

74LVC1G58

Low-power configurable multiple function gate

Rev. 01 — 15 September 2004

Product data sheet

1. General description

The 74LVC1G58 is a high-performance, low-power, low-voltage, Si-gate CMOS device, superior to most advanced CMOS compatible TTL families.

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.

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.

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

The gate switches at different points for positive and negative-going signals. The difference between the positive voltage V_{T+} and the negative voltage V_{T-} is defined as the hysteresis voltage V_H .

2. Features

- 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).
- ± 24 mA output drive ($V_{CC} = 3.0$ V)
- ESD protection:
 - ◆ HBM EIA/JESD22-A114-B exceeds 2000 V
 - ◆ MM EIA/JESD22-A115-A exceeds 200 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.

PHILIPS

3. Quick reference data

Table 1: Quick reference data

$GND = 0\text{ V}$; $T_{amb} = 25\text{ °C}$; $t_r = t_f \leq 2.5\text{ ns}$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-----------------------|--|--|--------|-----|-----|------|
| t_{PHL} , t_{PLH} | propagation delay input A, B and C to output Y | $V_{CC} = 1.8\text{ V}$; $C_L = 30\text{ pF}$; $R_L = 1\text{ k}\Omega$ | - | 6 | - | ns |
| | | $V_{CC} = 2.5\text{ V}$; $C_L = 30\text{ pF}$; $R_L = 500\ \Omega$ | - | 3.5 | - | ns |
| | | $V_{CC} = 2.7\text{ V}$; $C_L = 50\text{ pF}$; $R_L = 500\ \Omega$ | - | 4.2 | - | ns |
| | | $V_{CC} = 3.3\text{ V}$; $C_L = 50\text{ pF}$; $R_L = 500\ \Omega$ | - | 3.8 | - | ns |
| | | $V_{CC} = 5.0\text{ V}$; $C_L = 50\text{ pF}$; $R_L = 500\ \Omega$ | - | 3.0 | - | ns |
| C_I | input capacitance | | - | 2.5 | - | pF |
| C_{PD} | power dissipation capacitance per buffer | $V_{CC} = 3.3\text{ V}$ | [1][2] | 20 | - | pF |

[1] C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

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

f_i = input frequency in MHz;

f_o = output frequency in MHz;

C_L = output load capacitance in pF;

V_{CC} = supply voltage in Volts;

N = total load switching outputs;

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

[2] The condition is $V_I = GND$ to V_{CC} .

4. Ordering information

Table 2: 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 | SC-74 | plastic surface mounted package; 6 leads | SOT457 |
| 74LVC1G58GM | -40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body $1 \times 1.45 \times 0.5\text{ mm}$ | SOT886 |

5. Marking

Table 3: Marking

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

6. Functional diagram

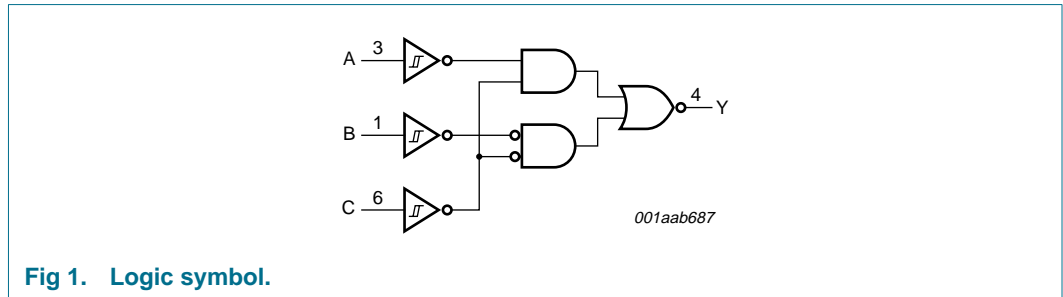


Fig 1. Logic symbol.

7. Pinning information

7.1 Pinning

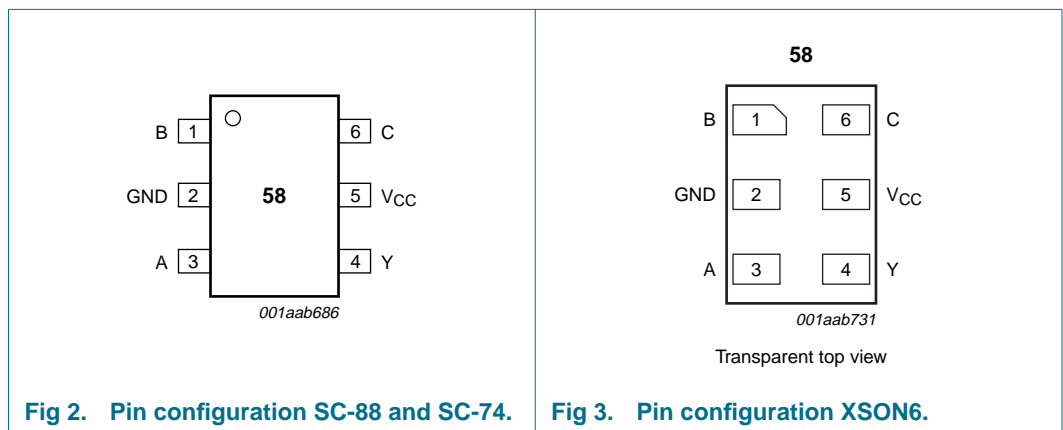


Fig 2. Pin configuration SC-88 and SC-74.

Fig 3. Pin configuration XSON6.

