

# 74AUP1T58

Low-power configurable gate with voltage-level translator

Rev. 8 — 26 July 2023

Product data sheet

## 1. General description

The 74AUP1T58 is a configurable multiple function gate with level translating, 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. Low threshold Schmitt trigger inputs allow these devices to be driven by 1.8 V logic levels in 3.3 V applications.

This device ensures very low static and dynamic power consumption across the entire  $V_{CC}$  range from 2.3 V to 3.6 V. 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

- Wide supply voltage range from 2.3 V to 3.6 V
- High noise immunity
- Low static power consumption;  $I_{CC} = 1.5 \mu A$  (maximum)
- Latch-up performance exceeds 100 mA per JESD 78 Class II Level B
- Overvoltage tolerant inputs to 3.6 V
- Low noise overshoot and undershoot < 10 % of  $V_{CC}$
- $I_{OFF}$  circuitry provides partial power-down mode operation
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 class 3A exceeds 5000 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="#">74AUP1T58GW</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="#">74AUP1T58GM</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="#">74AUP1T58GN</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="#">74AUP1T58GS</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]
74AUP1T58GW	a8
74AUP1T58GM	a8
74AUP1T58GN	a8
74AUP1T58GS	a8

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

5. Functional diagram

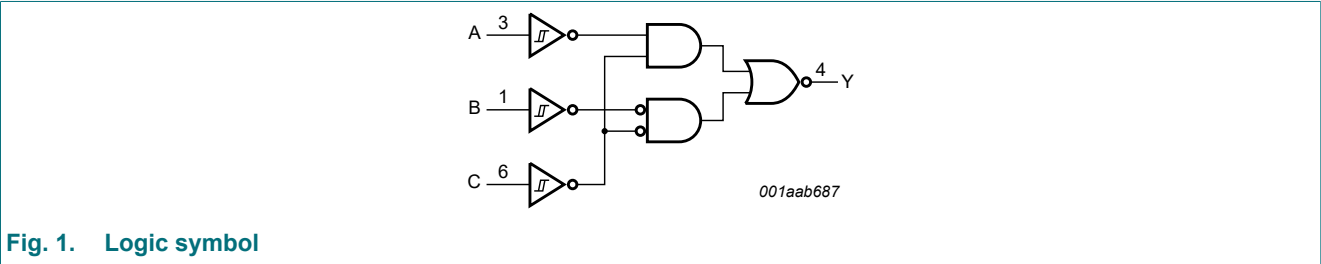
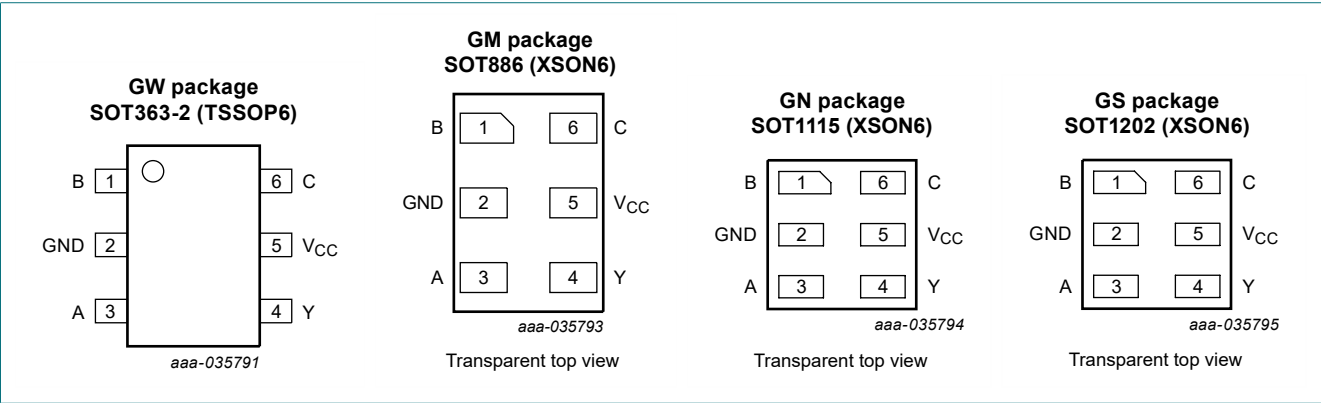


