# 74LVC1G125

## Bus buffer/line driver; 3-state

Rev. 14 — 7 October 2021 Product data sheet

## 1. General description

The 74LVC1G125 is a single buffer/line driver with 3-state output. Inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V environments.

Schmitt-trigger action at all inputs makes the circuit tolerant of slower input rise and fall times.

This device is fully specified for partial power down applications using $I_{OFF}$. The $I_{OFF}$ circuitry disables the output, preventing the potentially 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
- Overvoltage tolerant inputs to 5.5 V
- High noise immunity
- CMOS low power consumption
- $I_{OFF}$ circuitry provides partial Power-down mode operation
- ±24 mA output drive ($V_{CC}$ = 3.0 V)
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- Complies with JEDEC standards:
  - JESD8-7 (1.65 V to 1.95 V)
  - JESD8-5 (2.3 V to 2.7 V)
  - JESD8C (2.7 V to 3.6 V)
  - JESD36 (4.5 V to 5.5 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
- Multiple package options
- Specified from -40 °C to +85 °C and -40 °C to +125 °C

## 3. Ordering information

**Table 1. Ordering information**

| Type number | Package | | | |
|---|---|---|---|---|
| | Temperature range | Name | Description | Version |
| 74LVC1G125GW | -40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | SOT353-1 |
| 74LVC1G125GV | -40 °C to +125 °C | SC-74A | plastic surface-mounted package; 5 leads | SOT753 |
| 74LVC1G125GM | -40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | SOT886 |
| 74LVC1G125GN | -40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm | SOT1115 |
| 74LVC1G125GS | -40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm | SOT1202 |
| 74LVC1G125GX | -40 °C to +125 °C | X2SON5 | plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 × 0.8 × 0.32 mm | SOT1226-3 |

## 4. Marking

**Table 2. Marking**

| Type number | Marking code[1] |
|---|---|
| 74LVC1G125GW | VM |
| 74LVC1G125GV | V25 |
| 74LVC1G125GM | VM |
| 74LVC1G125GN | VM |
| 74LVC1G125GS | VM |
| 74LVC1G125GX | VM |

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

## 5. Functional diagram

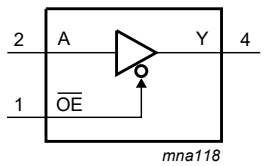



Fig. 1. Logic symbol

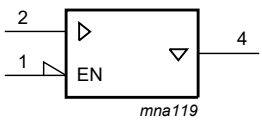



Fig. 2. IEC logic symbol

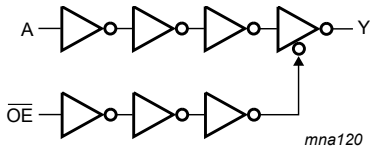



Fig. 3. Logic diagram

# 6. Pinning information

## 6.1. Pinning

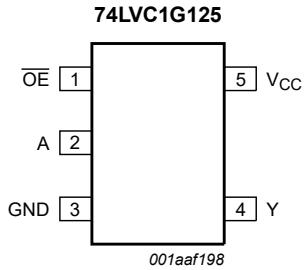
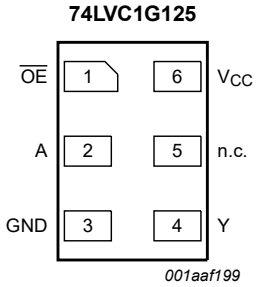
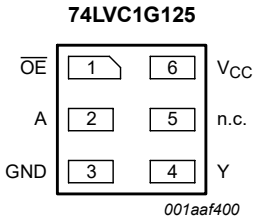



**Fig. 4. Pin configuration SOT353-1 (TSSOP5) and SOT753 (SC-74A)**



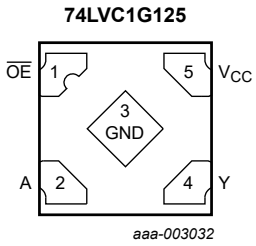

Transparent top view

**Fig. 5. Pin configuration SOT886 (XSON6)**




Transparent top view

**Fig. 6. Pin configuration SOT1115 and SOT1202 (XSON6)**




Transparent top view

**Fig. 7. Pin configuration SOT1226-3 (X2SON5)**

## 6.2. Pin description

**Table 3. Pin description**

| Symbol | Pin | | Description |
|---|---|---|---|
| | TSSOP5, SC-74A and X2SON5 | XSON6 | |
| $\overline{OE}$ | 1 | 1 | output enable input |
| A | 2 | 2 | data input |
| GND | 3 | 3 | ground (0 V) |
| Y | 4 | 4 | data output |
| n.c. | - | 5 | not connected |
| $V_{CC}$ | 5 | 6 | supply voltage |

# 7. Functional description

**Table 4. Function table**

*H = HIGH voltage level; L = LOW voltage level; X = don't care; Z = high-impedance OFF-state.*

| Input | | Output |
|---|---|---|
| $\overline{OE}$ | A | Y |
| L | L | L |
| L | H | H |
| H | X | Z |

