

# 74LVC1G58

Low-power configurable multiple function gate

Rev. 8 — 22 April 2014

Product data sheet

## 1. General description

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The 74LVC1G58 provides configurable multiple functions. The output state is determined by eight patterns of 3-bit input. The user can choose the logic functions AND, OR, NAND, NOR, XOR, inverter and buffer. All inputs can be connected to  $V_{CC}$  or GND.

Inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of this device in a mixed 3.3 V and 5 V environment.

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.

All inputs (A, B and C) are Schmitt trigger inputs. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

## 2. Features and benefits

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



3. Ordering information

Table 1. Ordering information

| Type number | Package           |       |                                                                                             |         |
|-------------|-------------------|-------|---------------------------------------------------------------------------------------------|---------|
|             | Temperature range | Name  | Description                                                                                 | Version |
| 74LVC1G58GW | −40 °C to +125 °C | SC-88 | plastic surface-mounted package; 6 leads                                                    | SOT363  |
| 74LVC1G58GV | −40 °C to +125 °C | TSOP6 | plastic surface-mounted package (TSOP6); 6 leads                                            | SOT457  |
| 74LVC1G58GM | −40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | SOT886  |
| 74LVC1G58GF | −40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1 × 0.5 mm    | SOT891  |
| 74LVC1G58GN | −40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm       | SOT1115 |
| 74LVC1G58GS | −40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm       | SOT1202 |

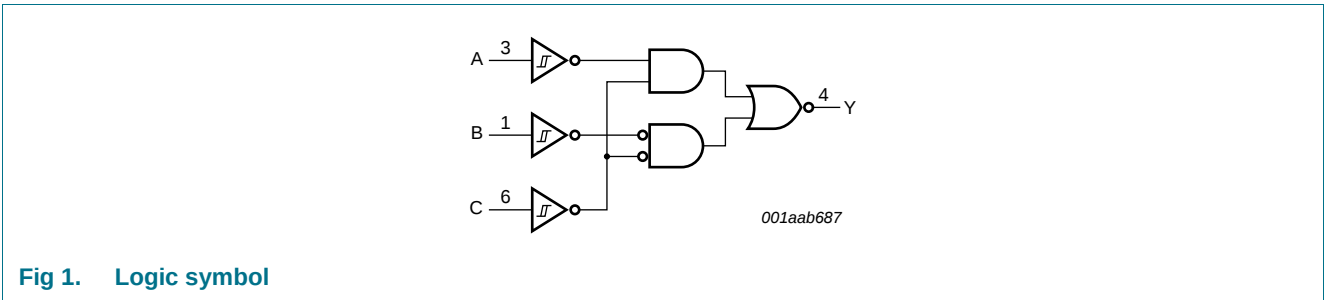
4. Marking

Table 2. Marking

| Type number | Marking code <sup>[1]</sup> |
|-------------|-----------------------------|
| 74LVC1G58GW | YK                          |
| 74LVC1G58GV | V58                         |
| 74LVC1G58GM | YK                          |
| 74LVC1G58GF | YK                          |
| 74LVC1G58GN | YK                          |
| 74LVC1G58GS | YK                          |

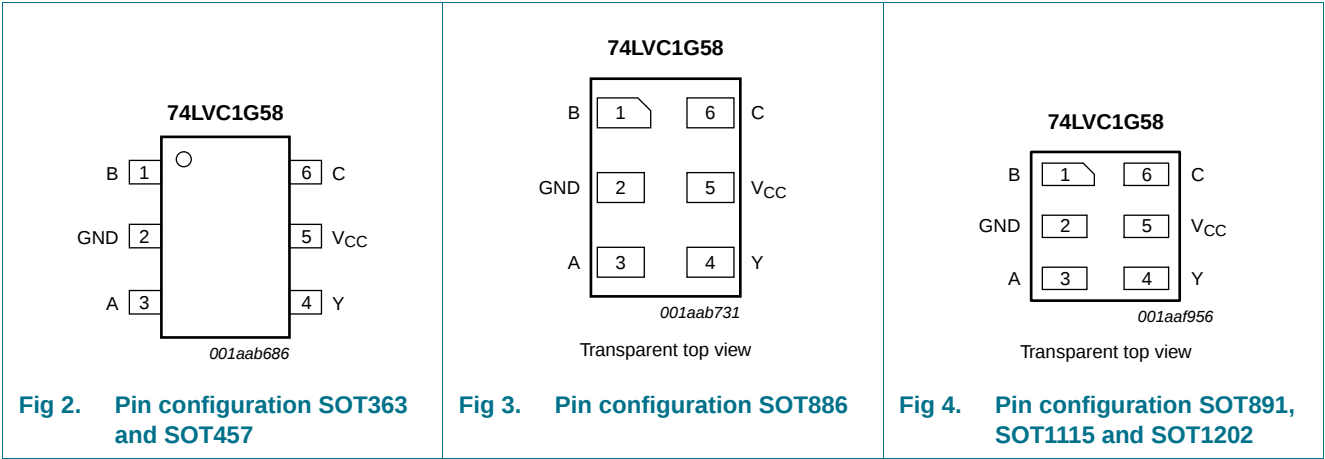
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

5. Functional diagram



6. Pinning information

6.1 Pinning



6.2 Pin description

Table 3. Pin description

| Symbol          | Pin | Description    |
|-----------------|-----|----------------|
| B               | 1   | data input     |
| GND             | 2   | ground (0 V)   |
| A               | 3   | data input     |
| Y               | 4   | data output    |
| V <sub>CC</sub> | 5   | supply voltage |
| C               | 6   | data input     |

