# 74LVC1G79

## Single D-type flip-flop; positive-edge trigger

Rev. 12 — 5 December 2016 Product data sheet

## 1. General description

The 74LVC1G79 provides a single positive-edge triggered D-type flip-flop.

Information on the data input is transferred to the Q-output on the LOW-to-HIGH transition of the clock pulse. The D-input must be stable one set-up time prior to the LOW-to-HIGH clock transition for predictable operation.

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.

## 2. Features and benefits

- Wide supply voltage range from 1.65 V to 5.5 V
- High noise immunity
- Complies with JEDEC standard:
  - JESD8-7 (1.65 V to 1.95 V)
  - JESD8-5 (2.3 V to 2.7 V)
  - JESD8B/JESD36 (2.7 V to 3.6 V)
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
- ±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 |
| 74LVC1G79GW | –40 °C to +125 °C | TSSOP5 | plastic thin shrink small outline package; 5 leads; body width 1.25 mm | SOT353-1 |
| 74LVC1G79GV | –40 °C to +125 °C | SC-74A | plastic surface-mounted package; 5 leads | SOT753 |
| 74LVC1G79GM | –40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | SOT886 |
| 74LVC1G79GF | –40 °C to +125 °C | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1 × 0.5 mm | SOT891 |
| 74LVC1G79GN | –40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm | SOT1115 |
| 74LVC1G79GS | –40 °C to +125 °C | XSON6 | extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm | SOT1202 |
| 74LVC1G79GX | –40 °C to +125 °C | X2SON5 | X2SON5: plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 × 0.8 × 0.35 mm | SOT1226 |

## 4. Marking

**Table 2. Marking codes**

| Type number | Marking[1] |
|---|---|
| 74LVC1G79GW | VP |
| 74LVC1G79GV | V79 |
| 74LVC1G79GM | VP |
| 74LVC1G79GF | VP |
| 74LVC1G79GN | VP |
| 74LVC1G79GS | VP |
| 74LVC1G79GX | VP |

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

## 5. Functional diagram

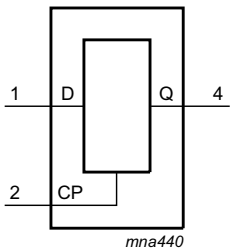



**Fig 1. Logic symbol**

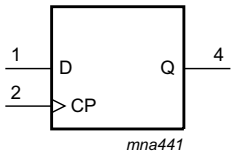



**Fig 2. IEC logic symbol**

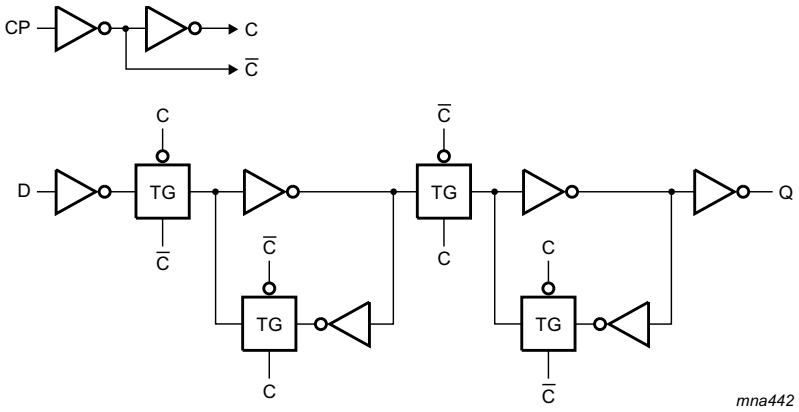



Fig 3. Logic diagram

# 6. Pinning information

## 6.1 Pinning

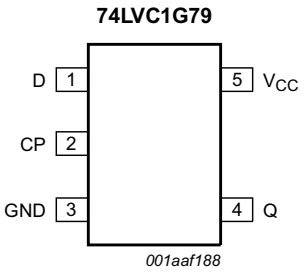



Fig 4. Pin configuration SOT353-1 and SOT753

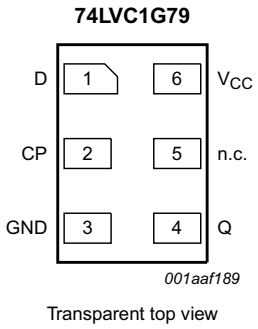



Fig 5. Pin configuration SOT886

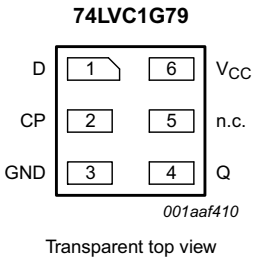



Fig 6. Pin configuration SOT891, SOT1115 and SOT1202

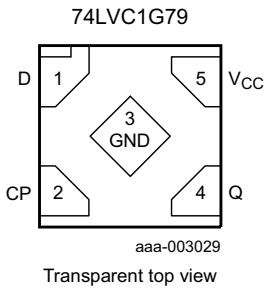



Fig 7. Pin configuration SOT1226 (X2SON5)

### 6.2 Pin description

**Table 3. Pin description**

| Symbol | Pin | | Description |
|---|---|---|---|
| | TSSOP5 and X2SON5 | XSON6 | |
| D | 1 | 1 | data input |
| CP | 2 | 2 | clock pulse input |
| GND | 3 | 3 | ground (0 V) |
| Q | 4 | 4 | data output |
| n.c. | - | 5 | not connected |
| $V_{CC}$ | 5 | 6 | supply voltage |

## 7. Functional description

**Table 4. Function table[1]**

| Input | | Output |
|---|---|---|
| CP | D | Q |
| ↑ | L | L |
| ↑ | H | H |
| L | X | q |

[1] H = HIGH voltage level;
L = LOW voltage level;
↑ = LOW-to-HIGH CP transition;
X = don't care;
q = lower case letter indicates the state of referenced input, one set-up time prior to the LOW-to-HIGH CP transition.