Fig. 1. Logic symbol

6. Pinning information

6.1. Pinning



6.2. Pin description

Table 3. Pin description

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

7. Functional description

Table 4. Function table

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

Input			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

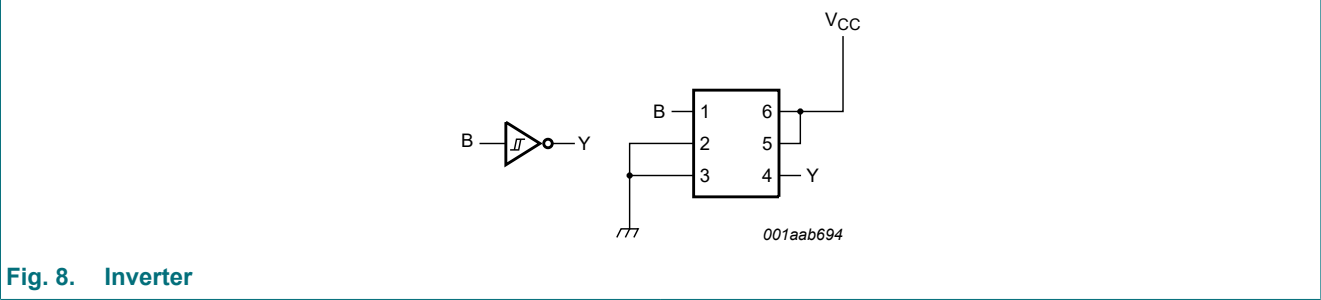
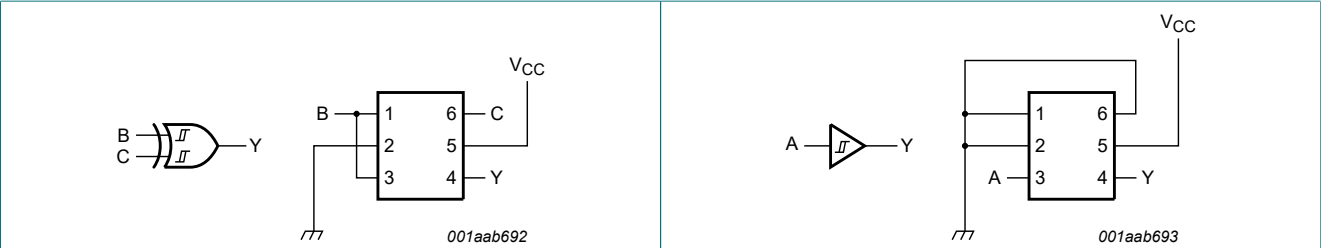
Logic function	Figure
2-input NAND	see Fig. 2
2-input NAND with both inputs inverted	see Fig. 5
2-input AND with inverted input	see Fig. 3 and Fig. 4
2-input NOR with inverted input	see Fig. 3 and Fig. 4
2-input OR	see Fig. 5
2-input OR with both inputs inverted	see Fig. 2
2-input XOR	see Fig. 6
Buffer	see Fig. 7
Inverter	see Fig. 8

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

**Fig. 3.** 2-input AND gate with input B inverted or 2-input NOR gate with inverted C input

**Fig. 4.** 2-input AND gate with input C inverted or 2-input NOR gate with inverted A input

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



8. Limiting values

Table 6. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CC}$	supply voltage		-0.5	+4.6	V
$I_{IK}$	input clamping current	$V_I < 0\text{ V}$	-50	-	mA
$V_I$	input voltage	[1]	-0.5	+4.6	V
$I_{OK}$	output clamping current	$V_O < 0\text{ V}$	-50	-	mA
$V_O$	output voltage	Active mode and Power-down mode [1]	-0.5	+4.6	V
$I_O$	output current	$V_O = 0\text{ V to }V_{CC}$	-	$\pm 20$	mA
$I_{CC}$	supply current		-	50	mA
$I_{GND}$	ground current		-50	-	mA
$T_{stg}$	storage temperature		-65	+150	°C
$P_{tot}$	total power dissipation	$T_{amb} = -40\text{ °C to }+125\text{ °C}$ [2]	-	250	mW

[1] The minimum input and output voltage ratings may be exceeded if the input and output current ratings are observed.  
[2] For SOT363-2 (TSSOP6) package:  $P_{tot}$  derates linearly with 3.7 mW/K above 83 °C.  
For SOT886 (XSON6) package:  $P_{tot}$  derates linearly with 3.3 mW/K above 74 °C.  
For SOT1115 (XSON6) package:  $P_{tot}$  derates linearly with 3.2 mW/K above 71 °C.  
For SOT1202 (XSON6) package:  $P_{tot}$  derates linearly with 3.3 mW/K above 74 °C.

9. Recommended operating conditions

Table 7. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CC}$	supply voltage		2.3	3.6	V
$V_I$	input voltage		0	3.6	V
$V_O$	output voltage	Active mode	0	$V_{CC}$	V
		Power-down mode; $V_{CC} = 0\text{ V}$	0	3.6	V
$T_{amb}$	ambient temperature		-40	+125	°C

