

# 74LVC1G58

## Low-power configurable multiple function gate

Rev. 12 — 18 August 2023

Product data sheet

## 1. General description

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The 74LVC1G58 is a configurable multiple function gate with Schmitt-trigger inputs. The device can be configured as any of the following logic functions AND, OR, NAND, NOR, XOR, inverter and buffer; using the 3-bit input. All inputs can be connected directly to  $V_{CC}$  or GND. Inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V environments.

This device is fully specified for partial power down applications using  $I_{OFF}$ . The  $I_{OFF}$  circuitry disables the output, preventing the potentially damaging backflow current through the device when it is powered down.

## 2. Features and benefits

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- Wide supply voltage range from 1.65 V to 5.5 V
- High noise immunity
- $\pm 24$  mA output drive ( $V_{CC} = 3.0$  V)
- CMOS low power dissipation
- $I_{OFF}$  circuitry provides partial Power-down mode operation
- Latch-up performance exceeds 250 mA
- Direct interface with TTL levels
- Overvoltage tolerant inputs to 5.5 V
- Complies with JEDEC standard:
  - JESD8-7 (1.65 V to 1.95 V)
  - JESD8-5 (2.3 V to 2.7 V)
  - JESD8C (2.7 V to 3.6 V)
  - JESD36 (4.5 V to 5.5 V)
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 class 2 exceeds 2000 V
  - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 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                  |
| <a href="#">74LVC1G58GW</a> | -40 °C to +125 °C | TSSOP6       | plastic thin shrink small outline package; 6 leads; body width 1.25 mm                      | <a href="#">SOT363-2</a> |
| <a href="#">74LVC1G58GV</a> | -40 °C to +125 °C | SC-74; TSOP6 | plastic surface-mounted package; 6 leads                                                    | <a href="#">SOT457</a>   |
| <a href="#">74LVC1G58GM</a> | -40 °C to +125 °C | XSON6        | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | <a href="#">SOT886</a>   |
| <a href="#">74LVC1G58GN</a> | -40 °C to +125 °C | XSON6        | extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm       | <a href="#">SOT1115</a>  |
| <a href="#">74LVC1G58GS</a> | -40 °C to +125 °C | XSON6        | extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm       | <a href="#">SOT1202</a>  |

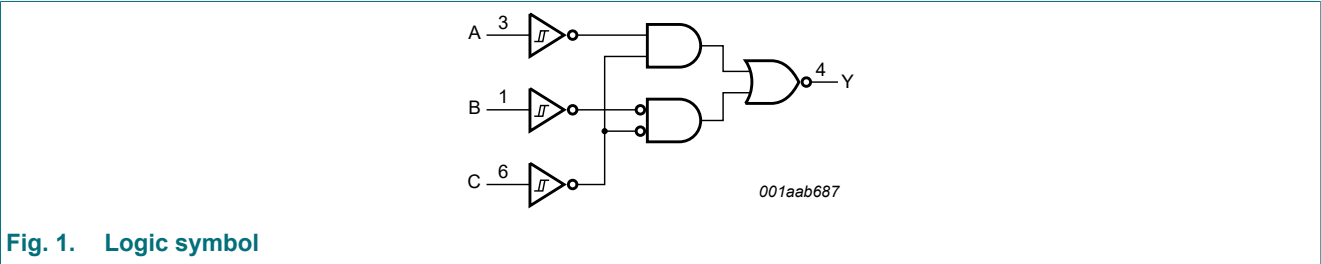
4. Marking

Table 2. Marking

| Type number | Marking code [1] |
|-------------|------------------|
| 74LVC1G58GW | YK               |
| 74LVC1G58GV | V58              |
| 74LVC1G58GM | 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

74LVC1G58

001aab686

Fig. 2. Pin configuration SOT363-2 (TSSOP6) and SOT457 (SC-74; TSOP6)

74LVC1G58

001aab731

Transparent top view

Fig. 3. Pin configuration SOT886 (XSON6)

74LVC1G58

001aaf956

Transparent top view

Fig. 4. Pin configuration SOT1115 and SOT1202 (XSON6)

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

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

| 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      |

7.1. Logic configurations

Table 5. Function selection table

| Logic function                         | Figure                |
|----------------------------------------|-----------------------|
| 2-input NAND                           | see Fig. 5            |
| 2-input NAND with both inputs inverted | see Fig. 8            |
| 2-input AND with inverted input        | see Fig. 6 and Fig. 7 |
| 2-input NOR with inverted input        | see Fig. 6 and Fig. 7 |
| 2-input OR                             | see Fig. 8            |
| 2-input OR with both inputs inverted   | see Fig. 5            |
| 2-input XOR                            | see Fig. 9            |
| Buffer                                 | see Fig. 10           |
| Inverter                               | see Fig. 11           |

