

74LVC1G125

Bus buffer/line driver; 3-state

Rev. 13 — 6 November 2017

Product data sheet

1 General description

The 74LVC1G125 provides one non-inverting buffer/line driver with 3-state output. The 3-state output is controlled by the output enable input (\overline{OE}). A HIGH-level at pin \overline{OE} causes the output to assume a high-impedance OFF-state.

The input 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.

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
- 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)
 - JESD8-B/JESD36 (2.7 V to 3.6 V)
- ± 24 mA output drive ($V_{CC} = 3.0$ V)
- ESD protection:
 - HBM JESD22-A114F exceeds 2 000 V
 - MM JESD22-A115-A exceeds 200 V
- CMOS low power consumption
- Inputs accept voltages up to 5 V
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- 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 | | | Version |
|--------------|-------------------|--------|------------------------------------------------------------------------------------------------------------------------|----------|
| | Temperature range | Name | Description | |
| 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 x 1.45 x 0.5 mm | SOT886 |
| 74LVC1G125GF | -40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1 x 0.5 mm | SOT891 |
| 74LVC1G125GN | -40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 0.9 x 1.0 x 0.35 mm | SOT1115 |
| 74LVC1G125GS | -40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 1.0 x 1.0 x 0.35 mm | SOT1202 |
| 74LVC1G125GX | -40 °C to +125 °C | X2SON5 | X2SON5: plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 x 0.8 x 0.35 mm | SOT1226 |

4 Marking

Table 2. Marking

| Type number | Marking code ^[1] |
|--------------|-----------------------------|
| 74LVC1G125GW | VM |
| 74LVC1G125GV | V25 |
| 74LVC1G125GM | VM |
| 74LVC1G125GF | 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

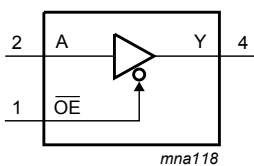


Figure 1. Logic symbol

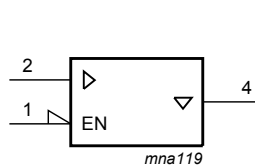


Figure 2. IEC logic symbol

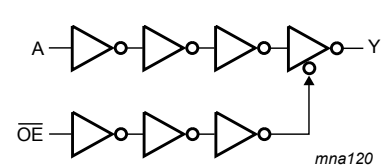


Figure 3. Logic diagram

6 Pinning information

6.1 Pinning

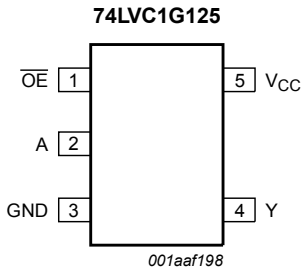


Figure 4. Pin configuration SOT353-1 and SOT753

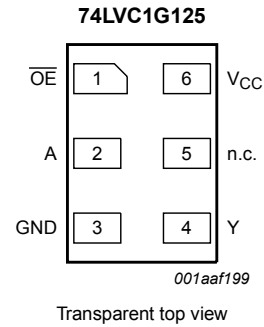


Figure 5. Pin configuration SOT886

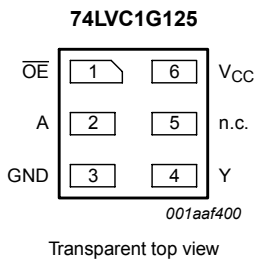


Figure 6. Pin configuration SOT891, SOT1115 and SOT1202

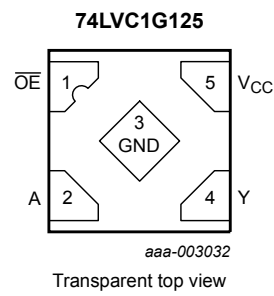


Figure 7. Pin configuration SOT1226 (X2SON5)

6.2 Pin description

Table 3. Pin description

| Symbol | Pin | | Description |
|------------------------|---------------------------|-------|---------------------|
| | TSSOP5, SC-74A and X2SON5 | XSON6 | |
| $\overline{\text{OE}}$ | 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 |
|-------|---|--------|
| 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] [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 TSSOP5 and SC-74A packages: above 87.5 °C the value of P_{tot} derates linearly with 4.0 mW/K.