## 10. Static characteristics

**Table 8. Static characteristics**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>T<sub>amb</sub> = 25 °C</b>						
V <sub>T+</sub>	positive-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.16	V
V <sub>T-</sub>	negative-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.35	-	0.60	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.50	-	0.85	V
V <sub>H</sub>	hysteresis voltage	(V <sub>H</sub> = V <sub>T+</sub> - V <sub>T-</sub> )				
		V <sub>CC</sub> = 2.3 V to 2.7 V	0.23	-	0.60	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.25	-	0.56	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> = -20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -2.3 mA; V <sub>CC</sub> = 2.3 V	2.05	-	-	V
		I <sub>O</sub> = -3.1 mA; V <sub>CC</sub> = 2.3 V	1.9	-	-	V
		I <sub>O</sub> = -2.7 mA; V <sub>CC</sub> = 3.0 V	2.72	-	-	V
		I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 3.0 V	2.6	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	0.10	V
		I <sub>O</sub> = 2.3 mA; V <sub>CC</sub> = 2.3 V	-	-	0.31	V
		I <sub>O</sub> = 3.1 mA; V <sub>CC</sub> = 2.3 V	-	-	0.44	V
		I <sub>O</sub> = 2.7 mA; V <sub>CC</sub> = 3.0 V	-	-	0.31	V
		I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 3.0 V	-	-	0.44	V
I <sub>I</sub>	input leakage current	V <sub>I</sub> = GND to 3.6 V; V <sub>CC</sub> = 0 V to 3.6 V	-	-	±0.1	µA
I <sub>OFF</sub>	power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V	-	-	±0.1	µA
ΔI <sub>OFF</sub>	additional power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V to 0.2 V	-	-	±0.2	µA
I <sub>CC</sub>	supply current	V <sub>I</sub> = GND or V <sub>CC</sub> ; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	1.2	µA
C <sub>I</sub>	input capacitance	V <sub>CC</sub> = 0 V to 3.6 V; V <sub>I</sub> = GND or V <sub>CC</sub>	-	0.8	-	pF
C <sub>O</sub>	output capacitance	V <sub>O</sub> = GND; V <sub>CC</sub> = 0 V	-	1.7	-	pF

## Low-power configurable gate with voltage-level translator

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>T<sub>amb</sub> = -40 °C to +85 °C</b>						
V <sub>T+</sub>	positive-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.19	V
V <sub>T-</sub>	negative-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.35	-	0.60	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.50	-	0.85	V
V <sub>H</sub>	hysteresis voltage	(V <sub>H</sub> = V <sub>T+</sub> - V <sub>T-</sub> )				
		V <sub>CC</sub> = 2.3 V to 2.7 V	0.10	-	0.60	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.15	-	0.56	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> = -20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -2.3 mA; V <sub>CC</sub> = 2.3 V	1.97	-	-	V
		I <sub>O</sub> = -3.1 mA; V <sub>CC</sub> = 2.3 V	1.85	-	-	V
		I <sub>O</sub> = -2.7 mA; V <sub>CC</sub> = 3.0 V	2.67	-	-	V
		I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 3.0 V	2.55	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	0.1	V
		I <sub>O</sub> = 2.3 mA; V <sub>CC</sub> = 2.3 V	-	-	0.33	V
		I <sub>O</sub> = 3.1 mA; V <sub>CC</sub> = 2.3 V	-	-	0.45	V
		I <sub>O</sub> = 2.7 mA; V <sub>CC</sub> = 3.0 V	-	-	0.33	V
		I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 3.0 V	-	-	0.45	V
I <sub>I</sub>	input leakage current	V <sub>I</sub> = GND to 3.6 V; V <sub>CC</sub> = 0 V to 3.6 V	-	-	±0.5	µA
I <sub>OFF</sub>	power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V	-	-	±0.5	µA
ΔI <sub>OFF</sub>	additional power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V to 0.2 V	-	-	±0.5	µA
I <sub>CC</sub>	supply current	V <sub>I</sub> = GND or V <sub>CC</sub> ; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	1.5	µA
ΔI <sub>CC</sub>	additional supply current	V <sub>CC</sub> = 2.3 V to 2.7 V; I <sub>O</sub> = 0 A [1]	-	-	4	µA
		V <sub>CC</sub> = 3.0 V to 3.6 V; I <sub>O</sub> = 0 A [2]	-	-	12	µA