# 8. 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] | -0.5 | $V_{CC}$ + 0.5 | V |
| | | Power-down mode; $V_{CC}$ = 0 V | [1] | -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 | [2] | - | 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] For SOT353-1 (TSSOP5) package: $P_{tot}$ derates linearly with 3.3 mW/K above 74 °C.
For SOT753 (SC-74A) package: $P_{tot}$ derates linearly with 3.8 mW/K above 85 °C.
For SOT886 (XSON6) package: $P_{tot}$ derates linearly with 3.3 mW/K above 74 °C.
For SOT1115 (XSON6) package: $P_{tot}$ derates linearly with 3.2 mW/K above 71 °C.
For SOT1202 (XSON6) package: $P_{tot}$ derates linearly with 3.3 mW/K above 74 °C.
For SOT1226-3 (X2SON5) package: $P_{tot}$ derates linearly with 3.0 mW/K above 67 °C.

# 9. 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 |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC}$ = 1.65 V to 2.7 V | - | - | 20 | ns/V |
| | | $V_{CC}$ = 2.7 V to 5.5 V | - | - | 10 | ns/V |

## 10. 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** | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | 0.65 × $V_{CC}$ | - | - | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.7 | - | - | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | 2.0 | - | - | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.7 × $V_{CC}$ | - | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | - | - | 0.35 × $V_{CC}$ | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | - | 0.7 | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | - | - | 0.8 | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.3 × $V_{CC}$ | V |
| $V_{OL}$ | LOW-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = 100 µA | - | - | 0.1 | V |
| | | $V_{CC}$ = 1.65 V; $I_O$ = 4 mA | - | - | 0.45 | V |
| | | $V_{CC}$ = 2.3 V; $I_O$ = 8 mA | - | - | 0.3 | V |
| | | $V_{CC}$ = 2.7 V; $I_O$ = 12 mA | - | - | 0.4 | V |
| | | $V_{CC}$ = 3.0 V; $I_O$ = 24 mA | - | - | 0.55 | V |
| | | $V_{CC}$ = 4.5 V; $I_O$ = 32 mA | - | - | 0.55 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = -100 µA | $V_{CC}$ - 0.1 | - | - | V |
| | | $V_{CC}$ = 1.65 V; $I_O$ = -4 mA | 1.2 | - | - | V |
| | | $V_{CC}$ = 2.3 V; $I_O$ = -8 mA | 1.9 | - | - | V |
| | | $V_{CC}$ = 2.7 V; $I_O$ = -12 mA | 2.2 | - | - | V |
| | | $V_{CC}$ = 3.0 V; $I_O$ = -24 mA | 2.3 | - | - | V |
| | | $V_{CC}$ = 4.5 V; $I_O$ = -32 mA | 3.8 | - | - | V |
| $I_I$ | input leakage current | $V_{CC}$ = 0 V to 5.5 V; $V_I$ = 5.5 V or GND | - | ±0.1 | ±1 | µA |
| $I_{OZ}$ | OFF-state output current | $V_{CC}$ = 3.6 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $V_O$ = 5.5 V or GND | - | ±0.1 | ±2 | µA |
| $I_{OFF}$ | power-off leakage current | $V_{CC}$ = 0 V; $V_I$ or $V_O$ = 5.5 V | - | ±0.1 | ±2 | 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 | 4 | µA |
| $\Delta I_{CC}$ | additional supply current | per pin; $V_{CC}$ = 2.3 V to 5.5 V; $V_I$ = $V_{CC}$ - 0.6 V; $I_O$ = 0 A | - | 5 | 500 | µA |
| $C_I$ | input capacitance | | - | 5 | - | pF |

| Symbol | Parameter | Conditions | Min | Typ [1] | Max | Unit |
|---|---|---|---|---|---|---|
| **$T_{amb}$ = -40 °C to +125 °C** | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | 0.65 × $V_{CC}$ | - | - | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.7 | - | - | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | 2.0 | - | - | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.7 × $V_{CC}$ | - | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | - | - | 0.35 × $V_{CC}$ | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | - | 0.7 | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | - | - | 0.8 | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.3 × $V_{CC}$ | V |
| $V_{OL}$ | LOW-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = 100 µA | - | - | 0.1 | V |
| | | $V_{CC}$ = 1.65 V; $I_O$ = 4 mA | - | - | 0.70 | V |
| | | $V_{CC}$ = 2.3 V; $I_O$ = 8 mA | - | - | 0.45 | V |
| | | $V_{CC}$ = 2.7 V; $I_O$ = 12 mA | - | - | 0.60 | V |
| | | $V_{CC}$ = 3.0 V; $I_O$ = 24 mA | - | - | 0.80 | V |
| | | $V_{CC}$ = 4.5 V; $I_O$ = 32 mA | - | - | 0.80 | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = -100 µA | $V_{CC}$ - 0.1 | - | - | V |
| | | $V_{CC}$ = 1.65 V; $I_O$ = -4 mA | 0.95 | - | - | V |
| | | $V_{CC}$ = 2.3 V; $I_O$ = -8 mA | 1.7 | - | - | V |
| | | $V_{CC}$ = 2.7 V; $I_O$ = -12 mA | 1.9 | - | - | V |
| | | $V_{CC}$ = 3.0 V; $I_O$ = -24 mA | 2.0 | - | - | V |
| | | $V_{CC}$ = 4.5 V; $I_O$ = -32 mA | 3.4 | - | - | V |
| $I_I$ | input leakage current | $V_{CC}$ = 0 V to 5.5 V; $V_I$ = 5.5 V or GND | - | - | ±1 | µA |
| $I_{OZ}$ | OFF-state output current | $V_{CC}$ = 3.6 V; $V_I$ = $V_{IH}$ or $V_{IL}$; $V_O$ = 5.5 V or GND | - | - | ±2 | µA |
| $I_{OFF}$ | power-off leakage current | $V_{CC}$ = 0 V; $V_I$ or $V_O$ = 5.5 V | - | - | ±2 | 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 | - | - | 4 | µA |
| $\Delta I_{CC}$ | additional supply current | per pin; $V_{CC}$ = 2.3 V to 5.5 V; $V_I$ = $V_{CC}$ - 0.6 V; $I_O$ = 0 A | - | - | 500 | µA |