7.2 Pin description

Table 4: Pin description

| Symbol | Pin | Description |
|-----------------|-----|----------------|
| B | 1 | data input B |
| GND | 2 | ground (0 V) |
| A | 3 | data input A |
| Y | 4 | data output Y |
| V _{CC} | 5 | supply voltage |
| C | 6 | data input C |

8. Functional description

8.1 Function table

Table 5: Function table [1]

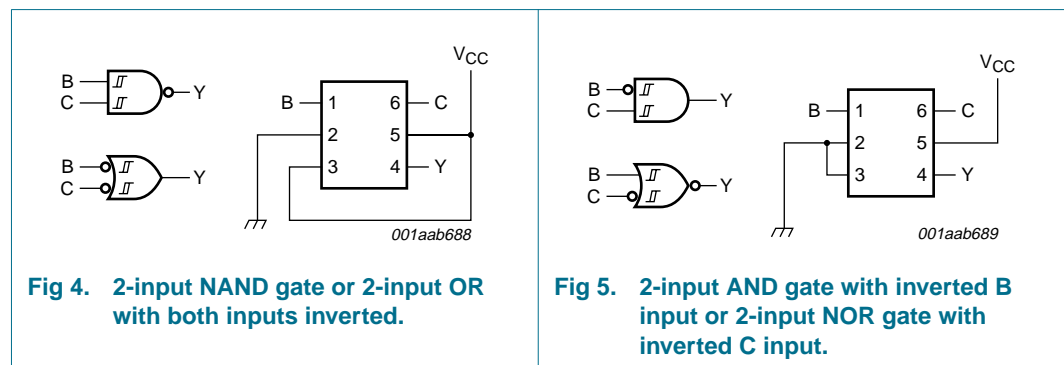
| Inputs | | | Output |
|--------|---|---|--------|
| C | B | A | Y |
| L | L | L | L |
| L | L | H | H |
| L | H | L | L |
| L | H | H | H |
| H | L | L | H |
| H | L | H | H |
| H | H | L | L |
| H | H | H | L |

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

8.2 Logic configurations

Table 6: Function selection table

| Logic function | Figure |
|--|--|
| 2-input NAND | see Figure 4 |
| 2-input NAND with both inputs inverted | see Figure 7 |
| 2-input AND with inverted input | see Figure 5 and 6 |
| 2-input NOR with inverted input | see Figure 5 and 6 |
| 2-input OR | see Figure 7 |
| 2-input OR with both inputs inverted | see Figure 4 |
| 2-input XOR | see Figure 8 |
| Buffer | see Figure 9 |
| Inverter | see Figure 10 |



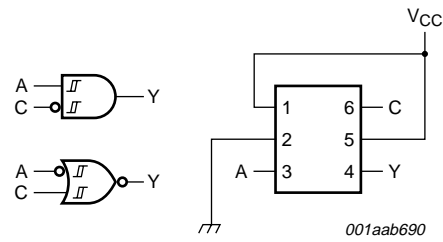


Fig 6. 2-input AND gate with inverted C input or 2-input NOR gate with inverted A input.

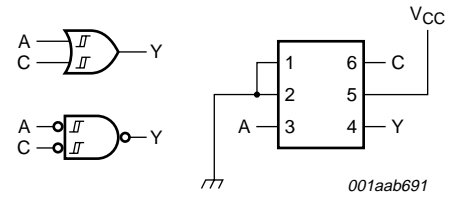


Fig 7. 2-input OR gate or 2-input NAND gate with both inputs inverted.

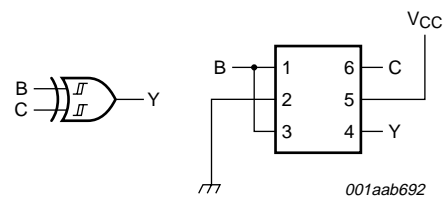


Fig 8. 2-input XOR gate.

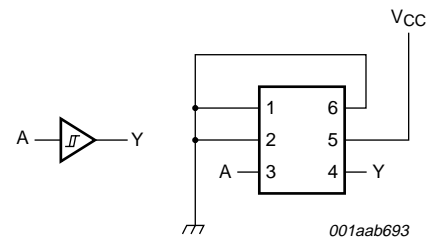


Fig 9. Buffer.

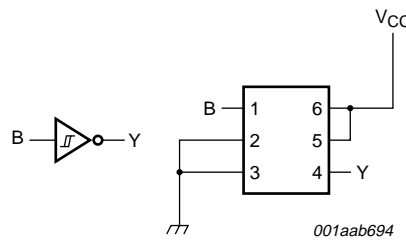


Fig 10. Inverter.

9. Limiting values

Table 7: 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 diode current | $V_I < 0$ V | - | -50 | mA |
| V_I | input voltage | | [1] -0.5 | +6.5 | V |
| I_{OK} | output diode current | $V_O > V_{CC}$ or $V_O < 0$ V | - | ± 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 source or sink current | $V_O = 0$ V to V_{CC} | - | ± 50 | mA |

Table 7: Limiting values ...continued

In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to GND (ground = 0 V).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|-------------------|-------------------------|---|-----|-----------|------|
| I_{CC}, I_{GND} | V_{CC} or GND current | | - | ± 100 | mA |
| T_{stg} | storage temperature | | -65 | +150 | °C |
| P_{tot} | power dissipation | $T_{amb} = -40\text{ °C to }+125\text{ °C}$ | - | 300 | mW |

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

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

10. Recommended operating conditions

Table 8: Recommended operating conditions

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|-----------|-------------------------------|---|------|-----|----------|------|
| V_{CC} | supply voltage | | 1.65 | - | 5.5 | V |
| V_I | input voltage | | 0 | - | 5.5 | V |
| V_O | output voltage | active mode | 0 | - | V_{CC} | V |
| | | $V_{CC} = 0\text{ V}$; Power-down mode | 0 | - | 5.5 | V |
| T_{amb} | operating ambient temperature | | -40 | - | +125 | °C |