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>T<sub>amb</sub> = -40 °C to +125 °C</b>						
V <sub>T+</sub>	positive-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.19	V
V <sub>T-</sub>	negative-going threshold voltage	V <sub>CC</sub> = 2.3 V to 2.7 V	0.33	-	0.64	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.46	-	0.85	V
V <sub>H</sub>	hysteresis voltage	(V <sub>H</sub> = V <sub>T+</sub> - V <sub>T-</sub> )				
		V <sub>CC</sub> = 2.3 V to 2.7 V	0.10	-	0.60	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	0.15	-	0.56	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> = -20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	V <sub>CC</sub> - 0.11	-	-	V
		I <sub>O</sub> = -2.3 mA; V <sub>CC</sub> = 2.3 V	1.77	-	-	V
		I <sub>O</sub> = -3.1 mA; V <sub>CC</sub> = 2.3 V	1.67	-	-	V
		I <sub>O</sub> = -2.7 mA; V <sub>CC</sub> = 3.0 V	2.40	-	-	V
		I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 3.0 V	2.30	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = 20 µA; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	0.11	V
		I <sub>O</sub> = 2.3 mA; V <sub>CC</sub> = 2.3 V	-	-	0.36	V
		I <sub>O</sub> = 3.1 mA; V <sub>CC</sub> = 2.3 V	-	-	0.50	V
		I <sub>O</sub> = 2.7 mA; V <sub>CC</sub> = 3.0 V	-	-	0.36	V
		I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 3.0 V	-	-	0.50	V
I <sub>I</sub>	input leakage current	V <sub>I</sub> = GND to 3.6 V; V <sub>CC</sub> = 0 V to 3.6 V	-	-	±0.75	µA
I <sub>OFF</sub>	power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V	-	-	±0.75	µA
ΔI <sub>OFF</sub>	additional power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V to 0.2 V	-	-	±0.75	µA
I <sub>CC</sub>	supply current	V <sub>I</sub> = GND or V <sub>CC</sub> ; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 2.3 V to 3.6 V	-	-	3.5	µA
ΔI <sub>CC</sub>	additional supply current	V <sub>CC</sub> = 2.3 V to 2.7 V; I <sub>O</sub> = 0 A [1]	-	-	7	µA
		V <sub>CC</sub> = 3.0 V to 3.6 V; I <sub>O</sub> = 0 A [2]	-	-	22	µA

[1] One input at 0.3 V or 1.1 V, other input at V<sub>CC</sub> or GND.

[2] One input at 0.45 V or 1.2 V, other input at V<sub>CC</sub> or GND.

## 11. Dynamic characteristics

**Table 9. Dynamic characteristics**

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 10.

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ [1]	Max	Min	Max	Min	Max	
V <sub>CC</sub> = 2.3 V to 2.7 V; V <sub>I</sub> = 1.65 V to 1.95 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	2.1	3.6	5.6	0.5	6.8	0.5	7.5	ns
		C <sub>L</sub> = 10 pF	2.6	4.1	6.2	1.0	7.9	1.0	8.7	ns
		C <sub>L</sub> = 15 pF	3.0	4.6	6.8	1.0	8.7	1.0	9.6	ns
		C <sub>L</sub> = 30 pF	4.0	5.8	8.1	1.5	10.8	1.5	11.9	ns
V <sub>CC</sub> = 2.3 V to 2.7 V; V <sub>I</sub> = 2.3 V to 2.7 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	1.7	3.4	5.5	0.5	6.0	0.5	6.6	ns
		C <sub>L</sub> = 10 pF	2.2	4.0	6.2	1.0	7.1	1.0	7.9	ns
		C <sub>L</sub> = 15 pF	2.6	4.5	6.8	1.0	7.9	1.0	8.7	ns
		C <sub>L</sub> = 30 pF	3.5	5.6	8.1	1.5	10.0	1.5	11.0	ns
V <sub>CC</sub> = 2.3 V to 2.7 V; V <sub>I</sub> = 3.0 V to 3.6 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	1.4	3.2	5.1	0.5	5.5	0.5	6.1	ns
		C <sub>L</sub> = 10 pF	1.9	3.7	5.8	1.0	6.5	1.0	7.2	ns
		C <sub>L</sub> = 15 pF	2.2	4.2	6.3	1.0	7.4	1.0	8.2	ns
		C <sub>L</sub> = 30 pF	3.2	5.4	7.7	1.5	9.5	1.5	10.5	ns
V <sub>CC</sub> = 3.0 V to 3.6 V; V <sub>I</sub> = 1.65 V to 1.95 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	2.0	2.9	4.0	0.5	8.0	0.5	8.8	ns
		C <sub>L</sub> = 10 pF	2.4	3.5	4.7	1.0	8.5	1.0	9.4	ns
		C <sub>L</sub> = 15 pF	2.8	3.9	5.3	1.0	9.1	1.0	10.1	ns
		C <sub>L</sub> = 30 pF	3.6	5.1	6.7	1.5	9.8	1.5	10.8	ns
V <sub>CC</sub> = 3.0 V to 3.6 V; V <sub>I</sub> = 2.3 V to 2.7 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	1.6	2.8	4.4	0.5	5.3	0.5	5.9	ns
		C <sub>L</sub> = 10 pF	2.1	3.4	5.1	1.0	6.1	1.0	6.8	ns
		C <sub>L</sub> = 15 pF	2.4	3.9	5.6	1.0	6.8	1.0	7.5	ns
		C <sub>L</sub> = 30 pF	3.4	5.0	7.0	1.5	8.5	1.5	9.4	ns
V <sub>CC</sub> = 3.0 V to 3.6 V; V <sub>I</sub> = 3.0 V to 3.6 V										
t <sub>pd</sub>	propagation delay	A, B, C to Y; see <a href="#">Fig. 9</a> [2]								
		C <sub>L</sub> = 5 pF	1.3	2.8	4.4	0.5	4.7	0.5	5.2	ns
		C <sub>L</sub> = 10 pF	1.7	3.3	5.1	1.0	5.7	1.0	6.3	ns
		C <sub>L</sub> = 15 pF	2.1	3.8	5.7	1.0	6.2	1.0	6.9	ns
		C <sub>L</sub> = 30 pF	3.1	4.9	7.0	1.5	7.8	1.5	8.6	ns



Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ [1]	Max	Min	Max	Min	Max	
T <sub>amb</sub> = 25 °C										
C <sub>PD</sub>	power dissipation capacitance	f <sub>i</sub> = 1 MHz; V <sub>I</sub> = GND to V <sub>CC</sub> [3]								
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	3.6	-	-	-	-	-	pF
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	4.3	-	-	-	-	-	pF

- [1] All typical values are measured at nominal V<sub>CC</sub>.
- [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;  
 $\Sigma(C_L \times V_{CC}^2 \times f_o)$  = sum of the outputs.

11.1. Waveforms and test circuit

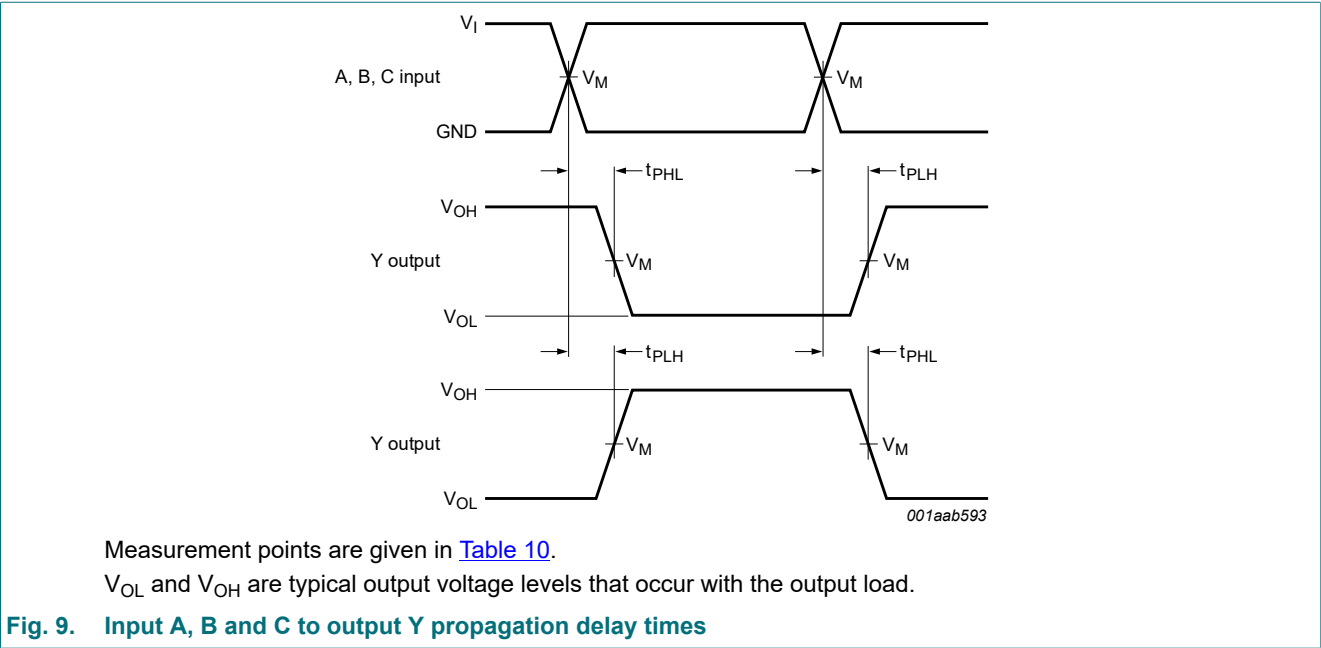
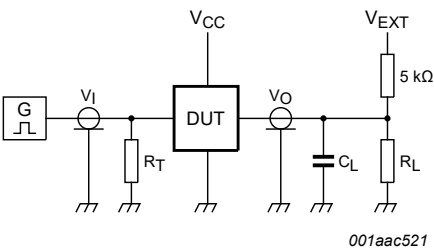


Table 10. Measurement points

Supply voltage	Output	Input		
V <sub>CC</sub>	V <sub>M</sub>	V <sub>M</sub>	V <sub>I</sub>	t <sub>r</sub> = t <sub>f</sub>
2.3 V to 3.6 V	0.5 × V <sub>CC</sub>	0.5 × V <sub>I</sub>	1.65 V to 3.6 V	≤ 3.0 ns



Test data is given in [Table 11](#).  
Definitions for test circuit:  
 $R_L$  = Load resistance;  
 $C_L$  = Load capacitance including jig and probe capacitance;  
 $R_T$  = Termination resistance should be equal to the output impedance  $Z_o$  of the pulse generator;  
 $V_{EXT}$  = External voltage for measuring switching times.

