

# 74LVC1G126

Bus buffer/line driver; 3-state

Rev. 14 — 15 March 2019

Product data sheet

## 1. General description

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The 74LVC1G126 provides one non-inverting buffer/line driver with 3-state output. The 3-state output is controlled by the output enable input (OE). A LOW-level at pin 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<sub>OFF</sub>. The I<sub>OFF</sub> circuitry disables the output, preventing the damaging backflow current through the device when it is powered down.

## 2. Features and benefits

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- 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)
  - JESD8B/JESD36 (2.7 V to 3.6 V)
- ±24 mA output drive (V<sub>CC</sub> = 3.0 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 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  |          |
| 74LVC1G126GW | -40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm   | SOT353-1 |
| 74LVC1G126GV | -40 °C to +125 °C | SC-74A | plastic surface-mounted package; 5 leads   | SOT753   |
| 74LVC1G126GM | -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   |
| 74LVC1G126GF | -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   |
| 74LVC1G126GN | -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  |
| 74LVC1G126GS | -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  |
| 74LVC1G126GX | -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  |

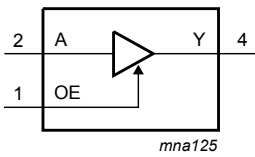
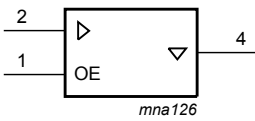
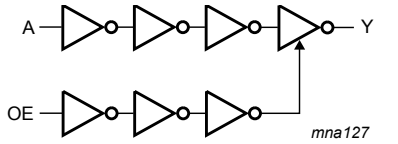
### 4. Marking

Table 2. Marking codes

| Type number  | Marking[1] |
|--------------|------------|
| 74LVC1G126GW | VN         |
| 74LVC1G126GV | V26        |
| 74LVC1G126GM | VN         |
| 74LVC1G126GF | VN         |
| 74LVC1G126GN | VN         |
| 74LVC1G126GS | VN         |
| 74LVC1G126GX | VN         |

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

### 5. Functional diagram

|  |  |  |
|--|--|--|
|  <p><i>mna125</i></p> |  <p><i>mna126</i></p> |  <p><i>mna127</i></p> |
| <b>Fig. 1. Logic symbol</b>  | <b>Fig. 2. IEC logic symbol</b>  | <b>Fig. 3. Logic diagram</b>   |

## 6. Pinning information

### 6.1. Pinning

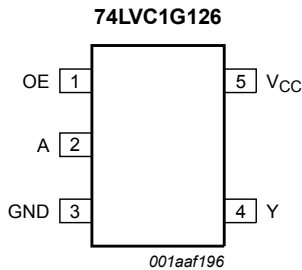


Fig. 4. Pin configuration SOT353-1 (TSSOP5) and SOT753 (SC-74A)

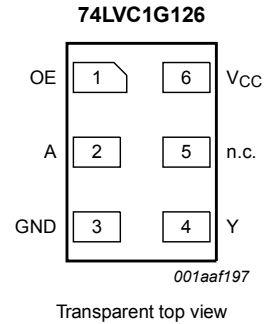


Fig. 5. Pin configuration SOT886 (XSON6)

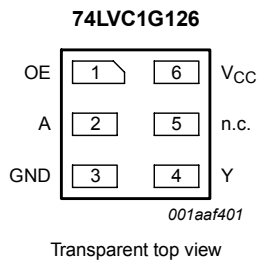


Fig. 6. Pin configuration SOT891, SOT1115 and SOT1202 (XSON6)

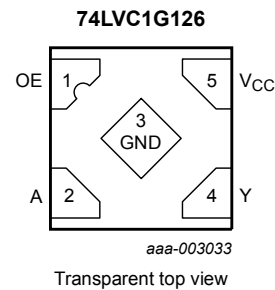


Fig. 7. Pin configuration SOT1226 (X2SON5)

