

# 74LVC1G17

## Single Schmitt trigger buffer

Rev. 12 — 8 June 2018

Product data sheet

## 1 General description

The 74LVC1G17 provides a buffer function with Schmitt trigger input. It is capable of transforming slowly changing input signals into sharply defined outputs.

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)
  - JESD8B/JESD36 (2.7 V to 3.6 V)
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 Class 2 exceeds 2000 V
  - MM: JESD22-A115-A exceeds 200 V
- $\pm 24$  mA output drive ( $V_{CC} = 3.0$  V)
- CMOS low power consumption
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- Unlimited rise and fall times
- Inputs accept voltages up to 5 V
- Multiple package options
- Specified from  $-40$  °C to  $+85$  °C and from  $-40$  °C to  $+125$  °C

## 3 Ordering information

Table 1. Ordering information

| Type number | Package               |        |  |          |
|-------------|-----------------------|--------|--|----------|
|             | Temperature range     | Name   | Description  | Version  |
| 74LVC1G17GW | $-40$ °C to $+125$ °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | SOT353-1 |
| 74LVC1G17GV | $-40$ °C to $+125$ °C | SC-74A | plastic surface-mounted package; 5 leads                               | SOT753   |

| Type number  | Package           |        |  |           |
|--------------|-------------------|--------|--|-----------|
|              | Temperature range | Name   | Description  | Version   |
| 74LVC1G17GM  | -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    |
| 74LVC1G17GF  | -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    |
| 74LVC1G17GN  | -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   |
| 74LVC1G17GS  | -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   |
| 74LVC1G17GX  | -40 °C to +125 °C | X2SON5 | plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 x 0.8 x 0.35 mm | SOT1226   |
| 74LVC1G17GX4 | -40 °C to +125 °C | X2SON4 | plastic thermal enhanced extremely thin small outline package; no leads; 4 terminals; body 0.6 x 0.6 x 0.32 mm | SOT1269-2 |

## 4 Marking

Table 2. Marking codes

| Type number  | Marking <sup>[1]</sup> |
|--------------|------------------------|
| 74LVC1G17GW  | VJ                     |
| 74LVC1G17GV  | V17                    |
| 74LVC1G17GM  | VJ                     |
| 74LVC1G17GF  | VJ                     |
| 74LVC1G17GN  | VJ                     |
| 74LVC1G17GS  | VJ                     |
| 74LVC1G17GX  | VJ                     |
| 74LVC1G17GX4 | VJ                     |

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

## 5 Functional diagram

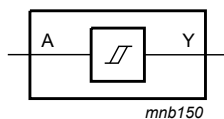


Figure 1. Logic symbol

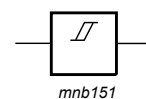


Figure 2. IEC logic symbol

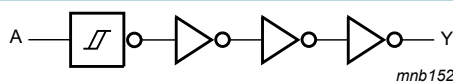
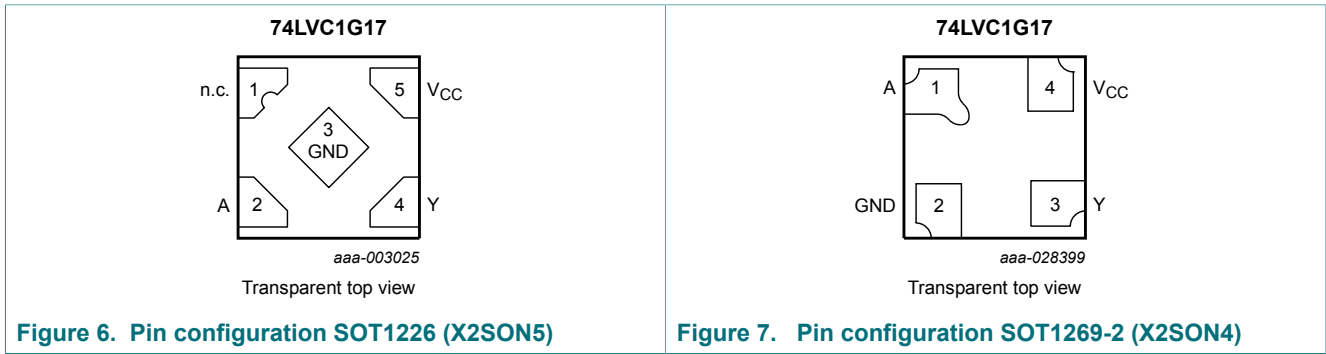
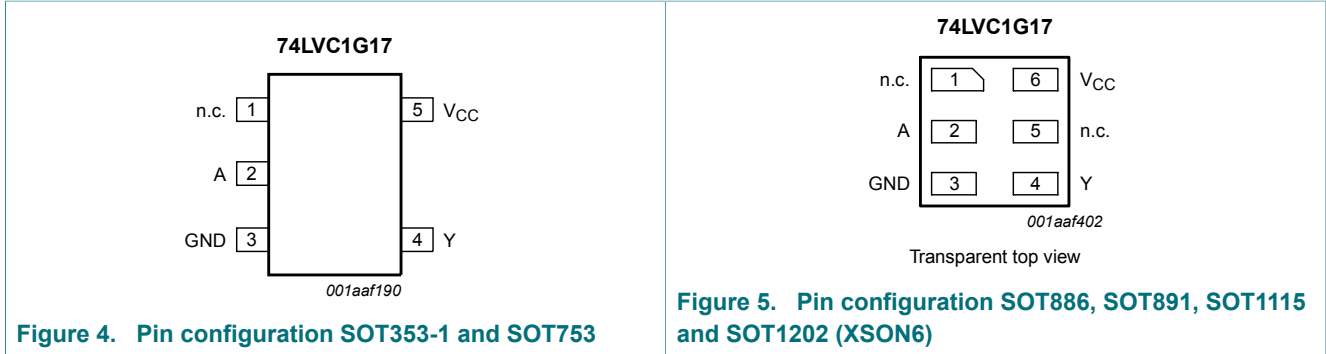


Figure 3. Logic diagram

## 6 Pinning information

### 6.1 Pinning



### 6.2 Pin description

Table 3. Pin description

| Symbol          | Pin                       |       |        | Description    |
|-----------------|---------------------------|-------|--------|----------------|
|                 | TSSOP5, SC-74A and X2SON5 | XSON6 | X2SON4 |                |
| n.c.            | 1                         | 1, 5  | -      | not connected  |
| A               | 2                         | 2     | 1      | data input     |
| GND             | 3                         | 3     | 2      | ground (0 V)   |
| Y               | 4                         | 4     | 3      | data output    |
| V <sub>CC</sub> | 5                         | 6     | 4      | supply voltage |

## 7 Functional description

**Table 4. Function table**

*H = HIGH voltage level; L = LOW voltage level*

| Input | Output |
|-------|--------|
| A     | Y      |
| L     | L      |
| H     | H      |

## 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                | -    | $\pm 50$       | 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 $V_{CC}$                      | -    | $\pm 50$       | mA   |
| $I_{CC}$  | supply current          |  | -    | 100            | mA   |
| $I_{GND}$ | ground current          |  | -100 | -              | mA   |
| $T_{stg}$ | storage temperature     |  | -65  | +150           | °C   |
| $P_{tot}$ | total power dissipation | $T_{amb} = -40$ °C to +125 °C                |      |                |      |
|           |                         | TSSOP5, SC-74A, XSON6 and X2SON5 package [2] | -    | 250            | mW   |
|           |                         | X2SON4 package [3]                           | -    | 150            | mW   |

[1] The minimum 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.