**Fig. 5. 2-input NAND gate or 2-input OR with both inputs inverted**

**Fig. 6. 2-input AND gate with inverted B input or 2-input NOR gate with inverted C input**

**Fig. 7. 2-input AND gate with inverted C input or 2-input NOR gate with inverted A input**

**Fig. 8. 2-input OR gate or 2-input NAND gate with both inputs inverted**

**Fig. 9. 2-input XOR gate**

**Fig. 10. Buffer**

**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 <sub>CC</sub>  | supply voltage          |                                                          | -0.5 | +6.5 | V    |
| I <sub>IK</sub>  | input clamping current  | V <sub>I</sub> < 0 V                                     | -50  | -    | mA   |
| V <sub>I</sub>   | input voltage           |                                                          | -0.5 | +6.5 | V    |
| I <sub>OK</sub>  | output clamping current | V <sub>O</sub> > V <sub>CC</sub> or V <sub>O</sub> < 0 V | -    | ±50  | mA   |
| V <sub>O</sub>   | output voltage          | Active mode                                              | -0.5 | +6.5 | V    |
|                  |                         | Power-down mode; V <sub>CC</sub> = 0 V                   | -0.5 | +6.5 | V    |
| I <sub>O</sub>   | output current          | V <sub>O</sub> = 0 V to V <sub>CC</sub>                  | -    | ±50  | mA   |
| I <sub>CC</sub>  | supply current          |                                                          | -    | 100  | mA   |
| I <sub>GND</sub> | ground current          |                                                          | -100 | -    | mA   |
| T <sub>stg</sub> | storage temperature     |                                                          | -65  | +150 | °C   |
| P <sub>tot</sub> | total power dissipation | T <sub>amb</sub> = -40 °C to +125 °C                     | -    | 250  | mW   |

- [1] The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
- [2] For SOT363-2 (TSSOP6) package: P<sub>tot</sub> derates linearly with 3.7 mW/K above 83 °C.  
For SOT457 (SC-74; TSOP6) package: P<sub>tot</sub> derates linearly with 4.1 mW/K above 89 °C.  
For SOT886 (XSON6) package: P<sub>tot</sub> derates linearly with 3.3 mW/K above 74 °C.  
For SOT1115 (XSON6) package: P<sub>tot</sub> derates linearly with 3.2 mW/K above 71 °C.  
For SOT1202 (XSON6) package: P<sub>tot</sub> derates linearly with 3.3 mW/K above 74 °C.

9. Recommended operating conditions

Table 7. Recommended operating conditions

| Symbol           | Parameter           | Conditions                             | Min  | Typ | Max             | Unit |
|------------------|---------------------|----------------------------------------|------|-----|-----------------|------|
| V <sub>CC</sub>  | supply voltage      |                                        | 1.65 | -   | 5.5             | V    |
| V <sub>I</sub>   | input voltage       |                                        | 0    | -   | 5.5             | V    |
| V <sub>O</sub>   | output voltage      | Active mode                            | 0    | -   | V <sub>CC</sub> | V    |
|                  |                     | Power-down mode; V <sub>CC</sub> = 0 V | 0    | -   | 5.5             | V    |
| T <sub>amb</sub> | 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 [1] | 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    | ±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                                     | -                     | ±0.1    | ±2   | µA   |
| I <sub>CC</sub>                           | supply current            | V <sub>I</sub> = 5.5 V or GND; V <sub>CC</sub> = 1.65 V to 5.5 V;<br>I <sub>O</sub> = 0 A           | -                     | 0.1     | 4    | 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   |

| Symbol                                     | Parameter                 | Conditions                                                                                       | Min                   | Typ [1] | Max  | Unit |
|--------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------|-----------------------|---------|------|------|
| <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                                    | -                     | -       | ±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; 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 | V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 2.3 V to 5.5 V | -                     | -       | 500  | µA   |

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

## 11. Dynamic characteristics

**Table 9. Dynamic characteristics**

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 13.

| 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, B, C to Y; see Fig. 12 [2]                                        |                  |         |      |                   |      |      |
|                 |                               | V <sub>CC</sub> = 1.65 V to 1.95 V                                   | 1.0              | 6.0     | 14.4 | 1.0               | 18.0 | ns   |
|                 |                               | V <sub>CC</sub> = 2.3 V to 2.7 V                                     | 0.5              | 3.5     | 8.3  | 0.5               | 10.4 | ns   |
|                 |                               | V <sub>CC</sub> = 2.7 V                                              | 0.5              | 4.2     | 8.5  | 0.5               | 10.6 | ns   |
|                 |                               | V <sub>CC</sub> = 3.0 V to 3.6 V                                     | 0.5              | 3.8     | 6.3  | 0.5               | 7.9  | ns   |
|                 |                               | V <sub>CC</sub> = 4.5 V to 5.5 V                                     | 0.5              | 3.0     | 5.1  | 0.5               | 6.4  | ns   |
| C <sub>PD</sub> | power dissipation capacitance | V <sub>CC</sub> = 3.3 V; V <sub>I</sub> = GND to V <sub>CC</sub> [3] | -                | 20      | -    | -                 | -    | pF   |

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

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

[3] C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in µW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  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;

