CC}$ = 3.0 V | - | - | 0.55 | V |
| | | $I_O$ = 32 mA; $V_{CC}$ = 4.5 V | - | - | 0.55 | V |
| $I_I$ | input leakage current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 0 V to 5.5 V | - | ±0.1 | ±5 | µA |
| $I_{OFF}$ | power-off leakage current | $V_I$ or $V_O$ = 5.5 V; $V_{CC}$ = 0 V | - | ±0.1 | ±10 | µA |
| $I_{CC}$ | supply current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = 0 A | - | 0.1 | 10 | µA |
| $\Delta I_{CC}$ | additional supply current | $V_I = V_{CC}$ – 0.6 V; $I_O$ = 0 A; $V_{CC}$ = 2.3 V to 5.5 V | - | 5 | 500 | µA |
| $C_I$ | input capacitance | $V_{CC}$ = 3.3 V; $V_I$ = GND to $V_{CC}$ | - | 3.5 | - | pF |
| **$T_{amb}$ = –40 °C to +125 °C** | | | | | | |
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | |
| | | $I_O$ = –100 µA; $V_{CC}$ = 1.65 V to 5.5 V | $V_{CC}$ – 0.1 | - | - | V |
| | | $I_O$ = –4 mA; $V_{CC}$ = 1.65 V | 0.95 | - | - | V |
| | | $I_O$ = –8 mA; $V_{CC}$ = 2.3 V | 1.7 | - | - | V |
| | | $I_O$ = –12 mA; $V_{CC}$ = 2.7 V | 1.9 | - | - | V |
| | | $I_O$ = –24 mA; $V_{CC}$ = 3.0 V | 2.0 | - | - | V |
| | | $I_O$ = –32 mA; $V_{CC}$ = 4.5 V | 3.4 | - | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{T+}$ or $V_{T-}$ | | | | |
| | | $I_O$ = 100 µA; $V_{CC}$ = 1.65 V to 5.5 V | - | - | 0.1 | V |
| | | $I_O$ = 4 mA; $V_{CC}$ = 1.65 V | - | - | 0.7 | V |
| | | $I_O$ = 8 mA; $V_{CC}$ = 2.3 V | - | - | 0.45 | V |
| | | $I_O$ = 12 mA; $V_{CC}$ = 2.7 V | - | - | 0.6 | V |
| | | $I_O$ = 24 mA; $V_{CC}$ = 3.0 V | - | - | 0.8 | V |
| | | $I_O$ = 32 mA; $V_{CC}$ = 4.5 V | - | - | 0.8 | V |
| $I_I$ | input leakage current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 0 V to 5.5 V | - | - | ±20 | µA |


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**Table 7. Static characteristics** *...continued*

*At recommended operating conditions; voltages are referenced to GND (ground = 0 V).*

| Symbol | Parameter | Conditions | Min | Typ [1] | Max | Unit |
|---|---|---|---|---|---|---|
| $I_{OFF}$ | power-off leakage current | $V_I$ or $V_O$ = 5.5 V; $V_{CC}$ = 0 V | - | - | ±20 | μA |
| $I_{CC}$ | supply current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = 0 A | - | - | 40 | μA |
| $\Delta I_{CC}$ | additional supply current | $V_I = V_{CC} - 0.6$ V; $I_O$ = 0 A; $V_{CC}$ = 2.3 V to 5.5 V | - | - | 5000 | μA |

[1] All typical values are measured at maximum $V_{CC}$ and $T_{amb}$ = 25 °C.