7. Functional description

Table 4. Function table<sup>[1]</sup>

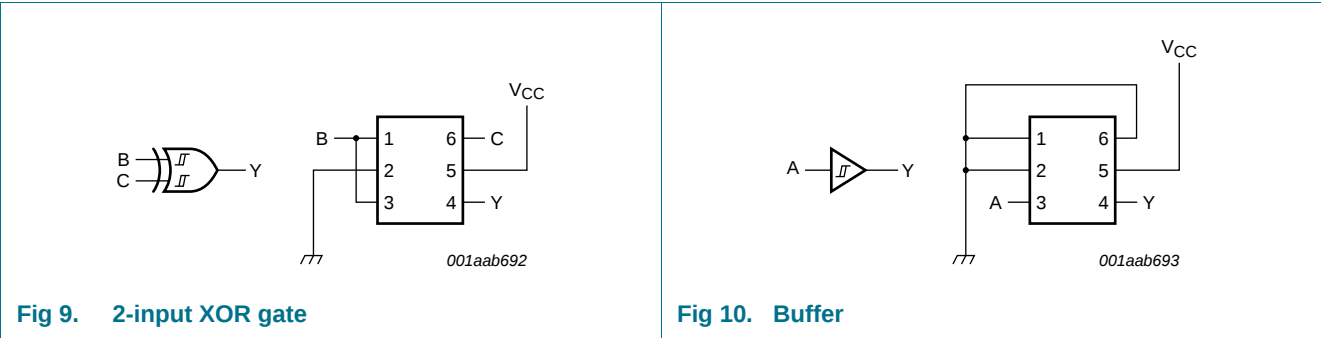
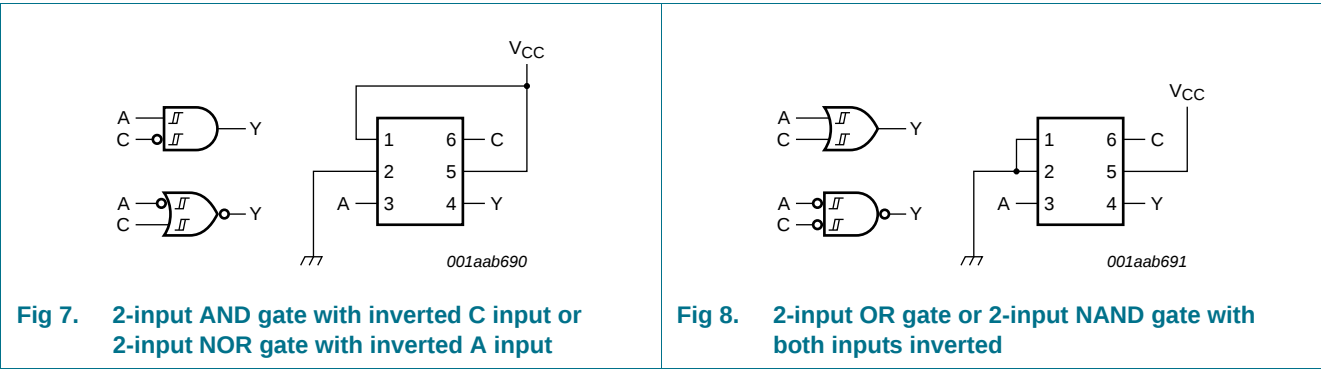
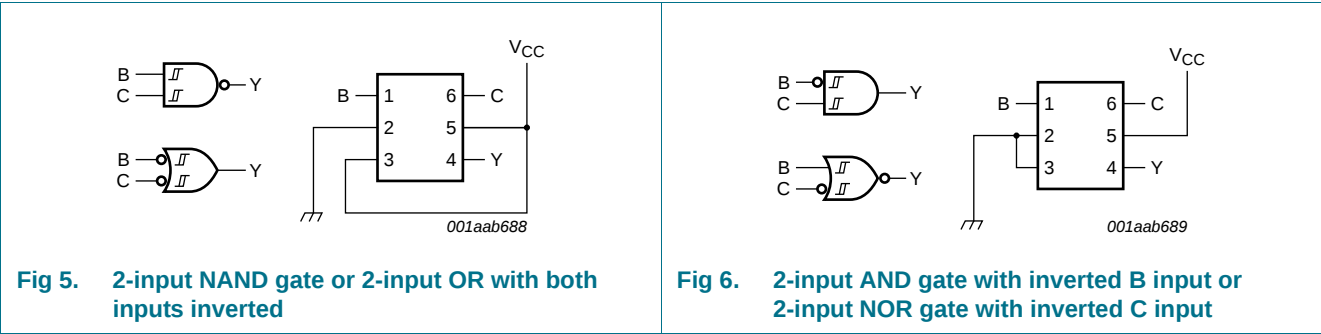
| Inputs |   |   | Output |
|--------|---|---|--------|
| C      | B | A | Y      |
| L      | L | L | L      |
| L      | L | H | H      |
| L      | H | L | L      |
| L      | H | H | H      |
| H      | L | L | H      |
| H      | L | H | H      |
| H      | H | L | L      |
| H      | H | H | L      |

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

7.1 Logic configurations

Table 5. Function selection table

| Logic function                         | Figure                                             |
|----------------------------------------|----------------------------------------------------|
| 2-input NAND                           | see <a href="#">Figure 5</a>                       |
| 2-input NAND with both inputs inverted | see <a href="#">Figure 8</a>                       |
| 2-input AND with inverted input        | see <a href="#">Figure 6</a> and <a href="#">7</a> |
| 2-input NOR with inverted input        | see <a href="#">Figure 6</a> and <a href="#">7</a> |
| 2-input OR                             | see <a href="#">Figure 8</a>                       |
| 2-input OR with both inputs inverted   | see <a href="#">Figure 5</a>                       |
| 2-input XOR                            | see <a href="#">Figure 9</a>                       |
| Buffer                                 | see <a href="#">Figure 10</a>                      |
| Inverter                               | see <a href="#">Figure 11</a>                      |



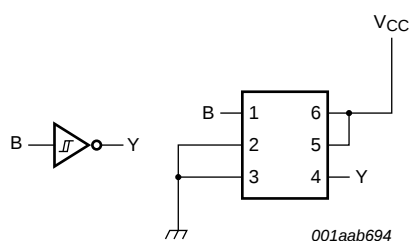


Fig 11. Inverter

## 8. Limiting values

Table 6. 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][2]                | -0.5 | +6.5     | V    |
|           |                         | Power-down mode [1][2]            | -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 [3] | -    | 250      | mW   |

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

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

[3] For SC-88 and SC-74 packages: above 87.5 °C the value of  $P_{tot}$  derates linearly with 4.0 mW/K.  
For XSON6 packages: above 118 °C the value of  $P_{tot}$  derates linearly with 7.8 mW/K.

## 9. Recommended operating conditions

Table 7. 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 8. 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>T<sub>amb</sub> = -40 °C to +85 °C</b>  |                           |                                                                                                     |                       |                    |      |      |
| 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                                                     | -                     | -                  | 0.45 | V    |
|                                            |                           | I <sub>O</sub> = 8 mA; V <sub>CC</sub> = 2.3 V                                                      | -                     | -                  | 0.3  | V    |
|                                            |                           | I <sub>O</sub> = 12 mA; V <sub>CC</sub> = 2.7 V                                                     | -                     | -                  | 0.4  | V    |
|                                            |                           | I <sub>O</sub> = 24 mA; V <sub>CC</sub> = 3.0 V                                                     | -                     | -                  | 0.55 | V    |
|                                            |                           | I <sub>O</sub> = 32 mA; V <sub>CC</sub> = 4.5 V                                                     | -                     | -                  | 0.55 | V    |
| 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                                                    | 1.2                   | -                  | -    | V    |
|                                            |                           | I <sub>O</sub> = -8 mA; V <sub>CC</sub> = 2.3 V                                                     | 1.9                   | -                  | -    | V    |
|                                            |                           | I <sub>O</sub> = -12 mA; V <sub>CC</sub> = 2.7 V                                                    | 2.2                   | -                  | -    | V    |
|                                            |                           | I <sub>O</sub> = -24 mA; V <sub>CC</sub> = 3.0 V                                                    | 2.3                   | -                  | -    | V    |
|                                            |                           | I <sub>O</sub> = -32 mA; V <sub>CC</sub> = 4.5 V                                                    | 3.8                   | -                  | -    | 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                                       | -                     | ±0.1               | ±5   | 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                                     | -                     | ±0.1               | ±10  | 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                | 10   | µA   |
| ΔI <sub>CC</sub>                           | additional supply current | 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 | -                     | 5                  | 500  | µA   |
| C <sub>I</sub>                             | input capacitance         |                                                                                                     | -                     | 2.5                | -    | pF   |
| <b>T<sub>amb</sub> = -40 °C to +125 °C</b> |                           |                                                                                                     |                       |                    |      |      |
| 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                                                     | -                     | -                  | 0.8  | V    |
|                                            |                           | I <sub>O</sub> = 32 mA; V <sub>CC</sub> = 4.5 V                                                     | -                     | -                  | 0.8  | V    |
| 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    |
| 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                                       | -                     | -                  | ±100 | µA   |