[3] For X2SON4 packages: above 57 °C the value of  $P_{tot}$  derates linearly with 1.7 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    |
|           |                     | Power-down mode; $V_{CC} = 0$ V | 0    | -   | 5.5      | V    |
| $T_{amb}$ | ambient temperature |                                 | -40  | -   | +125     | °C   |

## 10 Static characteristics

Table 7. Static characteristics

At recommended operating conditions. Voltages are referenced to GND (ground = 0 V).

| Symbol  | Parameter                 | Conditions   | Min            | Typ <sup>[1]</sup> | Max     | Unit    |
|---|---------------------------|--|----------------|--------------------|---------|---------|
| <b><math>T_{amb} = -40</math> °C to <math>+85</math> °C</b> |                           |  |                |                    |         |         |
| $V_{OH}$  | HIGH-level output voltage | $V_I = V_{T+}$ or $V_{T-}$   |                |                    |         |         |
|   |                           | $I_O = -100$ $\mu$ A; $V_{CC} = 1.65$ V to 5.5 V                           | $V_{CC} - 0.1$ | -                  | -       | V       |
|   |                           | $I_O = -4$ mA; $V_{CC} = 1.65$ V   | 1.2            | -                  | -       | V       |
|   |                           | $I_O = -8$ mA; $V_{CC} = 2.3$ V  | 1.9            | -                  | -       | V       |
|   |                           | $I_O = -12$ mA; $V_{CC} = 2.7$ V   | 2.2            | -                  | -       | V       |
|   |                           | $I_O = -24$ mA; $V_{CC} = 3.0$ V   | 2.3            | -                  | -       | V       |
| $V_{OL}$  | LOW-level output voltage  | $V_I = V_{T+}$ or $V_{T-}$   |                |                    |         |         |
|   |                           | $I_O = 100$ $\mu$ A; $V_{CC} = 1.65$ V to 5.5 V                            | -              | -                  | 0.1     | V       |
|   |                           | $I_O = 4$ mA; $V_{CC} = 1.65$ V  | -              | -                  | 0.45    | V       |
|   |                           | $I_O = 8$ mA; $V_{CC} = 2.3$ V   | -              | -                  | 0.3     | V       |
|   |                           | $I_O = 12$ mA; $V_{CC} = 2.7$ V  | -              | -                  | 0.4     | V       |
|   |                           | $I_O = 24$ mA; $V_{CC} = 3.0$ V  | -              | -                  | 0.55    | V       |
| $I_O$   |                           | $I_O = -32$ mA; $V_{CC} = 4.5$ V   | 3.8            | -                  | -       | V       |
|   |                           | $I_O = 32$ mA; $V_{CC} = 4.5$ V  | -              | -                  | 0.55    | V       |
| $I_I$   | input leakage current     | $V_I = 5.5$ V or GND; $V_{CC} = 0$ V to 5.5 V                              | -              | $\pm 0.1$          | $\pm 1$ | $\mu$ A |
| $I_{OFF}$   | power-off leakage current | $V_I$ or $V_O = 5.5$ V; $V_{CC} = 0$ V                                     | -              | $\pm 0.1$          | $\pm 2$ | $\mu$ A |
| $I_{CC}$  | supply current            | $V_I = 5.5$ V or GND;<br>$V_{CC} = 1.65$ V to 5.5 V; $I_O = 0$ A           | -              | 0.1                | 4       | $\mu$ A |
| $\Delta I_{CC}$   | additional supply current | per pin; $V_I = V_{CC} - 0.6$ V; $I_O = 0$ A;<br>$V_{CC} = 2.3$ V to 5.5 V | -              | 5                  | 500     | $\mu$ A |
| $C_I$   | input capacitance         |  | -              | 5                  | -       | pF      |

| Symbol                                     | Parameter                 | Conditions   | Min                   | Typ <sup>[1]</sup> | Max  | Unit |
|--|---------------------------|--|-----------------------|--------------------|------|------|
| <b>T<sub>amb</sub> = -40 °C to +125 °C</b> |                           |  |                       |                    |      |      |
| V <sub>OH</sub>                            | HIGH-level output voltage | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>  |                       |                    |      |      |
|  |                           | I <sub>O</sub> = -100 μA; V <sub>CC</sub> = 1.65 V to 5.5 V  | V <sub>CC</sub> - 0.1 | -                  | -    | V    |
|  |                           | I <sub>O</sub> = -4 mA; V <sub>CC</sub> = 1.65 V   | 0.95                  | -                  | -    | V    |
|  |                           | I <sub>O</sub> = -8 mA; V <sub>CC</sub> = 2.3 V  | 1.7                   | -                  | -    | V    |
|  |                           | I <sub>O</sub> = -12 mA; V <sub>CC</sub> = 2.7 V   | 1.9                   | -                  | -    | V    |
|  |                           | I <sub>O</sub> = -24 mA; V <sub>CC</sub> = 3.0 V   | 2.0                   | -                  | -    | V    |
|  |                           | I <sub>O</sub> = -32 mA; V <sub>CC</sub> = 4.5 V   | 3.4                   | -                  | -    | V    |
| V <sub>OL</sub>                            | LOW-level output voltage  | V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>  |                       |                    |      |      |
|  |                           | I <sub>O</sub> = 100 μA; V <sub>CC</sub> = 1.65 V to 5.5 V   | -                     | -                  | 0.1  | V    |
|  |                           | I <sub>O</sub> = 4 mA; V <sub>CC</sub> = 1.65 V  | -                     | -                  | 0.7  | V    |
|  |                           | I <sub>O</sub> = 8 mA; V <sub>CC</sub> = 2.3 V   | -                     | -                  | 0.45 | V    |
|  |                           | I <sub>O</sub> = 12 mA; V <sub>CC</sub> = 2.7 V  | -                     | -                  | 0.6  | V    |
|  |                           | I <sub>O</sub> = 24 mA; V <sub>CC</sub> = 3.0 V  | -                     | -                  | 0.80 | V    |
|  |                           | I <sub>O</sub> = 32 mA; V <sub>CC</sub> = 4.5 V  | -                     | -                  | 0.80 | V    |
| I <sub>I</sub>                             | input leakage current     | V <sub>I</sub> = 5.5 V or GND; V <sub>CC</sub> = 0 V to 5.5 V  | -                     | -                  | ±1   | μA   |
| I <sub>OFF</sub>                           | power-off leakage current | V <sub>I</sub> or V <sub>O</sub> = 5.5 V; V <sub>CC</sub> = 0 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>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A;<br>V <sub>CC</sub> = 2.3 V to 5.5 V | -                     | -                  | 500  | μA   |

[1] All typical values are measured at maximum V<sub>CC</sub> and T<sub>amb</sub> = 25 °C.