[1] All typical values are measured at $V_{CC}$ = 3.3 V and $T_{amb}$ = 25 °C.

# 11. Dynamic characteristics

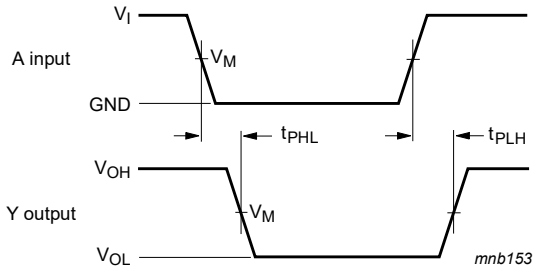
**Table 8. Dynamic characteristics**

*Voltages are referenced to GND (ground = 0 V). For test circuit see Fig. 10.*

| Symbol | Parameter | Conditions | -40 °C to +85 °C | | | -40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $t_{pd}$ | propagation delay | A to Y; see Fig. 8 [2] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 1.0 | 3.3 | 8.0 | 1.0 | 10.5 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 0.5 | 2.2 | 5.5 | 0.5 | 7 | ns |
| | | $V_{CC}$ = 2.7 V | 0.5 | 2.5 | 5.5 | 0.5 | 7 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 0.5 | 2.1 | 4.5 | 0.5 | 6 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.5 | 1.7 | 4.0 | 0.5 | 5.5 | ns |
| $t_{en}$ | enable time | $\overline{OE}$ to Y; see Fig. 9 [3] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 1.0 | 4.1 | 9.4 | 1.0 | 12 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 0.5 | 2.8 | 6.6 | 0.5 | 8.5 | ns |
| | | $V_{CC}$ = 2.7 V | 0.5 | 3.3 | 6.6 | 0.5 | 8.5 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 0.5 | 2.4 | 5.3 | 0.5 | 7 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.5 | 2.1 | 5.0 | 0.5 | 6.5 | ns |
| $t_{dis}$ | disable time | $\overline{OE}$ to Y; see Fig. 9 [4] | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 1.0 | 4.3 | 9.2 | 1.0 | 12 | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 0.5 | 2.7 | 5.0 | 0.5 | 6.5 | ns |
| | | $V_{CC}$ = 2.7 V | 0.5 | 3.0 | 5.0 | 0.5 | 6.5 | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 0.5 | 3.1 | 5.0 | 0.5 | 6.5 | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.5 | 2.2 | 4.2 | 0.5 | 5.5 | ns |
| $C_{PD}$ | power dissipation capacitance | per buffer; $V_I$ = GND to $V_{CC}$ [5] | | | | | | |
| | | output enabled | - | 25 | - | - | - | pF |
| | | output disabled | - | 6 | - | - | - | 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] $t_{en}$ is the same as $t_{PZH}$ and $t_{PZL}$
[4] $t_{dis}$ is the same as $t_{PLZ}$ and $t_{PHZ}$
[5] $C_{PD}$ is used to determine the dynamic power dissipation ($P_D$ in µW).
$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum(C_L \times V_{CC}^2 \times f_o)$ 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;
$\sum(C_L \times V_{CC}^2 \times f_o)$ = sum of outputs.

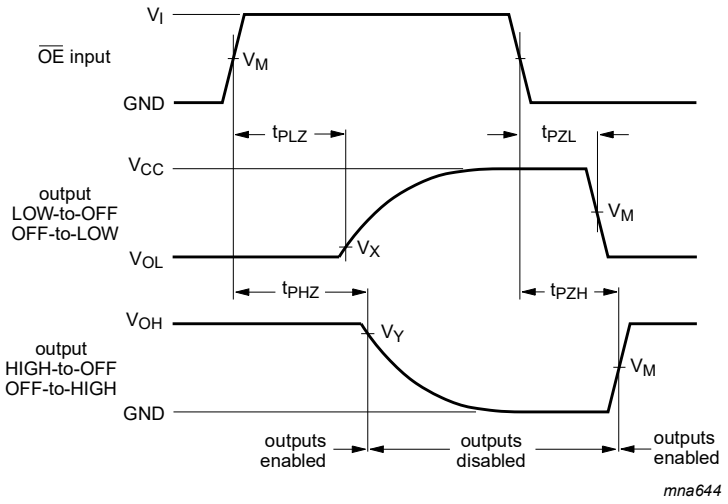
## 11.1. Waveforms and test circuit




Measurement points are given in Table 9.