# 8. Limiting values

**Table 5. Limiting values**

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

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | −0.5 | +6.5 | V |
| $I_{IK}$ | input clamping current | $V_I < 0$ V | −50 | - | mA |
| $V_I$ | input voltage | [1] | −0.5 | +6.5 | V |
| $I_{OK}$ | output clamping current | $V_O > V_{CC}$ or $V_O < 0$ V | - | ±50 | mA |
| $V_O$ | output voltage | Active mode [1][2] | −0.5 | $V_{CC}$ + 0.5 | V |
| | | Power-down mode [1][2] | −0.5 | +6.5 | V |
| $I_O$ | output current | $V_O$ = 0 V to $V_{CC}$ | - | ±50 | mA |
| $I_{CC}$ | supply current | | - | 100 | mA |
| $I_{GND}$ | ground current | | −100 | - | mA |
| $P_{tot}$ | total power dissipation | $T_{amb}$ = −40 °C to +125 °C [3] | - | 250 | mW |
| $T_{stg}$ | storage temperature | | −65 | +150 | °C |

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

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

[3] For TSSOP5 and SC-74A packages: above 87.5 °C the value of $P_{tot}$ derates linearly with 4.0 mW/K.
For XSON6 and X2SON5 packages: above 118 °C the value of $P_{tot}$ derates linearly with 7.8 mW/K.

# 9. Recommended operating conditions

**Table 6. Recommended operating conditions**

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{CC}$ | supply voltage | | 1.65 | - | 5.5 | V |
| $V_I$ | input voltage | | 0 | - | 5.5 | V |
| $V_O$ | output voltage | Active mode | 0 | - | $V_{CC}$ | V |
| | | $V_{CC}$ = 0 V; Power-down mode | 0 | - | 5.5 | V |
| $T_{amb}$ | ambient temperature | | −40 | - | +125 | °C |
| $\Delta t/\Delta V$ | input transition rise and fall rate | $V_{CC}$ = 1.65 V to 2.7 V | - | - | 20 | ns/V |
| | | $V_{CC}$ = 2.7 V to 5.5 V | - | - | 10 | ns/V |

## 10. Static characteristics

**Table 7. Static characteristics**

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

| Symbol | Parameter | Conditions | Min | Typ[1] | Max | Unit |
|---|---|---|---|---|---|---|
| **$T_{amb}$ = –40 °C to +85 °C** | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | 0.65 × $V_{CC}$ | - | - | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.7 | - | - | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | 2.0 | - | - | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.7 × $V_{CC}$ | - | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | - | - | 0.35 × $V_{CC}$ | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | - | 0.7 | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | - | - | 0.8 | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.3 × $V_{CC}$ | V |
| $V_{OH}$ | HIGH-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $I_O$ = –100 μA; $V_{CC}$ = 1.65 V to 5.5 V | $V_{CC}$ – 0.1 | - | - | V |
| | | $I_O$ = –4 mA; $V_{CC}$ = 1.65 V | 1.2 | - | - | V |
| | | $I_O$ = –8 mA; $V_{CC}$ = 2.3 V | 1.9 | - | - | V |
| | | $I_O$ = –12 mA; $V_{CC}$ = 2.7 V | 2.2 | - | - | V |
| | | $I_O$ = –24 mA; $V_{CC}$ = 3.0 V | 2.3 | - | - | V |
| | | $I_O$ = –32 mA; $V_{CC}$ = 4.5 V | 3.8 | - | - | V |
| $V_{OL}$ | LOW-level output voltage | $V_I$ = $V_{IH}$ or $V_{IL}$ | | | | |
| | | $I_O$ = 100 μA; $V_{CC}$ = 1.65 V to 5.5 V | - | - | 0.1 | V |
| | | $I_O$ = 4 mA; $V_{CC}$ = 1.65 V | - | - | 0.45 | V |
| | | $I_O$ = 8 mA; $V_{CC}$ = 2.3 V | - | - | 0.3 | V |
| | | $I_O$ = 12 mA; $V_{CC}$ = 2.7 V | - | - | 0.4 | V |
| | | $I_O$ = 24 mA; $V_{CC}$ = 3.0 V | - | - | 0.55 | V |
| | | $I_O$ = 32 mA; $V_{CC}$ = 4.5 V | - | - | 0.55 | V |
| $I_I$ | input leakage current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 0 V to 5.5 V | - | ±0.1 | ±1 | μA |
| $I_{OFF}$ | power-off leakage current | $V_{CC}$ = 0 V; $V_I$ or $V_O$ = 5.5 V | - | ±0.1 | ±2 | μA |
| $I_{CC}$ | supply current | $V_I$ = 5.5 V or GND; $V_{CC}$ = 1.65 V to 5.5 V; $I_O$ = 0 A | - | 0.1 | 4 | μA |
| $\Delta I_{CC}$ | additional supply current | per pin; $V_{CC}$ = 2.3 V to 5.5 V; $V_I$ = $V_{CC}$ – 0.6 V; $I_O$ = 0 A | - | 5 | 500 | μA |
| $C_I$ | input capacitance | $V_{CC}$ = 3.3 V; $V_I$ = GND to $V_{CC}$ | - | 5 | - | pF |
| **$T_{amb}$ = –40 °C to +125 °C** | | | | | | |
| $V_{IH}$ | HIGH-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | 0.65 × $V_{CC}$ | - | - | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 1.7 | - | - | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | 2.0 | - | - | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 0.7 × $V_{CC}$ | - | - | V |
| $V_{IL}$ | LOW-level input voltage | $V_{CC}$ = 1.65 V to 1.95 V | - | - | 0.35 × $V_{CC}$ | V |
| | | $V_{CC}$ = 2.3 V to 2.7 V | - | - | 0.7 | V |
| | | $V_{CC}$ = 2.7 V to 3.6 V | - | - | 0.8 | V |
| | | $V_{CC}$ = 4.5 V to 5.5 V | - | - | 0.3 × $V_{CC}$ | V |