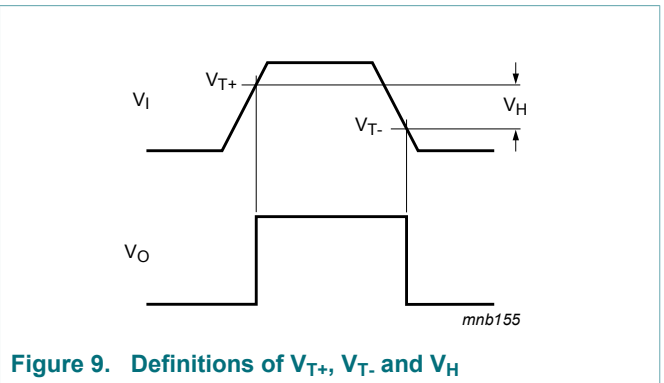
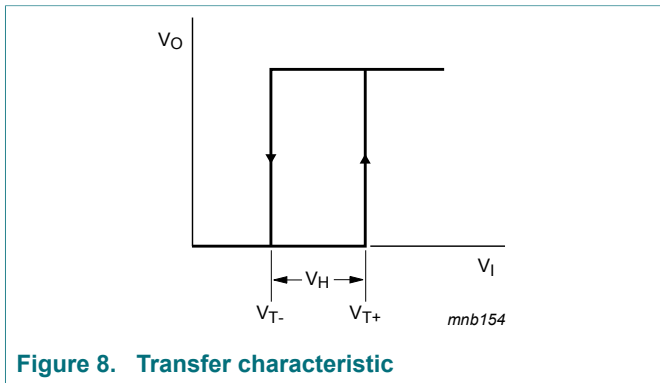
**Table 8. Transfer characteristics**

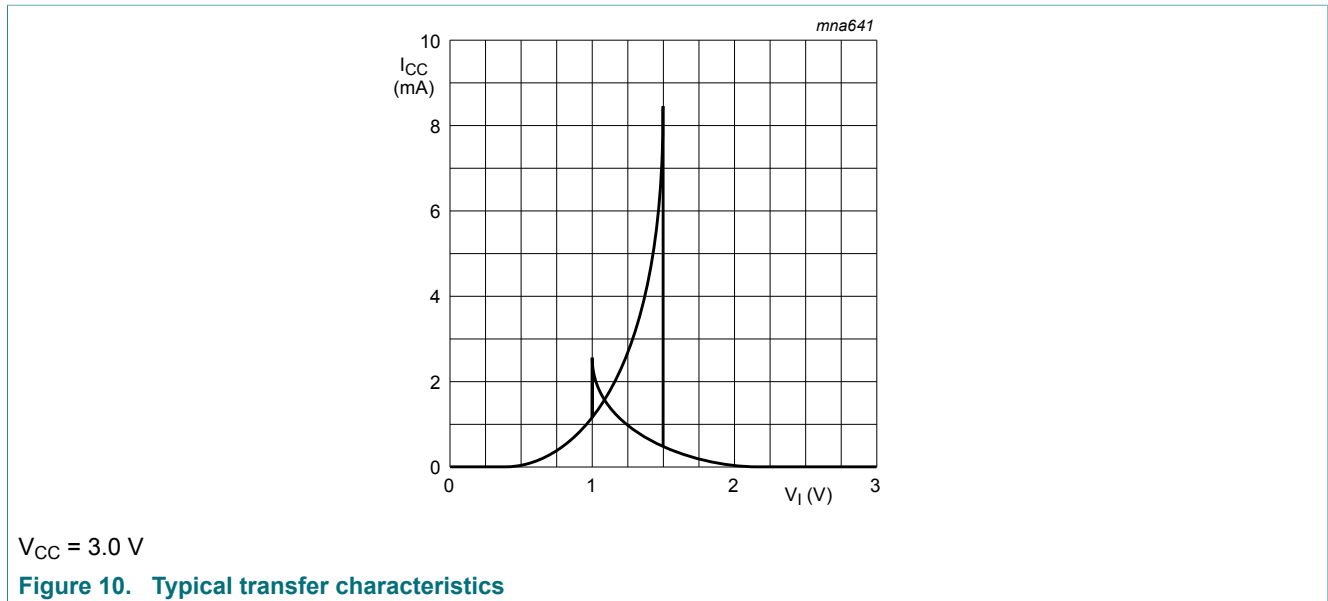
At recommended operating conditions. Voltages are referenced to GND (ground = 0 V).

| Symbol          | Parameter                        | Conditions  | -40 °C to +85 °C |                    |      | -40 °C to +125 °C |      | Unit |
|-----------------|----------------------------------|---|------------------|--------------------|------|-------------------|------|------|
|                 |                                  |   | Min              | Typ <sup>[1]</sup> | Max  | Min               | Max  |      |
| V <sub>T+</sub> | positive-going threshold voltage | see <a href="#">Figure 8</a> and <a href="#">Figure 9</a>                             |                  |                    |      |                   |      |      |
|                 |                                  | V <sub>CC</sub> = 1.8 V   | 0.82             | 1.0                | 1.14 | 0.79              | 1.14 | V    |
|                 |                                  | V <sub>CC</sub> = 2.3 V   | 1.03             | 1.2                | 1.40 | 1.00              | 1.40 | V    |
|                 |                                  | V <sub>CC</sub> = 3.0 V   | 1.29             | 1.5                | 1.71 | 1.26              | 1.71 | V    |
|                 |                                  | V <sub>CC</sub> = 4.5 V   | 1.84             | 2.1                | 2.36 | 1.81              | 2.36 | V    |
|                 |                                  | V <sub>CC</sub> = 5.5 V   | 2.19             | 2.5                | 2.79 | 2.16              | 2.79 | V    |
| V <sub>T-</sub> | negative-going threshold voltage | see <a href="#">Figure 8</a> and <a href="#">Figure 9</a>                             |                  |                    |      |                   |      |      |
|                 |                                  | V <sub>CC</sub> = 1.8 V   | 0.46             | 0.6                | 0.75 | 0.46              | 0.78 | V    |
|                 |                                  | V <sub>CC</sub> = 2.3 V   | 0.65             | 0.8                | 0.96 | 0.65              | 0.99 | V    |
|                 |                                  | V <sub>CC</sub> = 3.0 V   | 0.88             | 1.0                | 1.24 | 0.88              | 1.27 | V    |
|                 |                                  | V <sub>CC</sub> = 4.5 V   | 1.32             | 1.5                | 1.84 | 1.32              | 1.87 | V    |
|                 |                                  | V <sub>CC</sub> = 5.5 V   | 1.58             | 1.8                | 2.24 | 1.58              | 2.27 | V    |
| V <sub>H</sub>  | hysteresis voltage               | see <a href="#">Figure 8</a> , <a href="#">Figure 9</a> and <a href="#">Figure 10</a> |                  |                    |      |                   |      |      |
|                 |                                  | V <sub>CC</sub> = 1.8 V   | 0.26             | 0.4                | 0.51 | 0.19              | 0.51 | V    |
|                 |                                  | V <sub>CC</sub> = 2.3 V   | 0.28             | 0.4                | 0.57 | 0.22              | 0.57 | V    |
|                 |                                  | V <sub>CC</sub> = 3.0 V   | 0.31             | 0.5                | 0.64 | 0.25              | 0.64 | V    |
|                 |                                  | V <sub>CC</sub> = 4.5 V   | 0.40             | 0.6                | 0.77 | 0.34              | 0.77 | V    |
|                 |                                  | V <sub>CC</sub> = 5.5 V   | 0.47             | 0.6                | 0.88 | 0.41              | 0.88 | V    |