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

**Fig. 8. Input A to output Y propagation delay times**



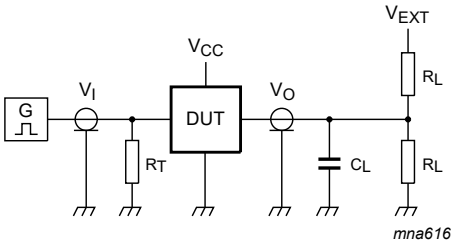

Measurement points are given in Table 9.

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

**Fig. 9. 3-state enable and disable times**

**Table 9. Measurement points**

| Supply voltage | Input | Output | | |
|---|---|---|---|---|
| $V_{CC}$ | $V_M$ | $V_M$ | $V_X$ | $V_Y$ |
| 1.65 V to 1.95 V | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL}$ + 0.15 V | $V_{OH}$ - 0.15 V |
| 2.3 V to 2.7 V | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL}$ + 0.15 V | $V_{OH}$ - 0.15 V |
| 2.7 V | 1.5 V | 1.5 V | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |
| 3.0 V to 3.6 V | 1.5 V | 1.5 V | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |
| 4.5 V to 5.5 V | $0.5V_{CC}$ | $0.5V_{CC}$ | $V_{OL}$ + 0.3 V | $V_{OH}$ - 0.3 V |




Test data is given in Table 10.

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.

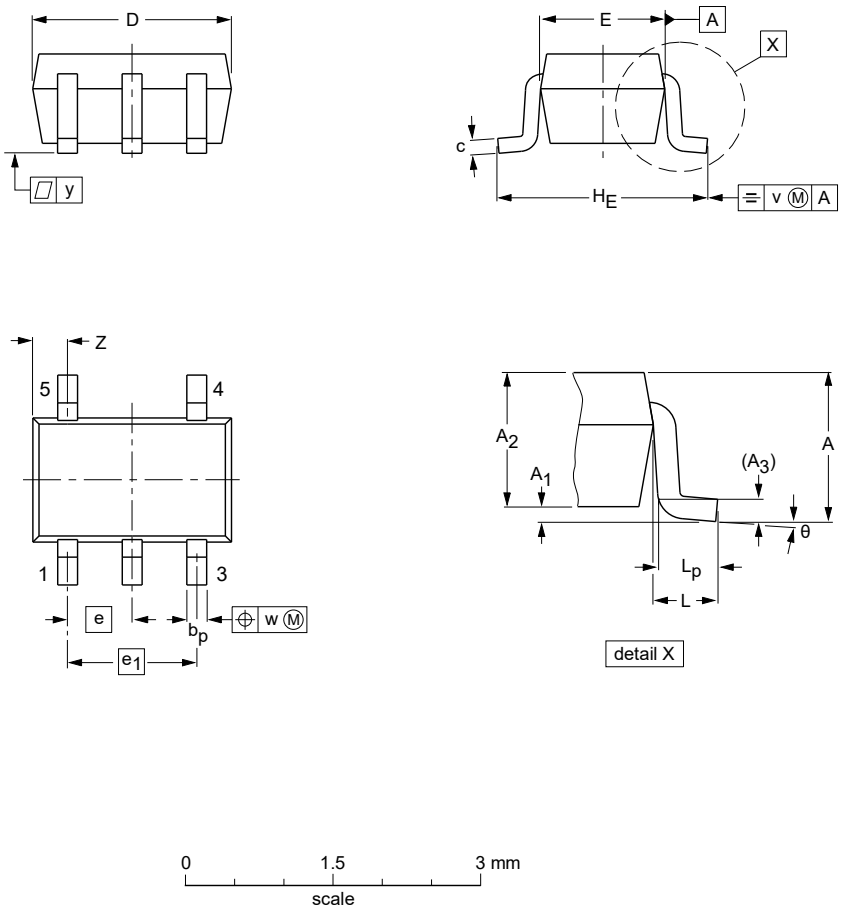
**Fig. 10. Test circuit for measuring switching times**

**Table 10. Test data**

| Supply voltage | Input | | Load | | $V_{EXT}$ | | |
|---|---|---|---|---|---|---|---|
| $V_{CC}$ | $V_I$ | $t_r$, $t_f$ | $C_L$ | $R_L$ | $t_{PLH}$, $t_{PHL}$ | $t_{PZH}$, $t_{PHZ}$ | $t_{PZL}$, $t_{PLZ}$ |
| 1.65 V to 1.95 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 1 kΩ | open | GND | $2V_{CC}$ |
| 2.3 V to 2.7 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 500 Ω | open | GND | $2V_{CC}$ |
| 2.7 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 3.0 V to 3.6 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 4.5 V to 5.5 V | $V_{CC}$ | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | $2V_{CC}$ |