**Table 7. Static characteristics** *…continued*

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

| Symbol | Parameter | Conditions | Min | Typ[1] | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{OH}$ | HIGH-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | |
| | | $I_O = -100\ \mu A$; $V_{CC} = 1.65\ V$ to $5.5\ V$ | $V_{CC} - 0.1$ | - | - | V |
| | | $I_O = -4\ mA$; $V_{CC} = 1.65\ V$ | 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 |
| $V_{OL}$ | LOW-level output voltage | $V_I = V_{IH}$ or $V_{IL}$ | | | | |
| | | $I_O = 100\ \mu A$; $V_{CC} = 1.65\ V$ to $5.5\ V$ | - | - | 0.1 | V |
| | | $I_O = 4\ mA$; $V_{CC} = 1.65\ V$ | - | - | 0.70 | V |
| | | $I_O = 8\ mA$; $V_{CC} = 2.3\ V$ | - | - | 0.45 | V |
| | | $I_O = 12\ mA$; $V_{CC} = 2.7\ V$ | - | - | 0.60 | V |
| | | $I_O = 24\ mA$; $V_{CC} = 3.0\ V$ | - | - | 0.80 | V |
| | | $I_O = 32\ mA$; $V_{CC} = 4.5\ V$ | - | - | 0.80 | V |
| $I_I$ | input leakage current | $V_I = 5.5\ V$ or GND; $V_{CC} = 0\ V$ to $5.5\ V$ | - | - | ±1 | μA |
| $I_{OFF}$ | power-off leakage current | $V_{CC} = 0\ V$; $V_I$ or $V_O = 5.5\ V$ | - | - | ±2 | μA |
| $I_{CC}$ | supply current | $V_I = 5.5\ V$ or GND; $V_{CC} = 1.65\ V$ to $5.5\ V$; $I_O = 0\ A$ | - | - | 4 | μA |
| $\Delta I_{CC}$ | additional supply current | per pin; $V_{CC} = 2.3\ V$ to $5.5\ V$; $V_I = V_{CC} - 0.6\ V$; $I_O = 0\ A$ | - | - | 500 | μA |

[1] All typical values are measured at $V_{CC} = 3.3\ V$ and $T_{amb} = 25\ °C$.

## 11. Dynamic characteristics

**Table 8. Dynamic characteristics**

*Voltages are referenced to GND (ground = 0 V). For test circuit see Figure 10.*

| Symbol | Parameter | Conditions | –40 °C to +85 °C | | | –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $t_{pd}$ | propagation delay | CP to Q; see Figure 8 [2] | | | | | | |
| | | $V_{CC} = 1.65\ V$ to $1.95\ V$ | 1.0 | 3.6 | 9.9 | 1.0 | 12.5 | ns |
| | | $V_{CC} = 2.3\ V$ to $2.7\ V$ | 0.5 | 2.3 | 7.0 | 0.5 | 9.0 | ns |
| | | $V_{CC} = 2.7\ V$ | 0.5 | 2.6 | 6.0 | 0.5 | 8.0 | ns |
| | | $V_{CC} = 3.0\ V$ to $3.6\ V$ | 0.5 | 2.2 | 5.0 | 0.5 | 6.5 | ns |
| | | $V_{CC} = 4.5\ V$ to $5.5\ V$ | 0.5 | 1.7 | 3.8 | 0.5 | 5.0 | ns |
| $t_{su}$ | set-up time | D to CP; see Figure 9 | | | | | | |
| | | $V_{CC} = 1.65\ V$ to $1.95\ V$ | 2.5 | 1.4 | - | 2.5 | - | ns |
| | | $V_{CC} = 2.3\ V$ to $2.7\ V$ | 1.7 | 0.9 | - | 1.7 | - | ns |
| | | $V_{CC} = 2.7\ V$ | 1.7 | 0.9 | - | 1.7 | - | ns |
| | | $V_{CC} = 3.0\ V$ to $3.6\ V$ | 1.3 | 0.6 | - | 1.2 | - | ns |
| | | $V_{CC} = 4.5\ V$ to $5.5\ V$ | 1.2 | 0.6 | - | 1.2 | - | ns |

**Table 8. Dynamic characteristics** *...continued*

*Voltages are referenced to GND (ground = 0 V). For test circuit see Figure 10.*

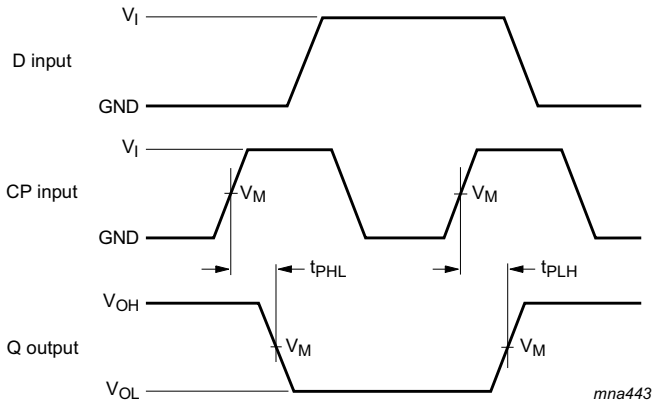
| Symbol | Parameter | Conditions | –40 °C to +85 °C | | | –40 °C to +125 °C | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | Min | Typ[1] | Max | Min | Max | |
| $t_h$ | hold time | D to CP; see Figure 9 | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 0 | –0.7 | - | 0 | - | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 0 | –0.4 | - | 0 | - | ns |
| | | $V_{CC}$ = 2.7 V | +0.5 | –0.3 | - | 0.5 | - | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | +0.5 | –0.3 | - | 0.5 | - | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | +0.5 | –0.2 | - | 0.5 | - | ns |
| $t_W$ | pulse width | CP HIGH or LOW; see Figure 9 | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 3.0 | 1.1 | - | 3.0 | - | ns |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 2.5 | 0.7 | - | 2.5 | - | ns |
| | | $V_{CC}$ = 2.7 V | 2.5 | 0.6 | - | 2.5 | - | ns |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 2.5 | 0.6 | - | 2.5 | - | ns |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 2.0 | 0.5 | - | 2.0 | - | ns |
| $f_{max}$ | maximum frequency | CP; see Figure 9 | | | | | | |
| | | $V_{CC}$ = 1.65 V to 1.95 V | 160 | 250 | - | 160 | - | MHz |
| | | $V_{CC}$ = 2.3 V to 2.7 V | 160 | 300 | - | 160 | - | MHz |
| | | $V_{CC}$ = 2.7 V | 160 | 350 | - | 160 | - | MHz |
| | | $V_{CC}$ = 3.0 V to 3.6 V | 160 | 450 | - | 160 | - | MHz |
| | | $V_{CC}$ = 4.5 V to 5.5 V | 200 | 500 | - | 200 | - | MHz |
| $C_{PD}$ | power dissipation capacitance | $V_I$ = GND to $V_{CC}$; $V_{CC}$ = 3.3 V [3] | - | 17 | - | - | - | pF |