[1] All typical values are measured at T<sub>amb</sub> = 25 °C.

**10.1 Transfer characteristic waveforms**





## 11 Dynamic characteristics

**Table 9. Dynamic characteristics**

Voltages are referenced to GND (ground = 0 V). For test circuit see [Figure 12](#).

| Symbol   | Parameter                     | Conditions  | -40 °C to +85 °C |                    |      | -40 °C to +125 °C |      | Unit |
|----------|-------------------------------|---|------------------|--------------------|------|-------------------|------|------|
|          |                               |   | Min              | Typ <sup>[1]</sup> | Max  | Min               | Max  |      |
| $t_{pd}$ | propagation delay             | A to Y; see <a href="#">Figure 11</a> <sup>[2]</sup>                    |                  |                    |      |                   |      |      |
|          |                               | $V_{CC} = 1.65\text{ V to }1.95\text{ V}$                               | 1.0              | 4.1                | 11.0 | 1.0               | 14.0 | ns   |
|          |                               | $V_{CC} = 2.3\text{ V to }2.7\text{ V}$                                 | 0.7              | 2.8                | 6.5  | 0.7               | 8.5  | ns   |
|          |                               | $V_{CC} = 2.7\text{ V}$   | 0.7              | 3.2                | 6.5  | 0.7               | 8.5  | ns   |
|          |                               | $V_{CC} = 3.0\text{ V to }3.6\text{ V}$                                 | 0.7              | 3.0                | 5.5  | 0.7               | 7.0  | ns   |
|          |                               | $V_{CC} = 4.5\text{ V to }5.5\text{ V}$                                 | 0.7              | 2.2                | 5.0  | 0.7               | 6.5  | ns   |
| $C_{PD}$ | power dissipation capacitance | $V_I = \text{GND to }V_{CC};$<br>$V_{CC} = 3.3\text{ V}$ <sup>[3]</sup> | -                | 16.6               | -    | -                 | -    | pF   |

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

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

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

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

$f_i$  = input frequency in MHz;

$f_o$  = output frequency in MHz;

$C_L$  = output load capacitance in pF;

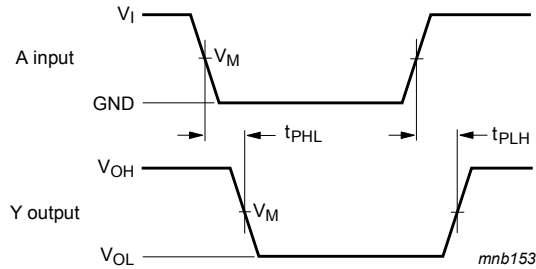
$V_{CC}$  = supply voltage in V;

$N$  = number of inputs switching;

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



11.1 Waveform and test circuit



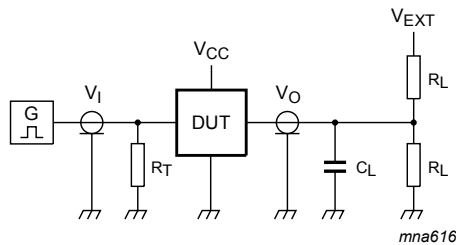
Measurement points are given in [Table 10](#).

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

Figure 11. The input A to output Y propagation delay times

Table 10. Measurement points

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



Test data is given in [Table 11](#).

Definitions for test circuit:

$R_L$  = Load resistance.

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

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

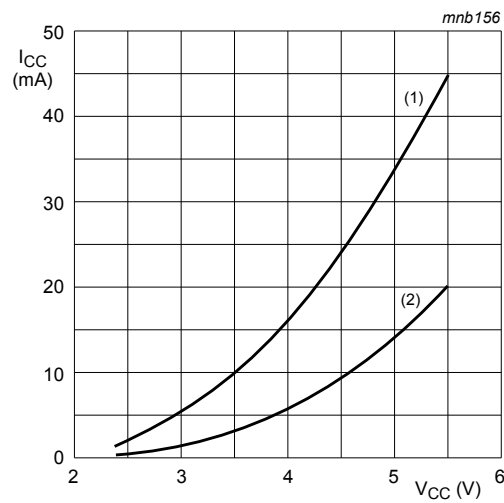
$V_{EXT}$  = External voltage for measuring switching times.

Figure 12. Test circuit for measuring switching times

Table 11. Test data

| Supply voltage   | Input           | Load                            |                |                | V <sub>EXT</sub>                    |
|------------------|-----------------|---------------------------------|----------------|----------------|-------------------------------------|
| V <sub>CC</sub>  | V <sub>I</sub>  | t <sub>r</sub> = t <sub>f</sub> | C <sub>L</sub> | R <sub>L</sub> | t <sub>PLH</sub> , t <sub>PHL</sub> |
| 1.65 V to 1.95 V | V <sub>CC</sub> | ≤ 2.0 ns                        | 30 pF          | 1 kΩ           | open                                |
| 2.3 V to 2.7 V   | V <sub>CC</sub> | ≤ 2.0 ns                        | 30 pF          | 500 Ω          | open                                |
| 2.7 V            | 2.7 V           | ≤ 2.5 ns                        | 50 pF          | 500 Ω          | open                                |
| 3.0 V to 3.6 V   | 2.7 V           | ≤ 2.5 ns                        | 50 pF          | 500 Ω          | open                                |
| 4.5 V to 5.5 V   | V <sub>CC</sub> | ≤ 2.5 ns                        | 50 pF          | 500 Ω          | open                                |

## 12 Application information



Linear change of V<sub>I</sub> between 0.8 V to 2.0 V.