11. Static characteristics

Table 9: Static characteristics

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--|---------------------------|--|----------------|-----------|---------|---------------|
| $T_{amb} = -40\text{ °C to }+85\text{ °C}$ [1] | | | | | | |
| V_{OL} | LOW-level output voltage | $V_I = V_{CC}$ or GND | | | | |
| | | $I_O = 100\text{ }\mu\text{A}$; $V_{CC} = 1.65\text{ V to }5.5\text{ V}$ | - | - | 0.1 | V |
| | | $I_O = 4\text{ mA}$; $V_{CC} = 1.65\text{ V}$ | - | - | 0.45 | V |
| | | $I_O = 8\text{ mA}$; $V_{CC} = 2.3\text{ V}$ | - | - | 0.3 | V |
| | | $I_O = 12\text{ mA}$; $V_{CC} = 2.7\text{ V}$ | - | - | 0.4 | V |
| | | $I_O = 24\text{ mA}$; $V_{CC} = 3.0\text{ V}$ | - | - | 0.55 | V |
| | | $I_O = 32\text{ mA}$; $V_{CC} = 4.5\text{ V}$ | - | - | 0.55 | V |
| V_{OH} | HIGH-level output voltage | $V_I = V_{CC}$ or GND | | | | |
| | | $I_O = -100\text{ }\mu\text{A}$; $V_{CC} = 1.65\text{ V to }5.5\text{ V}$ | $V_{CC} - 0.1$ | - | - | V |
| | | $I_O = -4\text{ mA}$; $V_{CC} = 1.65\text{ V}$ | 1.2 | - | - | V |
| | | $I_O = -8\text{ mA}$; $V_{CC} = 2.3\text{ V}$ | 1.9 | - | - | V |
| | | $I_O = -12\text{ mA}$; $V_{CC} = 2.7\text{ V}$ | 2.2 | - | - | V |
| | | $I_O = -24\text{ mA}$; $V_{CC} = 3.0\text{ V}$ | 2.3 | - | - | V |
| | | $I_O = -32\text{ mA}$; $V_{CC} = 4.5\text{ V}$ | 3.8 | - | - | V |
| I_{LI} | input leakage current | $V_I = 5.5\text{ V}$ or GND; $V_{CC} = 3.6\text{ V}$ | - | ± 0.1 | ± 5 | μA |

Table 9: Static characteristics ...continued

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--|---|--|----------------|-----------|-----------|---------|
| I_{off} | power OFF leakage current | V_I or $V_O = 5.5$ V; $V_{CC} = 0$ V | - | ± 0.1 | ± 10 | μ A |
| I_{CC} | quiescent supply current | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5$ V | - | 0.1 | 10 | μ A |
| ΔI_{CC} | additional quiescent supply current per pin | $V_I = V_{CC} - 0.6$ V; $I_O = 0$ A; $V_{CC} = 2.3$ V to 5.5 V | - | 5 | 500 | μ A |
| C_I | input capacitance | | - | 2.5 | - | pF |
| $T_{amb} = -40$ °C to $+125$ °C | | | | | | |
| V_{OL} | LOW-level output voltage | $V_I = V_{CC}$ or GND | | | | |
| | | $I_O = 100$ μ A; $V_{CC} = 1.65$ V to 5.5 V | - | - | 0.1 | V |
| | | $I_O = 4$ mA; $V_{CC} = 1.65$ V | - | - | 0.7 | V |
| | | $I_O = 8$ mA; $V_{CC} = 2.3$ V | - | - | 0.45 | V |
| | | $I_O = 12$ mA; $V_{CC} = 2.7$ V | - | - | 0.6 | V |
| | | $I_O = 24$ mA; $V_{CC} = 3.0$ V | - | - | 0.8 | V |
| | | $I_O = 32$ mA; $V_{CC} = 4.5$ V | - | - | 0.8 | V |
| V_{OH} | HIGH-level output voltage | $V_I = V_{CC}$ or GND | | | | |
| | | $I_O = -100$ μ A; $V_{CC} = 1.65$ V to 5.5 V | $V_{CC} - 0.1$ | - | - | V |
| | | $I_O = -4$ mA; $V_{CC} = 1.65$ V | 0.95 | - | - | V |
| | | $I_O = -8$ mA; $V_{CC} = 2.3$ V | 1.7 | - | - | V |
| | | $I_O = -12$ mA; $V_{CC} = 2.7$ V | 1.9 | - | - | V |
| | | $I_O = -24$ mA; $V_{CC} = 3.0$ V | 2.0 | - | - | V |
| | | $I_O = -32$ mA; $V_{CC} = 4.5$ V | 3.4 | - | - | V |
| I_{LI} | input leakage current | $V_I = 5.5$ V or GND; $V_{CC} = 3.6$ V | - | - | ± 100 | μ A |
| I_{off} | power OFF leakage current | V_I or $V_O = 5.5$ V; $V_{CC} = 0$ V | - | - | ± 200 | μ A |
| I_{CC} | quiescent supply current | $V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5$ V | - | - | 200 | μ A |
| ΔI_{CC} | additional quiescent supply current per pin | $V_I = V_{CC} - 0.6$ V; $I_O = 0$ A; $V_{CC} = 2.3$ V to 5.5 V | - | - | 5000 | μ A |

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

12. Dynamic characteristics

Table 10: Dynamic characteristics

$GND = 0\text{ V}$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|---|--|--|---------|-----|------|------|----|
| $T_{\text{amb}} = -40\text{ °C to }+85\text{ °C}$ [1] | | | | | | | |
| $t_{\text{PHL}}, t_{\text{PLH}}$ | propagation delay A, B, C to Y | see Figure 11 and 12 | | | | | |
| | | $V_{\text{CC}} = 1.65\text{ V to }1.95\text{ V}$ | 1.0 | 6.0 | 14.4 | ns | |
| | | $V_{\text{CC}} = 2.3\text{ V to }2.7\text{ V}$ | 0.5 | 3.5 | 8.3 | ns | |
| | | $V_{\text{CC}} = 2.7\text{ V}$ | 0.5 | 4.2 | 8.5 | ns | |
| | | $V_{\text{CC}} = 3.0\text{ V to }3.6\text{ V}$ | 0.5 | 3.8 | 6.3 | ns | |
| | | $V_{\text{CC}} = 4.5\text{ V to }5.5\text{ V}$ | 0.5 | 3.0 | 5.1 | ns | |
| C_{PD} | power dissipation capacitance per buffer | $V_{\text{CC}} = 3.3\text{ V}$ | [2] [3] | - | 20 | - | pF |
| $T_{\text{amb}} = -40\text{ °C to }+125\text{ °C}$ | | | | | | | |
| $t_{\text{PHL}}, t_{\text{PLH}}$ | propagation delay A, B, C to Y | see Figure 11 and 12 | | | | | |
| | | $V_{\text{CC}} = 1.65\text{ V to }1.95\text{ V}$ | 1.0 | - | 18 | ns | |
| | | $V_{\text{CC}} = 2.3\text{ V to }2.7\text{ V}$ | 0.5 | - | 10.4 | ns | |
| | | $V_{\text{CC}} = 2.7\text{ V}$ | 0.5 | - | 10.6 | ns | |
| | | $V_{\text{CC}} = 3.0\text{ V to }3.6\text{ V}$ | 0.5 | - | 7.9 | ns | |
| | | $V_{\text{CC}} = 4.5\text{ V to }5.5\text{ V}$ | 0.5 | - | 6.4 | ns | |

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

[2] C_{PD} is used to determine the dynamic power dissipation (P_{D} in μW).