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

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

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

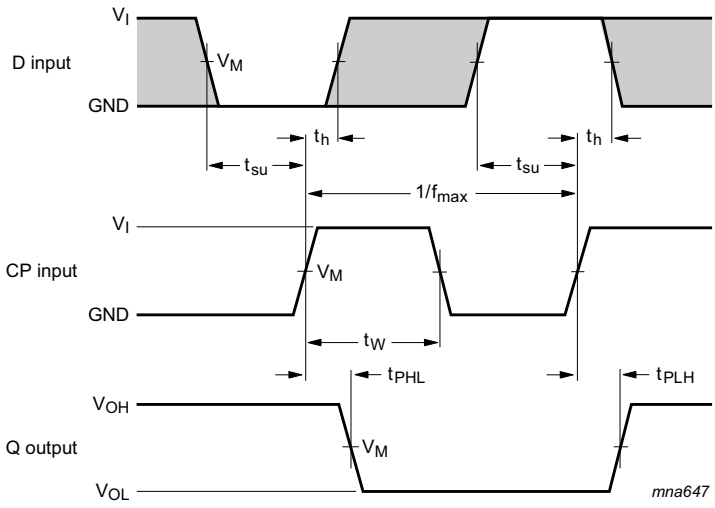
## 12. Waveforms




Measurement points are given in Table 9.

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

**Fig 8. Clock (CP) to output (Q) propagation delay times**



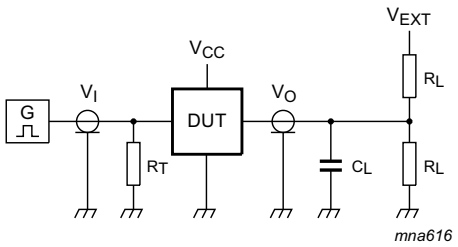

Measurement points are given in Table 9.

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

**Fig 9. Clock (CP) to output (Q) propagation delay times, clock pulse width, D to set-up times, the CP to D hold times and maximum clock pulse frequency**

**Table 9. 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 10.

Definitions for test circuit:

$R_L$ = Load resistance.

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

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

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

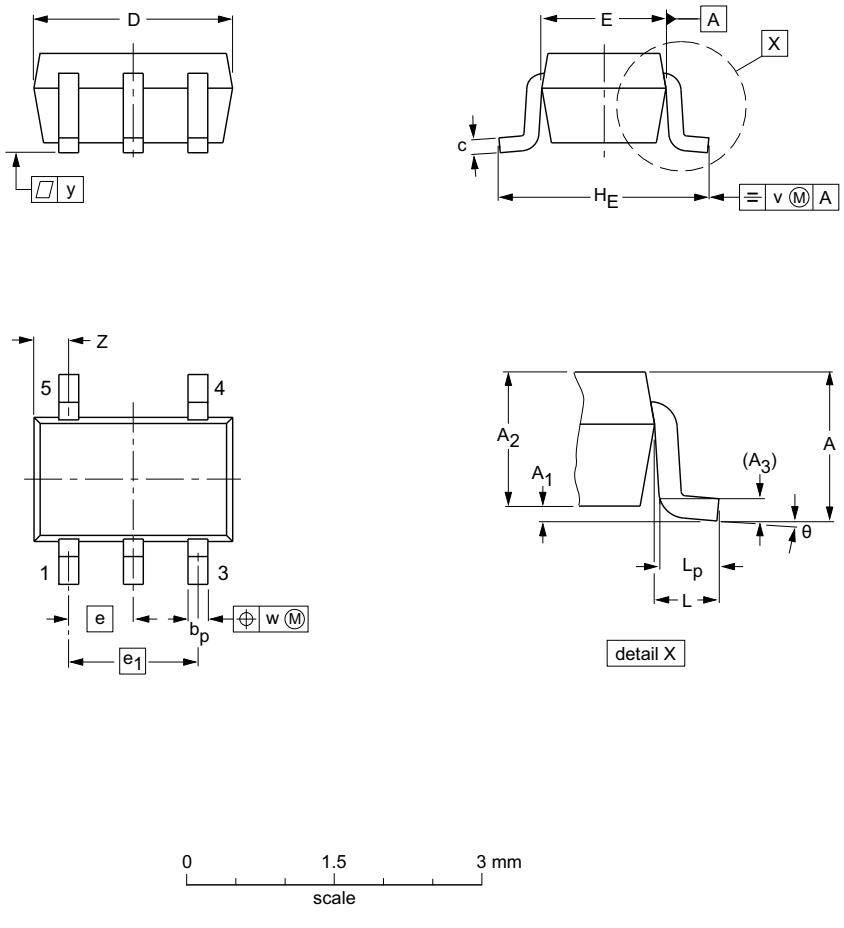
**Fig 10. Test circuit for measuring switching times**

**Table 10. Test data**

| Supply voltage | Input | | Load | | $V_{EXT}$ |
|---|---|---|---|---|---|
| $V_{CC}$ | $V_I$ | $t_r = t_f$ | $C_L$ | $R_L$ | $t_{PLH}$, $t_{PHL}$ |
| 1.65 V to 1.95 V | $V_{CC}$ | ≤ 2.0 ns | 30 pF | 1 kΩ | open |
| 2.3 V to 2.7 V | $V_{CC}$ | ≤ 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 | $V_{CC}$ | ≤ 2.5 ns | 50 pF | 500 Ω | open |