Fig. 10. Test circuit for measuring switching times

Table 11. Test data

Supply voltage	Load		$V_{EXT}$		
$V_{CC}$	$C_L$	$R_L$ [1]	$t_{PLH}$ , $t_{PHL}$	$t_{PZH}$ , $t_{PHZ}$	$t_{PZL}$ , $t_{PLZ}$
2.3 V to 3.6 V	5 pF, 10 pF, 15 pF and 30 pF	5 kΩ or 1 MΩ	open	GND	$2 \times V_{CC}$

[1] For measuring enable and disable times  $R_L = 5\text{ k}\Omega$ .  
For measuring propagation delays, setup and hold times and pulse width  $R_L = 1\text{ M}\Omega$ .

12. Package outline

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

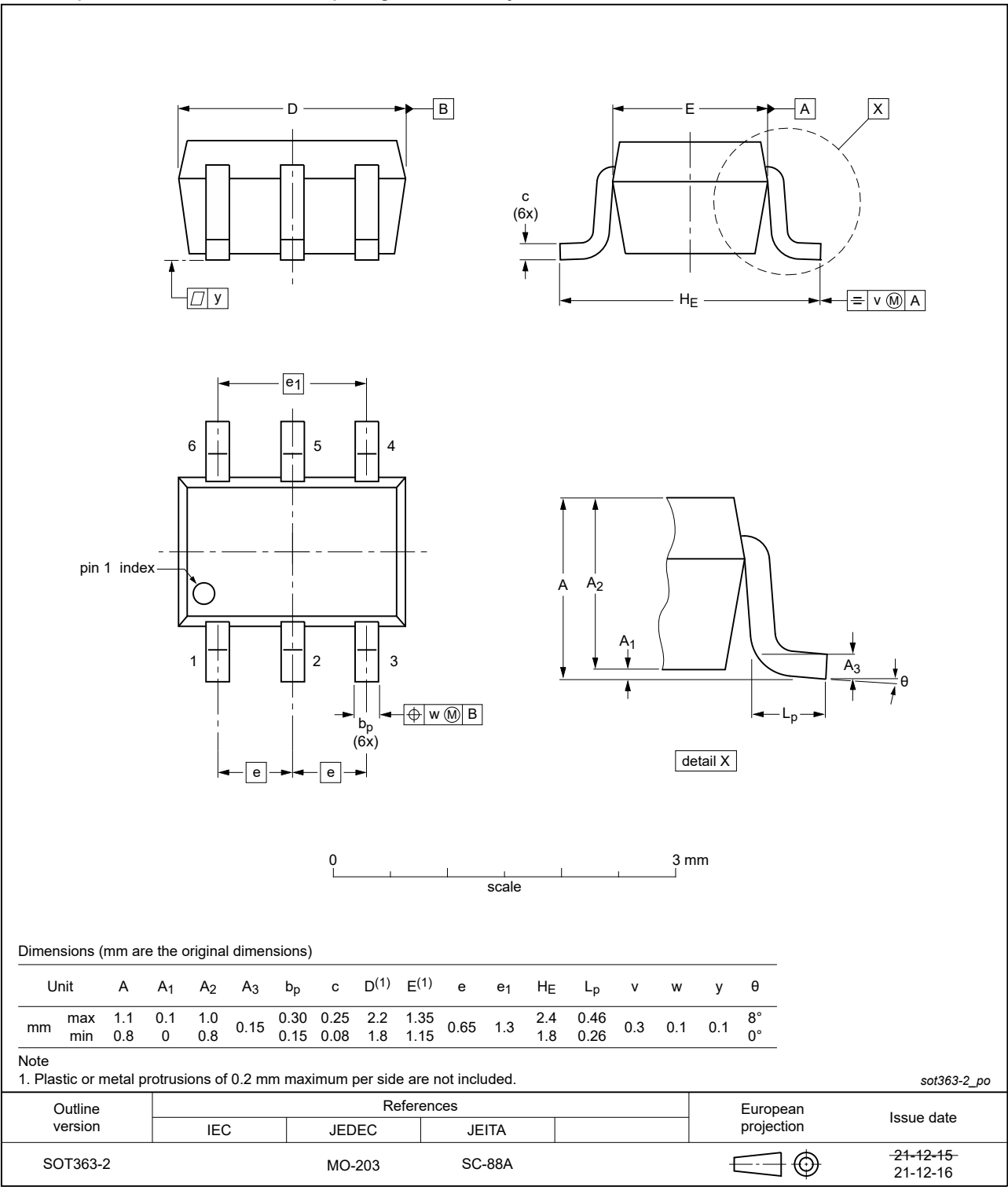


Fig. 11. Package outline SOT363-2 (TSSOP6)