**Table 8. Transfer characteristics**

*Voltages are referenced to GND (ground = 0 V; for test circuit see Figure 8*

| Symbol | Parameter | Conditions | −40 °C to +85 °C | | | −40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $V_{T+}$ | positive-going threshold voltage | see Figure 9 and Figure 10 | | | | | | |
| | | $V_{CC}$ = 1.8 V | 0.70 | 1.10 | 1.50 | 0.70 | 1.70 | V |
| | | $V_{CC}$ = 2.3 V | 1.00 | 1.40 | 1.80 | 1.00 | 2.00 | V |
| | | $V_{CC}$ = 3.0 V | 1.30 | 1.76 | 2.20 | 1.30 | 2.40 | V |
| | | $V_{CC}$ = 4.5 V | 1.90 | 2.47 | 3.10 | 1.90 | 3.30 | V |
| | | $V_{CC}$ = 5.5 V | 2.20 | 2.91 | 3.60 | 2.20 | 3.80 | V |
| $V_{T-}$ | negative-going threshold voltage | see Figure 9 and Figure 10 | | | | | | |
| | | $V_{CC}$ = 1.8 V | 0.25 | 0.61 | 0.90 | 0.25 | 1.10 | V |
| | | $V_{CC}$ = 2.3 V | 0.40 | 0.80 | 1.15 | 0.40 | 1.35 | V |
| | | $V_{CC}$ = 3.0 V | 0.60 | 1.04 | 1.50 | 0.60 | 1.70 | V |
| | | $V_{CC}$ = 4.5 V | 1.00 | 1.55 | 2.00 | 1.00 | 2.20 | V |
| | | $V_{CC}$ = 5.5 V | 1.20 | 1.86 | 2.30 | 1.20 | 2.50 | V |
| $V_H$ | hysteresis voltage | ($V_{T+} - V_{T-}$); see Figure 9, Figure 10 and Figure 11 | | | | | | |
| | | $V_{CC}$ = 1.8 V | 0.15 | 0.49 | 1.00 | 0.15 | 1.20 | V |
| | | $V_{CC}$ = 2.3 V | 0.25 | 0.60 | 1.10 | 0.25 | 1.30 | V |
| | | $V_{CC}$ = 3.0 V | 0.40 | 0.73 | 1.20 | 0.40 | 1.40 | V |
| | | $V_{CC}$ = 4.5 V | 0.60 | 0.92 | 1.50 | 0.60 | 1.70 | V |
| | | $V_{CC}$ = 5.5 V | 0.70 | 1.02 | 1.70 | 0.70 | 1.90 | V |

[1] All typical values are measured at $T_{amb}$ = 25 °C


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## 12. Dynamic characteristics

**Table 9. Dynamic characteristics**

*Voltages are referenced to GND (ground = 0 V). For test circuit see Figure 8.*

| Symbol | Parameter | Conditions | | –40 °C to +85 °C | | | –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Typ[1] | Max | Min | Max | |
| $t_{pd}$ | propagation delay | nA to nY; see Figure 7 | [2] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | | 1.0 | 5.6 | 11.0 | 1.0 | 12.0 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | | 0.5 | 3.7 | 6.5 | 0.5 | 7.2 | ns |
| | | $V_{CC}$ = 2.7 V | | 0.5 | 4.1 | 7.0 | 0.5 | 7.7 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | | 0.5 | 3.9 | 6.0 | 0.5 | 6.7 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | | 0.5 | 2.7 | 4.3 | 0.5 | 4.7 | ns |
| $C_{PD}$ | power dissipation capacitance | $V_I$ = GND to $V_{CC}$; $V_{CC}$ = 3.3 V | [3] | - | 18.1 | - | - | - | pF |

[1] Typical values are measured at $T_{amb}$ = 25 °C and $V_{CC}$ = 1.8 V, 2.5 V, 2.7 V, 3.3 V and 5.0 V respectively.

[2] $t_{pd}$ is the same as $t_{PLH}$ and $t_{PHL}$.

[3] $C_{PD}$ is used to determine the dynamic power dissipation ($P_D$ in μW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ where:

$f_i$ = input frequency in MHz;

$f_o$ = output frequency in MHz;

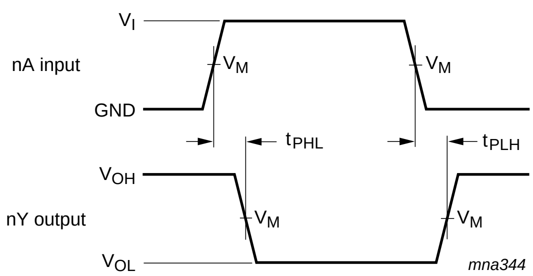
$C_L$ = output load capacitance in pF;

$V_{CC}$ = supply voltage in V;

N = number of inputs switching;

$\Sigma(C_L \times V_{CC}^2 \times f_o)$ = sum of outputs.

## 13. Waveforms




Measurement points are given in Table 10.

$V_{OL}$ and $V_{OH}$ are typical output voltage levels that occur with the output load.

**Fig 7. The data input (nA) to output (nY) propagation delays**


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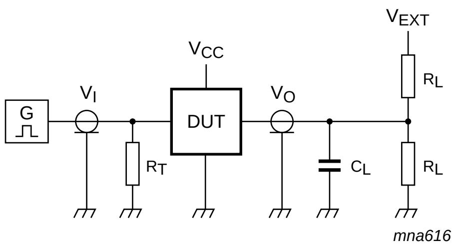
**Table 10. Measurement points**

| Supply voltage | Input | Output |
|---|---|---|
| $V_{CC}$ | $V_M$ | $V_M$ |
| 1.65 V to 1.95 V | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ |
| 2.3 V to 2.7 V | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ |
| 2.7 V | 1.5 V | 1.5 V |
| 3.0 V to 3.6 V | 1.5 V | 1.5 V |
| 4.5 V to 5.5 V | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ |




Test data is given in Table 11.