## 13. Package outline

**TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mm** **SOT353-1**




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

| UNIT | A max. | $A_1$ | $A_2$ | $A_3$ | $b_p$ | c | $D^{(1)}$ | $E^{(1)}$ | e | $e_1$ | $H_E$ | L | $L_p$ | v | w | y | $Z^{(1)}$ | θ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1 | 0.1<br>0 | 1.0<br>0.8 | 0.15 | 0.30<br>0.15 | 0.25<br>0.08 | 2.25<br>1.85 | 1.35<br>1.15 | 0.65 | 1.3 | 2.25<br>2.0 | 0.425 | 0.46<br>0.21 | 0.3 | 0.1 | 0.1 | 0.60<br>0.15 | 7°<br>0° |

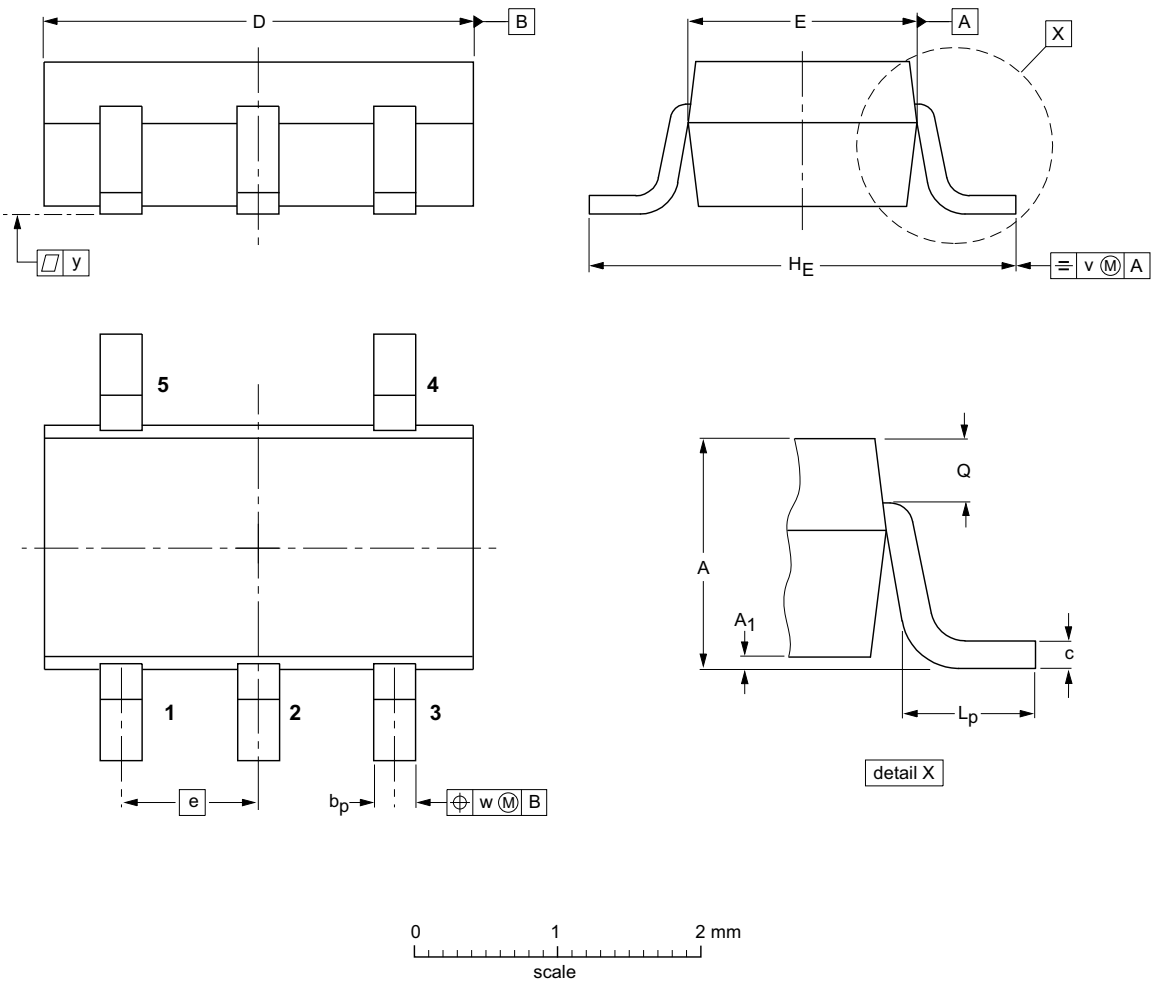
**Note**

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

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

**Fig 11. Package outline SOT353-1 (TSSOP5)**

**Plastic surface-mounted package; 5 leads** **SOT753**



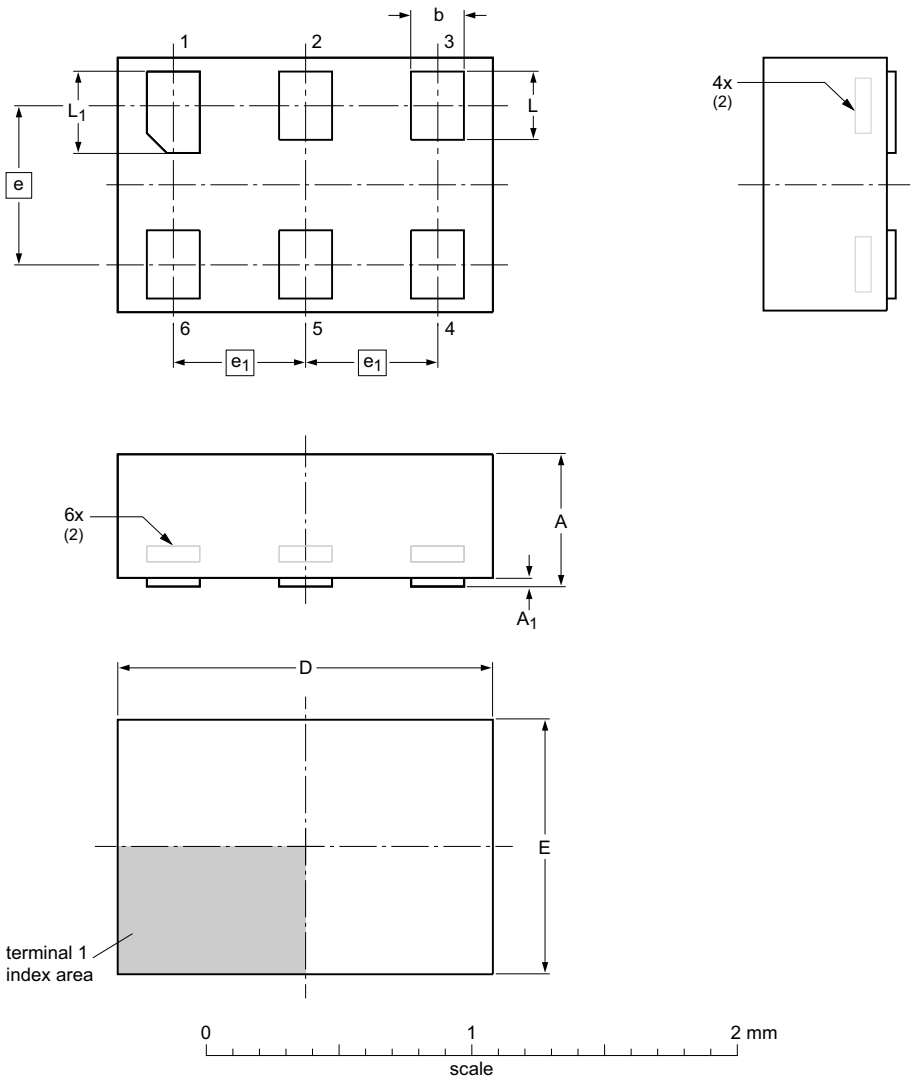