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

SOT886



Fig. 12. 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

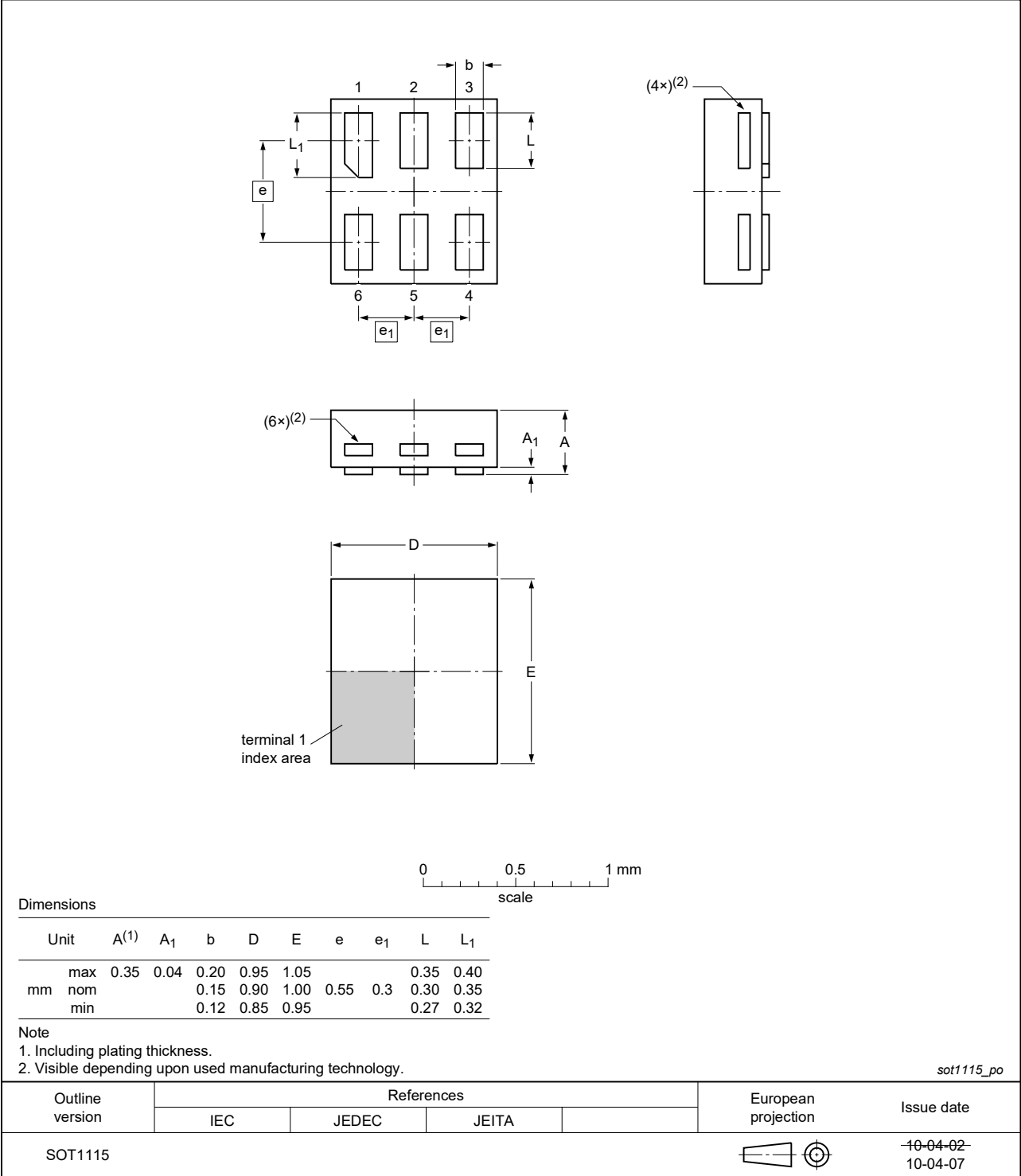


Fig. 13. Package outline SOT1115 (XSON6)