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

11.1. Waveforms and test circuit

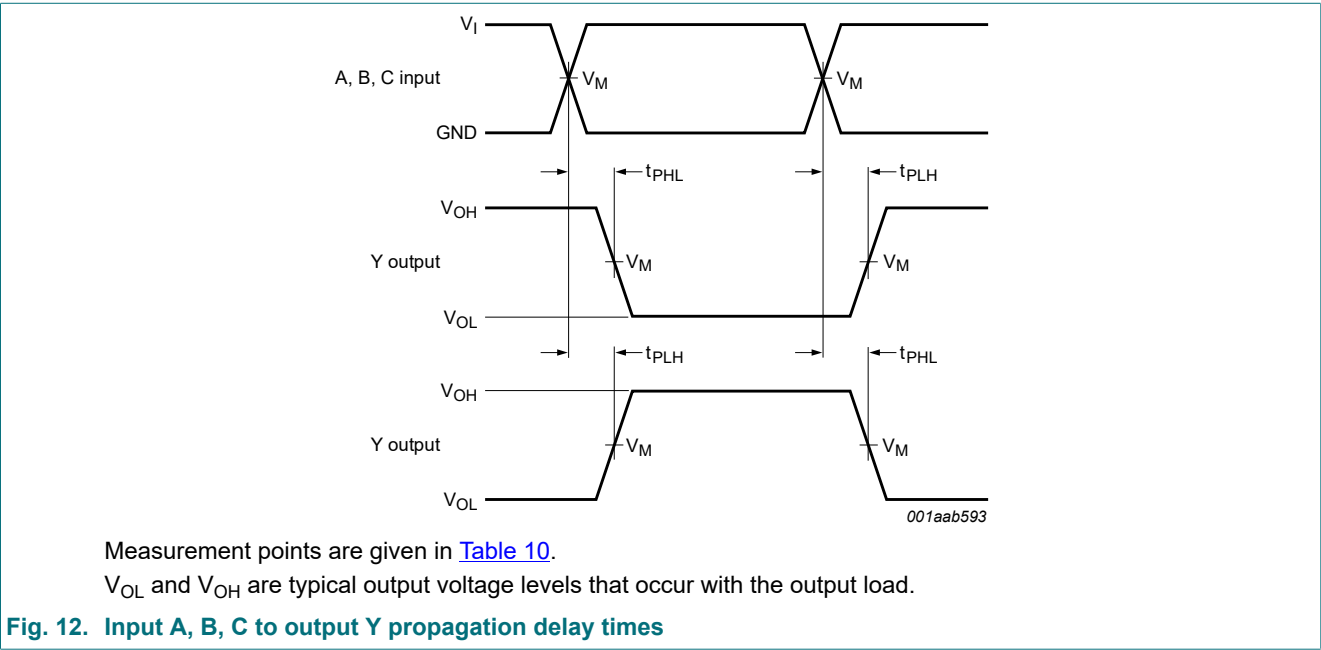


Table 10. Measurement points

| 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   | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ |

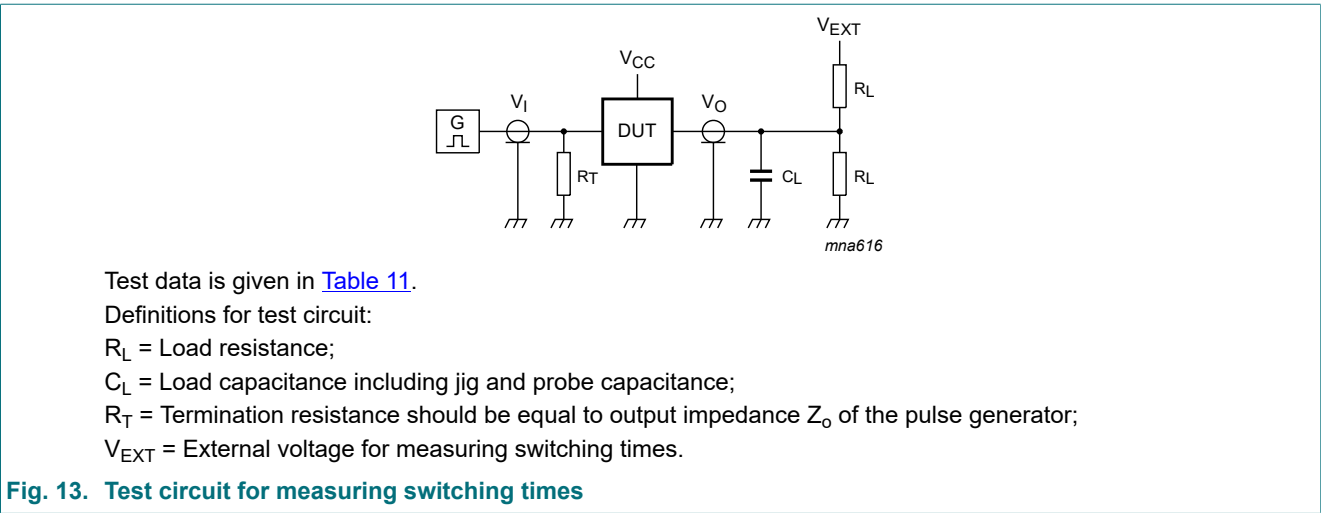


Table 11. Test data

| 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. Transfer characteristics