### 6.2. Pin description

Table 3. Pin description

| Symbol          | Pin                       |       | Description         |
|-----------------|---------------------------|-------|---------------------|
|                 | TSSOP5, SC-74A and X2SON5 | XSON6 |                     |
| 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 <sub>CC</sub> | 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      |
| H     | L | L      |
| H     | H | H      |
| L     | 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           |                                 | -0.5 | +6.5           | V    |
| $I_{OK}$  | output clamping current | $V_O > V_{CC}$ or $V_O < 0$ V   | -    | $\pm 50$       | mA   |
| $V_O$     | output voltage          | Active mode                     | -0.5 | $V_{CC} + 0.5$ | V    |
|           |                         | Power-down mode; $V_{CC} = 0$ V | -0.5 | +6.5           | V    |
| $I_O$     | output current          | $V_O = 0$ V to $V_{CC}$         | -    | $\pm 50$       | 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 | -    | 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 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   |
| $\Delta t/\Delta V$ | 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 |
|---|---------------------------|---|------------------------|--------|------------------------|------|
| <b>T<sub>amb</sub> = -40 °C to +85 °C</b> |                           |   |                        |        |                        |      |
| V <sub>IH</sub>                           | HIGH-level input voltage  | V <sub>CC</sub> = 1.65 V to 1.95 V  | 0.65 × V <sub>CC</sub> | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 2.3 V to 2.7 V  | 1.7                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 2.7 V to 3.6 V  | 2.0                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 4.5 V to 5.5 V  | 0.7 × V <sub>CC</sub>  | -      | -                      | V    |
| V <sub>IL</sub>                           | LOW-level input voltage   | V <sub>CC</sub> = 1.65 V to 1.95 V  | -                      | -      | 0.35 × V <sub>CC</sub> | V    |
|   |                           | V <sub>CC</sub> = 2.3 V to 2.7 V  | -                      | -      | 0.7                    | V    |
|   |                           | V <sub>CC</sub> = 2.7 V to 3.6 V  | -                      | -      | 0.8                    | V    |
|   |                           | V <sub>CC</sub> = 4.5 V to 5.5 V  | -                      | -      | 0.3 × V <sub>CC</sub>  | V    |
| V <sub>OL</sub>                           | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |                        |        |                        |      |
|   |                           | V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = 100 μA  | -                      | -      | 0.1                    | V    |
|   |                           | V <sub>CC</sub> = 1.65 V; I <sub>O</sub> = 4 mA   | -                      | -      | 0.45                   | V    |
|   |                           | V <sub>CC</sub> = 2.3 V; I <sub>O</sub> = 8 mA  | -                      | -      | 0.3                    | V    |
|   |                           | V <sub>CC</sub> = 2.7 V; I <sub>O</sub> = 12 mA   | -                      | -      | 0.4                    | V    |
|   |                           | V <sub>CC</sub> = 3.0 V; I <sub>O</sub> = 24 mA   | -                      | -      | 0.55                   | V    |
|   |                           | V <sub>CC</sub> = 4.5 V; I <sub>O</sub> = 32 mA   | -                      | -      | 0.55                   | V    |
| V <sub>OH</sub>                           | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |                        |        |                        |      |
|   |                           | V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = -100 μA   | V <sub>CC</sub> - 0.1  | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 1.65 V; I <sub>O</sub> = -4 mA  | 1.2                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 2.3 V; I <sub>O</sub> = -8 mA   | 1.9                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 2.7 V; I <sub>O</sub> = -12 mA  | 2.2                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 3.0 V; I <sub>O</sub> = -24 mA  | 2.3                    | -      | -                      | V    |
|   |                           | V <sub>CC</sub> = 4.5 V; I <sub>O</sub> = -32 mA  | 3.8                    | -      | -                      | V    |
| I <sub>I</sub>                            | input leakage current     | V <sub>CC</sub> = 0 V to 5.5 V; V <sub>I</sub> = 5.5 V or GND   | -                      | ±0.1   | ±1                     | μA   |
| I <sub>OZ</sub>                           | OFF-state output current  | V <sub>CC</sub> = 3.6 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ;<br>V <sub>O</sub> = 5.5 V or GND | -                      | ±0.1   | ±2                     | μA   |
| I <sub>OFF</sub>                          | power-off leakage current | V <sub>CC</sub> = 0 V; V <sub>I</sub> or V <sub>O</sub> = 5.5 V   | -                      | ±0.1   | ±2                     | μA   |
| I <sub>CC</sub>                           | supply current            | V <sub>I</sub> = 5.5 V or GND;<br>V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = 0 A                       | -                      | 0.1    | 4                      | μA   |
| ΔI <sub>CC</sub>                          | additional supply current | per pin; V <sub>CC</sub> = 2.3 V to 5.5 V;<br>V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A    | -                      | 5      | 500                    | μA   |
| C <sub>I</sub>                            | input capacitance         |   | -                      | 5      | -                      | pF   |

| Symbol                                     | Parameter                 | Conditions  | Min                    | Typ[1] | Max                    | Unit |
|--|---------------------------|---|------------------------|--------|------------------------|------|
| <b>T<sub>amb</sub> = -40 °C to +125 °C</b> |                           |   |                        |        |                        |      |
| V <sub>IH</sub>                            | HIGH-level input voltage  | V <sub>CC</sub> = 1.65 V to 1.95 V  | 0.65 × V <sub>CC</sub> | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 2.3 V to 2.7 V  | 1.7                    | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 2.7 V to 3.6 V  | 2.0                    | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 4.5 V to 5.5 V  | 0.7 × V <sub>CC</sub>  | -      | -                      | V    |
| V <sub>IL</sub>                            | LOW-level input voltage   | V <sub>CC</sub> = 1.65 V to 1.95 V  | -                      | -      | 0.35 × V <sub>CC</sub> | V    |
|  |                           | V <sub>CC</sub> = 2.3 V to 2.7 V  | -                      | -      | 0.7                    | V    |
|  |                           | V <sub>CC</sub> = 2.7 V to 3.6 V  | -                      | -      | 0.8                    | V    |
|  |                           | V <sub>CC</sub> = 4.5 V to 5.5 V  | -                      | -      | 0.3 × V <sub>CC</sub>  | V    |
| V <sub>OL</sub>                            | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |                        |        |                        |      |
|  |                           | V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = 100 μA  | -                      | -      | 0.1                    | V    |
|  |                           | V <sub>CC</sub> = 1.65 V; I <sub>O</sub> = 4 mA   | -                      | -      | 0.70                   | V    |
|  |                           | V <sub>CC</sub> = 2.3 V; I <sub>O</sub> = 8 mA  | -                      | -      | 0.45                   | V    |
|  |                           | V <sub>CC</sub> = 2.7 V; I <sub>O</sub> = 12 mA   | -                      | -      | 0.60                   | V    |
|  |                           | V <sub>CC</sub> = 3.0 V; I <sub>O</sub> = 24 mA   | -                      | -      | 0.80                   | V    |
|  |                           | V <sub>CC</sub> = 4.5 V; I <sub>O</sub> = 32 mA   | -                      | -      | 0.80                   | V    |
| V <sub>OH</sub>                            | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>   |                        |        |                        |      |
|  |                           | V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = -100 μA   | V <sub>CC</sub> - 0.1  | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 1.65 V; I <sub>O</sub> = -4 mA  | 0.95                   | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 2.3 V; I <sub>O</sub> = -8 mA   | 1.7                    | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 2.7 V; I <sub>O</sub> = -12 mA  | 1.9                    | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 3.0 V; I <sub>O</sub> = -24 mA  | 2.0                    | -      | -                      | V    |
|  |                           | V <sub>CC</sub> = 4.5 V; I <sub>O</sub> = -32 mA  | 3.4                    | -      | -                      | V    |
| I <sub>I</sub>                             | input leakage current     | V <sub>CC</sub> = 0 V to 5.5 V; V <sub>I</sub> = 5.5 V or GND   | -                      | -      | ±1                     | μA   |
| I <sub>OZ</sub>                            | OFF-state output current  | V <sub>CC</sub> = 3.6 V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ;<br>V <sub>O</sub> = 5.5 V or GND | -                      | -      | ±2                     | μA   |
| I <sub>OFF</sub>                           | power-off leakage current | V <sub>CC</sub> = 0 V; V <sub>I</sub> or V <sub>O</sub> = 5.5 V   | -                      | -      | ±2                     | μA   |
| I <sub>CC</sub>                            | supply current            | V <sub>I</sub> = 5.5 V or GND;<br>V <sub>CC</sub> = 1.65 V to 5.5 V; I <sub>O</sub> = 0 A                       | -                      | -      | 4                      | μA   |
| ΔI <sub>CC</sub>                           | additional supply current | per pin; V <sub>CC</sub> = 2.3 V to 5.5 V;<br>V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A    | -                      | -      | 5 00                   | μA   |