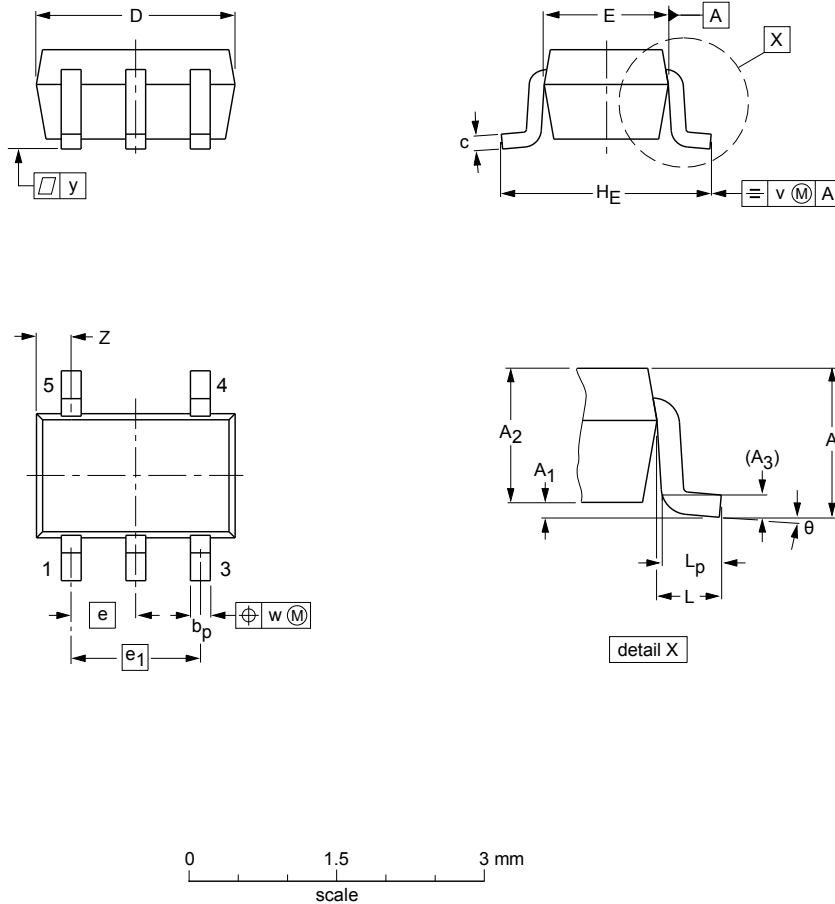
- (1) Positive-going edge
- (2) Negative-going edge

**Figure 13. Average supply current as a function of supply voltage**

13 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

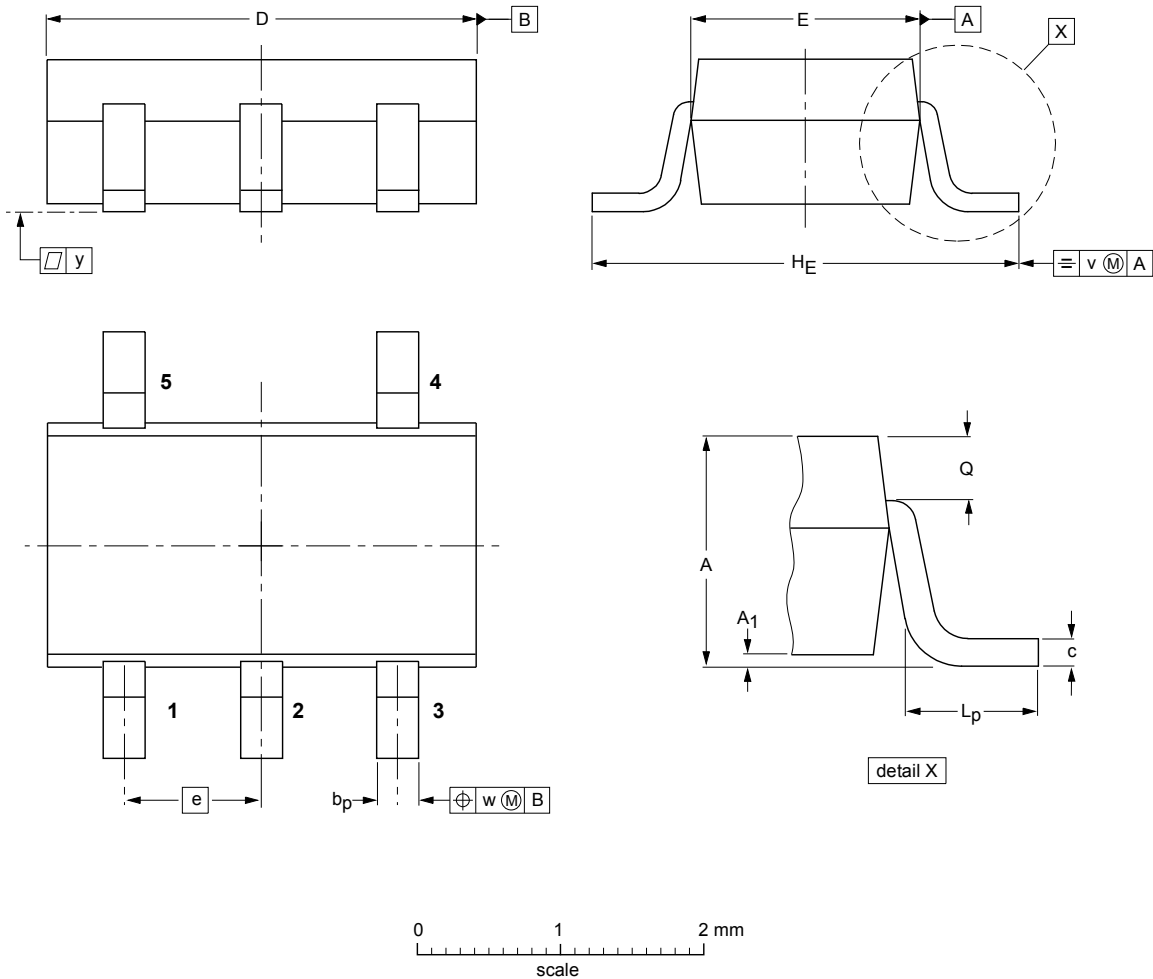
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

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

Figure 14. Package outline SOT353-1 (TSSOP5)