**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ | $b_p$ | c | D | E | e | $H_E$ | $L_p$ | Q | v | w | y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | 1.1<br>0.9 | 0.100<br>0.013 | 0.40<br>0.25 | 0.26<br>0.10 | 3.1<br>2.7 | 1.7<br>1.3 | 0.95 | 3.0<br>2.5 | 0.6<br>0.2 | 0.33<br>0.23 | 0.2 | 0.2 | 0.1 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | JEITA | | | |
| SOT753 | | | SC-74A | | | ~~02-04-16~~<br>06-03-16 |

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

XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm SOT886




Dimensions (mm are the original dimensions)

| Unit | | A(1) | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.5 | 0.04 | 0.25 | 1.50 | 1.05 | | | 0.35 | 0.40 |
| | nom | | | 0.20 | 1.45 | 1.00 | 0.6 | 0.5 | 0.30 | 0.35 |
| | min | | | 0.17 | 1.40 | 0.95 | | | 0.27 | 0.32 |

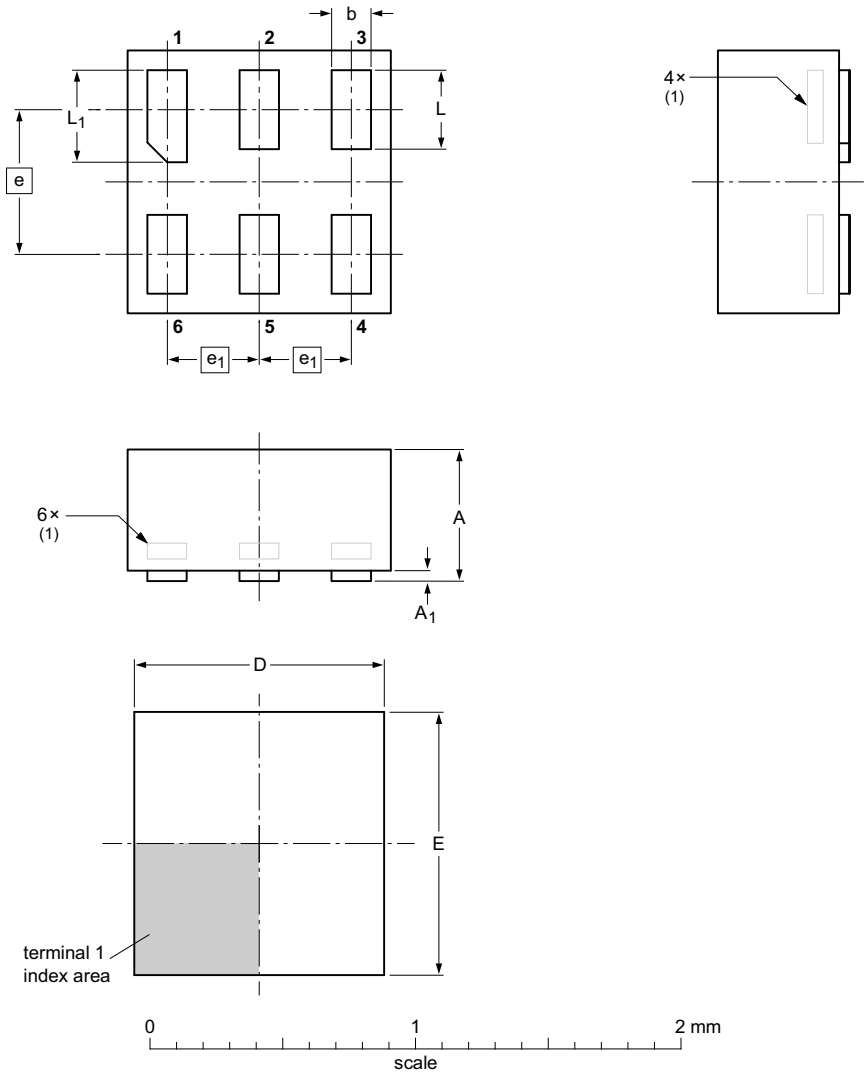
Notes
1. Including plating thickness.
2. Can be visible in some manufacturing processes.