[1] All typical values are measured at V<sub>CC</sub> = 3.3 V and T<sub>amb</sub> = 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 <sub>pd</sub>  | propagation delay             | A to Y; see Fig. 8 [2]                                  |                  |        |     |                   |      |      |
|                  |                               | V <sub>CC</sub> = 1.65 V to 1.95 V                      | 1.0              | 3      | 8.0 | 1.0               | 10.5 | ns   |
|                  |                               | V <sub>CC</sub> = 2.3 V to 2.7 V                        | 0.5              | 2.1    | 5.5 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 2.7 V                                 | 0.5              | 2.3    | 5.5 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 3.0 V to 3.6 V                        | 0.5              | 2.0    | 4.5 | 0.5               | 6    | ns   |
|                  |                               | V <sub>CC</sub> = 4.5 V to 5.5 V                        | 0.5              | 1.7    | 4.0 | 0.5               | 5.5  | ns   |
| t <sub>en</sub>  | enable time                   | OE to Y; see Fig. 9 [3]                                 |                  |        |     |                   |      |      |
|                  |                               | V <sub>CC</sub> = 1.65 V to 1.95 V                      | 1.0              | 3.2    | 9.4 | 1.0               | 12   | ns   |
|                  |                               | V <sub>CC</sub> = 2.3 V to 2.7 V                        | 0.5              | 2.2    | 6.6 | 0.5               | 8.5  | ns   |
|                  |                               | V <sub>CC</sub> = 2.7 V                                 | 0.5              | 2.4    | 6.6 | 0.5               | 8.5  | ns   |
|                  |                               | V <sub>CC</sub> = 3.0 V to 3.6 V                        | 0.5              | 2.1    | 5.3 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 4.5 V to 5.5 V                        | 0.5              | 1.6    | 5.0 | 0.5               | 6.5  | ns   |
| t <sub>dis</sub> | disable time                  | OE to Y; see Fig. 9 [4]                                 |                  |        |     |                   |      |      |
|                  |                               | V <sub>CC</sub> = 1.65 V to 1.95 V                      | 1.0              | 4.3    | 9.2 | 1.0               | 12   | ns   |
|                  |                               | V <sub>CC</sub> = 2.3 V to 2.7 V                        | 0.5              | 2.7    | 5.5 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 2.7 V                                 | 0.5              | 3.4    | 5.5 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 3.0 V to 3.6 V                        | 0.5              | 3.0    | 5.5 | 0.5               | 7    | ns   |
|                  |                               | V <sub>CC</sub> = 4.5 V to 5.5 V                        | 0.5              | 2.2    | 4.2 | 0.5               | 5.5  | ns   |
| C <sub>PD</sub>  | power dissipation capacitance | per buffer; V <sub>I</sub> = GND to V <sub>CC</sub> [5] |                  |        |     |                   |      |      |
|                  |                               | output enabled  | -                | 25     | -   | -                 | -    | pF   |
|                  |                               | output disabled   | -                | 6      | -   | -                 | -    | pF   |

[1] Typical values are measured at T<sub>amb</sub> = 25 °C and V<sub>CC</sub> = 1.8 V, 2.5 V, 2.7 V, 3.3 V and 5.0 V respectively.

[2] t<sub>pd</sub> is the same as t<sub>PLH</sub> and t<sub>PHL</sub>.

[3] t<sub>en</sub> is the same as t<sub>PZH</sub> and t<sub>PZL</sub>.

[4] t<sub>dis</sub> is the same as t<sub>PLZ</sub> and t<sub>PHZ</sub>.

[5] C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> 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<sub>i</sub> = input frequency in MHz;

f<sub>o</sub> = output frequency in MHz;

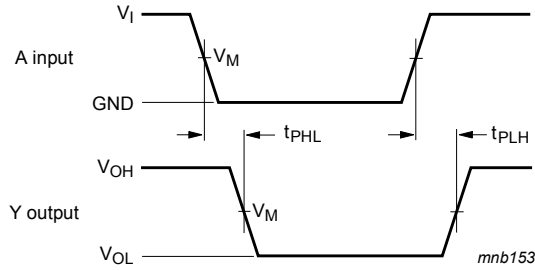
C<sub>L</sub> = output load capacitance in pF;

V<sub>CC</sub> = supply voltage in V;

N = number of inputs switching;

∑(C<sub>L</sub> × V<sub>CC</sub><sup>2</sup> × f<sub>o</sub>) = sum of outputs.