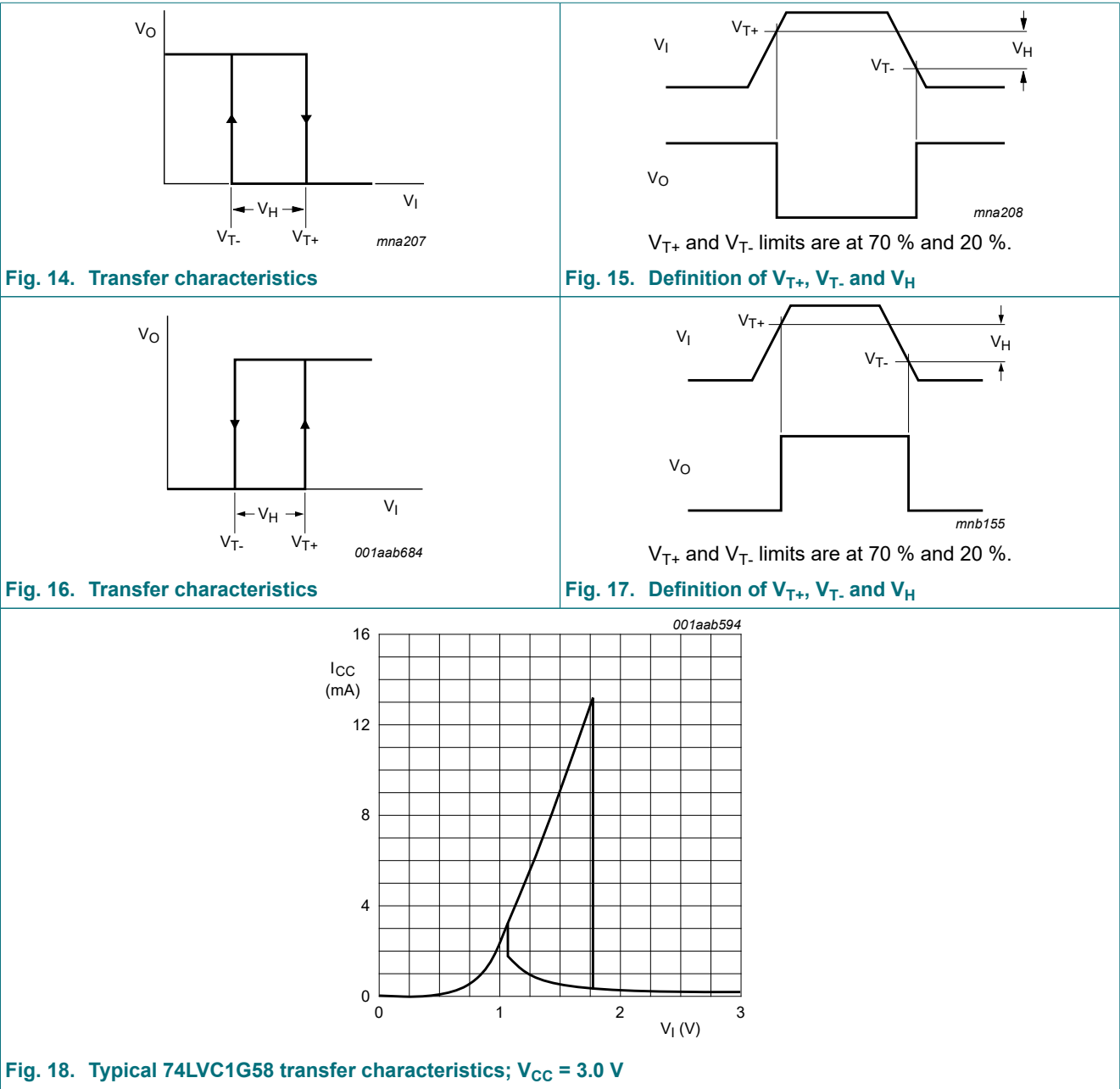
Table 12. Transfer characteristics

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 [1] | Max  | Min               | Max  |      |
| V <sub>T+</sub> | positive-going threshold voltage | see Fig. 14, Fig. 15, Fig. 16 and Fig. 17                                       |                  |         |      |                   |      |      |
|                 |                                  | V <sub>CC</sub> = 1.8 V                                                         | 0.70             | 1.02    | 1.20 | 0.67              | 1.20 | V    |
|                 |                                  | V <sub>CC</sub> = 2.3 V                                                         | 1.11             | 1.42    | 1.60 | 1.08              | 1.60 | V    |
|                 |                                  | V <sub>CC</sub> = 3.0 V                                                         | 1.50             | 1.79    | 2.00 | 1.47              | 2.00 | V    |
|                 |                                  | V <sub>CC</sub> = 4.5 V                                                         | 2.16             | 2.52    | 2.74 | 2.13              | 2.74 | V    |
|                 |                                  | V <sub>CC</sub> = 5.5 V                                                         | 2.61             | 2.99    | 3.33 | 2.58              | 3.33 | V    |
| V <sub>T-</sub> | negative-going threshold voltage | see Fig. 14, Fig. 15, Fig. 16 and Fig. 17                                       |                  |         |      |                   |      |      |
|                 |                                  | V <sub>CC</sub> = 1.8 V                                                         | 0.30             | 0.53    | 0.72 | 0.30              | 0.75 | V    |
|                 |                                  | V <sub>CC</sub> = 2.3 V                                                         | 0.58             | 0.77    | 1.00 | 0.58              | 1.03 | V    |
|                 |                                  | V <sub>CC</sub> = 3.0 V                                                         | 0.80             | 1.04    | 1.30 | 0.80              | 1.33 | V    |
|                 |                                  | V <sub>CC</sub> = 4.5 V                                                         | 1.21             | 1.55    | 1.90 | 1.21              | 1.93 | V    |
|                 |                                  | V <sub>CC</sub> = 5.5 V                                                         | 1.45             | 1.86    | 2.29 | 1.45              | 2.32 | V    |
| V <sub>H</sub>  | hysteresis voltage               | (V <sub>T+</sub> - V <sub>T-</sub> ); see Fig. 14, Fig. 15, Fig. 16 and Fig. 17 |                  |         |      |                   |      |      |
|                 |                                  | 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.