Definitions for test circuit:

$R_L$ = Load resistance.

$C_L$ = Load capacitance including jig and probe capacitance.

$R_T$ = Termination resistance should be equal to the output impedance $Z_o$ of the pulse generator.

$V_{EXT}$ = External voltage for measuring switching times.

**Fig 8. Load circuitry for switching times**

**Table 11. Test data**

| Supply voltage | Input | | Load | | $V_{EXT}$ |
|---|---|---|---|---|---|
| $V_{CC}$ | $V_I$ | $t_r = t_f$ | $C_L$ | $R_L$ | $t_{PLH}, t_{PHL}$ |
| 1.65 V to 1.95 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 1 kΩ | open |
| 2.3 V to 2.7 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 500 Ω | open |
| 2.7 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open |
| 3.0 V to 3.6 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open |
| 4.5 V to 5.5 V | $V_{CC}$ | ≤ 2.5 ns | 50 pF | 500 Ω | open |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## 14. Waveforms transfer characteristics

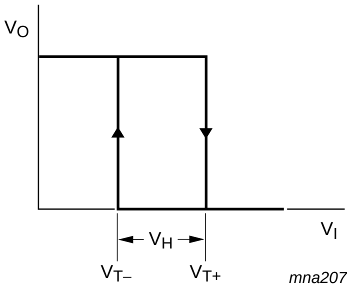
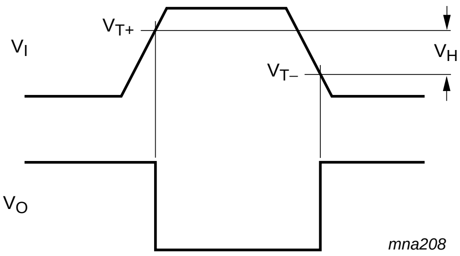
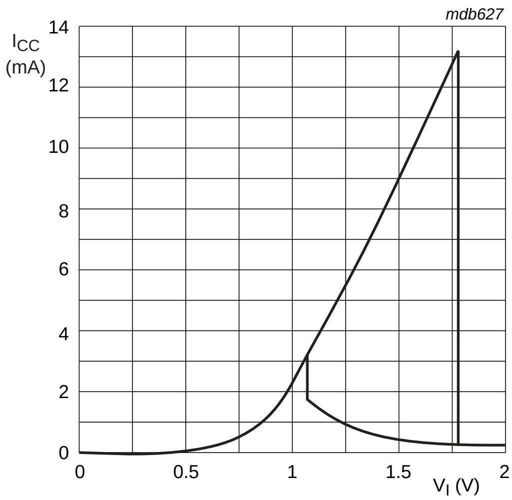



**Fig 9. Transfer characteristic**




$V_{T+}$ and $V_{T-}$ limits at 70 % and 20 %.

**Fig 10. Definition of $V_{T+}$, $V_{T-}$ and $V_H$**




$V_{CC}$ = 3.0 V

**Fig 11. Typical transfer characteristics**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## 15. Application information

The slow input rise and fall times cause additional power dissipation, which can be calculated using the following formula:

$P_{add} = f_i \times (t_r \times \Delta I_{CC(AV)} + t_f \times \Delta I_{CC(AV)}) \times V_{CC}$ where:

$P_{add}$ = additional power dissipation (μW);

$f_i$ = input frequency (MHz);

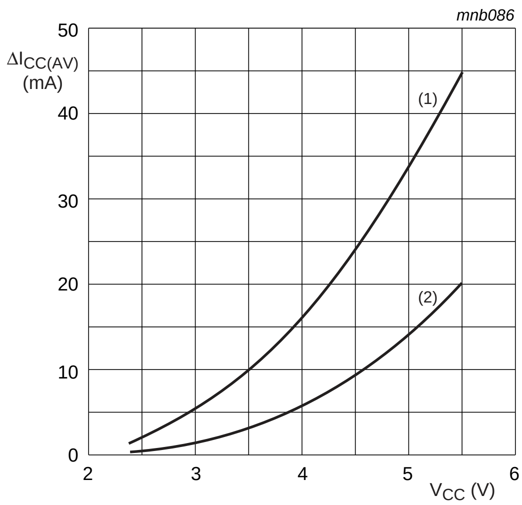
$t_r$ = input rise time (ns); 10 % to 90 %;

$t_f$ = input fall time (ns); 90 % to 10 %;

$\Delta I_{CC(AV)}$ = average additional supply current (μA).

$\Delta I_{CC(AV)}$ differs with positive or negative input transitions, as shown in Figure 12.

An example of a relaxation circuit using the 74LVC2G14 is shown in Figure 13.