## 12. Package outline

**TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mm** **SOT353-1**




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

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $e_1$ | $H_E$ | L | $L_p$ | v | w | y | $Z^{(1)}$ | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1 | 0.1<br>0 | 1.0<br>0.8 | 0.15 | 0.30<br>0.15 | 0.25<br>0.08 | 2.25<br>1.85 | 1.35<br>1.15 | 0.65 | 1.3 | 2.25<br>2.0 | 0.425 | 0.46<br>0.21 | 0.3 | 0.1 | 0.1 | 0.60<br>0.15 | 7°<br>0° |

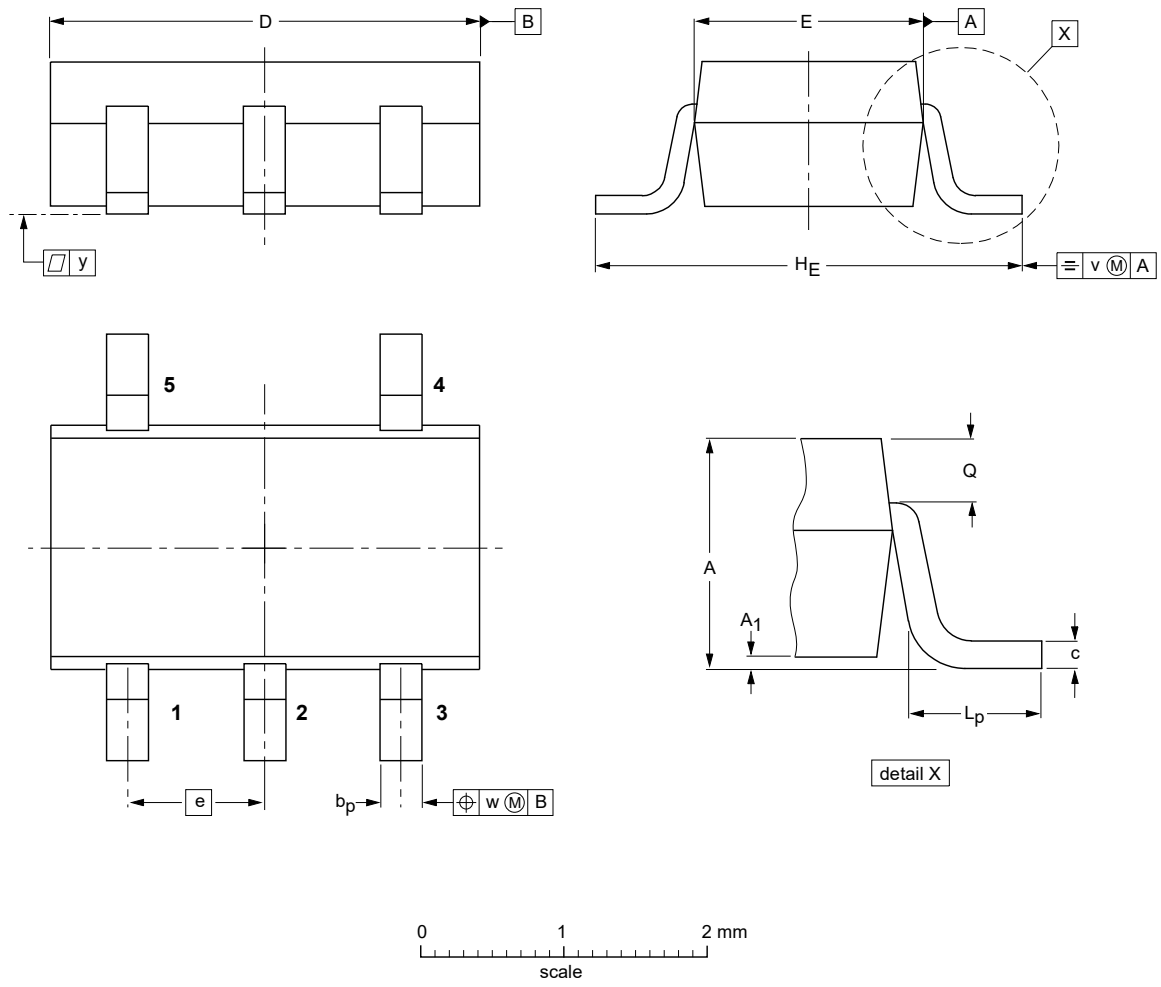
**Note**

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT353-1 | | MO-203 | SC-88A | | | ~~00-09-01~~<br>03-02-19 |