**Table 8.** Static characteristics ...continued

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

| Symbol          | Parameter                 | Conditions                                                          | Min | Typ <sup>[1]</sup> | Max  | Unit |
|-----------------|---------------------------|---------------------------------------------------------------------|-----|--------------------|------|------|
| $I_{OFF}$       | power-off leakage current | $V_I$ or $V_O = 5.5$ V; $V_{CC} = 0$ V                              | -   | -                  | ±200 | μA   |
| $I_{CC}$        | supply current            | $V_I = 5.5$ V or GND;<br>$V_{CC} = 1.65$ V to $5.5$ V; $I_O = 0$ A  | -   | -                  | 200  | μA   |
| $\Delta I_{CC}$ | additional supply current | $V_I = V_{CC} - 0.6$ V; $I_O = 0$ A;<br>$V_{CC} = 2.3$ V to $5.5$ V | -   | -                  | 5000 | μA   |

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

## 11. Dynamic characteristics

**Table 9.** Dynamic characteristicsVoltages are referenced to GND (ground = 0 V); for test circuit see [Figure 13](#).

| 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, B, C to Y; see <a href="#">Figure 12</a> <sup>[2]</sup>     |                  |                    |      |                   |      |      |
|          |                               | $V_{CC} = 1.65$ V to $1.95$ V                                  | 1.0              | 6.0                | 14.4 | 1.0               | 18.0 | ns   |
|          |                               | $V_{CC} = 2.3$ V to $2.7$ V                                    | 0.5              | 3.5                | 8.3  | 0.5               | 10.4 | ns   |
|          |                               | $V_{CC} = 2.7$ V                                               | 0.5              | 4.2                | 8.5  | 0.5               | 10.6 | ns   |
|          |                               | $V_{CC} = 3.0$ V to $3.6$ V                                    | 0.5              | 3.8                | 6.3  | 0.5               | 7.9  | ns   |
|          |                               | $V_{CC} = 4.5$ V to $5.5$ V                                    | 0.5              | 3.0                | 5.1  | 0.5               | 6.4  | ns   |
| $C_{PD}$ | power dissipation capacitance | $V_{CC} = 3.3$ V; $V_I = \text{GND to } V_{CC}$ <sup>[3]</sup> | -                | 20                 | -    | -                 | -    | pF   |

[1] Typical values are measured at nominal  $V_{CC}$  and at  $T_{amb} = 25$  °C.[2]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .[3]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in μW). $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  where: $f_i$  = input frequency in MHz; $f_o$  = output frequency in MHz; $C_L$  = output load capacitance in pF; $V_{CC}$  = supply voltage in V; $N$  = number of inputs switching; $\Sigma(C_L \times V_{CC}^2 \times f_o)$  = sum of outputs.

12. Waveforms

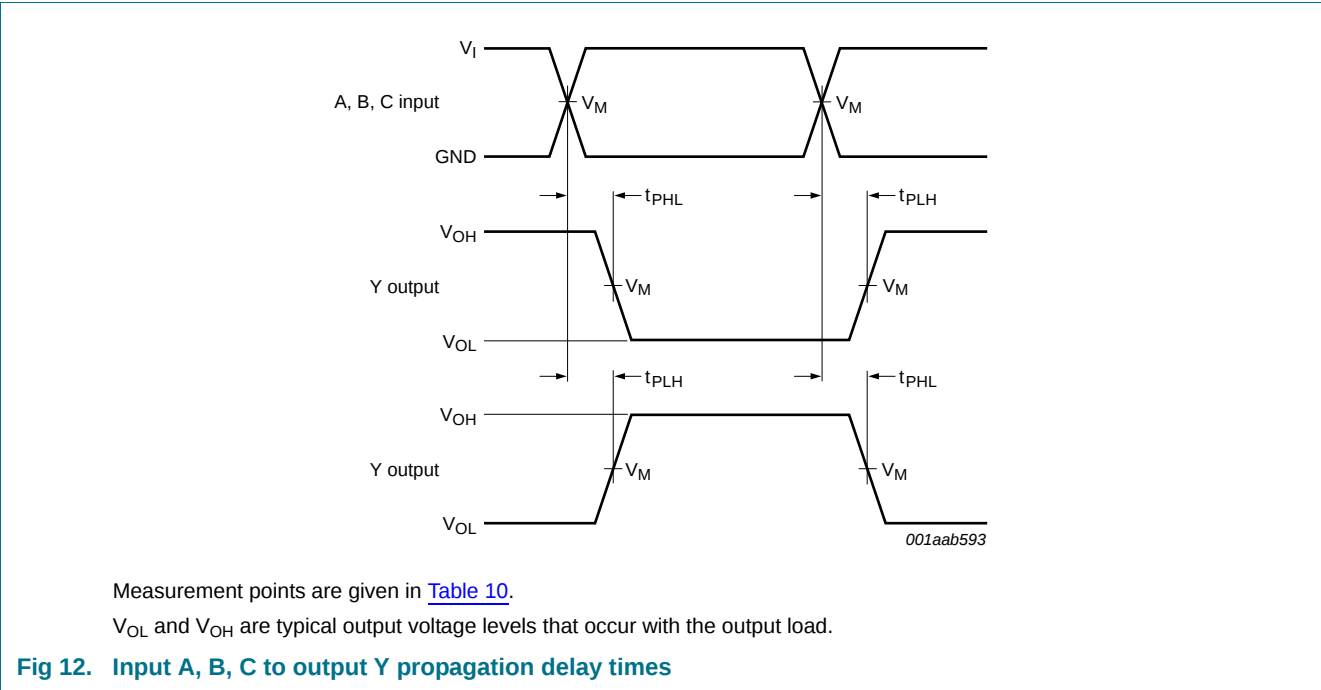
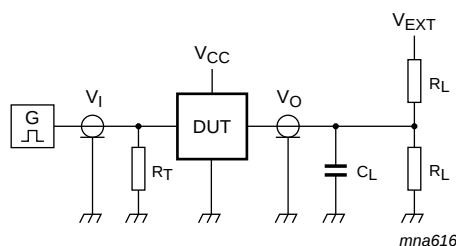


Table 10. Measurement points

| 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 output impedance  $Z_0$  of the pulse generator.