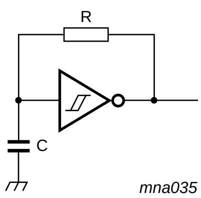



Linear change of $V_I$ between 0.8 V to 2.0 V. All values given are typical unless otherwise specified.

(1) Positive-going edge.

(2) Negative-going edge.

**Fig 12. Average $I_{CC}$ as a function of $V_{CC}$**




$$f = \frac{1}{T} \approx \frac{1}{0.8 \times RC}$$

**Fig 13. Relaxation oscillator**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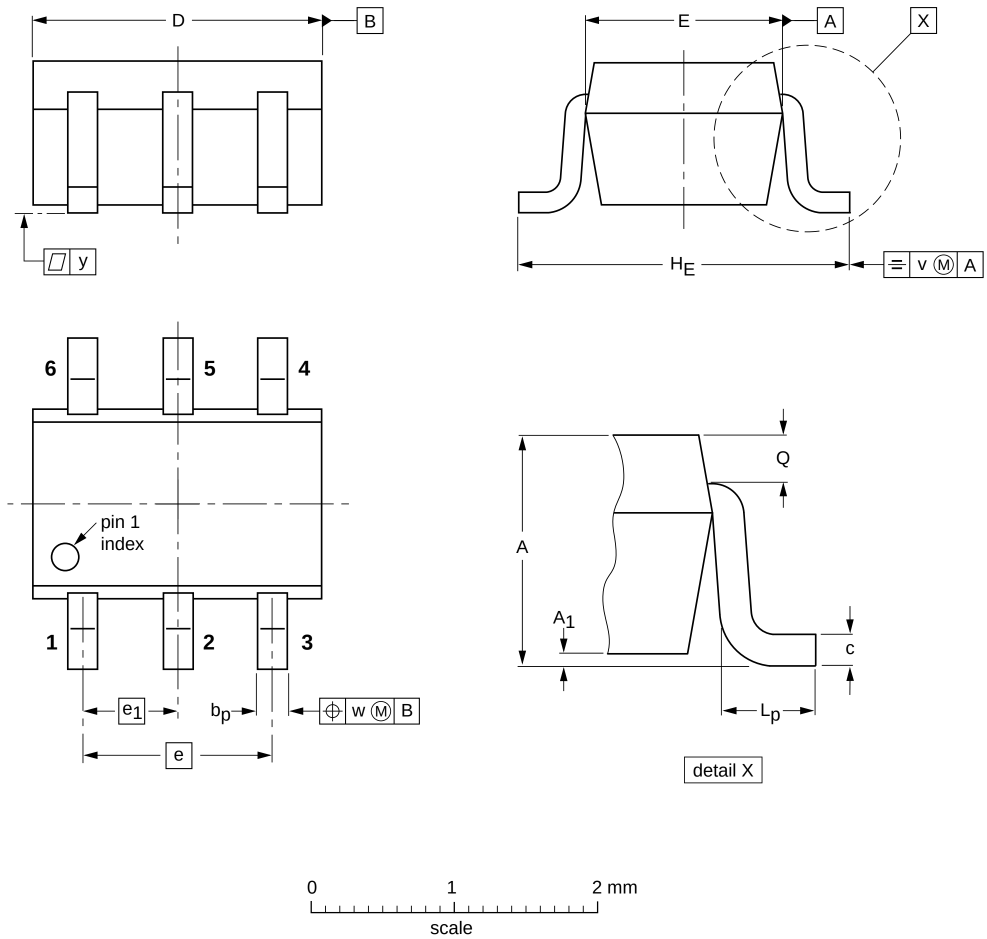
## 16. Package outline

**Plastic surface-mounted package; 6 leads** **SOT363**




DIMENSIONS (mm are the original dimensions)

| UNIT | A | $A_1$ max | $b_p$ | c | D | E | e | $e_1$ | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.8 | 0.1 | 0.30<br>0.20 | 0.25<br>0.10 | 2.2<br>1.8 | 1.35<br>1.15 | 1.3 | 0.65 | 2.2<br>2.0 | 0.45<br>0.15 | 0.25<br>0.15 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT363 | | | SC-88 | | | ~~04-11-08~~<br>06-03-16 |

Fig 14. Package outline SOT363 (SC-88)