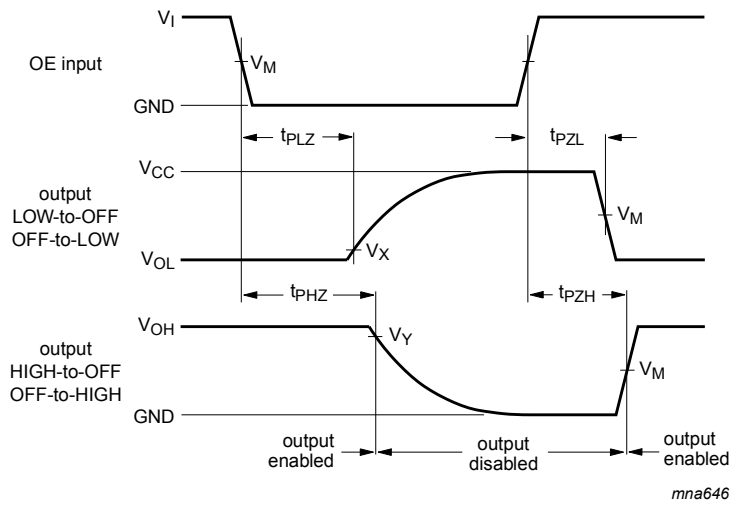
11.1. Waveforms and test circuit



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](#).

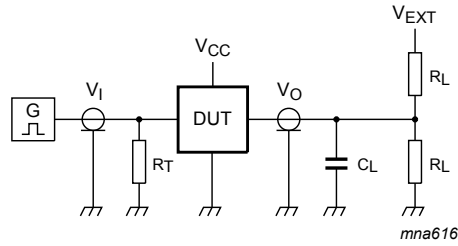
$V_{OL}$  and  $V_{OH}$  are typical output voltage levels that occur with the output load.

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**

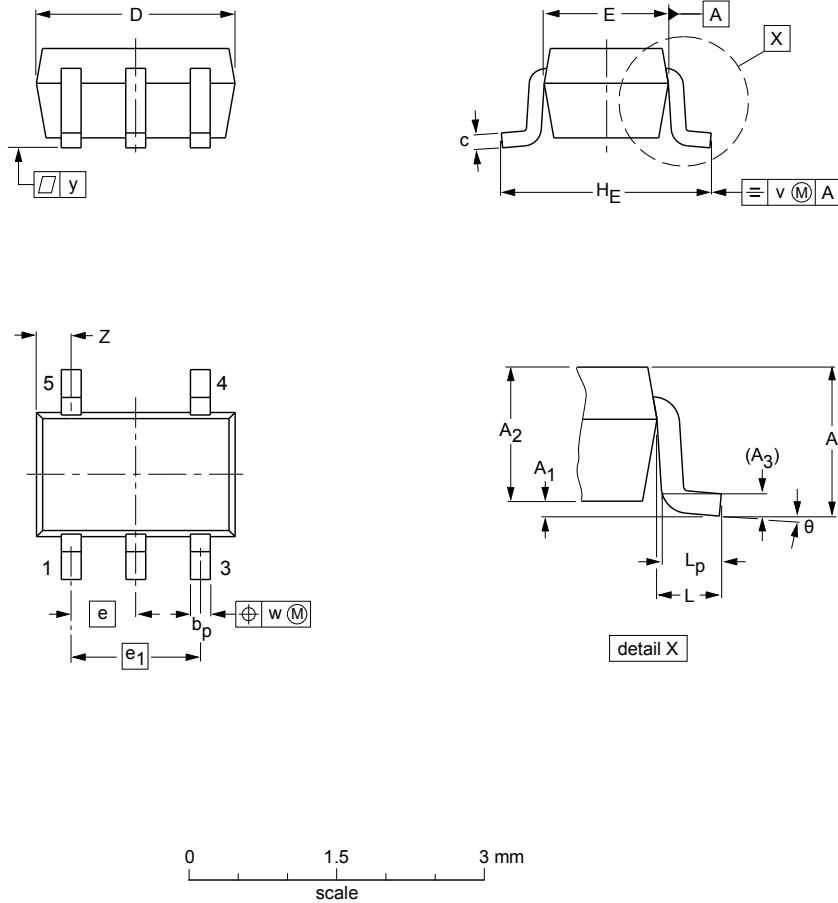
**Table 10. Test data**

| 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 | $V_{CC}$ | $\leq 2.0$ ns | 30 pF | 1 k $\Omega$ | open               | GND                | $2V_{CC}$          |
| 2.3 V to 2.7 V   | $V_{CC}$ | $\leq 2.0$ ns | 30 pF | 500 $\Omega$ | open               | GND                | $2V_{CC}$          |
| 2.7 V            | 2.7 V    | $\leq 2.5$ ns | 50 pF | 500 $\Omega$ | open               | GND                | 6 V                |
| 3.0 V to 3.6 V   | 2.7 V    | $\leq 2.5$ ns | 50 pF | 500 $\Omega$ | open               | GND                | 6 V                |
| 4.5 V to 5.5 V   | $V_{CC}$ | $\leq 2.5$ ns | 50 pF | 500 $\Omega$ | 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 <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | b <sub>p</sub> | c            | D <sup>(1)</sup> | E <sup>(1)</sup> | e    | e <sub>1</sub> | H <sub>E</sub> | L     | L <sub>p</sub> | v   | w   | y   | z <sup>(1)</sup> | 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)