**Fig. 11. Package outline SOT353-1 (TSSOP5)**

**Plastic surface-mounted package; 5 leads** **SOT753**



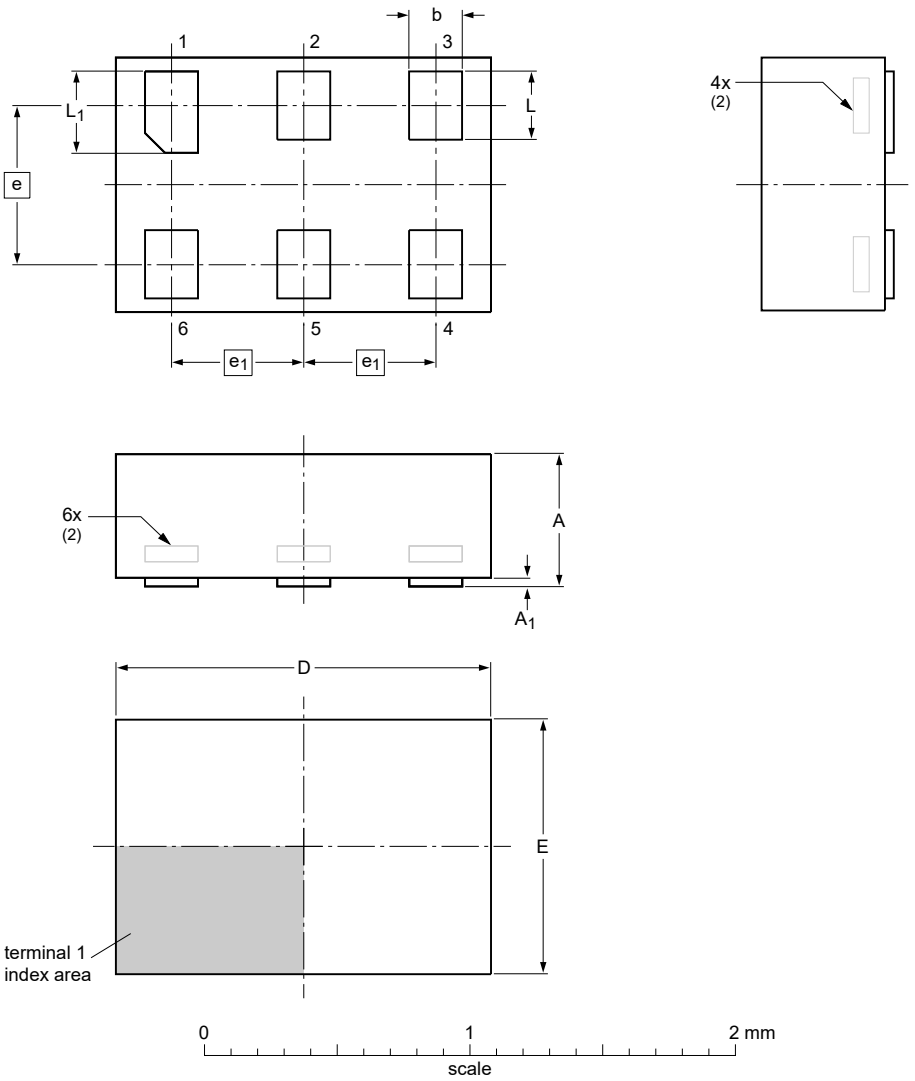

**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ | $b_p$ | c | D | E | e | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.100<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 | | | |
| SOT753 | | | SC-74A | | | ~~02-04-16~~<br>06-03-16 |

**Fig. 12. Package outline SOT753 (SC-74A)**

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) | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.5 | 0.04 | 0.25 | 1.50 | 1.05 | | | 0.35 | 0.40 |
| | nom | | | 0.20 | 1.45 | 1.00 | 0.6 | 0.5 | 0.30 | 0.35 |
| | min | | | 0.17 | 1.40 | 0.95 | | | 0.27 | 0.32 |

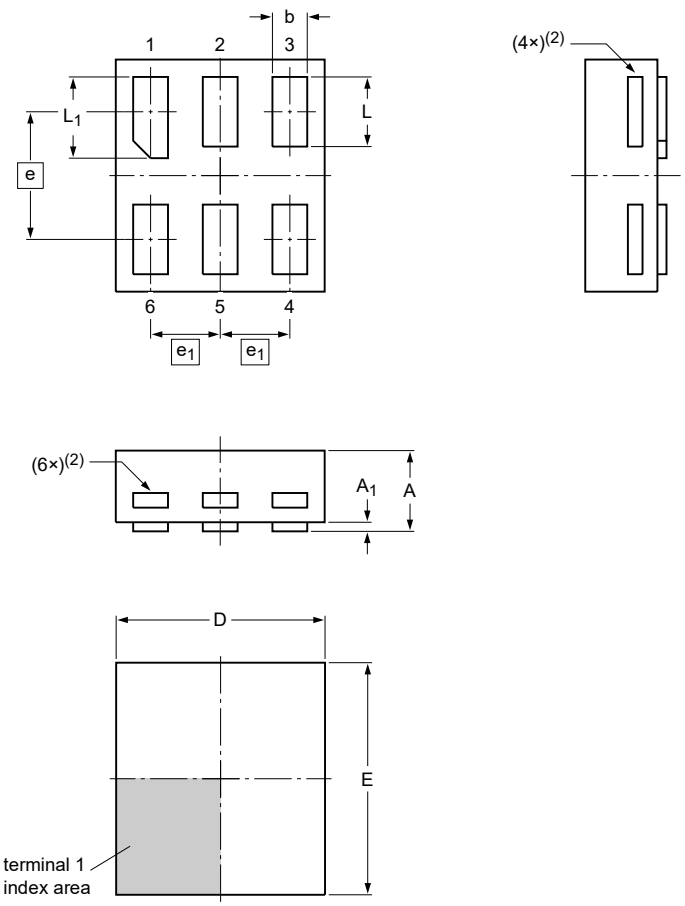
Notes
1. Including plating thickness.
2. Can be visible in some manufacturing processes.