For XSON6 and X2SON5 package: above 118 °C the value of P_{tot} derates linearly with 7.8 mW/K.

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 |
| | | $V_{CC} = 0$ V; Power-down mode | 0 | - | 5.5 | V |
| T_{amb} | ambient temperature | | -40 | - | +125 | °C |

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---------------------|-------------------------------------|---------------------------------------------|-----|-----|-----|------|
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC} = 1.65 \text{ V to } 2.7 \text{ V}$ | - | - | 20 | ns/V |
| | | $V_{CC} = 2.7 \text{ V to } 5.5 \text{ V}$ | - | - | 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 | $V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$ | $0.65 \times V_{CC}$ | - | - | V |
| | | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$ | 1.7 | - | - | V |
| | | $V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$ | 2.0 | - | - | V |
| | | $V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$ | $0.7 \times V_{CC}$ | - | - | V |
| V _{IL} | LOW-level input voltage | $V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$ | - | - | $0.35 \times V_{CC}$ | V |
| | | $V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$ | - | - | 0.7 | V |
| | | $V_{CC} = 2.7 \text{ V to } 3.6 \text{ V}$ | - | - | 0.8 | V |
| | | $V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$ | - | - | $0.3 \times V_{CC}$ | V |
| V _{OL} | LOW-level output voltage | $V_I = V_{IH} \text{ or } V_{IL}$ | | | | |
| | | $V_{CC} = 1.65 \text{ V to } 5.5 \text{ V}; I_O = 100 \mu\text{A}$ | - | - | 0.1 | V |
| | | $V_{CC} = 1.65 \text{ V}; I_O = 4 \text{ mA}$ | - | - | 0.45 | V |
| | | $V_{CC} = 2.3 \text{ V}; I_O = 8 \text{ mA}$ | - | - | 0.3 | V |
| | | $V_{CC} = 2.7 \text{ V}; I_O = 12 \text{ mA}$ | - | - | 0.4 | V |
| | | $V_{CC} = 3.0 \text{ V}; I_O = 24 \text{ mA}$ | - | - | 0.55 | V |
| | | $V_{CC} = 4.5 \text{ V}; I_O = 32 \text{ mA}$ | - | - | 0.55 | V |
| V _{OH} | HIGH-level output voltage | $V_I = V_{IH} \text{ or } V_{IL}$ | | | | |
| | | $V_{CC} = 1.65 \text{ V to } 5.5 \text{ V}; I_O = -100 \mu\text{A}$ | $V_{CC} - 0.1$ | - | - | V |
| | | $V_{CC} = 1.65 \text{ V}; I_O = -4 \text{ mA}$ | 1.2 | - | - | V |
| | | $V_{CC} = 2.3 \text{ V}; I_O = -8 \text{ mA}$ | 1.9 | - | - | V |
| | | $V_{CC} = 2.7 \text{ V}; I_O = -12 \text{ mA}$ | 2.2 | - | - | V |
| | | $V_{CC} = 3.0 \text{ V}; I_O = -24 \text{ mA}$ | 2.3 | - | - | V |
| | | $V_{CC} = 4.5 \text{ V}; I_O = -32 \text{ mA}$ | 3.8 | - | - | V |
| I _I | input leakage current | $V_{CC} = 0 \text{ V to } 5.5 \text{ V}; V_I = 5.5 \text{ V or GND}$ | - | ± 0.1 | ± 1 | μA |
| I _{OZ} | OFF-state output current | $V_{CC} = 3.6 \text{ V}; V_I = V_{IH} \text{ or } V_{IL}; V_O = 5.5 \text{ V or GND}$ | - | ± 0.1 | ± 2 | μA |
| I _{OFF} | power-off leakage current | $V_{CC} = 0 \text{ V}; V_I \text{ or } V_O = 5.5 \text{ V}$ | - | ± 0.1 | ± 2 | μA |
| I _{CC} | supply current | $V_I = 5.5 \text{ V or GND}; V_{CC} = 1.65 \text{ V to } 5.5 \text{ V}; I_O = 0 \text{ A}$ | - | 0.1 | 4 | μA |
| ΔI_{CC} | additional supply current | per pin; $V_{CC} = 2.3 \text{ V to } 5.5 \text{ V}; V_I = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A}$ | - | 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 |
| ΔI _{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 [Figure 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 Figure 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 | OE to Y; see Figure 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 | OE to Y; see Figure 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).