12.1. Waveforms transfer characteristics



13. Package outline

TSSOP6: plastic thin shrink small outline package; 6 leads; body width 1.25 mm SOT363-2

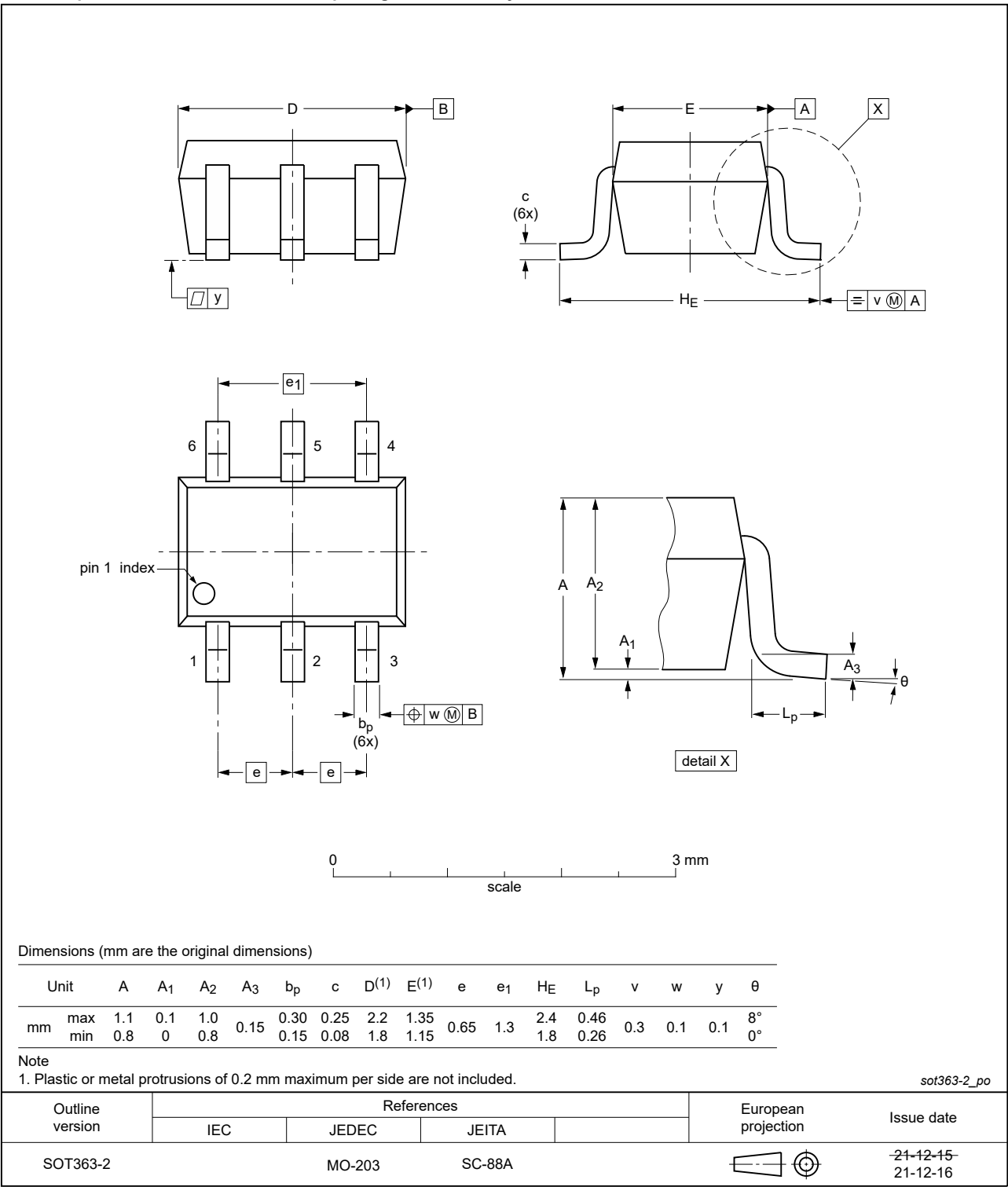


Fig. 19. Package outline SOT363-2 (TSSOP6)