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

SOT1202

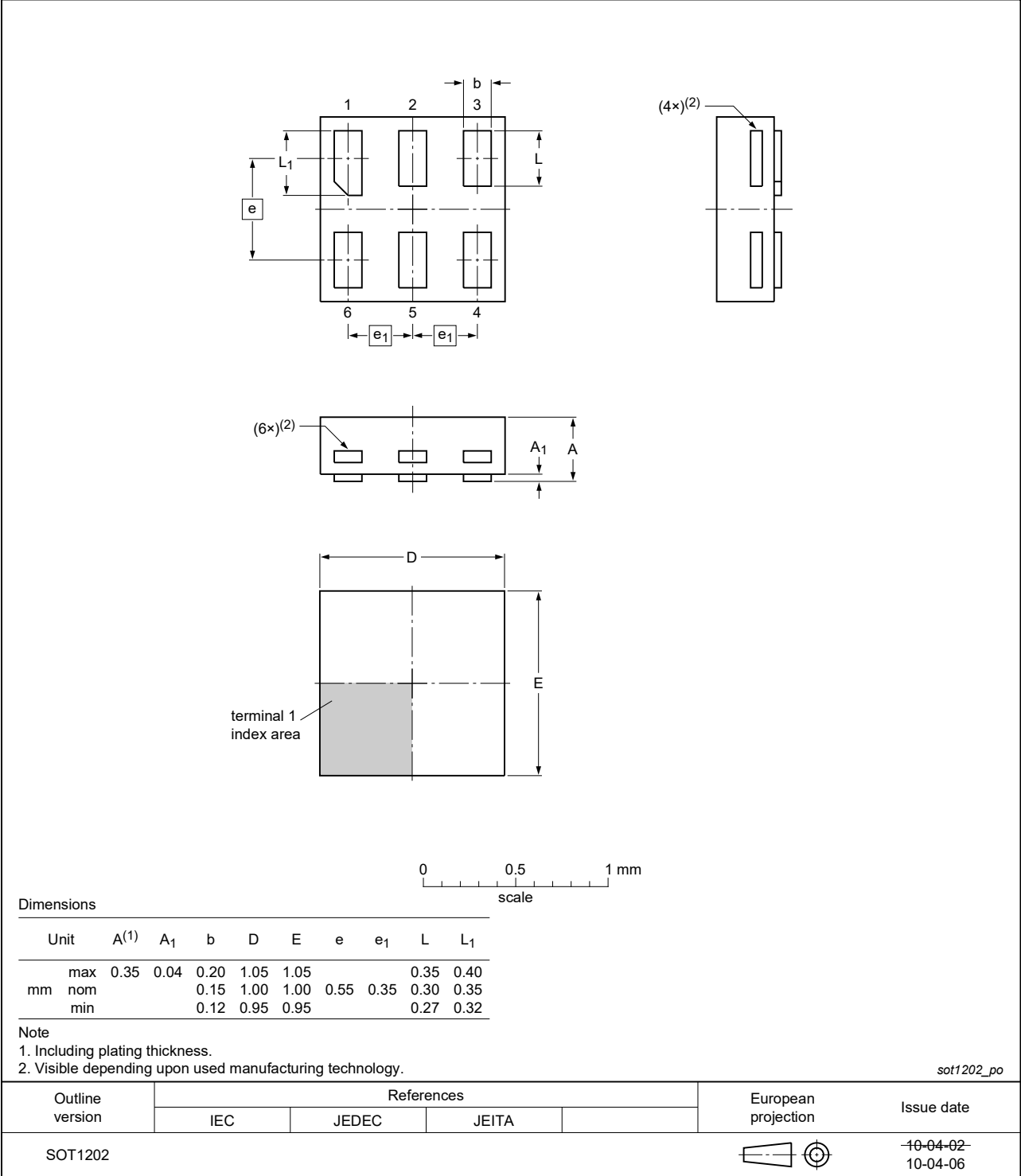


Fig. 14. Package outline SOT1202 (XSON6)

13. Abbreviations

Table 12. Abbreviations

Acronym	Description
CDM	Charged Device Model
CMOS	Complementary Metal Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model

14. Revision history

Table 13. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP1T58 v.8	20230726	Product data sheet	-	74AUP1T58 v.7
Modifications:	<ul style="list-style-type: none"><li>Section 2: ESD specification updated according to the latest JEDEC standard.</li></ul>			
74AUP1T58 v.7	20220126	Product data sheet	-	74AUP1T58 v.6
Modifications:	<ul style="list-style-type: none"><li>Package SOT363 (SC-88) changed to SOT363-2 (TSSOP6).</li></ul>			
74AUP1T58 v.6	20210602	Product data sheet	-	74AUP1T58 v.5
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 74AUP1T58GF (SOT891 / XSON6) removed.</li><li>Section 1 and Section 2 updated.</li><li>Section 8: Derating values for P<sub>tot</sub> total power dissipation updated.</li></ul>			
74AUP1T58 v.5	20120815	Product data sheet	-	74AUP1T58 v.4
Modifications:	<ul style="list-style-type: none"><li>Package outline drawing of SOT886 (Fig. 12) modified.</li></ul>			
74AUP1T58 v.4	20111128	Product data sheet	-	74AUP1T58 v.3
74AUP1T58 v.3	20101018	Product data sheet	-	74AUP1T58 v.2
74AUP1T58 v.2	20090929	Product data sheet	-	74AUP1T58 v.1
74AUP1T58 v.1	20080306	Product data sheet	-	-

## 15. 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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