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

f_i = input frequency in MHz;

f_o = output frequency in MHz;

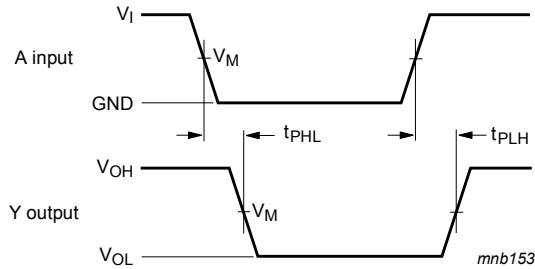
C_L = output load capacitance in pF;

V_{CC} = supply voltage in V;

N = number of inputs switching;

∑(C_L × V_{CC}² × f_o) = sum of outputs.

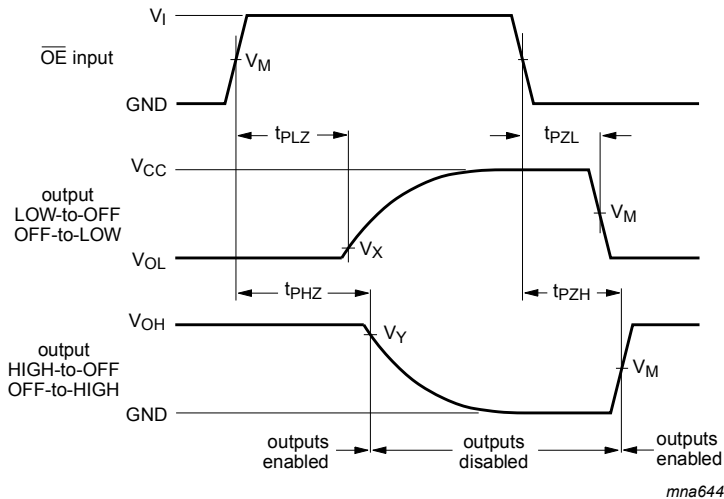
11.1 Waveforms and test circuit



Measurement points are given in [Table 9](#).

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

Figure 8. Input A to output Y propagation delay times



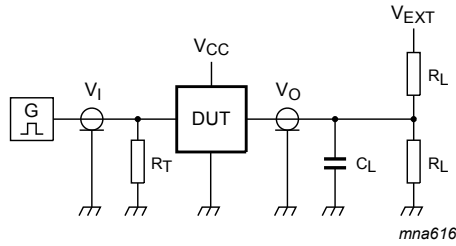
Measurement points are given in [Table 9](#).

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

Figure 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.

Figure 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 k Ω | 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 0 | 1.0 0.8 | 0.15 | 0.30 0.15 | 0.25 0.08 | 2.25 1.85 | 1.35 1.15 | 0.65 | 1.3 | 2.25 2.0 | 0.425 | 0.46 0.21 | 0.3 | 0.1 | 0.1 | 0.60 0.15 | 7° 0° |