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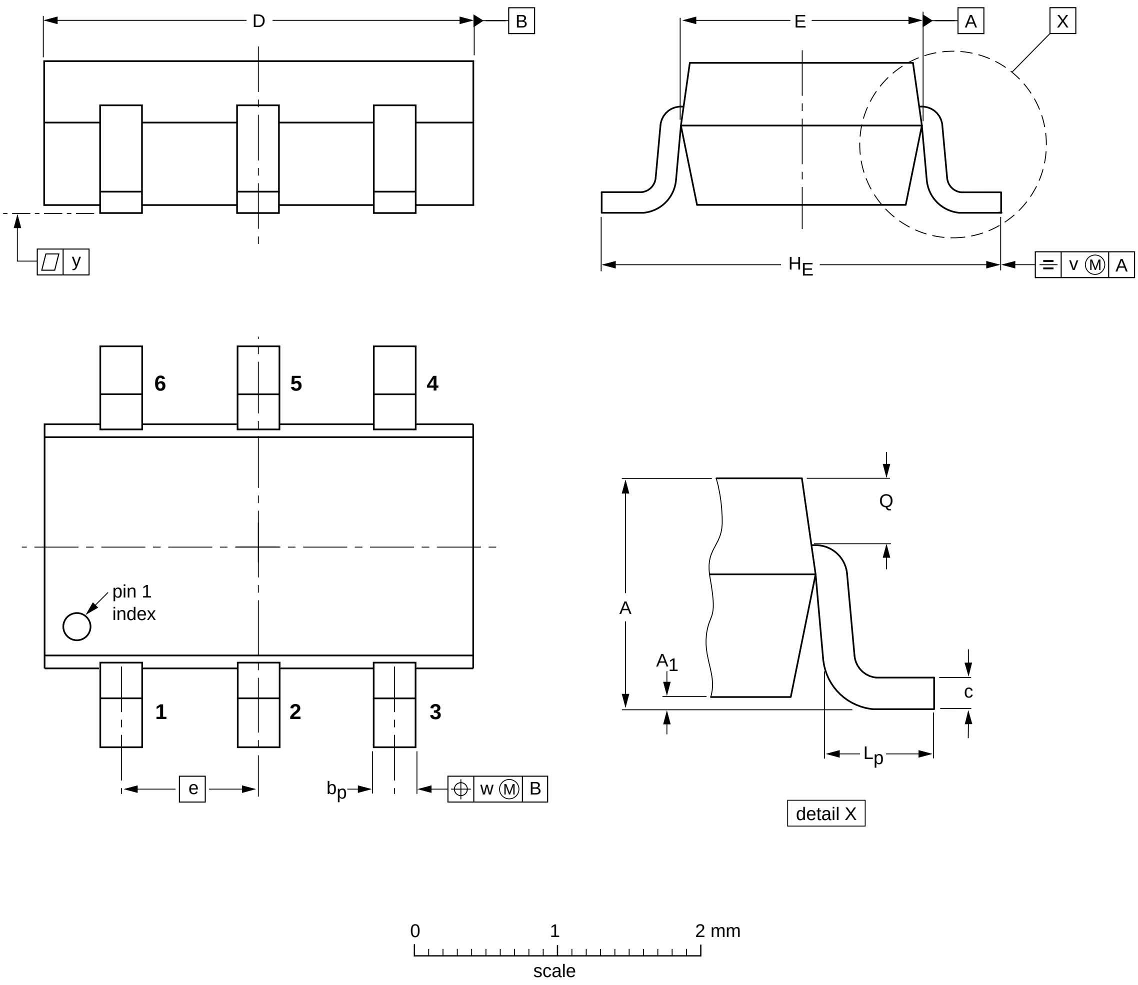
**Plastic surface-mounted package (TSOP6); 6 leads** **SOT457**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ | $b_p$ | c | D | E | e | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.1<br>0.013 | 0.40<br>0.25 | 0.26<br>0.10 | 3.1<br>2.7 | 1.7<br>1.3 | 0.95 | 3.0<br>2.5 | 0.6<br>0.2 | 0.33<br>0.23 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT457 | | | SC-74 | | | ~~05-11-07~~<br>06-03-16 |