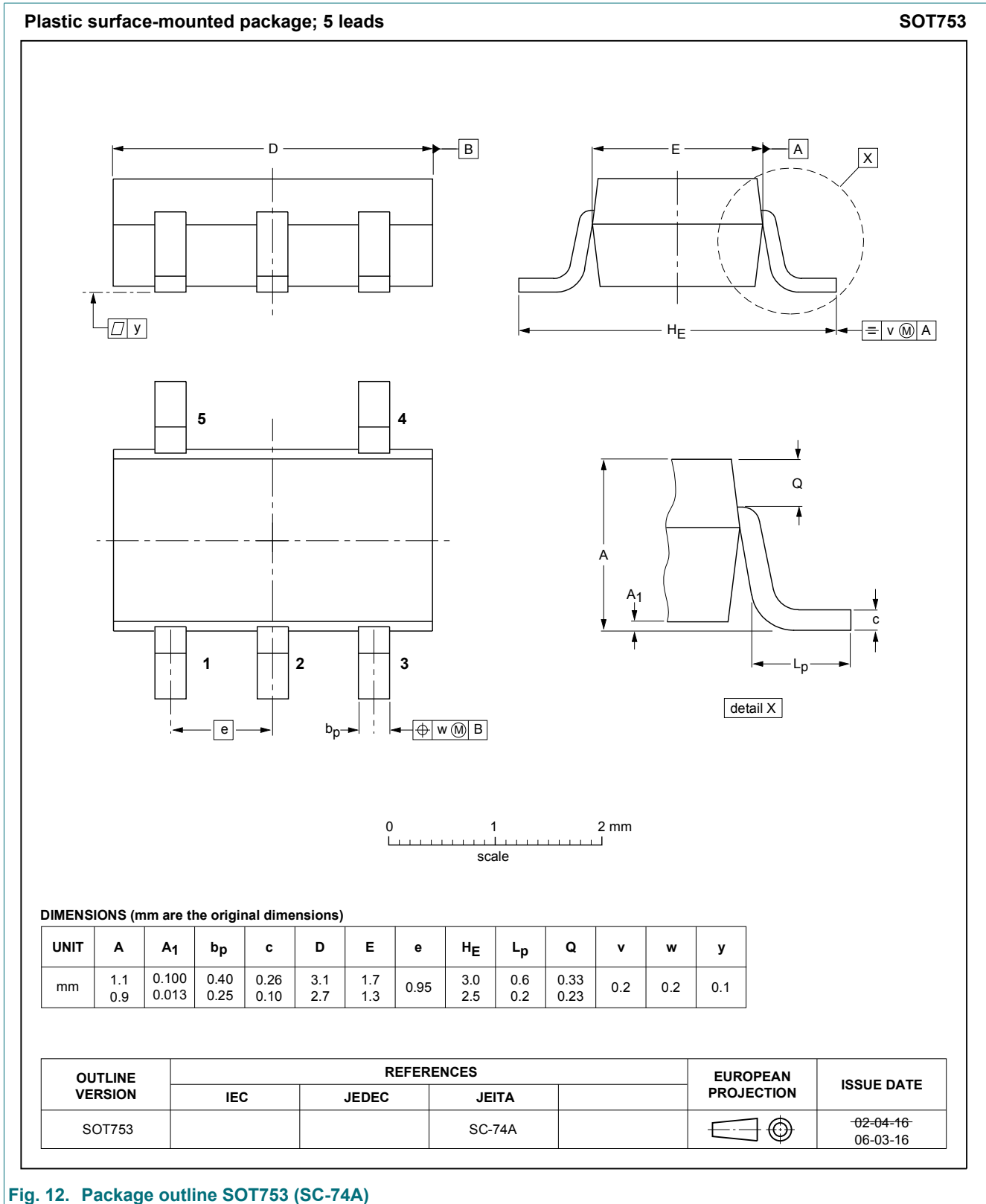
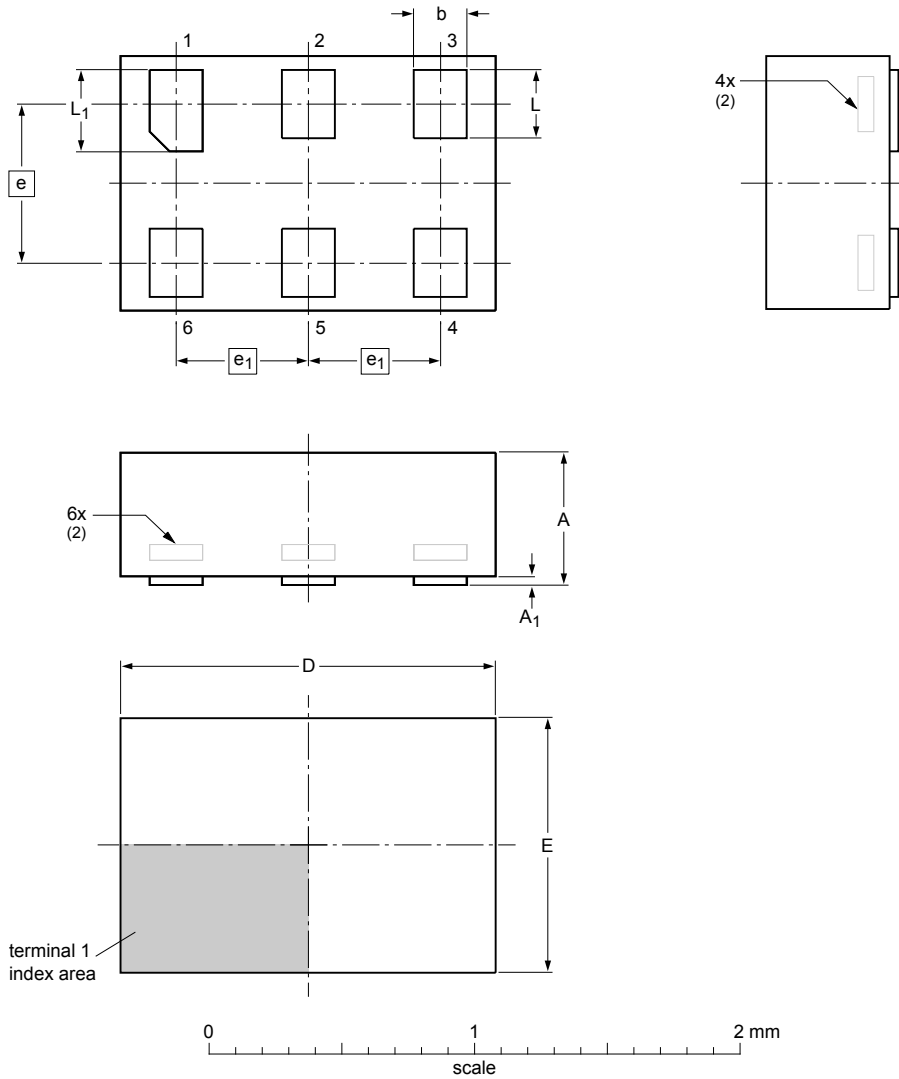