sot886_po

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT886 | | MO-252 | | | | ~~04-07-22~~ 12-01-05 |

**Fig. 13. Package outline SOT886 (XSON6)**

**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 | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.20 | 0.95 | 1.05 | | | 0.35 | 0.40 |
| | 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 |

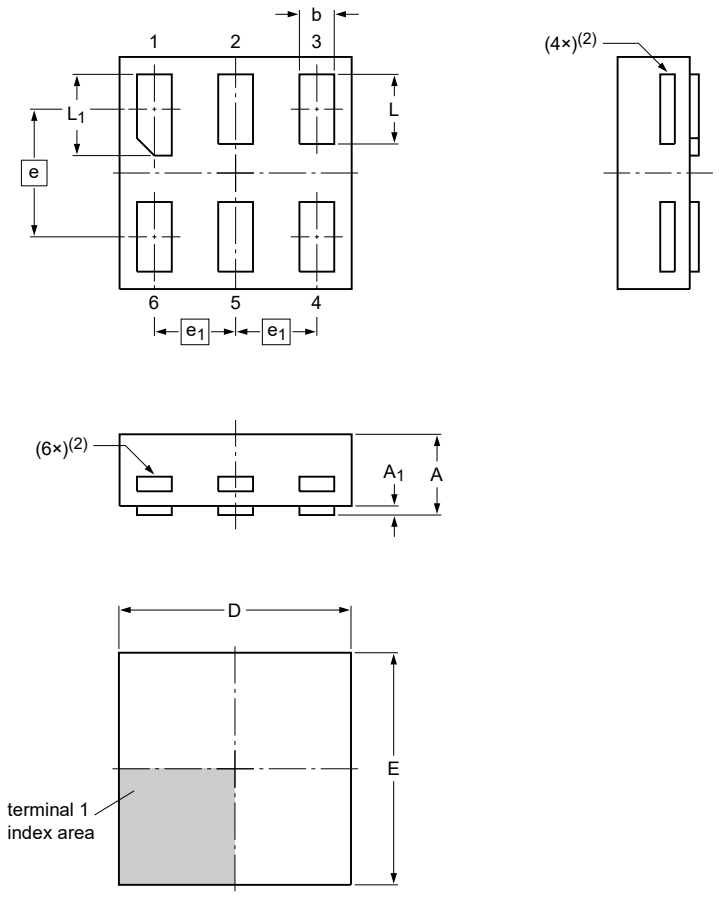
Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1115_po*

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

**Fig. 14. Package outline SOT1115 (XSON6)**

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




Dimensions

| Unit | | $A^{(1)}$ | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 |

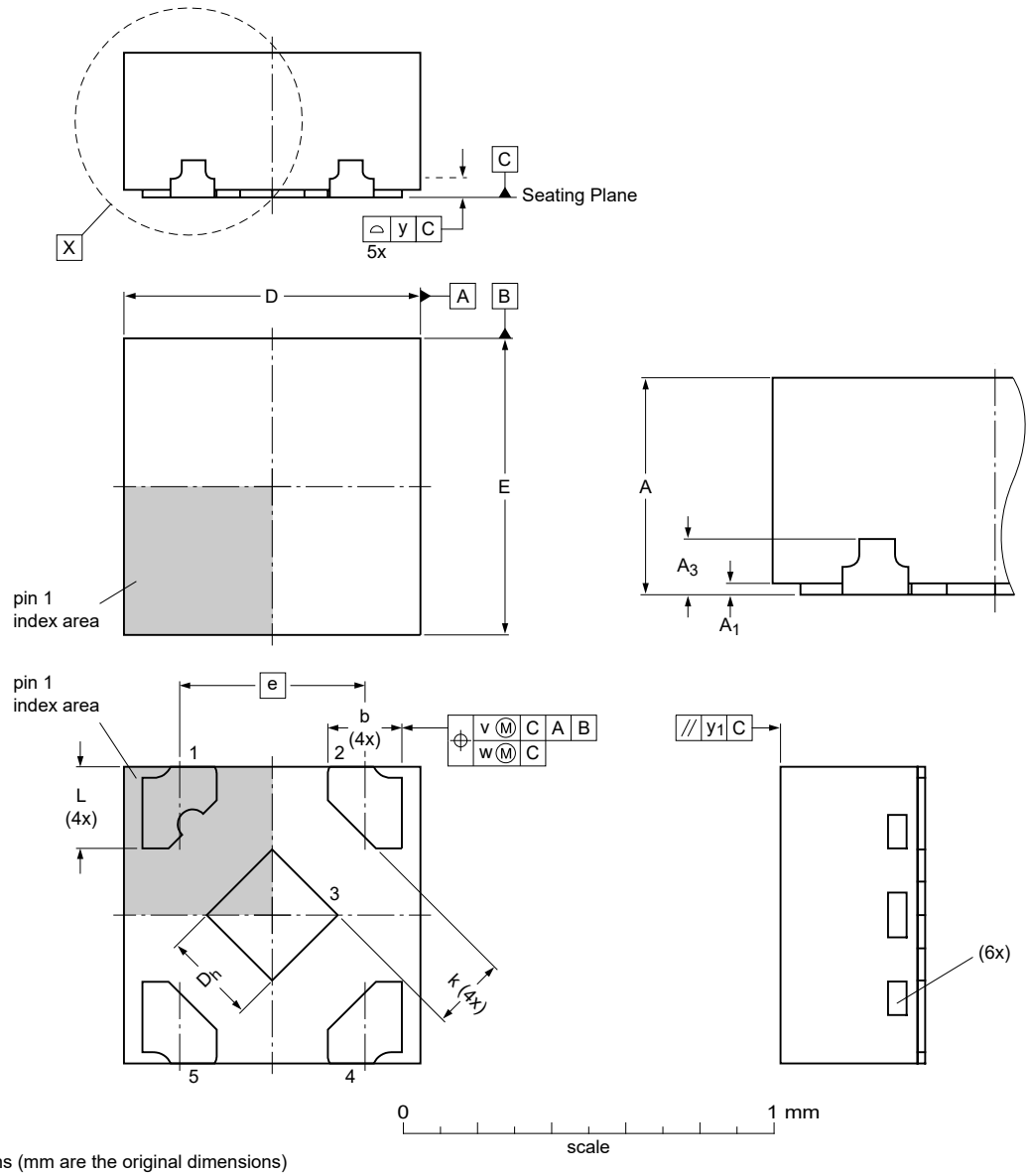
Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1202_po*