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

**Fig 13. 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                                |

## 13. Transfer characteristics

**Table 12. Transfer characteristics**

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

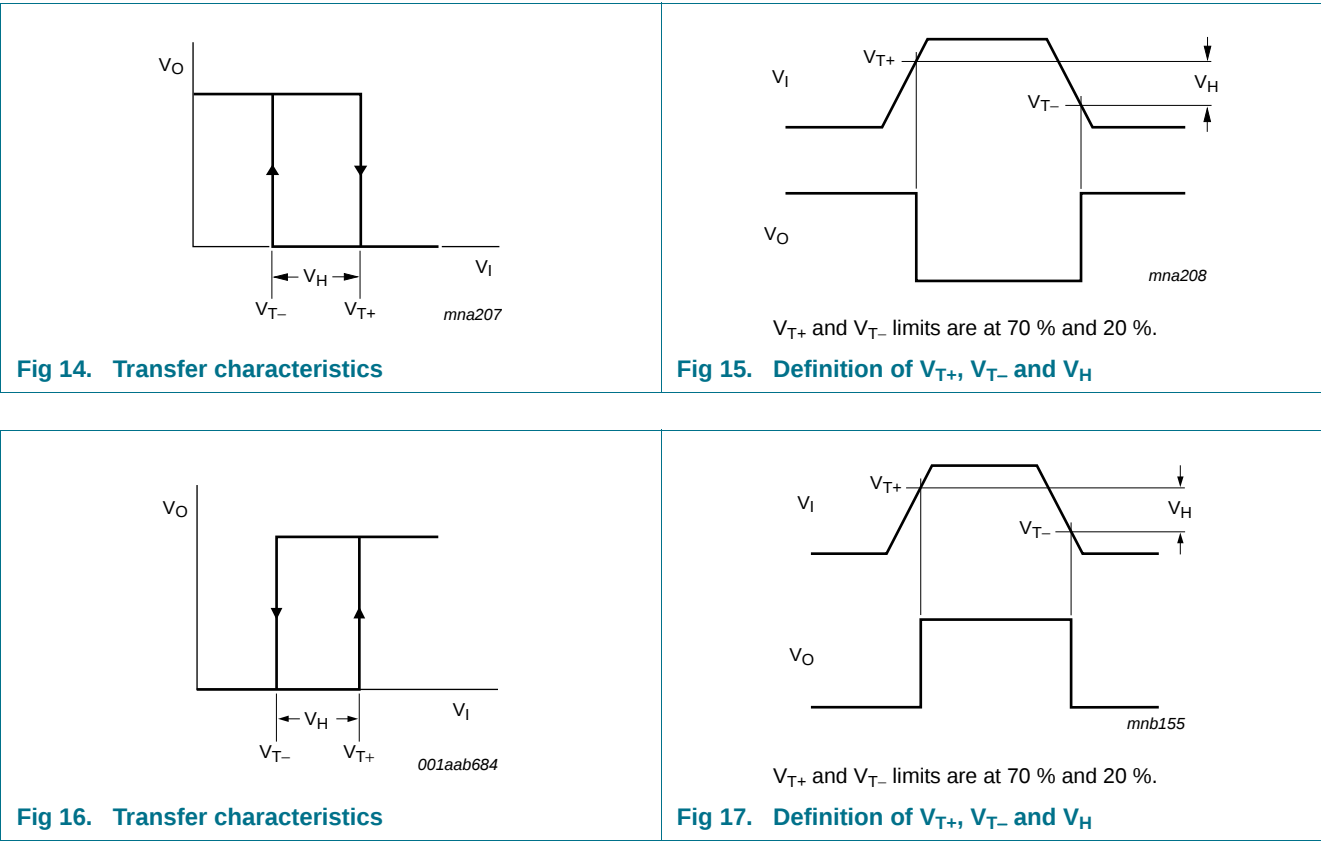
| Symbol   | Parameter                        | Conditions                                                                                                          | -40 °C to +85 °C |                    |      | -40 °C to +125 °C |      | Unit |
|----------|----------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------|--------------------|------|-------------------|------|------|
|          |                                  |                                                                                                                     | Min              | Typ <sup>[1]</sup> | Max  | Min               | Max  |      |
| $V_{T+}$ | positive-going threshold voltage | see <a href="#">Figure 14</a> , <a href="#">Figure 15</a> , <a href="#">Figure 16</a> and <a href="#">Figure 17</a> |                  |                    |      |                   |      |      |
|          |                                  | $V_{CC} = 1.8$ V                                                                                                    | 0.70             | 1.02               | 1.20 | 0.67              | 1.20 | V    |
|          |                                  | $V_{CC} = 2.3$ V                                                                                                    | 1.11             | 1.42               | 1.60 | 1.08              | 1.60 | V    |
|          |                                  | $V_{CC} = 3.0$ V                                                                                                    | 1.50             | 1.79               | 2.00 | 1.47              | 2.00 | V    |
|          |                                  | $V_{CC} = 4.5$ V                                                                                                    | 2.16             | 2.52               | 2.74 | 2.13              | 2.74 | V    |
|          |                                  | $V_{CC} = 5.5$ V                                                                                                    | 2.61             | 2.99               | 3.33 | 2.58              | 3.33 | V    |
| $V_{T-}$ | negative-going threshold voltage | see <a href="#">Figure 14</a> , <a href="#">Figure 15</a> , <a href="#">Figure 16</a> and <a href="#">Figure 17</a> |                  |                    |      |                   |      |      |
|          |                                  | $V_{CC} = 1.8$ V                                                                                                    | 0.30             | 0.53               | 0.72 | 0.30              | 0.75 | V    |
|          |                                  | $V_{CC} = 2.3$ V                                                                                                    | 0.58             | 0.77               | 1.00 | 0.58              | 1.03 | V    |
|          |                                  | $V_{CC} = 3.0$ V                                                                                                    | 0.80             | 1.04               | 1.30 | 0.80              | 1.33 | V    |
|          |                                  | $V_{CC} = 4.5$ V                                                                                                    | 1.21             | 1.55               | 1.90 | 1.21              | 1.93 | V    |
|          |                                  | $V_{CC} = 5.5$ V                                                                                                    | 1.45             | 1.86               | 2.29 | 1.45              | 2.32 | V    |