Plastic, surface-mounted package (SC-74; TSOP6); 6 leads

SOT457

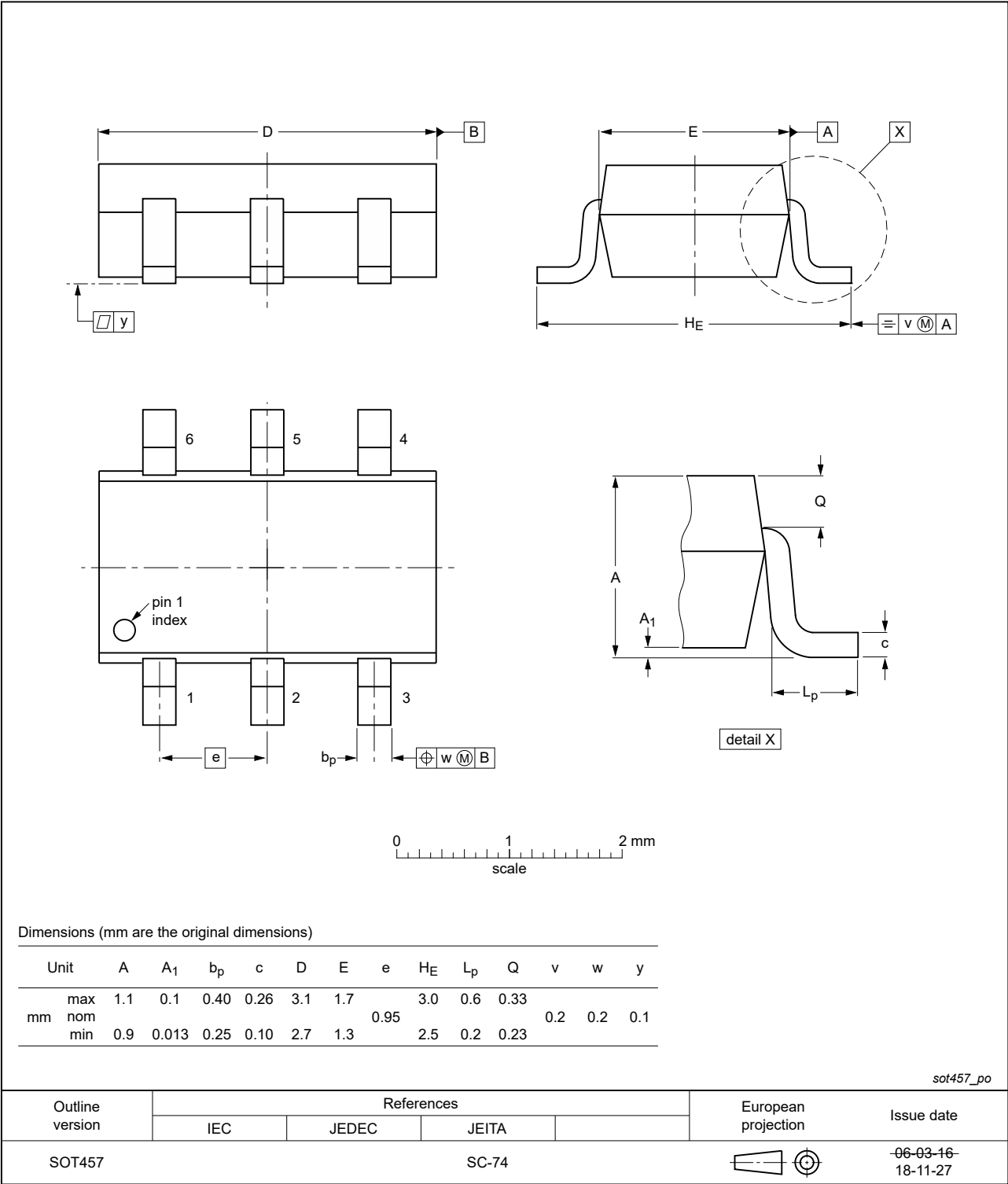


Fig. 20. Package outline SOT457 (SC-74; TSOP6)