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

**Fig. 15. Package outline SOT1202 (XSON6)**

**X2SON5: plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 x 0.8 x 0.32 mm** **SOT1226-3**




Dimensions (mm are the original dimensions)

| Unit | | A | $A_1$ | $A_3$ | D | $D_h$ | E | b | e | K | L | v | w | y | $y_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.10 (Typ.) | 0.85 | 0.30 | 0.85 | 0.25 | 0.50 | | 0.27 | 0.1 | 0.05 | 0.05 | 0.05 |
| | nom | 0.32 | 0.02 | | 0.80 | 0.25 | 0.80 | 0.20 | | | 0.22 | | | | |
| | min | 0.30 | 0.00 | | 0.75 | 0.20 | 0.75 | 0.15 | | 0.20 | 0.17 | | | | |

*sot1226-3_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | EIAJ | | | |
| SOT1226-3 | | --- | | | | ~~19-11-06~~ 19-11-07 |

**Fig. 16. Package outline SOT1226-3 (X2SON5)**

# 13. Abbreviations

**Table 11. Abbreviations**

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

# 14. Revision history

**Table 12. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74LVC1G125 v.14 | 20211007 | Product data sheet | - | 74LVC1G125 v.13 |
| Modifications: | • Section 1 and Section 2 updated.<br>• SOT1226 (X2SON5) package changed to SOT1226-3 (X2SON5) package.<br>• Type number 74LVC1G125GF (SOT891/XSON6) removed.<br>• Table 5: Derating values for $P_{tot}$ total power dissipation updated. | | | |
| 74LVC1G125 v.13 | 20171107 | Product data sheet | - | 74LVC1G125 v.12 |
| Modifications: | • The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.<br>• Legal texts have been adapted to the new company name where appropriate. | | | |
| 74LVC1G125 v.12 | 20161202 | Product data sheet | - | 74LVC1G125 v.11 |
| Modifications: | • Table 7: The maximum limits for leakage current and supply current have changed. | | | |
| 74LVC1G125 v.11 | 20120702 | Product data sheet | - | 74LVC1G125 v.10 |
| Modifications: | • Added type number 74LVC1G125GX (SOT1226)<br>• Package outline drawing of SOT886 (Fig. 13) modified. | | | |
| 74LVC1G125 v.10 | 20111207 | Product data sheet | - | 74LVC1G125 v.9 |
| Modifications: | • Legal pages updated. | | | |
| 74LVC1G125 v.9 | 20101229 | Product data sheet | - | 74LVC1G125 v.8 |
| 74LVC1G125 v.8 | 20100824 | Product data sheet | - | 74LVC1G125 v.7 |
| 74LVC1G125 v.7 | 20070830 | Product data sheet | - | 74LVC1G125 v.6 |
| 74LVC1G125 v.6 | 20060912 | Product data sheet | - | 74LVC1G125 v.5 |
| 74LVC1G125 v.5 | 20040915 | Product specification | - | 74LVC1G125 v.4 |
| 74LVC1G125 v.4 | 20021118 | Product specification | - | 74LVC1G125 v.3 |
| 74LVC1G125 v.3 | 20020528 | Product specification | - | 74LVC1G125 v.2 |
| 74LVC1G125 v.2 | 20010406 | Product specification | - | 74LVC1G125 v.1 |
| 74LVC1G125 v.1 | 20001222 | Product specification | - | - |

# 15. Legal information

## 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".
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