**Table 12. Transfer characteristics ...continued**  
 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>H</sub> | hysteresis voltage | (V <sub>T+</sub> − V <sub>T−</sub> );<br>see <a href="#">Figure 14</a> , <a href="#">Figure 15</a> ,<br><a href="#">Figure 16</a> and <a href="#">Figure 17</a> |                  |                    |      |                   |      |      |
|                |                    | V <sub>CC</sub> = 1.8 V                                                                                                                                         | 0.30             | 0.48               | 0.62 | 0.23              | 0.62 | V    |
|                |                    | V <sub>CC</sub> = 2.3 V                                                                                                                                         | 0.40             | 0.64               | 0.80 | 0.34              | 0.80 | V    |
|                |                    | V <sub>CC</sub> = 3.0 V                                                                                                                                         | 0.50             | 0.75               | 1.00 | 0.44              | 1.00 | V    |
|                |                    | V <sub>CC</sub> = 4.5 V                                                                                                                                         | 0.71             | 0.97               | 1.20 | 0.65              | 1.20 | V    |
|                |                    | V <sub>CC</sub> = 5.5 V                                                                                                                                         | 0.71             | 1.13               | 1.40 | 0.65              | 1.40 | V    |

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

# 14. Waveforms transfer characteristics



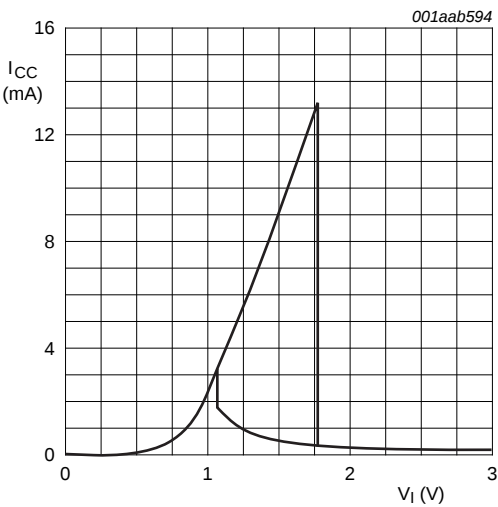


Fig 18. Typical 74LVC1G58 transfer characteristics;  $V_{CC} = 3.0$  V

15. Package outline

Plastic surface-mounted package; 6 leads SOT363

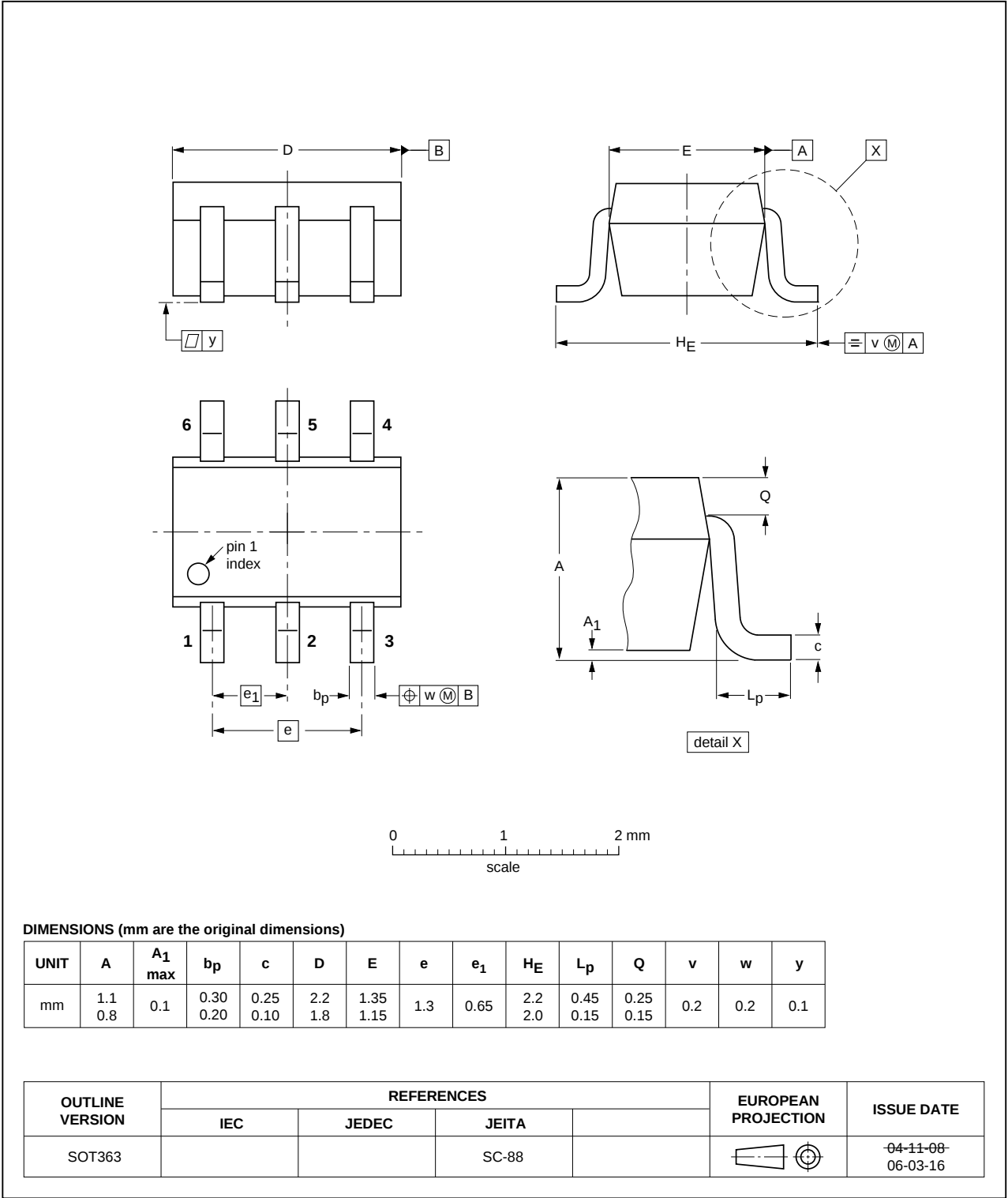


Fig 19. Package outline SOT363 (SC-88)