$P_{\text{D}} = C_{\text{PD}} \times V_{\text{CC}}^2 \times f_{\text{i}} \times N + \Sigma(C_{\text{L}} \times V_{\text{CC}}^2 \times f_{\text{o}})$ 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 Volts;

N = total load switching outputs;

$\Sigma(C_{\text{L}} \times V_{\text{CC}}^2 \times f_{\text{o}})$ = sum of the outputs.

[3] The condition is $V_{\text{I}} = GND$ to V_{CC} .

13. Waveforms

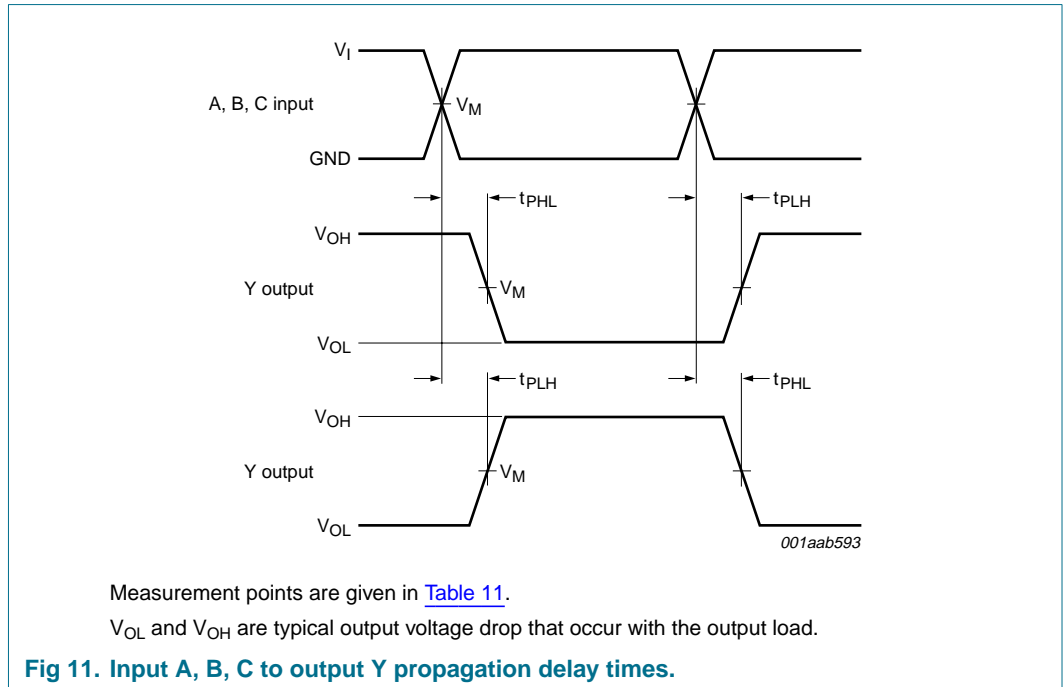


Table 11: Measurement points

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

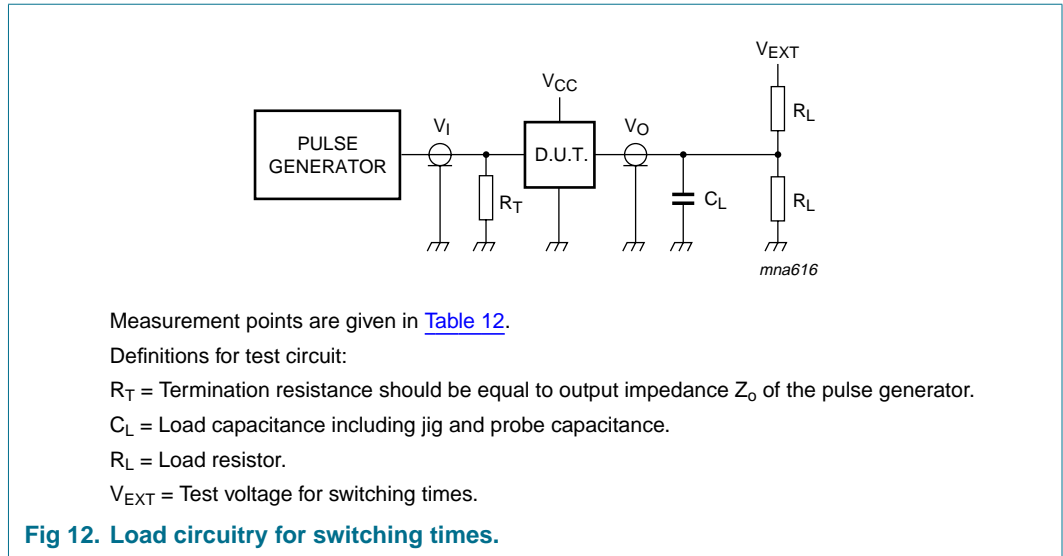


Fig 12. Load circuitry for switching times.