Fig. 12. Package outline SOT753 (SC-74A)

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 <sup>(1)</sup> | A <sub>1</sub> | b    | D    | E    | e    | e <sub>1</sub> | L    | L <sub>1</sub> |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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            | 0.30 | 0.35           |
|      | min              |                |      | 0.17 | 1.40 | 0.95 |                | 0.27 | 0.32           |

Notes

- Including plating thickness.
- Can be visible in some manufacturing processes.

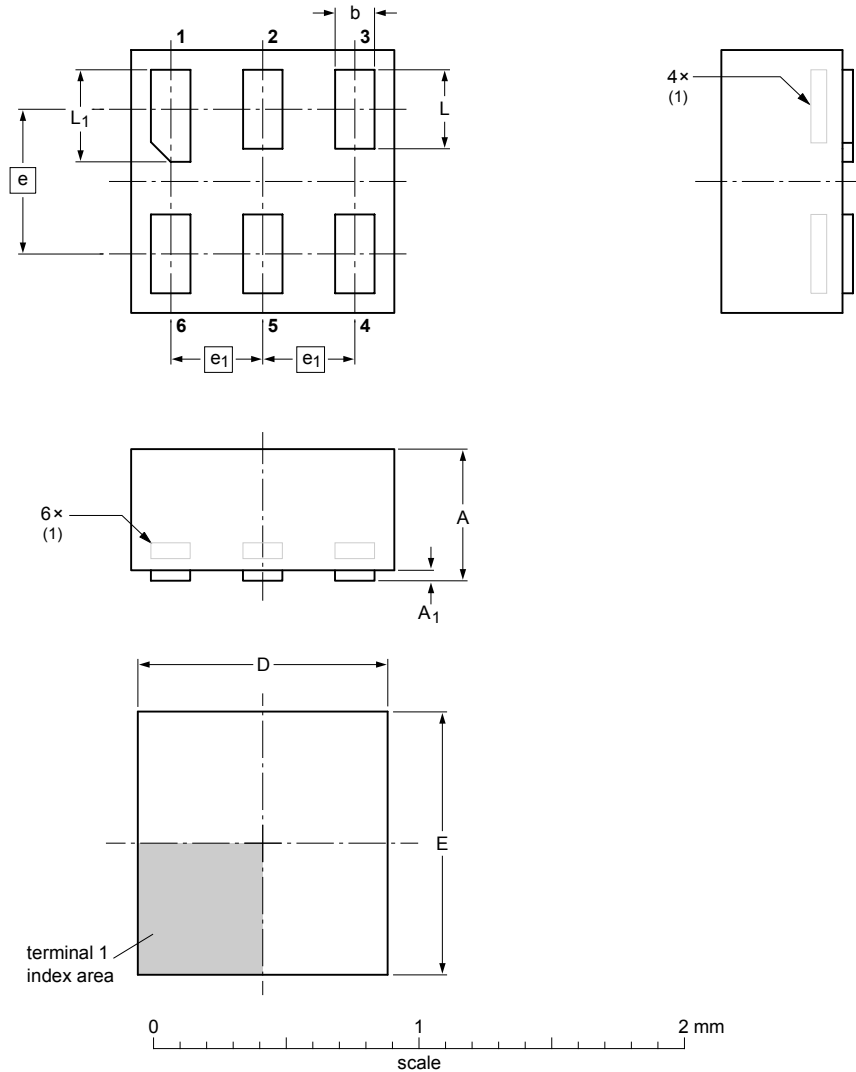
sot886\_po

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

Fig. 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<br>max | A <sub>1</sub><br>max | b            | D            | E            | e    | e <sub>1</sub> | L            | L <sub>1</sub> |
|------|----------|-----------------------|--------------|--------------|--------------|------|----------------|--------------|----------------|
| 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**