Plastic surface-mounted package (TSOP6); 6 leads

SOT457

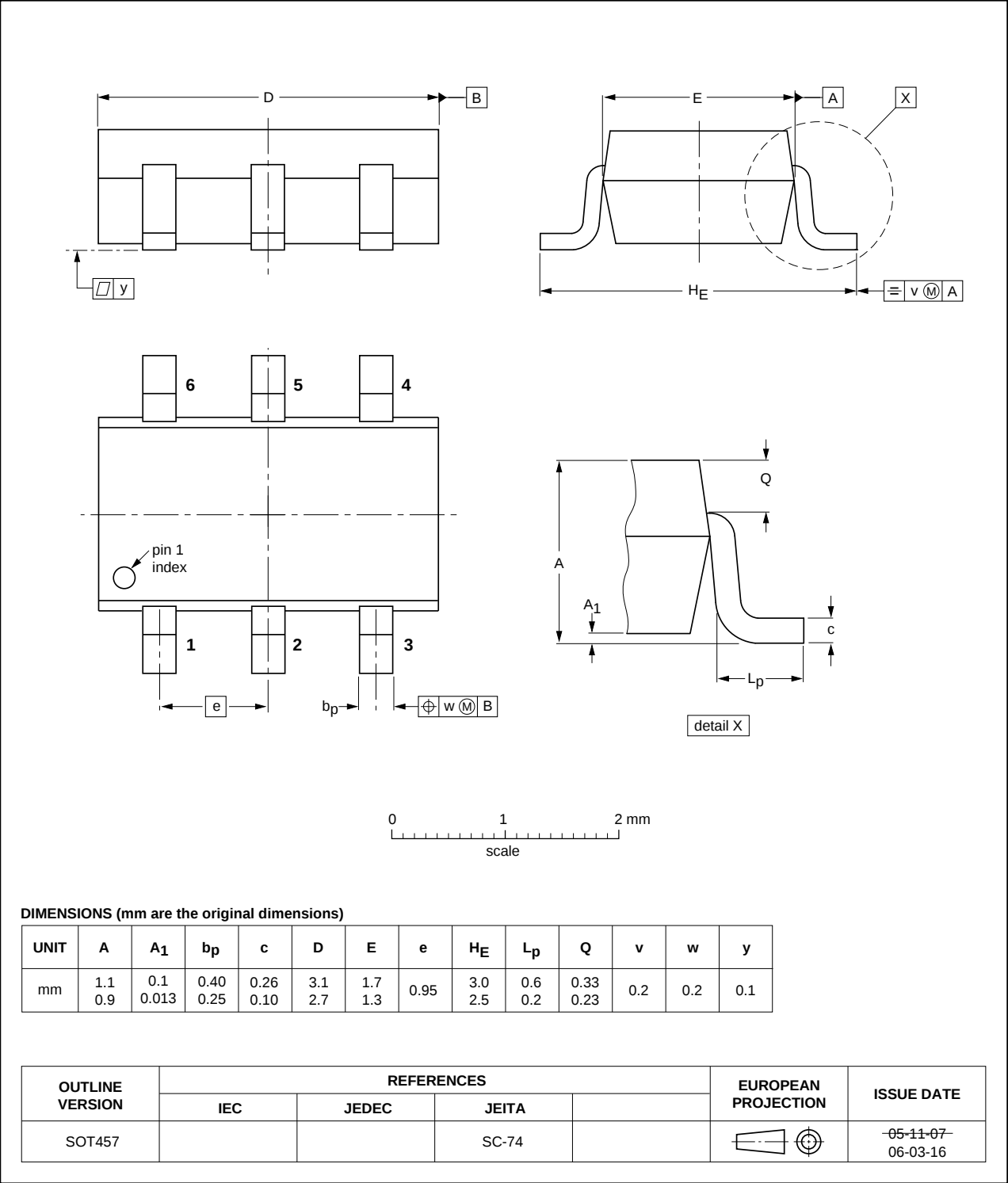


Fig 20. Package outline SOT457 (TSOP6)

XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm

SOT886

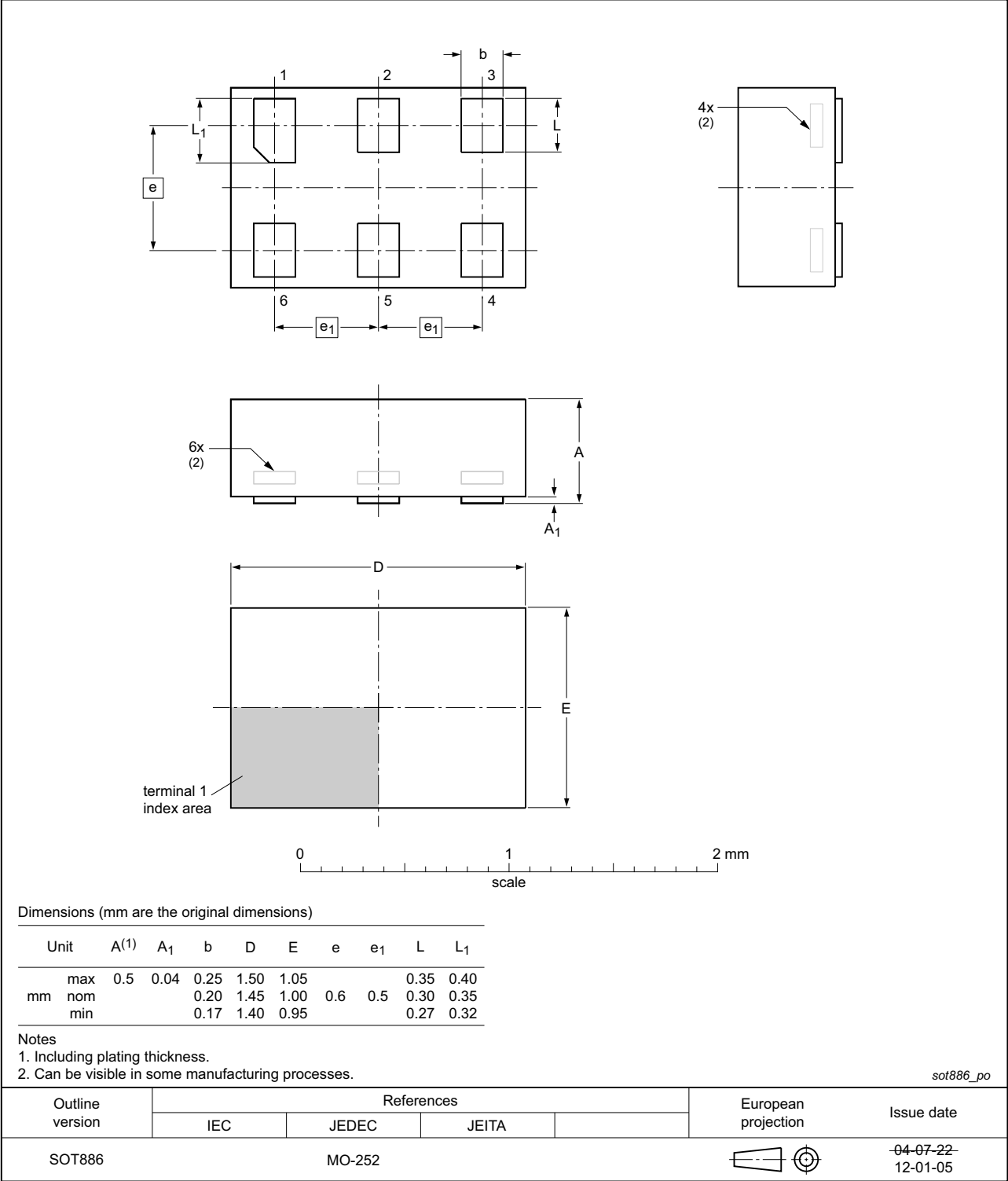


Fig 21. Package outline SOT886 (XSON6)

XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1 x 0.5 mm

SOT891

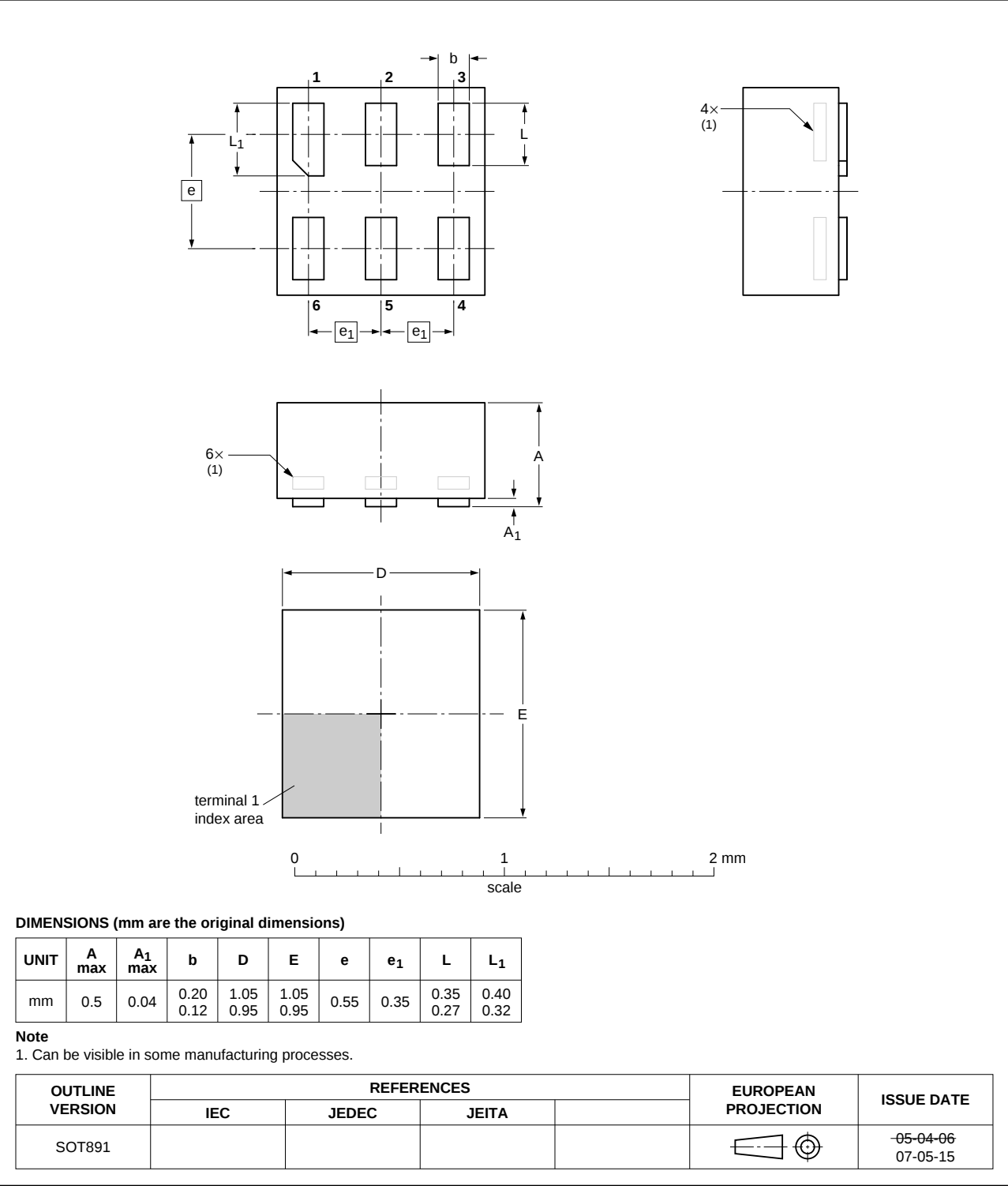
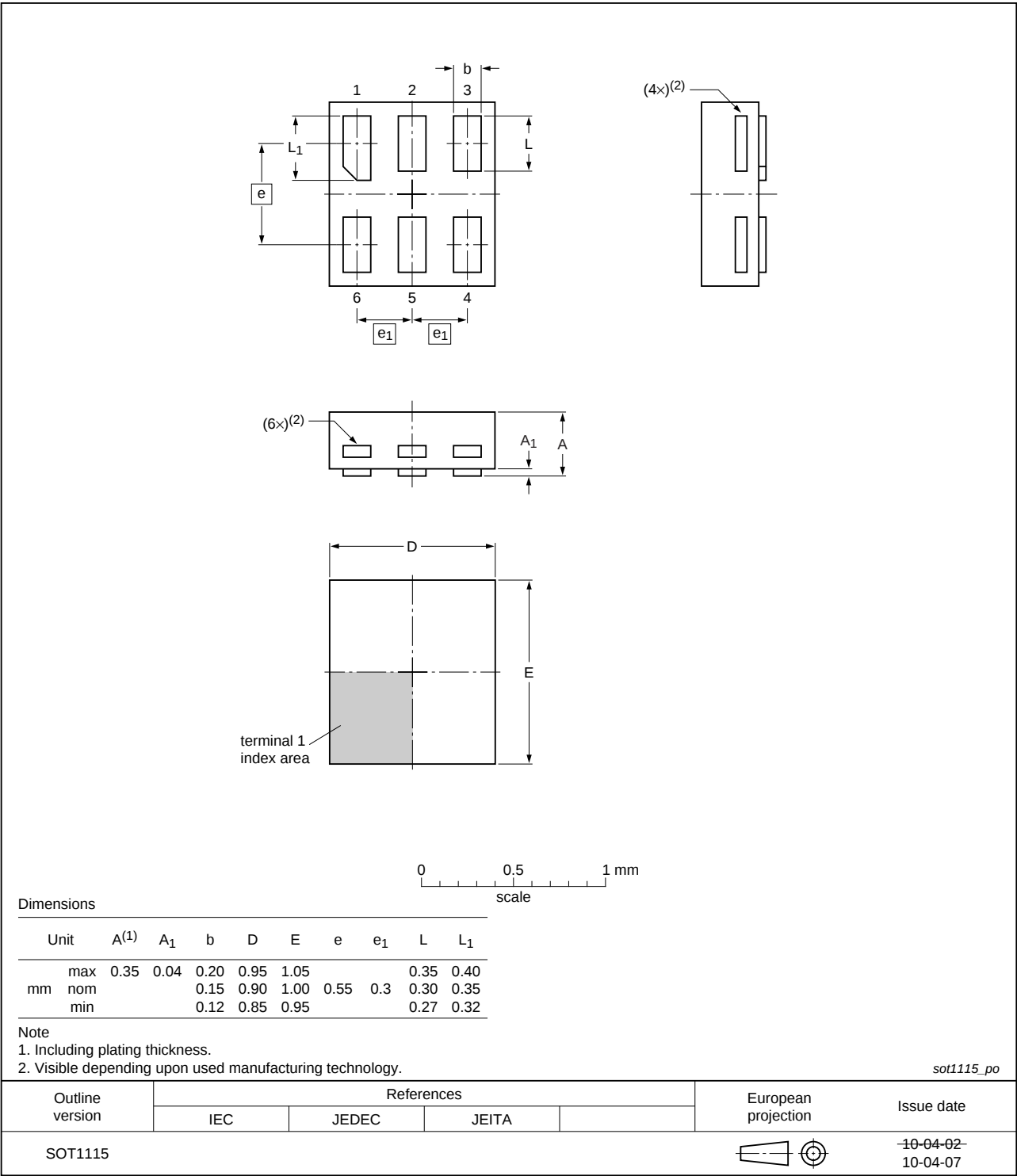