Table 12: Measurement points

| Supply voltage | Input | | Load | | V_{EXT} | | |
|------------------|----------|---------------|-------|--------------|-----------------------|-----------------------|-----------------------|
| V_{CC} | V_I | $t_r = t_f$ | C_L | R_L | t_{PLH} , t_{PHL} | t_{PZH} , t_{PHZ} | t_{PZL} , t_{PLZ} |
| 1.65 V to 1.95 V | V_{CC} | ≤ 2.0 ns | 30 pF | 1 k Ω | open | GND | $2 \times V_{CC}$ |
| 2.3 to 2.7 V | V_{CC} | ≤ 2.0 ns | 30 pF | 500 Ω | open | GND | $2 \times V_{CC}$ |
| 2.7 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 3.0 V to 3.6 V | 2.7 V | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | 6 V |
| 4.5 V to 5.5 V | V_{CC} | ≤ 2.5 ns | 50 pF | 500 Ω | open | GND | $2 \times V_{CC}$ |

14. Transfer characteristics

Table 13: Transfer characteristics

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------------------------|----------------------------------|--|------|------|------|------|
| $T_{amb} = -40$ °C to $+85$ °C [1] | | | | | | |
| V_{T+} | positive-going threshold voltage | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8$ V | 0.70 | 1.02 | 1.20 | V |
| | | $V_{CC} = 2.3$ V | 1.11 | 1.42 | 1.60 | V |
| | | $V_{CC} = 3.0$ V | 1.50 | 1.79 | 2.00 | V |
| | | $V_{CC} = 4.5$ V | 2.16 | 2.52 | 2.74 | V |
| | | $V_{CC} = 5.5$ V | 2.61 | 2.99 | 3.33 | V |
| V_{T-} | negative-going threshold voltage | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8$ V | 0.30 | 0.53 | 0.72 | V |
| | | $V_{CC} = 2.3$ V | 0.58 | 0.77 | 1.00 | V |
| | | $V_{CC} = 3.0$ V | 0.80 | 1.04 | 1.30 | V |
| | | $V_{CC} = 4.5$ V | 1.21 | 1.55 | 1.90 | V |
| | | $V_{CC} = 5.5$ V | 1.45 | 1.86 | 2.29 | V |

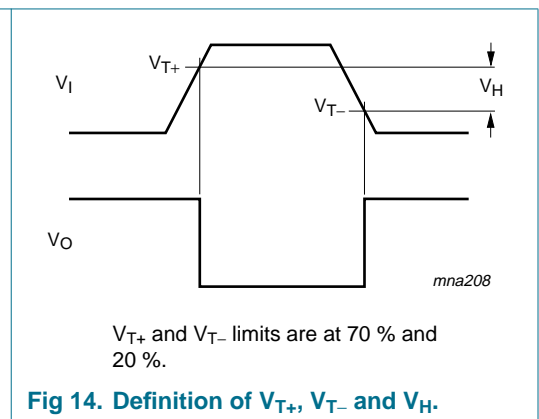
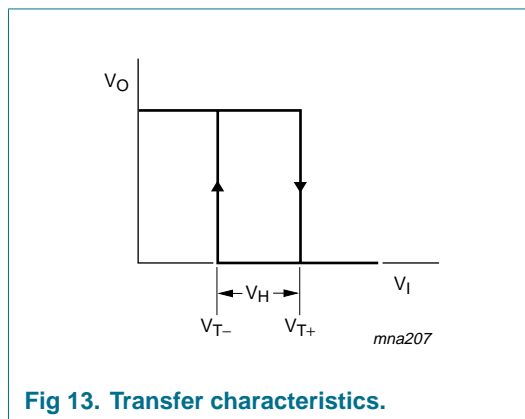
Table 13: Transfer characteristics ...continued

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|--|--|------|------|------|------|
| V_H | hysteresis voltage ($V_{T+} - V_{T-}$) | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8\text{ V}$ | 0.30 | 0.48 | 0.62 | V |
| | | $V_{CC} = 2.3\text{ V}$ | 0.40 | 0.64 | 0.80 | V |
| | | $V_{CC} = 3.0\text{ V}$ | 0.50 | 0.75 | 1.00 | V |
| | | $V_{CC} = 4.5\text{ V}$ | 0.71 | 0.97 | 1.20 | V |
| | | $V_{CC} = 5.5\text{ V}$ | 0.71 | 1.13 | 1.40 | V |
| $T_{amb} = -40\text{ °C to }+125\text{ °C}$ | | | | | | |
| V_{T+} | positive-going threshold voltage | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8\text{ V}$ | 0.67 | - | 1.20 | V |
| | | $V_{CC} = 2.3\text{ V}$ | 1.08 | - | 1.60 | V |
| | | $V_{CC} = 3.0\text{ V}$ | 1.47 | - | 2.00 | V |
| | | $V_{CC} = 4.5\text{ V}$ | 2.13 | - | 2.74 | V |
| | | $V_{CC} = 5.5\text{ V}$ | 2.58 | - | 3.33 | V |
| V_{T-} | negative-going threshold voltage | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8\text{ V}$ | 0.30 | - | 0.75 | V |
| | | $V_{CC} = 2.3\text{ V}$ | 0.58 | - | 1.03 | V |
| | | $V_{CC} = 3.0\text{ V}$ | 0.80 | - | 1.33 | V |
| | | $V_{CC} = 4.5\text{ V}$ | 1.21 | - | 1.93 | V |
| | | $V_{CC} = 5.5\text{ V}$ | 1.45 | - | 2.32 | V |
| V_H | hysteresis voltage ($V_{T+} - V_{T-}$) | see Figure 13 , 14 , 15 and 16 | | | | |
| | | $V_{CC} = 1.8\text{ V}$ | 0.23 | - | 0.62 | V |
| | | $V_{CC} = 2.3\text{ V}$ | 0.34 | - | 0.80 | V |
| | | $V_{CC} = 3.0\text{ V}$ | 0.44 | - | 1.00 | V |
| | | $V_{CC} = 4.5\text{ V}$ | 0.65 | - | 1.20 | V |
| | | $V_{CC} = 5.5\text{ V}$ | 0.65 | - | 1.40 | V |

[1] Typical values are measured at $T_{amb} = 25\text{ °C}$.