**Fig 15. Package outline SOT457 (TSOP6)**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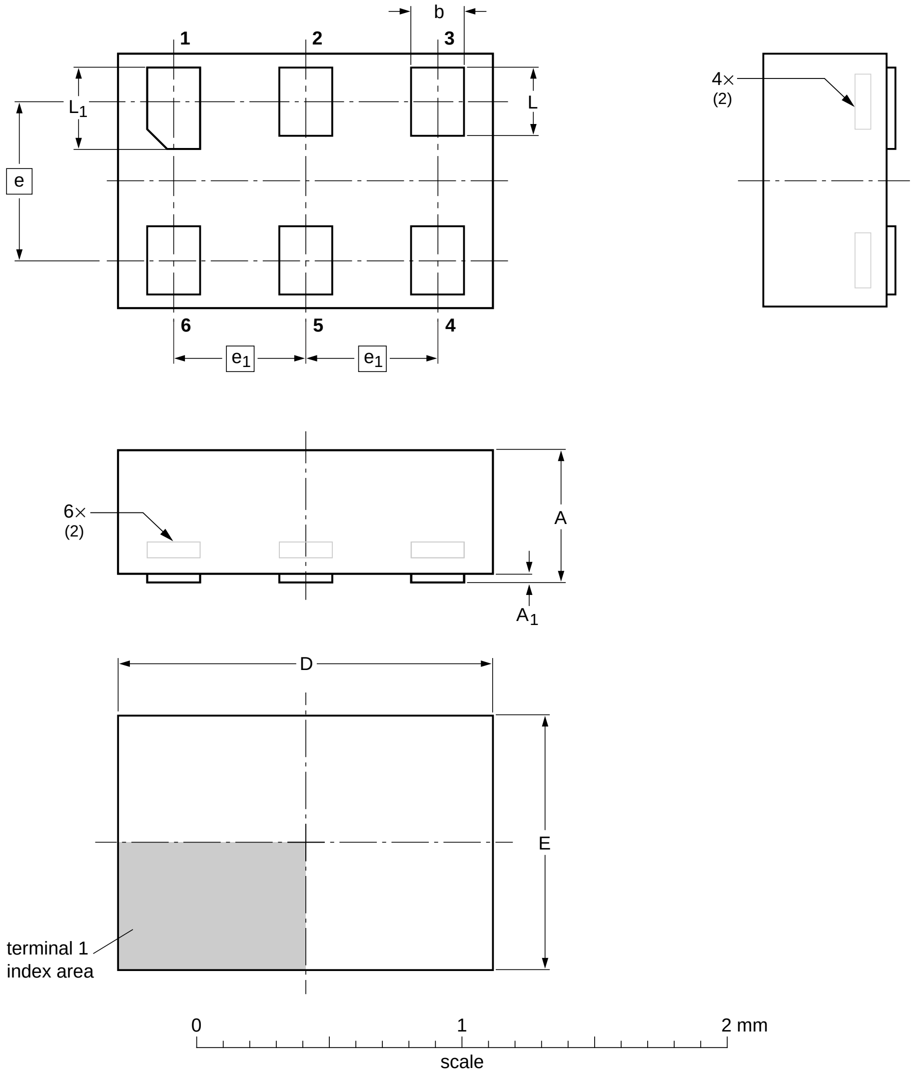
**XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm** **SOT886**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A (1) max | $A_1$ max | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|
| mm | 0.5 | 0.04 | 0.25<br>0.17 | 1.5<br>1.4 | 1.05<br>0.95 | 0.6 | 0.5 | 0.35<br>0.27 | 0.40<br>0.32 |

**Notes**

1. Including plating thickness.
2. Can be visible in some manufacturing processes.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT886 | | MO-252 | | | | ~~04-07-15~~<br>04-07-22 |

**Fig 16. Package outline SOT886 (XSON6)**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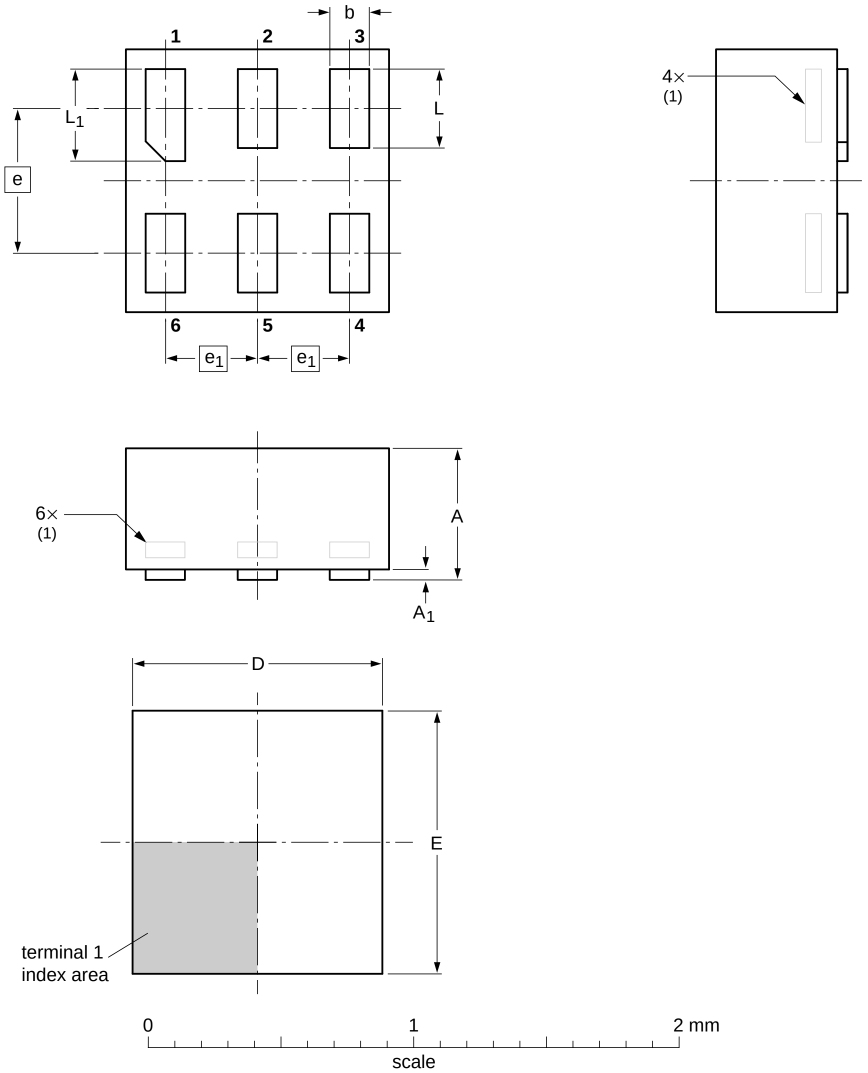
**XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1 x 0.5 mm** **SOT891**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A max | $A_1$ max | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|
| mm | 0.5 | 0.04 | 0.20<br>0.12 | 1.05<br>0.95 | 1.05<br>0.95 | 0.55 | 0.35 | 0.35<br>0.27 | 0.40<br>0.32 |