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

SOT886

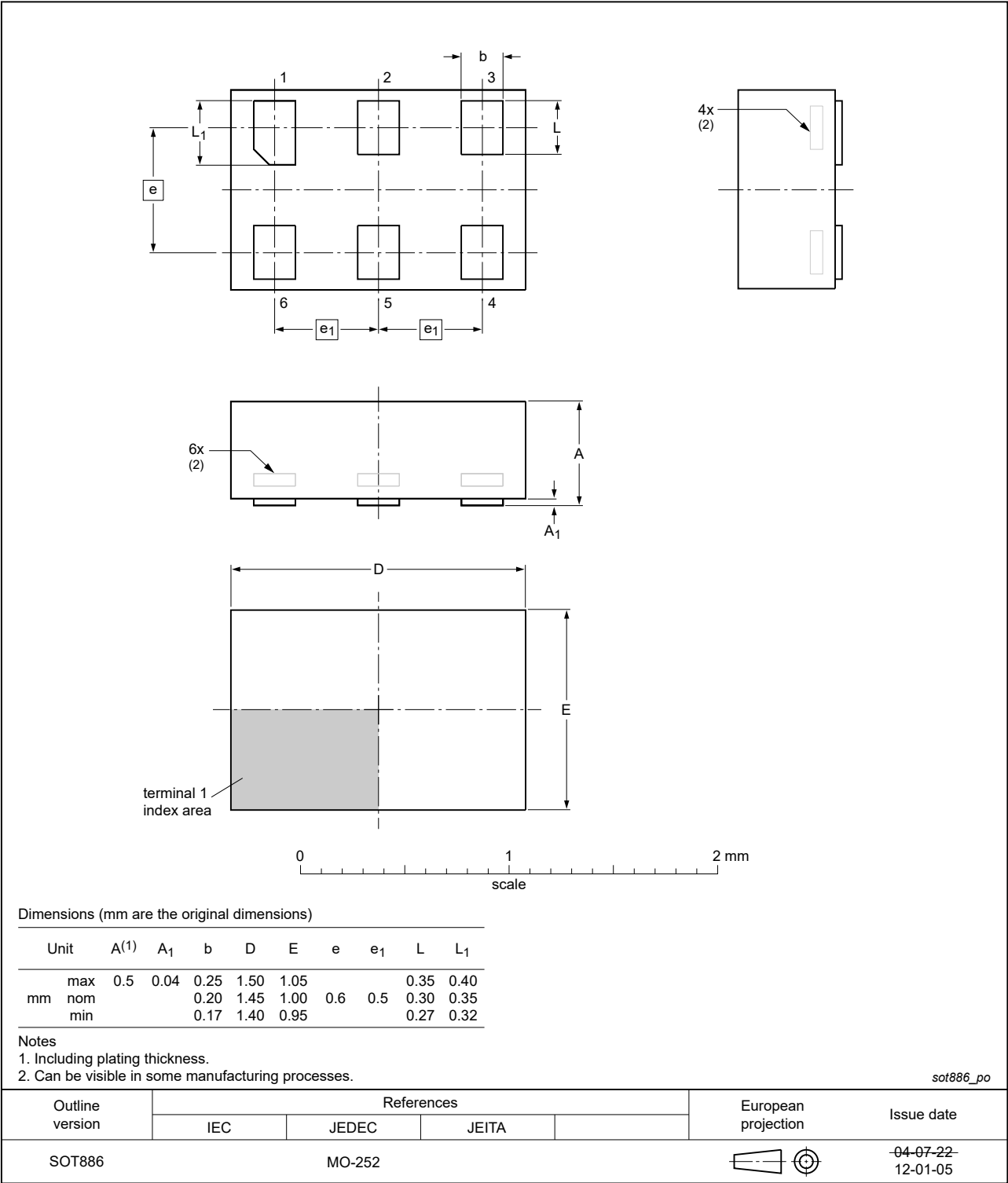


Fig. 21. Package outline SOT886 (XSON6)

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

SOT1115

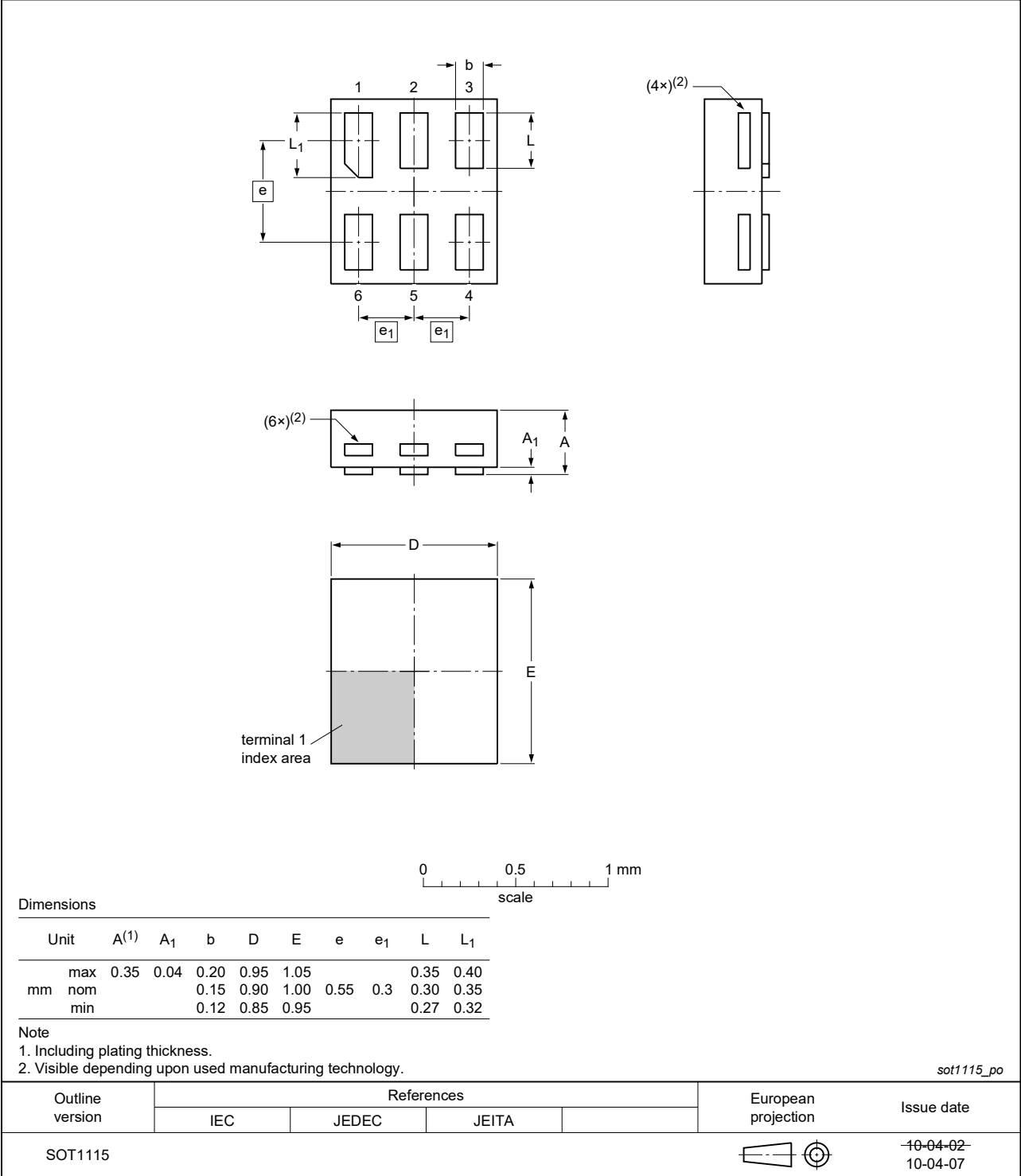


Fig. 22. Package outline SOT1115 (XSON6)