15. Waveforms transfer characteristics



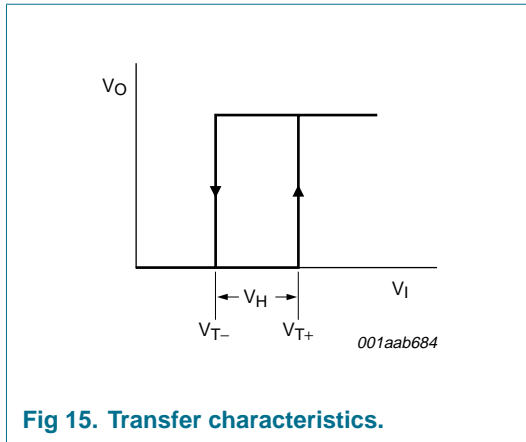


Fig 15. Transfer characteristics.

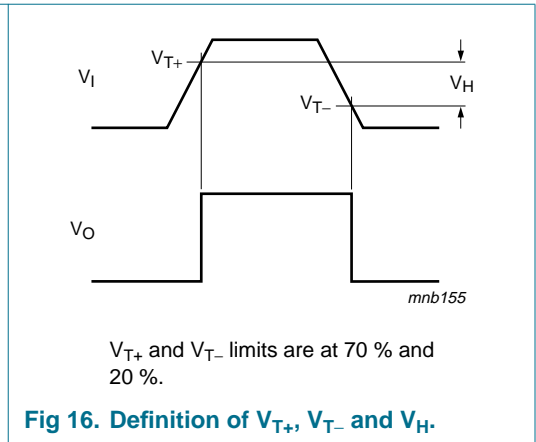


Fig 16. Definition of V_{T+} , V_{T-} and V_H .
 V_{T+} and V_{T-} limits are at 70 % and 20 %.

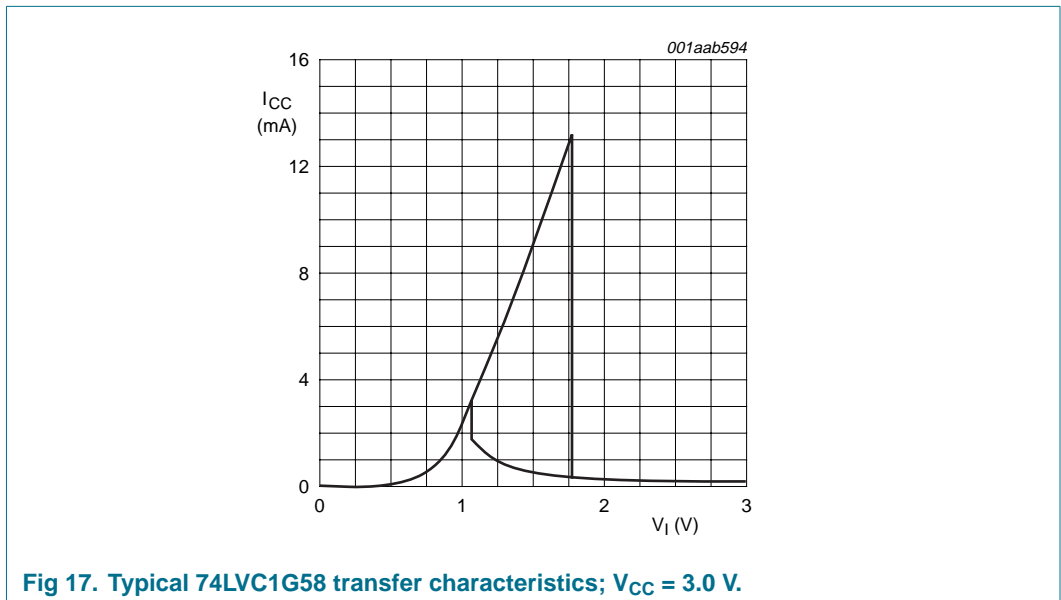


Fig 17. Typical 74LVC1G58 transfer characteristics; $V_{CC} = 3.0\text{ V}$.