*sot886_po*

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

**Fig 13. Package outline SOT886 (XSON6)**

**XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1 x 0.5 mm** **SOT891**




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

| UNIT | A max | $A_1$ max | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|
| mm | 0.5 | 0.04 | 0.20<br>0.12 | 1.05<br>0.95 | 1.05<br>0.95 | 0.55 | 0.35 | 0.35<br>0.27 | 0.40<br>0.32 |

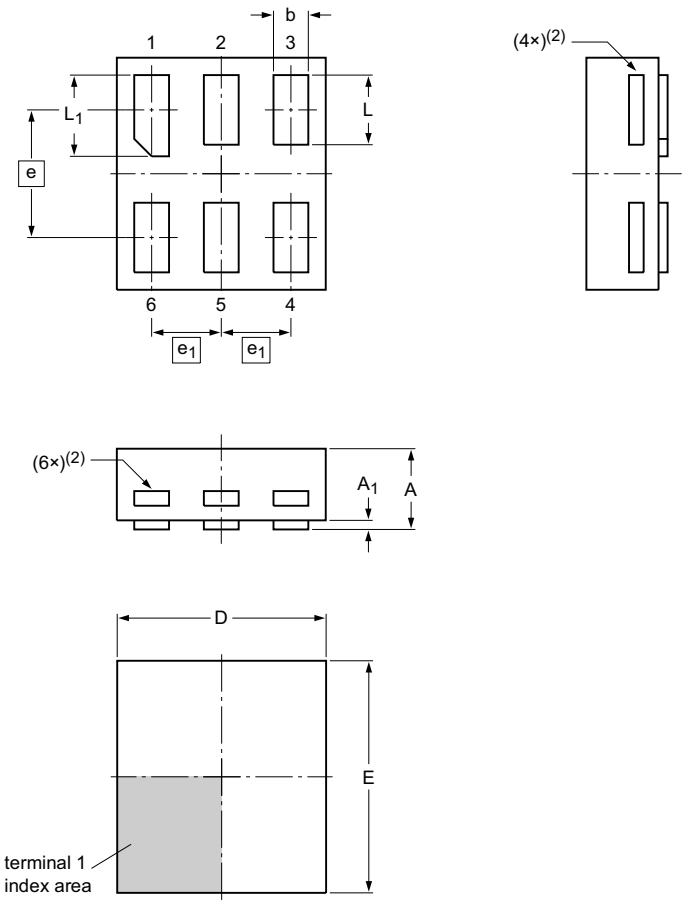
**Note**

1. Can be visible in some manufacturing processes.

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

**Fig 14. Package outline SOT891 (XSON6)**

**XSON6: extremely thin small outline package; no leads;**
**6 terminals; body 0.9 x 1.0 x 0.35 mm** **SOT1115**




Dimensions

| Unit | | $A^{(1)}$ | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.20 | 0.95 | 1.05 | | | 0.35 | 0.40 |
| | nom | | | 0.15 | 0.90 | 1.00 | 0.55 | 0.3 | 0.30 | 0.35 |
| | min | | | 0.12 | 0.85 | 0.95 | | | 0.27 | 0.32 |

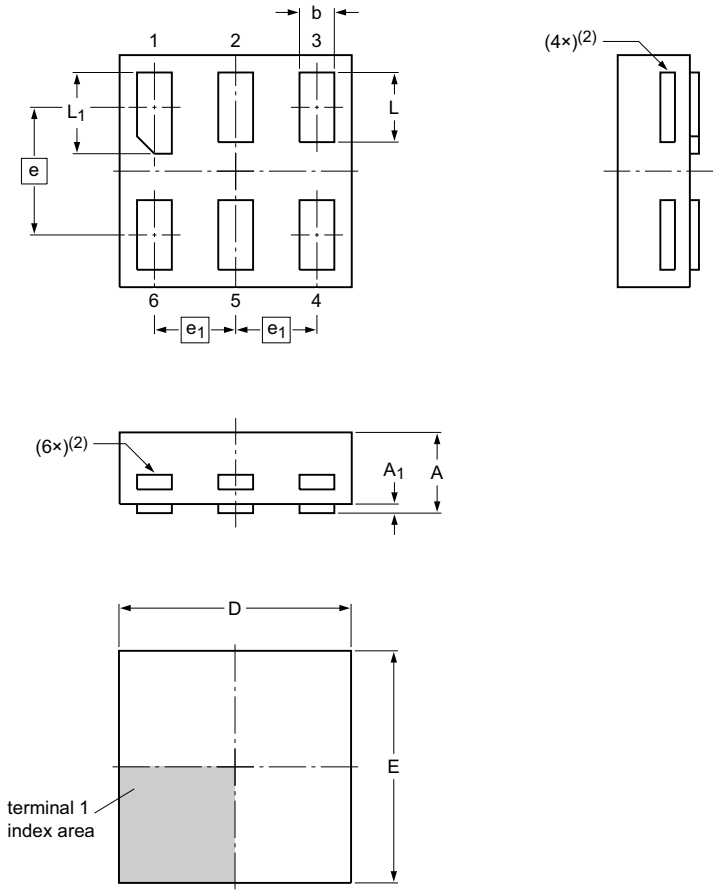
Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1115_po*

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

**Fig 15. Package outline SOT1115 (XSON6)**

**XSON6: extremely thin small outline package; no leads;**
**6 terminals; body 1.0 x 1.0 x 0.35 mm** **SOT1202**




Dimensions

| Unit | | $A^{(1)}$ | $A_1$ | b | D | E | e | $e_1$ | L | $L_1$ |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.20 | 1.05 | 1.05 | | | 0.35 | 0.40 |
| | nom | | | 0.15 | 1.00 | 1.00 | 0.55 | 0.35 | 0.30 | 0.35 |
| | min | | | 0.12 | 0.95 | 0.95 | | | 0.27 | 0.32 |