Note

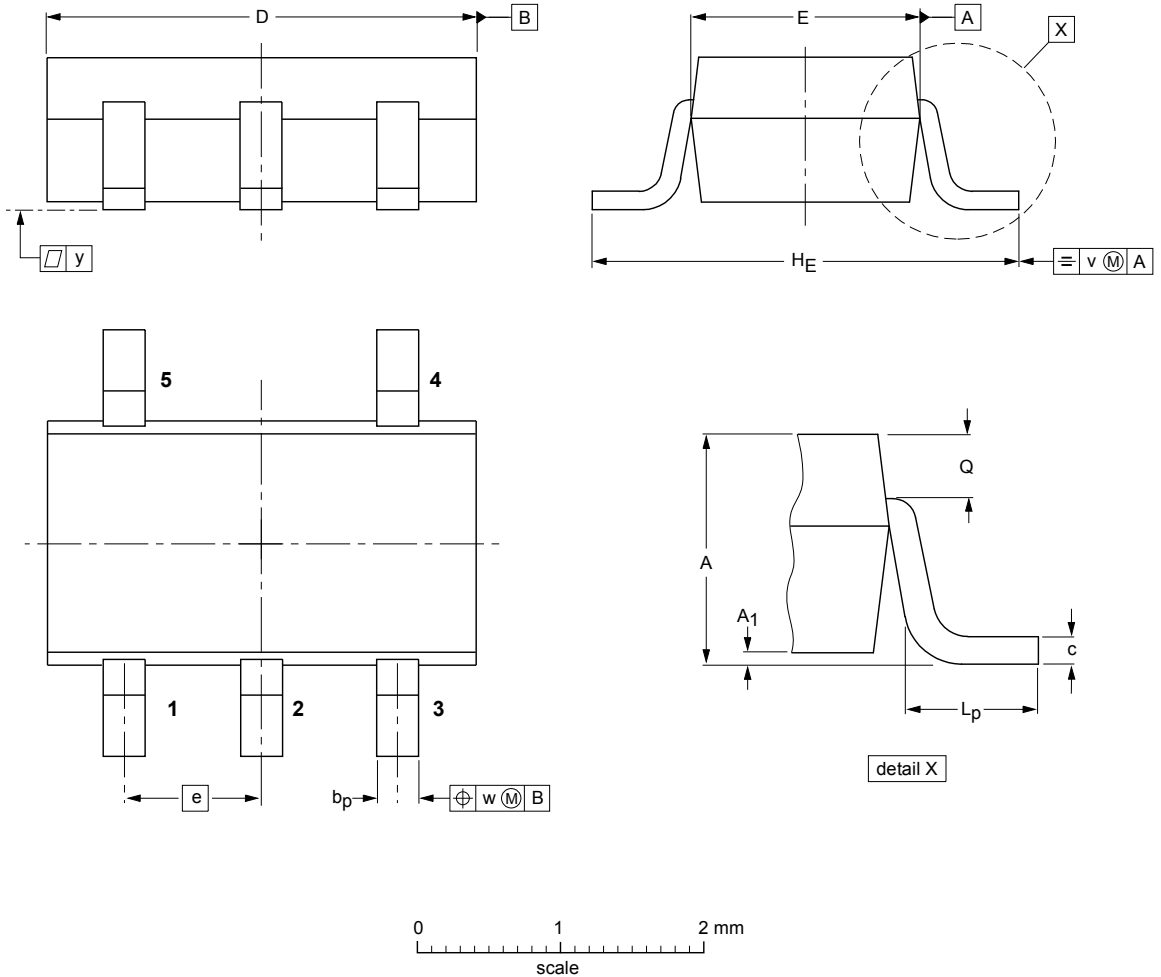
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

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

Figure 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 0.9 | 0.100 0.013 | 0.40 0.25 | 0.26 0.10 | 3.1 2.7 | 1.7 1.3 | 0.95 | 3.0 2.5 | 0.6 0.2 | 0.33 0.23 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|-------|--------|--|---------------------|-----------------------|
| | IEC | JEDEC | JEITA | | | |
| SOT753 | | | SC-74A | | | -02-04-16 06-03-16 |

Figure 12. Package outline SOT753

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 |
|------|------------------|----------------|------|------|------|-----|----------------|------|----------------|
| 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

- Including plating thickness.
- 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 |

Figure 13. Package outline SOT886 (XSON6)

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 0.12 | 1.05 0.95 | 1.05 0.95 | 0.55 | 0.35 | 0.35 0.27 | 0.40 0.32 |