16. Package outline

Plastic surface mounted package; 6 leads

SOT363

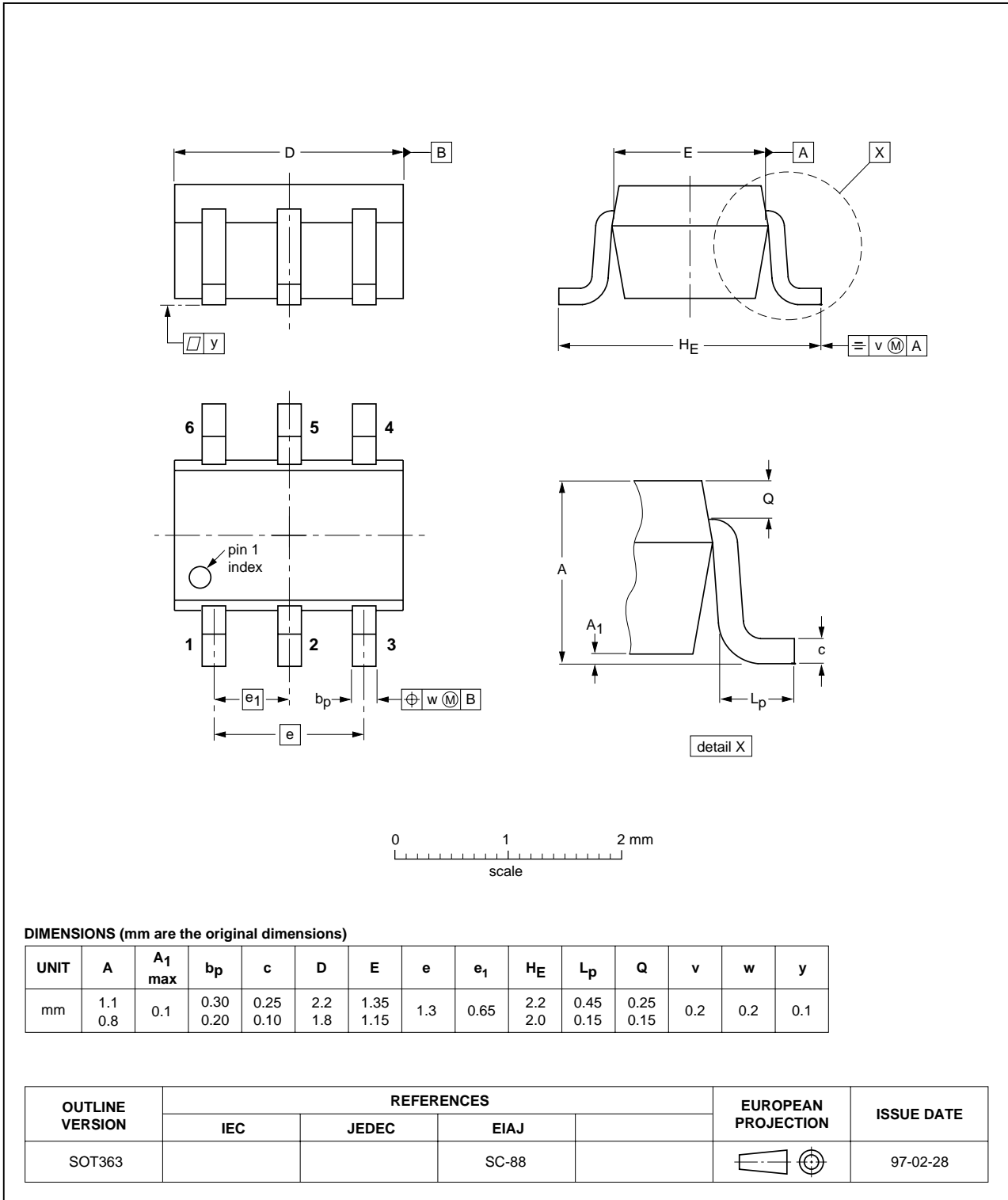


Fig 18. Package outline SOT363 (SC-88).

Plastic surface mounted package; 6 leads

SOT457

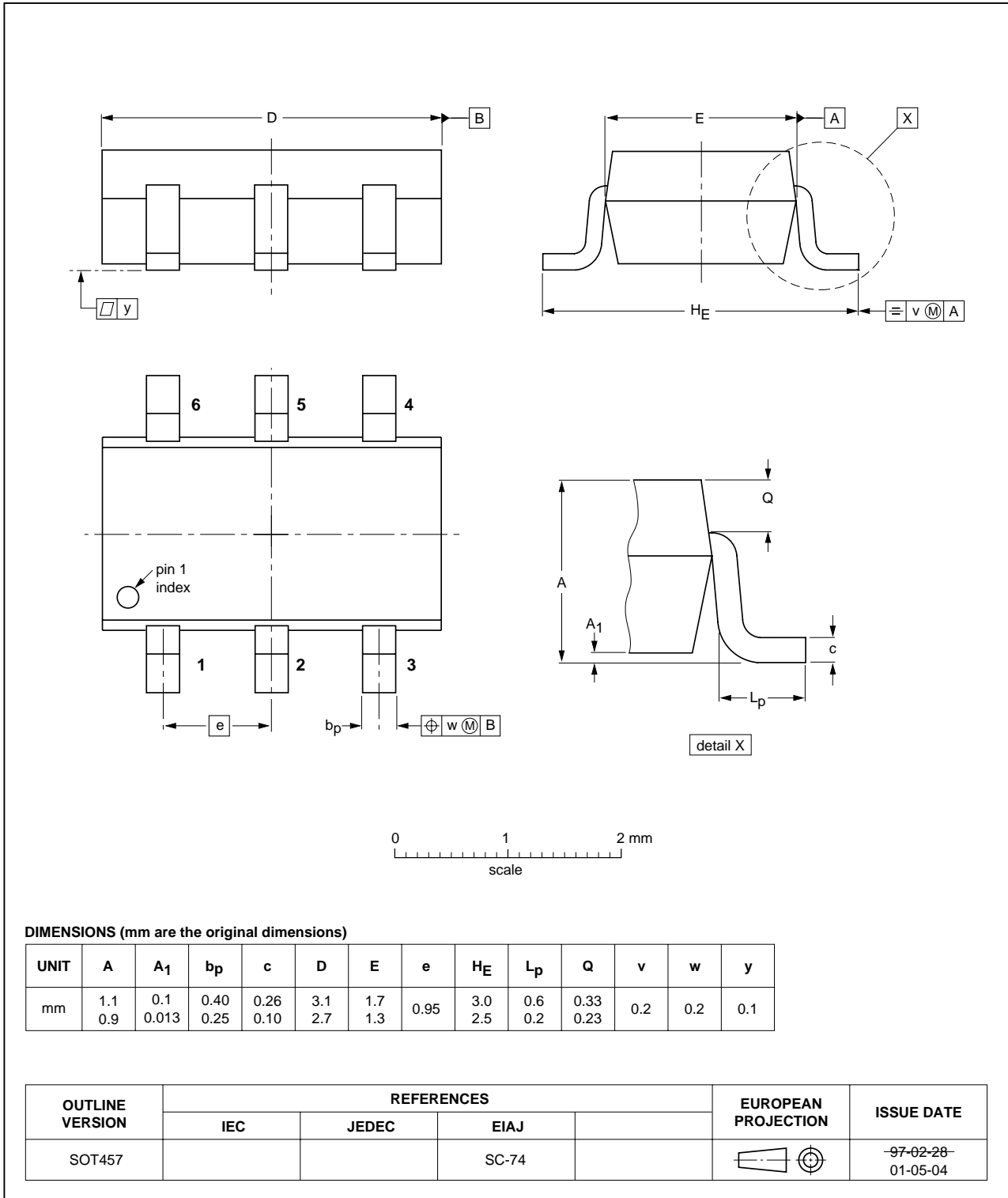


Fig 19. Package outline SOT457 (SC-74).