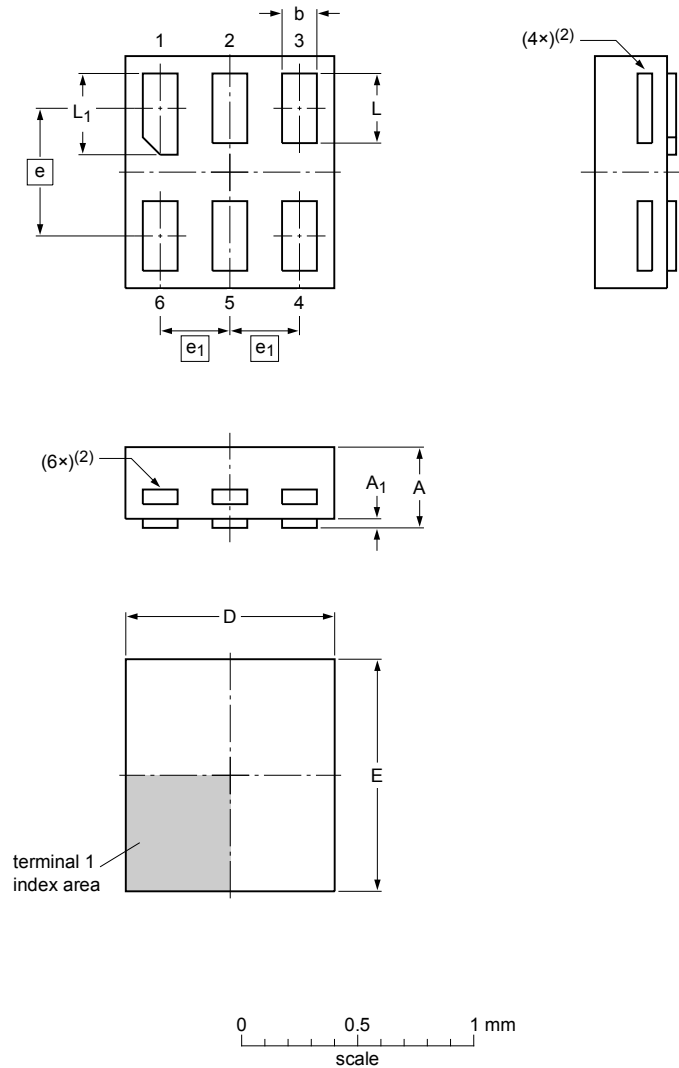
1. Can be visible in some manufacturing processes.

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

**Fig. 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 <sup>(1)</sup> | A <sub>1</sub> | b    | D    | E    | e    | e <sub>1</sub> | L    | L <sub>1</sub> |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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.

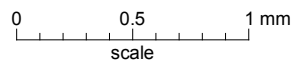
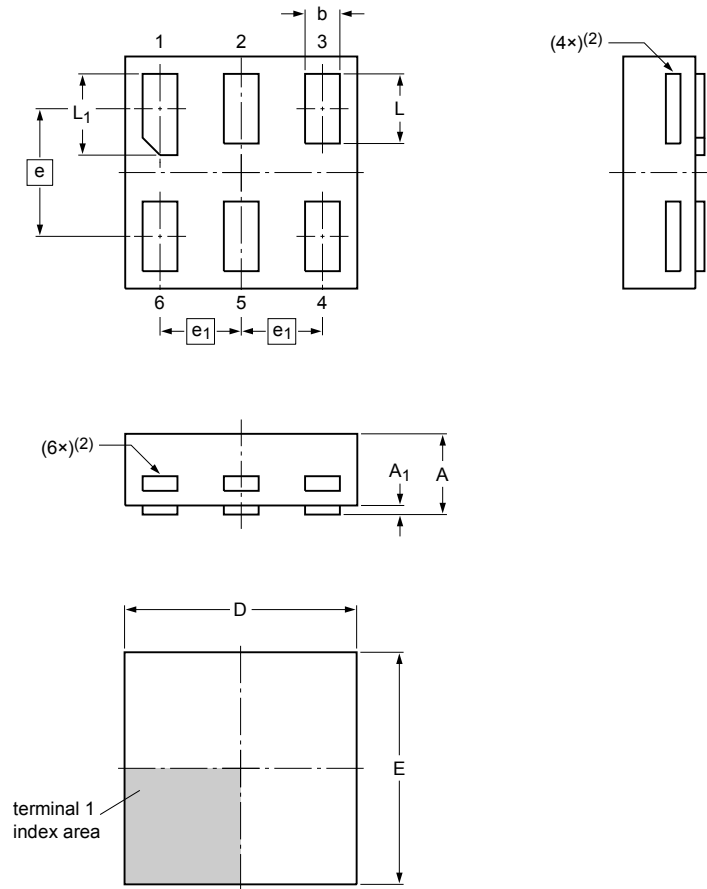
sot1115\_po

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

Fig. 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 <sup>(1)</sup> | A <sub>1</sub> | b    | D    | E    | e    | e <sub>1</sub> | L    | L <sub>1</sub> |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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