Fig 22. Package outline SOT891 (XSON6)

XSON6: extremely thin small outline package; no leads;  
6 terminals; body 0.9 x 1.0 x 0.35 mm

SOT1115



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

SOT1202

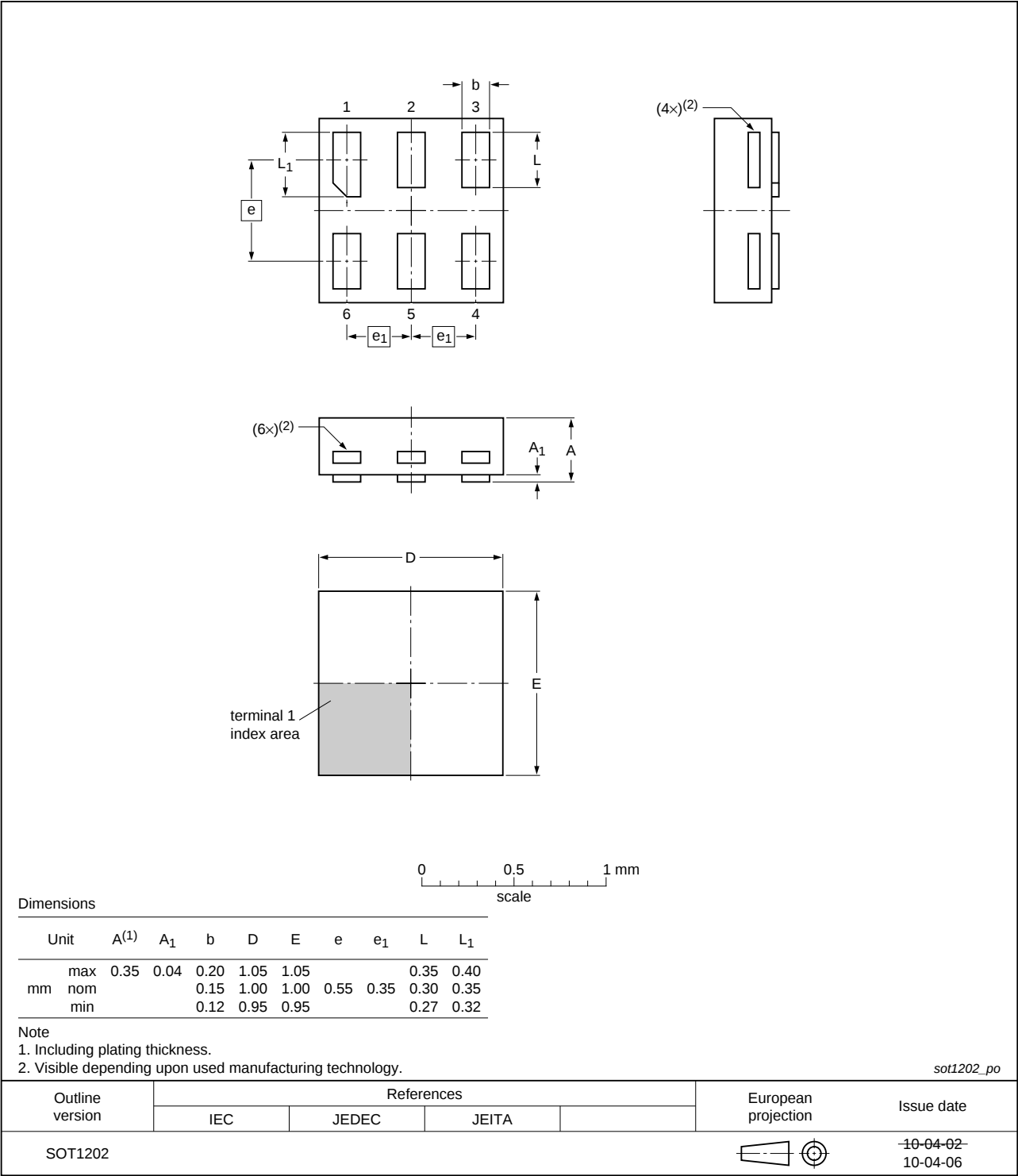


Fig 24. Package outline SOT1202 (XSON6)

## 16. Abbreviations

Table 13. 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             |

## 17. Revision history

Table 14. Revision history

| Document ID    | Release date                                                                | Data sheet status  | Change notice | Supersedes    |
|----------------|-----------------------------------------------------------------------------|--------------------|---------------|---------------|
| 74LVC1G58 v.8  | 20140422                                                                    | Product data sheet | -             | 74LVC1G58 v.7 |
| Modifications: | • Package outline drawing of SOT886 ( <a href="#">Figure 21</a> ) modified. |                    |               |               |
| 74LVC1G58 v.7  | 20111206                                                                    | Product data sheet | -             | 74LVC1G58 v.6 |
| Modifications: | • Legal pages updated.                                                      |                    |               |               |
| 74LVC1G58 v.6  | 20110923                                                                    | Product data sheet | -             | 74LVC1G58 v.5 |
| 74LVC1G58 v.5  | 20101015                                                                    | Product data sheet | -             | 74LVC1G58 v.4 |
| 74LVC1G58 v.4  | 20090427                                                                    | Product data sheet | -             | 74LVC1G58 v.3 |
| 74LVC1G58 v.3  | 20070827                                                                    | Product data sheet | -             | 74LVC1G58 v.2 |
| 74LVC1G58 v.2  | 20070222                                                                    | Product data sheet | -             | 74LVC1G58 v.1 |
| 74LVC1G58 v.1  | 20040915                                                                    | Product data sheet | -             | -             |

## 18. Legal information

### 18.1 Data sheet status

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

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

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

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

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