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

SOT886

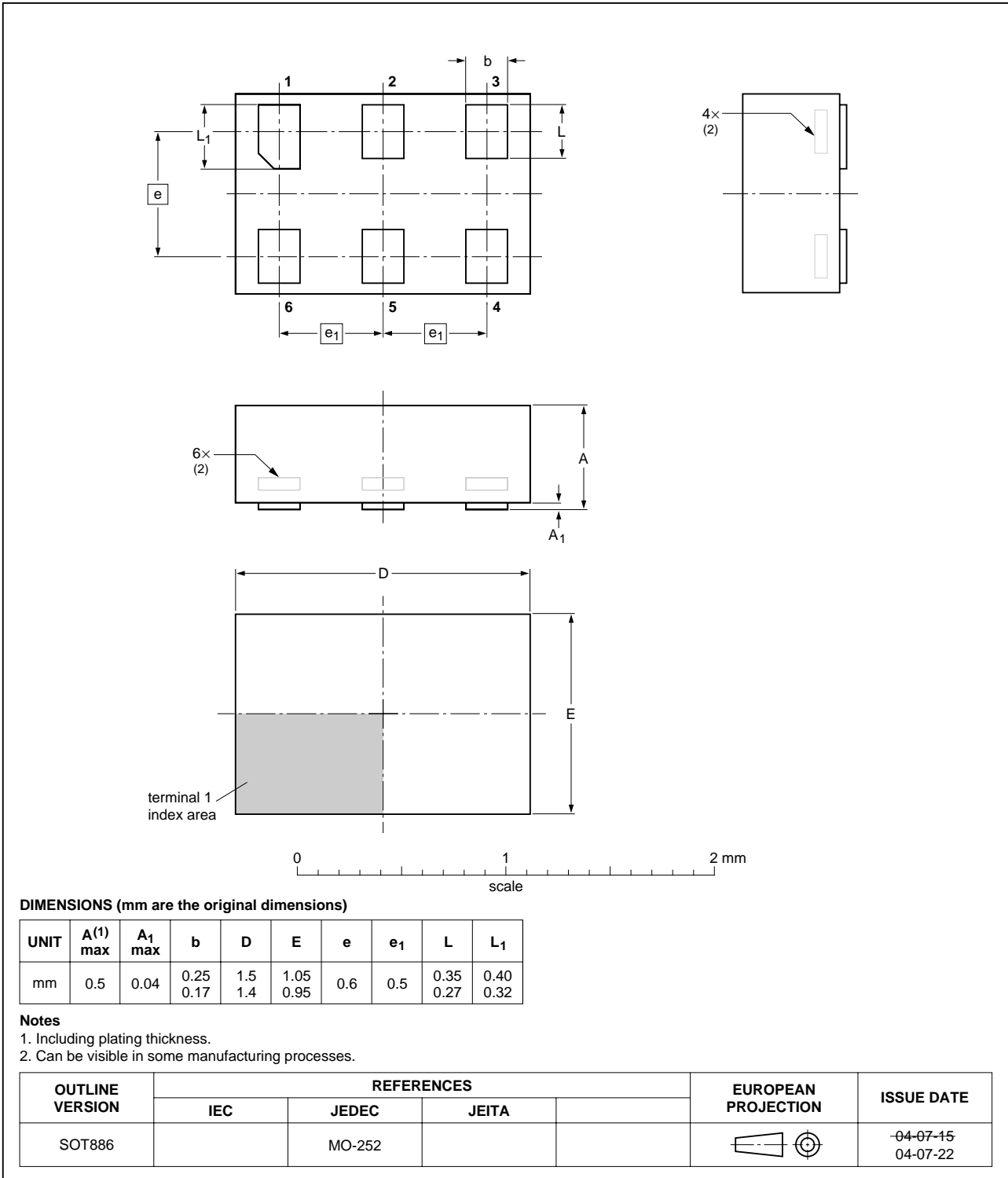


Fig 20. Package outline SOT886 (XSON6).

17. Revision history

Table 14: Revision history

| Document ID | Release date | Data sheet status | Change notice | Doc. number | Supersedes |
|-------------|--------------|--------------------|---------------|----------------|------------|
| 74LVC1G58_1 | 20040915 | Product data sheet | - | 9397 750 13852 | - |

18. Data sheet status

| Level | Data sheet status ^[1] | Product status ^[2] ^[3] | Definition |
|-------|----------------------------------|--|--|
| I | Objective data | Development | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice. |
| II | Preliminary data | Qualification | This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product. |
| III | Product data | Production | This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). |

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

[2] The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL <http://www.semiconductors.philips.com>.

[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

19. Definitions

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

Application information — Applications that are described herein for any of these products are for illustrative purposes only. Philips Semiconductors make no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

20. Disclaimers

Life support — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips Semiconductors customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Semiconductors for any damages resulting from such application.

Right to make changes — Philips Semiconductors reserves the right to make changes in the products - including circuits, standard cells, and/or software - described or contained herein in order to improve design and/or performance. When the product is in full production (status 'Production'), relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). Philips Semiconductors assumes no responsibility or liability for the use of any of these products, conveys no license or title under any patent, copyright, or mask work right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

21. Contact information

For additional information, please visit: <http://www.semiconductors.philips.com>

For sales office addresses, send an email to: sales.addresses@www.semiconductors.philips.com

22. Contents

| | | |
|-----|--|----|
| 1 | General description | 1 |
| 2 | Features | 1 |
| 3 | Quick reference data | 2 |
| 4 | Ordering information | 2 |
| 5 | Marking | 2 |
| 6 | Functional diagram | 3 |
| 7 | Pinning information | 3 |
| 7.1 | Pinning | 3 |
| 7.2 | Pin description | 3 |
| 8 | Functional description | 4 |
| 8.1 | Function table | 4 |
| 8.2 | Logic configurations | 4 |
| 9 | Limiting values | 5 |
| 10 | Recommended operating conditions | 6 |
| 11 | Static characteristics | 6 |
| 12 | Dynamic characteristics | 8 |
| 13 | Waveforms | 9 |
| 14 | Transfer characteristics | 10 |
| 15 | Waveforms transfer characteristics | 11 |
| 16 | Package outline | 13 |
| 17 | Revision history | 16 |
| 18 | Data sheet status | 17 |
| 19 | Definitions | 17 |
| 20 | Disclaimers | 17 |
| 21 | Contact information | 17 |



© Koninklijke Philips Electronics N.V. 2004

All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Date of release: 15 September 2004
Document number: 9397 750 13852

Published in The Netherlands