Note

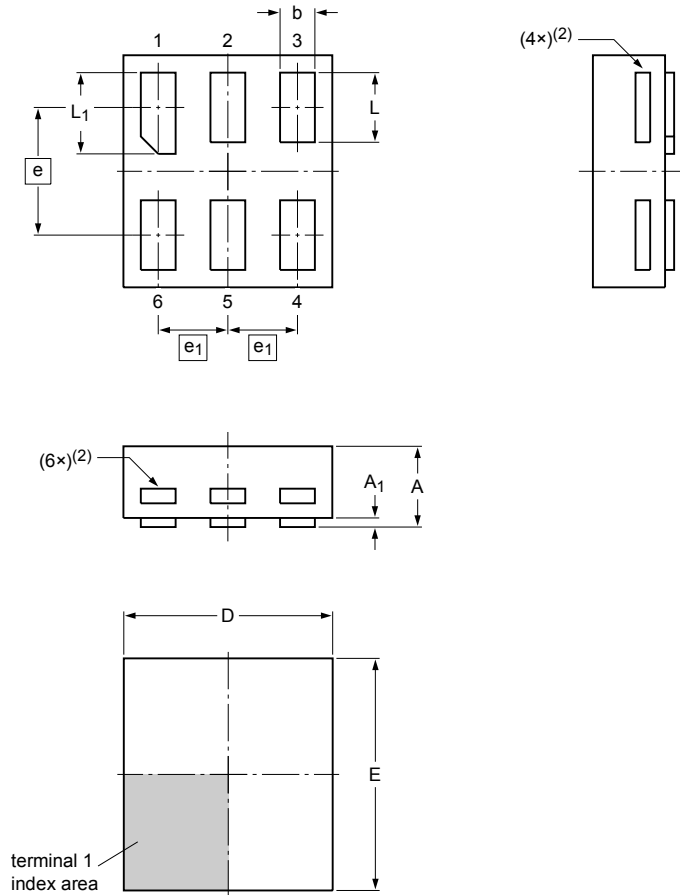
1. Can be visible in some manufacturing processes.

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

Figure 14. Package outline SOT891 (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

- Including plating thickness.
- 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 |

Figure 15. 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 |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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

- Including plating thickness.
- Visible depending upon used manufacturing technology.