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

SOT1202

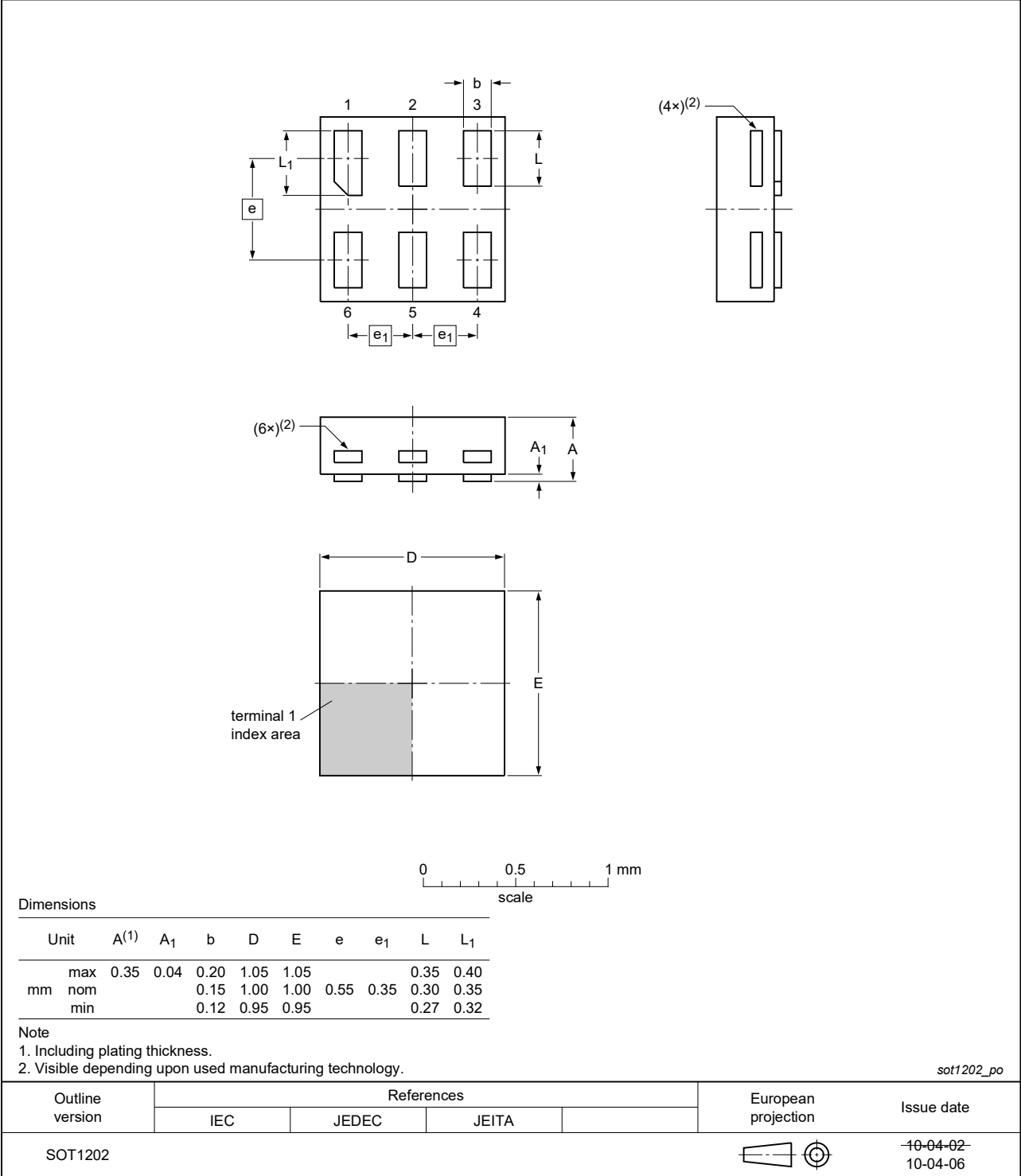


Fig. 23. Package outline SOT1202 (XSON6)

## 14. Abbreviations

Table 13. Abbreviations

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

## 15. Revision history

Table 14. Revision history

| Document ID    | Release date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Data sheet status  | Change notice | Supersedes     |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|----------------|
| 74LVC1G58 v.12 | 20230818                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.11 |
| Modifications: | <ul style="list-style-type: none"> <li><a href="#">Section 2</a>: ESD specification updated according to the latest JEDEC standard.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |               |                |
| 74LVC1G58 v.11 | 20220201                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.10 |
| Modifications: | <ul style="list-style-type: none"> <li>Package SOT363 (SC-88) changed to SOT363-2 (TSSOP6).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |               |                |
| 74LVC1G58 v.10 | 20210607                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.9  |
| 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>Type number 74LVC1G58GF (SOT891 / XSON6) removed.</li> <li><a href="#">Section 1</a> and <a href="#">Section 2</a> updated.</li> <li><a href="#">Section 8</a>: Derating values for <math>P_{tot}</math> total power dissipation updated.</li> <li><a href="#">Fig. 20</a>: Package outline drawing SOT457 (SC-74; TSOP6) updated.</li> </ul> |                    |               |                |
| 74LVC1G58 v.9  | 20161207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.8  |
| Modifications: | <ul style="list-style-type: none"> <li><a href="#">Table 8</a>: The maximum limits for leakage current and supply current have changed.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |               |                |
| 74LVC1G58 v.8  | 20140422                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.7  |
| Modifications: | <ul style="list-style-type: none"> <li>Package outline drawing of SOT886 (<a href="#">Fig. 21</a>) modified.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |               |                |
| 74LVC1G58 v.7  | 20111206                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Product data sheet | -             | 74LVC1G58 v.6  |
| Modifications: | <ul style="list-style-type: none"> <li>Legal pages updated.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |               |                |
| 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 | -             | -              |

## 16. Legal information

### Data sheet status

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

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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