**Note**

1. Can be visible in some manufacturing processes.

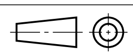
| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT891 | | | | |  | ~~05-04-06~~<br>07-05-15 |

**Fig 17. Package outline SOT891 (XSON6)**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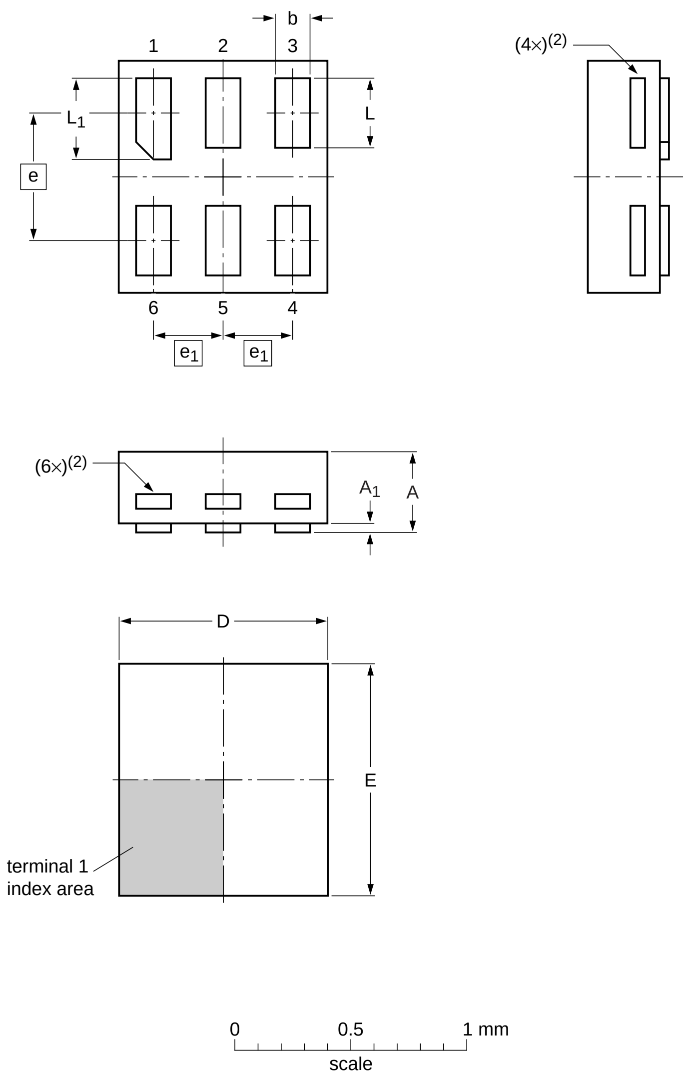
**XSON6: extremely thin small outline package; no leads;**
**6 terminals; body 0.9 x 1.0 x 0.35 mm**

**SOT1115**




Dimensions

| Unit | | A(1) | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | max | 0.35 | 0.04 | 0.20 | 0.95 | 1.05 | | | 0.35 | 0.40 |
| mm | nom | | | 0.15 | 0.90 | 1.00 | 0.55 | 0.3 | 0.30 | 0.35 |
| | min | | | 0.12 | 0.85 | 0.95 | | | 0.27 | 0.32 |

Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1115_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT1115 | | | | | | ~~10-04-02~~<br>10-04-07 |

**Fig 18. Package outline SOT1115 (XSON6)**



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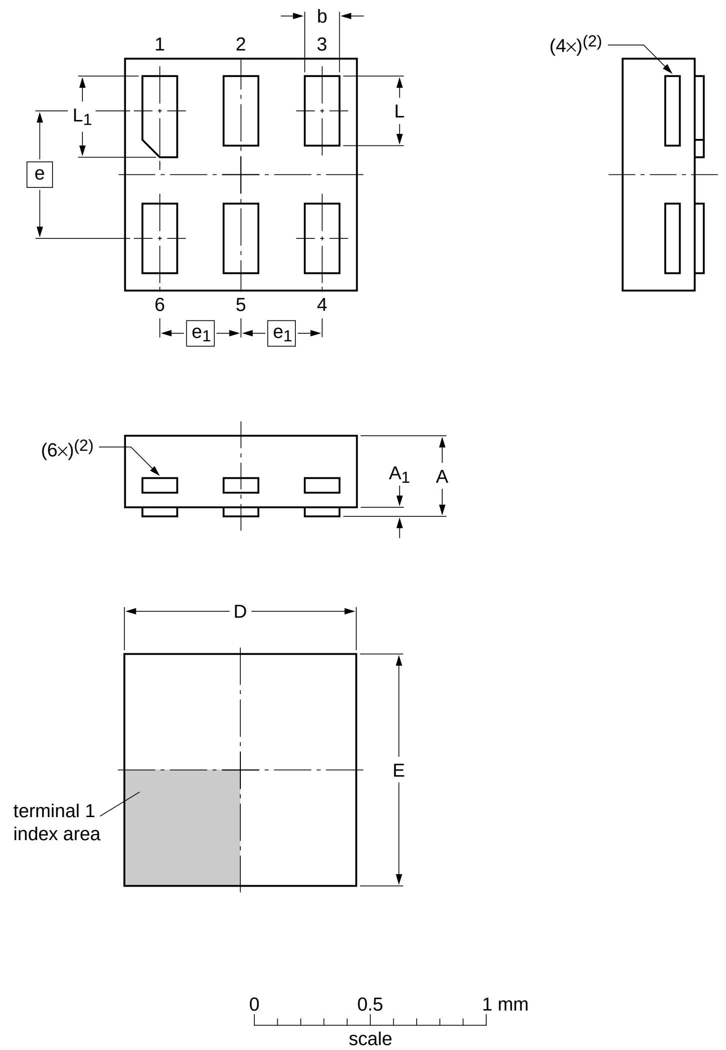
**XSON6: extremely thin small outline package; no leads; 6 terminals; body 1.0 x 1.0 x 0.35 mm** — **SOT1202**




Dimensions

| Unit | | A(1) | A1 | b | D | E | e | e1 | L | L1 |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.20 | 1.05 | 1.05 | | | 0.35 | 0.40 |
| | nom | | | 0.15 | 1.00 | 1.00 | 0.55 | 0.35 | 0.30 | 0.35 |
| | min | | | 0.12 | 0.95 | 0.95 | | | 0.27 | 0.32 |

Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1202_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT1202 | | | | | | ~~10-04-02~~<br>10-04-06 |

**Fig 19. Package outline SOT1202 (XSON6)**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## 17. Abbreviations

**Table 12. Abbreviations**

| Acronym | Description |
|---|---|
| CMOS | Complementary Metal Oxide Semiconductor |
| TTL | Transistor-Transistor Logic |
| HBM | Human Body Model |
| ESD | ElectroStatic Discharge |
| MM | Machine Model |
| DUT | Device Under Test |

## 18. Revision history

**Table 13. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74LVC2G14 v.7 | 20111130 | Product data sheet | | 74LVC2G14 v.6 |
| Modifications: | • Legal pages updated. | | | |
| 74LVC2G14 v.6 | 20110923 | Product data sheet | | 74LVC2G14 v.5 |
| 74LVC2G14 v.5 | 20101029 | Product data sheet | | 74LVC2G14 v.4 |
| 74LVC2G14 v.4 | 20070904 | Product data sheet | | 74LVC2G14 v.3 |
| 74LVC2G14 v.3 | 20070220 | Product data sheet | | 74LVC2G14 v.2 |
| 74LVC2G14 v.2 | 20040908 | Product specification | - | 74LVC2G14 v.1 |
| 74LVC2G14 v.1 | 20030731 | Product specification | | - |


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# 19. Legal information

## 19.1 Data sheet status

| Document status[1][2] | Product status[3] | Definition |
|---|---|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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## 21. Contents



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