Plastic surface-mounted package; 5 leads

SOT753



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

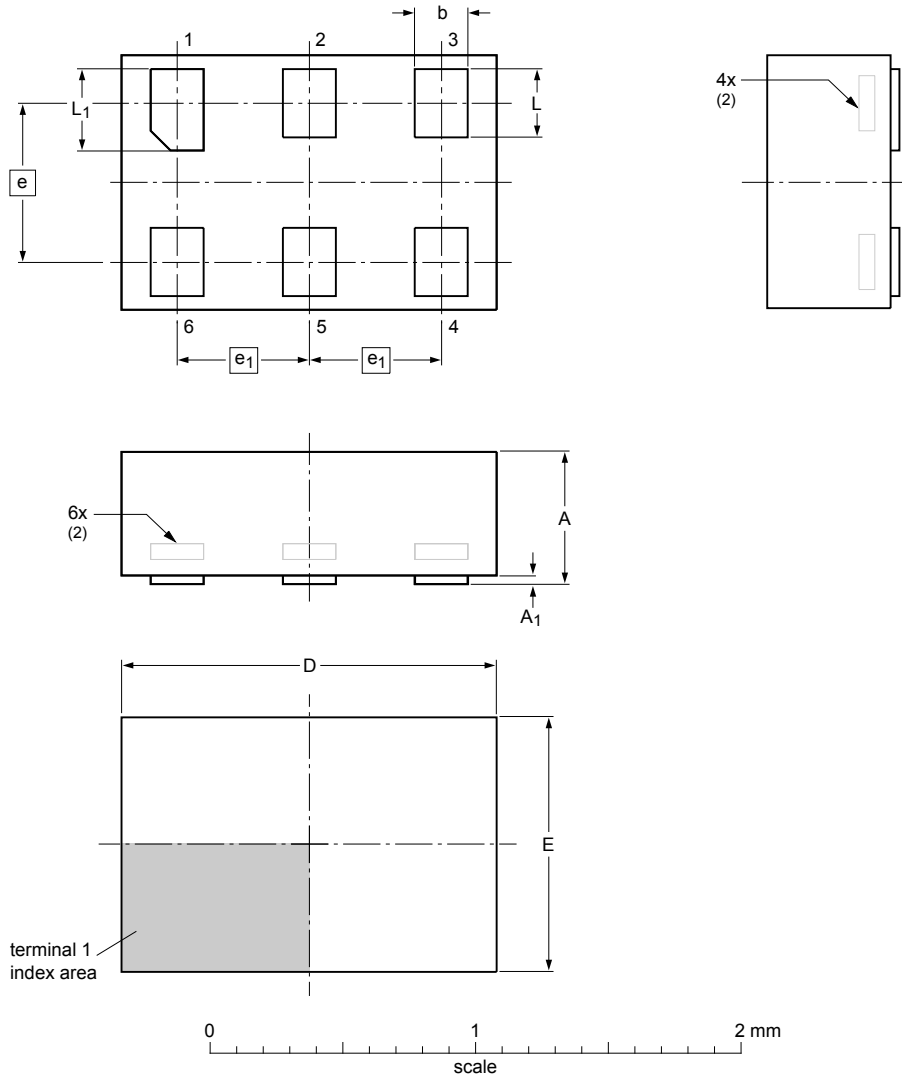
| UNIT | A          | A <sub>1</sub> | b <sub>p</sub> | c            | D          | E          | e    | H <sub>E</sub> | L <sub>p</sub> | Q            | v   | w   | y   |
|------|------------|----------------|----------------|--------------|------------|------------|------|----------------|----------------|--------------|-----|-----|-----|
| 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 |