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

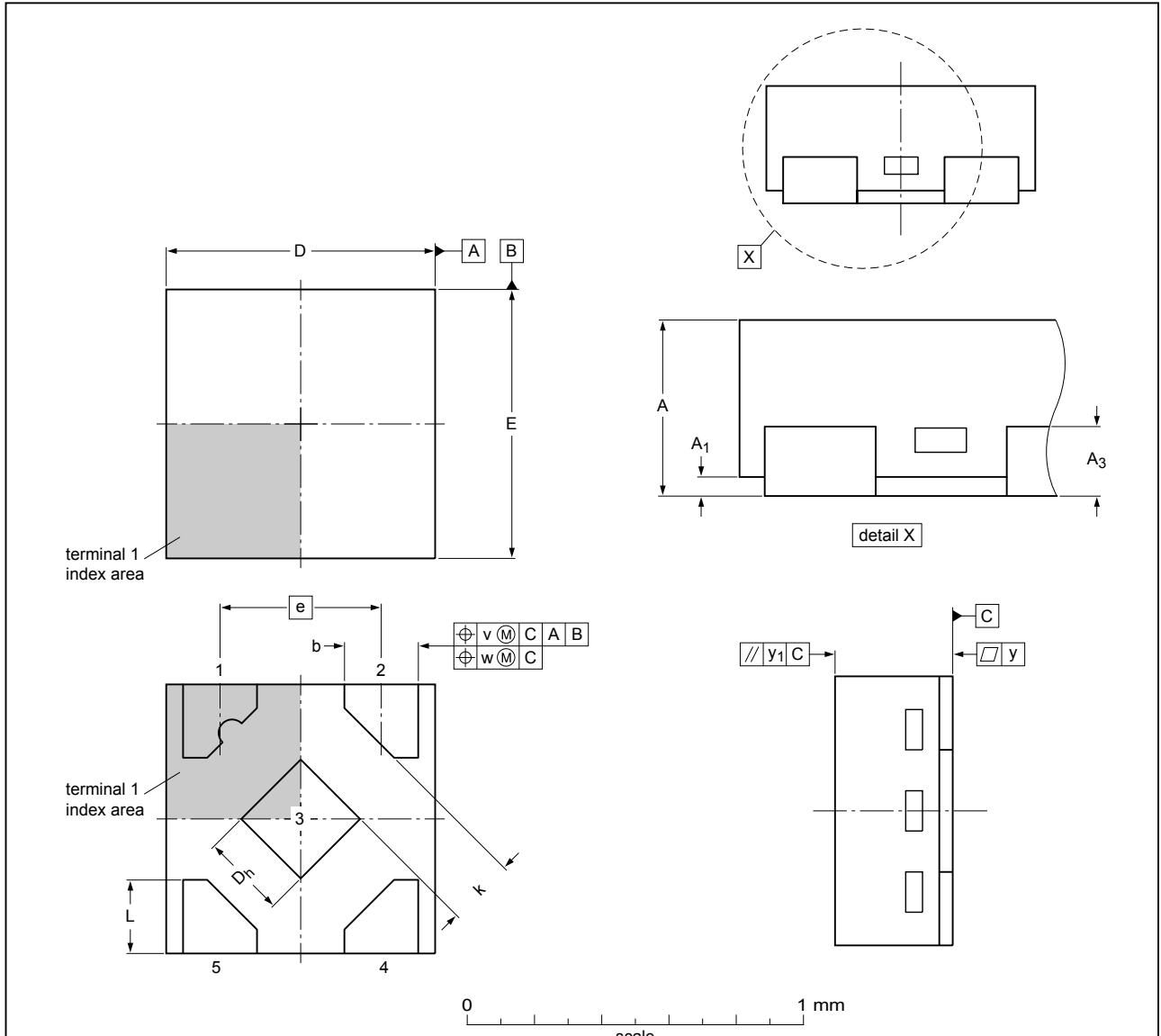
sot1202\_po

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

Fig. 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 <sup>(1)</sup> | A <sub>1</sub> | A <sub>3</sub> | D    | D <sub>h</sub> | E    | b    | e    | k    | L    | v   | w    | y    | y <sub>1</sub> |
|------|------------------|----------------|----------------|------|----------------|------|------|------|------|------|-----|------|------|----------------|
| max  | 0.35             | 0.04           | 0.128          | 0.85 | 0.30           | 0.85 | 0.27 |      |      | 0.27 |     |      |      |                |
| 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

- Dimension A is including plating thickness.
- 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         |            |       |      |                     | <del>12-04-10</del><br>12-04-25 |

Fig. 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      |
|-----------------|---|---------------------------|---------------|-----------------|
| 74LVC1G126 v.14 | 20190315  | Product data sheet        | -             | 74LVC1G126 v.13 |
| Modifications:  | <ul style="list-style-type: none"> <li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li> <li>Legal texts have been adapted to the new company name where appropriate.</li> </ul> |                           |               |                 |
| 74LVC1G126 v.13 | 20161202  | Product data sheet        | -             | 74LVC1G126 v.12 |
| Modifications:  | <ul style="list-style-type: none"> <li><a href="#">Table 7</a>: The maximum limits for leakage current and supply current have changed.</li> </ul>  |                           |               |                 |
| 74LVC1G126 v.12 | 20120702  | Product data sheet        | -             | 74LVC1G126 v.11 |
| Modifications:  | <ul style="list-style-type: none"> <li>Added type number 74LVC1G126GX (SOT1226)</li> <li>Package outline drawing of SOT886 (<a href="#">Fig. 13</a>) modified.</li> </ul>   |                           |               |                 |
| 74LVC1G126 v.11 | 20111208  | Product data sheet        | -             | 74LVC1G126 v.10 |
| Modifications:  | <ul style="list-style-type: none"> <li>Legal pages updated.</li> </ul>  |                           |               |                 |
| 74LVC1G126 v.10 | 20101229  | Product data sheet        | -             | 74LVC1G126 v.9  |
| 74LVC1G126 v.9  | 20100825  | Product data sheet        | -             | 74LVC1G126 v.8  |
| 74LVC1G126 v.8  | 20090409  | Product data sheet        | -             | 74LVC1G126 v.7  |
| 74LVC1G126 v.7  | 20070830  | Product data sheet        | -             | 74LVC1G126 v.6  |
| 74LVC1G126 v.6  | 20061009  | Product data sheet        | -             | 74LVC1G126 v.5  |
| 74LVC1G126 v.5  | 20040921  | Product specification     | -             | 74LVC1G126 v.4  |
| 74LVC1G126 v.4  | 20021002  | Product specification     | -             | 74LVC1G126 v.3  |
| 74LVC1G126 v.3  | 20020528  | Product specification     | -             | 74LVC1G126 v.2  |
| 74LVC1G126 v.2  | 20010406  | Preliminary specification | -             | 74LVC1G126 v.1  |
| 74LVC1G126 v.1  | 20001222  | Preliminary specification | -             | -               |

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| 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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