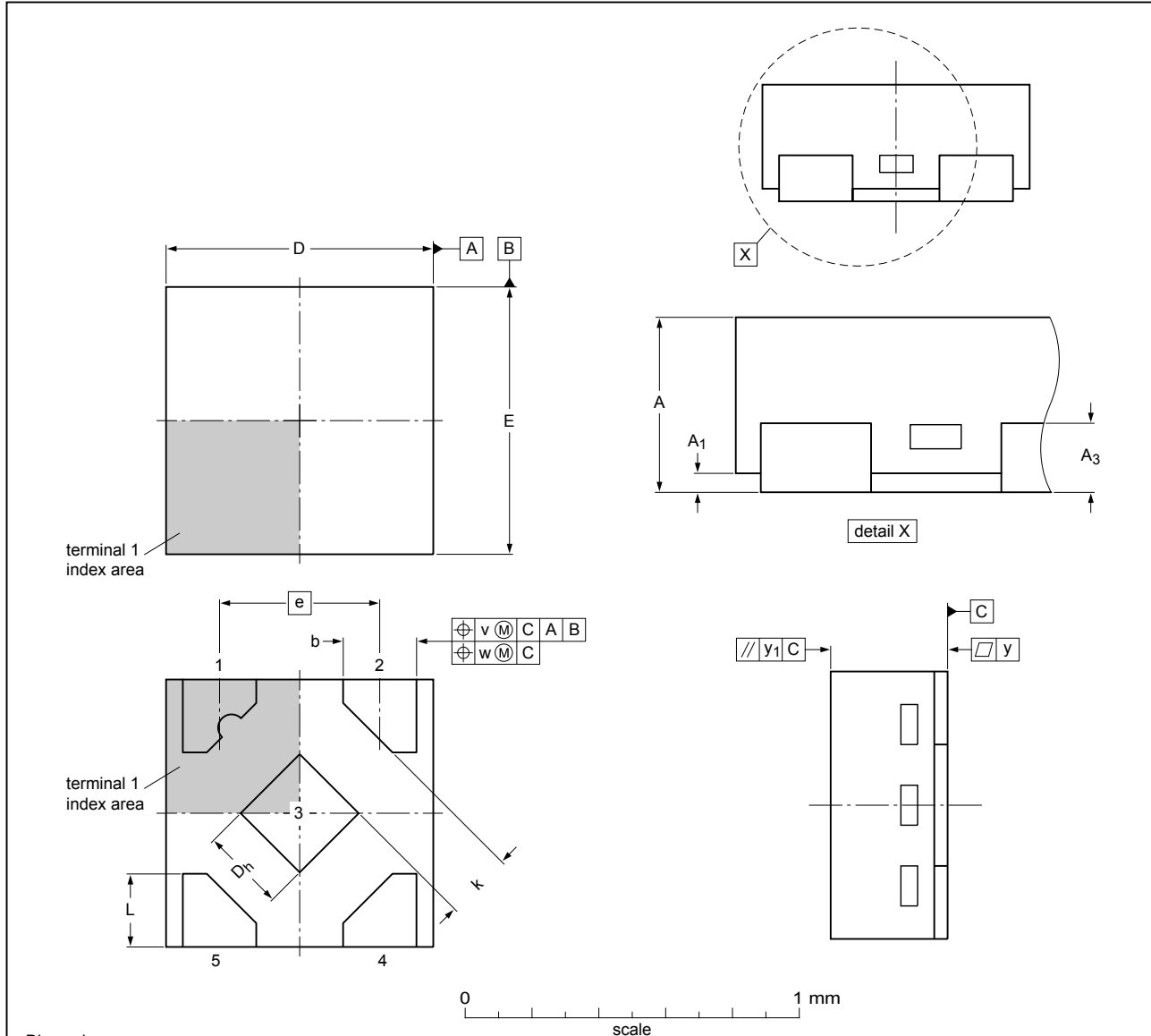
sot1202_po

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

Figure 16. Package outline SOT1202 (XSON6)

X2SON5: plastic thermal enhanced extremely thin small outline package; no leads;
5 terminals; body 0.8 x 0.8 x 0.35 mm

SOT1226



Dimensions

| Unit | A ⁽¹⁾ | A ₁ | A ₃ | D | D _h | E | b | e | k | L | v | w | y | y ₁ |
|--------|------------------|----------------|----------------|------|----------------|------|------|------|------|------|-----|------|------|----------------|
| max | 0.35 | 0.04 | 0.128 | 0.85 | 0.30 | 0.85 | 0.27 | | | 0.27 | | | | |
| mm nom | | | | 0.80 | 0.25 | 0.80 | 0.22 | 0.48 | | 0.22 | 0.1 | 0.05 | 0.05 | 0.05 |
| min | | | 0.040 | 0.75 | 0.20 | 0.75 | 0.17 | | 0.20 | 0.17 | | | | |

Note

1. Dimension A is including plating thickness.
2. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

sot1226_po

| Outline version | References | | | | European projection | Issue date |
|-----------------|------------|-------|------|--|---------------------|----------------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT1226 | | | | | | 12-04-10 12-04-25 |

Figure 17. Package outline SOT1226 (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.13 | 20171107 | Product data sheet | - | 74LVC1G125 v.12 |
| Modifications: | <ul style="list-style-type: none"> The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. Legal texts have been adapted to the new company name where appropriate. | | | |
| 74LVC1G125 v.12 | 20161202 | Product data sheet | - | 74LVC1G125 v.11 |
| Modifications: | <ul style="list-style-type: none"> Table 7: The maximum limits for leakage current and supply current have changed. | | | |
| 74LVC1G125 v.11 | 20120702 | Product data sheet | - | 74LVC1G125 v.10 |
| Modifications: | <ul style="list-style-type: none"> Added type number 74LVC1G125GX (SOT1226) Package outline drawing of SOT886 (Figure 13) modified. | | | |
| 74LVC1G125 v.10 | 20111207 | Product data sheet | - | 74LVC1G125 v.9 |
| Modifications: | <ul style="list-style-type: none"> 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

15.1 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".

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