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

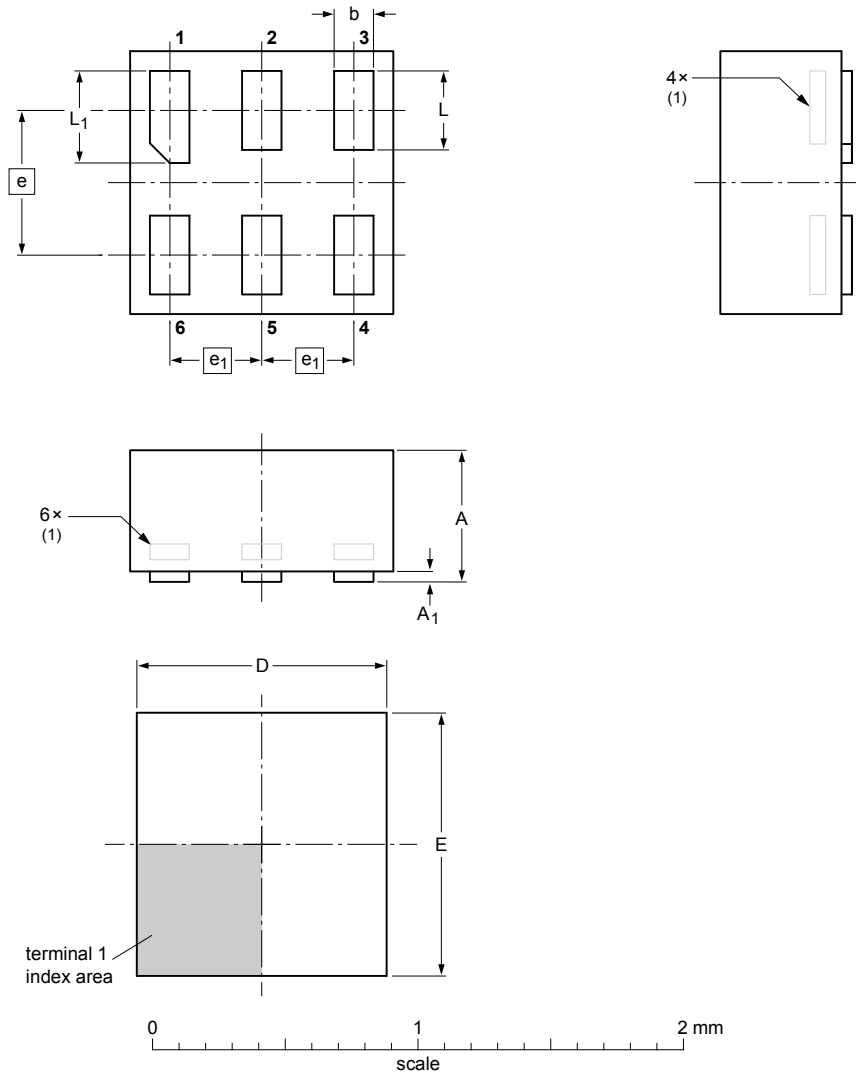
sot886\_po

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

Figure 16. 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**

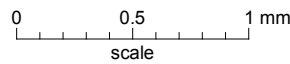
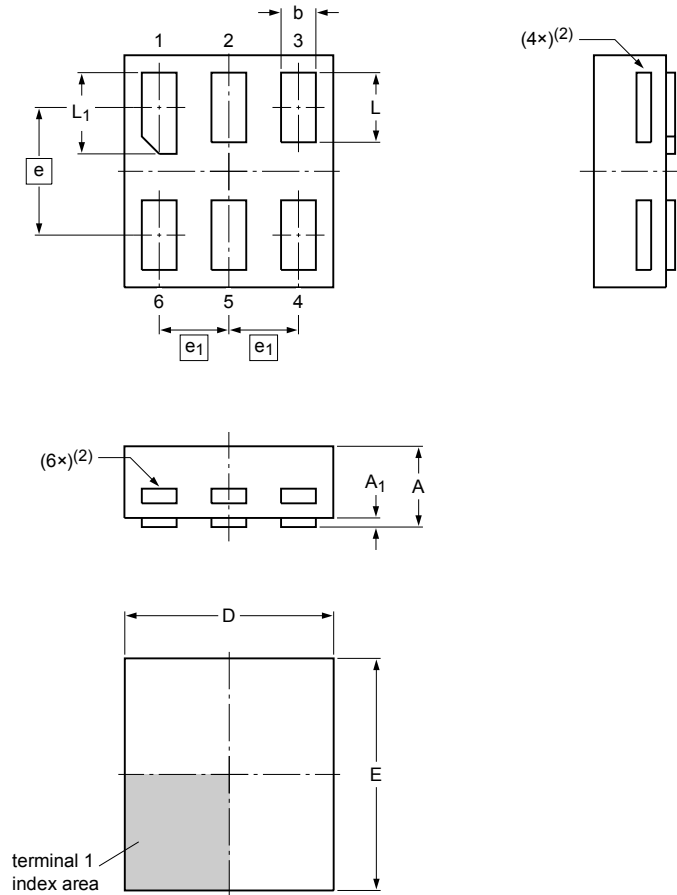
1. Can be visible in some manufacturing processes.

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

Figure 17. 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> |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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.

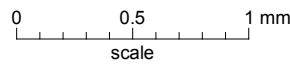
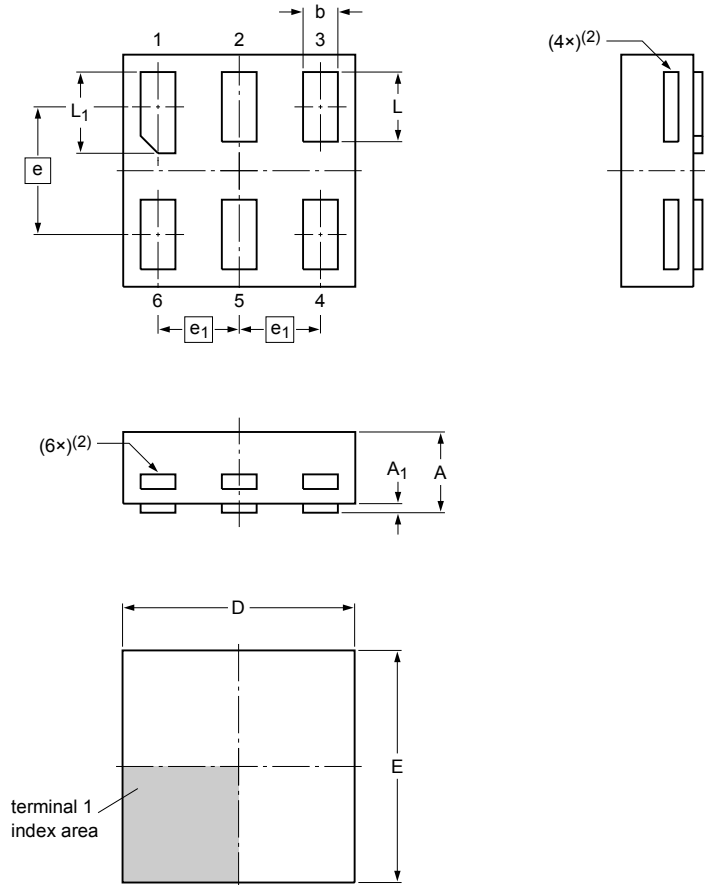
sot1115\_po

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

Figure 18. 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> |
|------|------------------|----------------|------|------|------|------|----------------|------|----------------|
| 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 |

Figure 19. Package outline SOT1202 (XSON6)



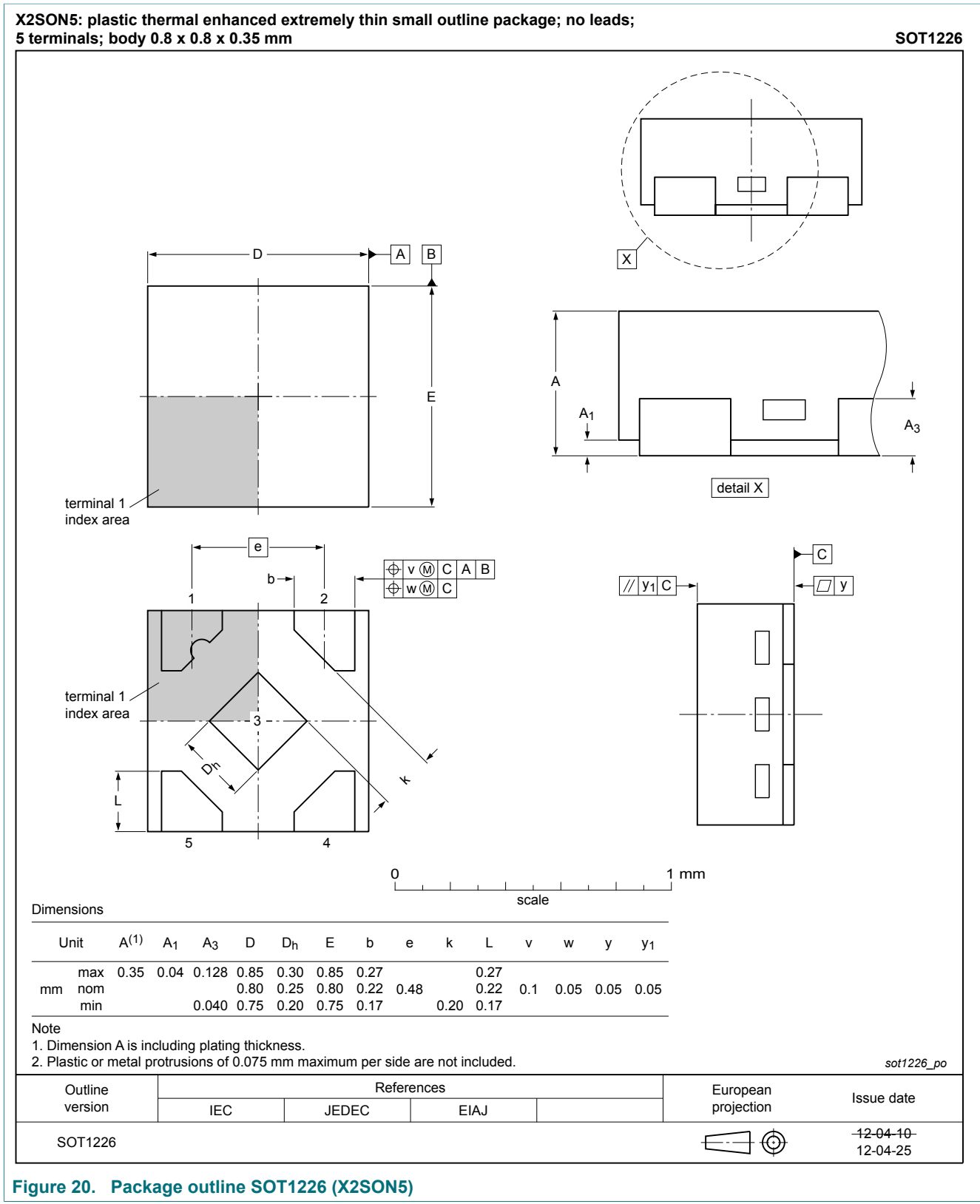


Figure 20. Package outline SOT1226 (X2SON5)