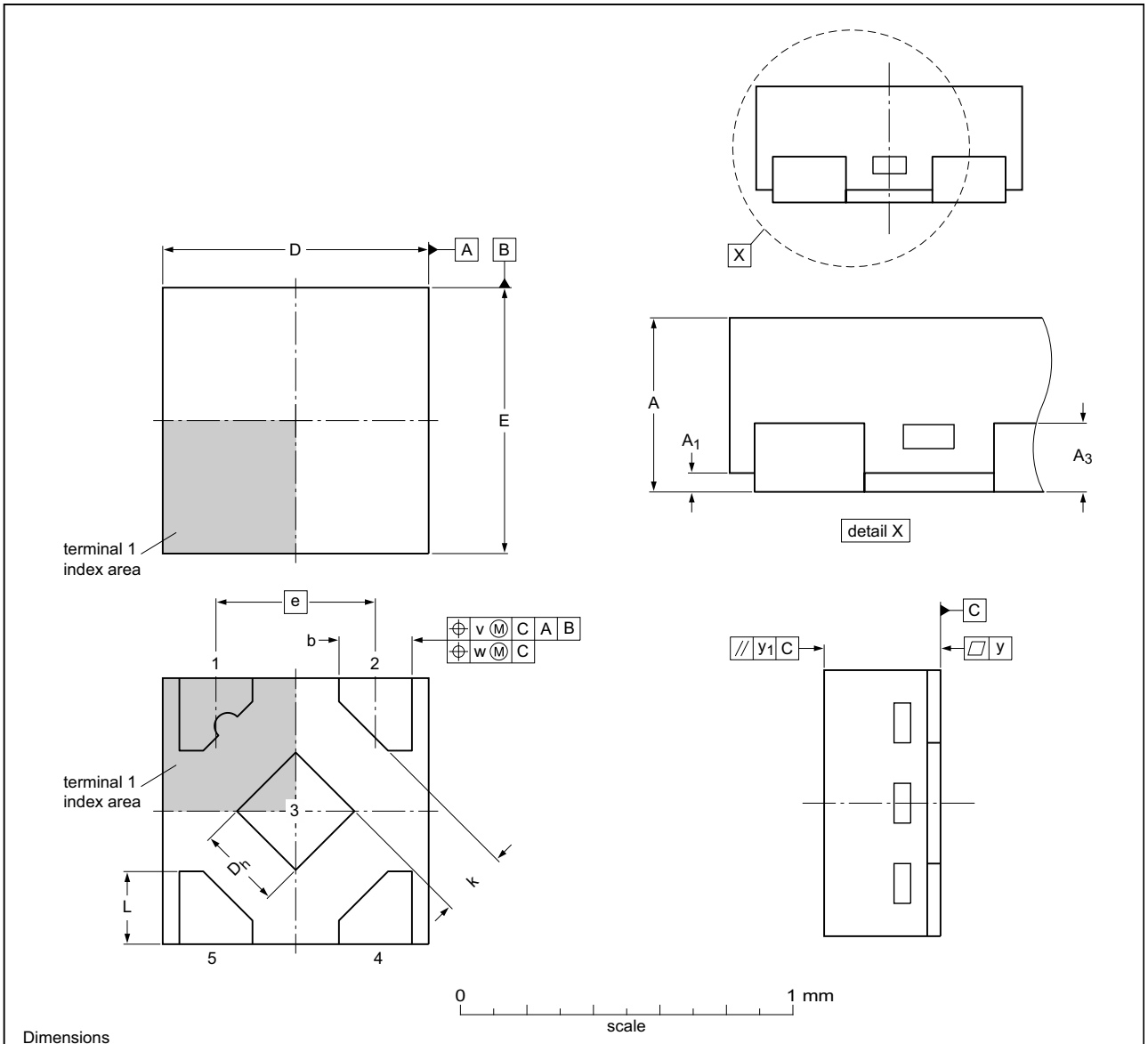
Note
1. Including plating thickness.
2. Visible depending upon used manufacturing technology.

*sot1202_po*

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

**Fig 16. Package outline SOT1202 (XSON6)**

**X2SON5: plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 x 0.8 x 0.35 mm** **SOT1226**




Dimensions

| Unit | | A(1) | A1 | A3 | D | Dh | E | b | e | k | L | v | w | y | y1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | max | 0.35 | 0.04 | 0.128 | 0.85 | 0.30 | 0.85 | 0.27 | | | 0.27 | | | | |
| | nom | | | | 0.80 | 0.25 | 0.80 | 0.22 | 0.48 | | 0.22 | 0.1 | 0.05 | 0.05 | 0.05 |
| | min | | | 0.040 | 0.75 | 0.20 | 0.75 | 0.17 | | 0.20 | 0.17 | | | | |

Note
1. Dimension A is including plating thickness.
2. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

*sot1226_po*

| Outline version | References | | | | European projection | Issue date |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | EIAJ | | | |
| SOT1226 | | | | | | ~~12-04-10~~ 12-04-25 |

**Fig 17. Package outline SOT1226 (X2SON5)**

## 14. Abbreviations

**Table 11. Abbreviations**

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

## 15. Revision history

**Table 12. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| 74LVC1G79 v.12 | 20161205 | Product data sheet | - | 74LVC1G79 v.11 |
| Modifications: | • Table 7: The maximum limits for leakage current and supply current have changed. | | | |
| 74LVC1G79 v.11 | 20120702 | Product data sheet | - | 74LVC1G79 v.10 |
| Modifications: | • Added type number 74LVC1G79GX (SOT1226) | | | |
| 74LVC1G79 v.10 | 20120402 | Product data sheet | - | 74LVC1G79 v.9 |
| Modifications: | • Errata in tabel 3 corrected (description CP input). | | | |
| 74LVC1G79 v.9 | 20111202 | Product data sheet | - | 74LVC1G79 v.8 |
| Modifications: | • Legal pages updated. | | | |
| 74LVC1G79 v.8 | 20100930 | Product data sheet | - | 74LVC1G79 v.7 |
| 74LVC1G79 v.7 | 20070829 | Product data sheet | - | 74LVC1G79 v.6 |
| 74LVC1G79 v.6 | 20061009 | Product data sheet | - | 74LVC1G79 v.5 |
| 74LVC1G79 v.5 | 20040910 | Product specification | - | 74LVC1G79 v.4 |
| 74LVC1G79 v.4 | 20040317 | Product specification | - | 74LVC1G79 v.3 |
| 74LVC1G79 v.3 | 20030516 | Product specification | - | 74LVC1G79 v.2 |
| 74LVC1G79 v.2 | 20030130 | Product specification | - | 74LVC1G79 v.1 |
| 74LVC1G79 v.1 | 20010404 | Product specification | - | - |

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## 16.1 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".

[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.nexperia.com.

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## 18. Contents





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