X2SON4: plastic thermal enhanced extremely thin small outline package; no leads;  
4 terminals; body 0.6 x 0.6 x 0.32 mm

SOT1269-2

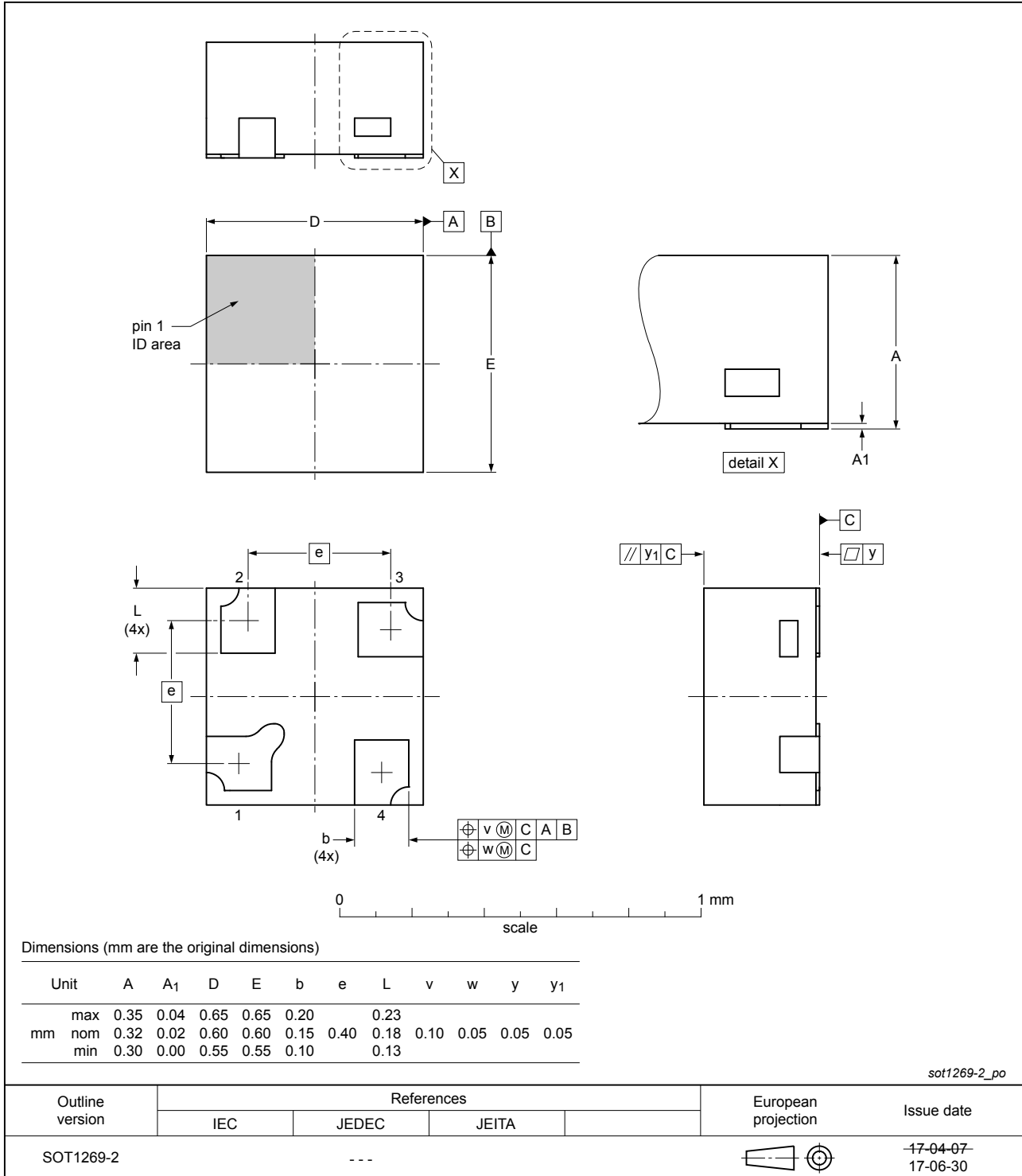


Figure 21. Package outline SOT1269-2 (X2SON4)

## 14 Abbreviations

Table 12. 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             |

## 15 Revision history

Table 13. Revision history

| Document ID    | Release date  | Data sheet status     | Change notice | Supersedes     |
|----------------|---|-----------------------|---------------|----------------|
| 74LVC1G17 v.12 | 20180608  | Product data sheet    | -             | 74LVC1G17 v.11 |
| 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> <li>Added type number 74LVC1G17GX4 (SOT1269-2)</li> </ul> |                       |               |                |
| 74LVC1G17 v.11 | 20161202  | Product data sheet    | -             | 74LVC1G17 v.10 |
| 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>  |                       |               |                |
| 74LVC1G17 v.10 | 20120629  | Product data sheet    | -             | 74LVC1G17 v.9  |
| Modifications: | <ul style="list-style-type: none"> <li>Added type number 74LVC1G17GX (SOT1226)</li> <li>Package outline drawing of SOT886 (<a href="#">Figure 16</a>) modified.</li> </ul>  |                       |               |                |
| 74LVC1G17 v.9  | 20111206  | Product data sheet    | -             | 74LVC1G17 v.8  |
| Modifications: | <ul style="list-style-type: none"> <li>Legal pages updated.</li> </ul>  |                       |               |                |
| 74LVC1G17 v.8  | 20110920  | Product data sheet    | -             | 74LVC1G17 v.7  |
| 74LVC1G17 v.7  | 20101110  | Product data sheet    | -             | 74LVC1G17 v.6  |
| 74LVC1G17 v.6  | 20070827  | Product data sheet    | -             | 74LVC1G17 v.5  |
| 74LVC1G17 v.5  | 20061006  | Product data sheet    | -             | 74LVC1G17 v.4  |
| 74LVC1G17 v.4  | 20041130  | Product specification | -             | 74LVC1G17 v.3  |
| 74LVC1G17 v.3  | 20041018  | Product specification | -             | 74LVC1G17 v.2  |
| 74LVC1G17 v.2  | 20040407  | Product specification | -             | 74LVC1G17 v.1  |
| 74LVC1G17 v.1  | 20040324  | Product specification | -             | -              |

## 16 Legal information

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| Document status <sup>[1][2]</sup> | Product status <sup>[3]</sup> | Definition  |
|-----------------------------------|-------------------------------|---|
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| Preliminary [short] data sheet    | Qualification                 | This document contains data from the preliminary specification.                       |
| Product [short] data sheet        | Production                    | This document contains the product specification.                                     |

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