

74AUP1G04

Low-power inverter

Rev. 13 — 28 August 2024

Product data sheet

1. General description

The 74AUP1G04 is a single inverter.

Schmitt-trigger action at all inputs makes the circuit tolerant of slower input rise and fall times across the entire V_{CC} range from 0.8 V to 3.6 V.

This device ensures a very low static and dynamic power consumption across the entire V_{CC} range from 0.8 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 damaging backflow current through the device when it is powered down.

2. Features and benefits

- Wide supply voltage range from 0.8 V to 3.6 V
- CMOS low power dissipation
- High noise immunity
- Complies with JEDEC standards:
 - JESD8-12 (0.8 V to 1.3 V)
 - JESD8-11 (0.9 V to 1.65 V)
 - 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)
- Low static power consumption; I_{CC} = 0.9 µA (maximum)
- Latch-up performance exceeds 100 mA per JESD 78B Class II
- 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
- Multiple package options
- ESD protection:
 - HBM: ANSI/ESDA/JEDEC JS-001 class 3A exceeds 5000 V
 - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V
- 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
74AUP1G04GV	-40 °C to +125 °C	SC-74A	plastic surface-mounted package; 5 leads	SOT753
74AUP1G04GW	-40 °C to +125 °C	TSSOP5	plastic thin shrink small outline package; 5 leads; body width 1.25 mm	SOT353-1
74AUP1G04GM	-40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm	SOT886
74AUP1G04GN	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm	SOT1115
74AUP1G04GS	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm	SOT1202
74AUP1G04GX	-40 °C to +125 °C	X2SON5	plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body 0.8 × 0.8 × 0.32 mm	SOT1226-3
74AUP1G04GX4	-40 °C to +125 °C	X2SON4	plastic thermal enhanced extremely thin small outline package; no leads; 4 terminals; body 0.6 × 0.6 × 0.32 mm	SOT1269-2
74AUP1G04GZ	-40 °C to +125 °C	XSON5	plastic thermal enhanced extremely thin small outline package with side-wettable flanks (SWF); no leads; 5 terminals; body 1.1 × 0.85 × 0.5 mm	SOT8065-1

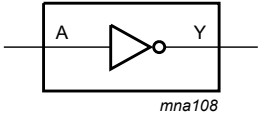
4. Marking

Table 2. Marking

Type number	Marking code[1]
74AUP1G04GV	p04
74AUP1G04GW	pC
74AUP1G04GM	pC
74AUP1G04GN	pC
74AUP1G04GS	pC
74AUP1G04GX	pC
74AUP1G04GX4	pC
74AUP1G04GZ	pC

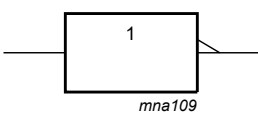
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

5. Functional diagram



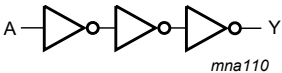
mna108

Fig. 1. Logic symbol



mna109

Fig. 2. IEC logic symbol

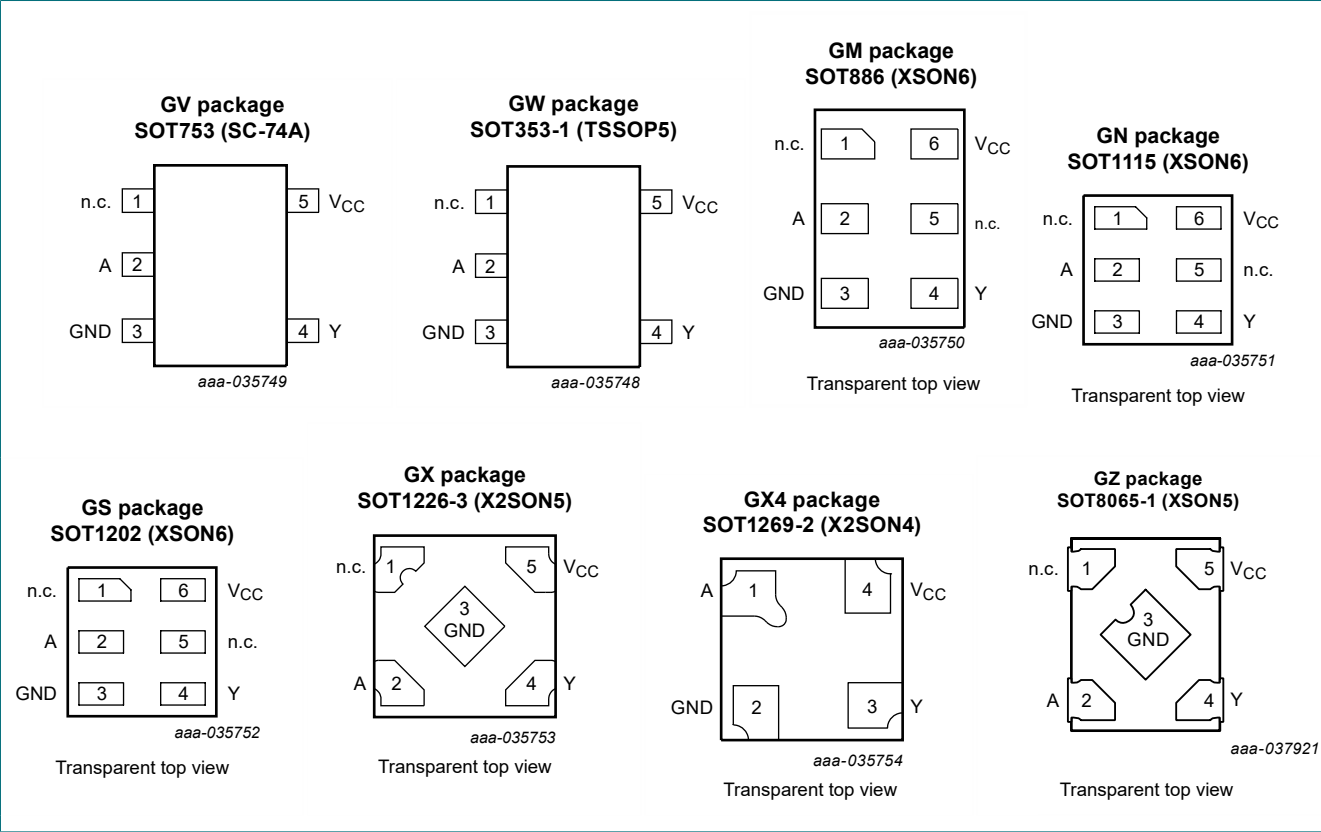


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Fig. 3. Logic diagram

6. Pinning information

6.1. Pinning



6.2. Pin description

Table 3. Pin description

Symbol	Pin			Description
	SC-74A, TSSOP5 and X2SON5	XSON6	X2SON4	
n.c.	1	1, 5	-	not connected
A	2	2	1	data input
GND	3	3	2	ground (0 V)
Y	4	4	3	data output
V _{CC}	5	6	4	supply voltage

7. Functional description

Table 4. Function table

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

Input	Output
A	Y
L	H
H	L

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	+4.6	V
I _{IK}	input clamping current	V _I < 0 V	-50	-	mA
V _I	input voltage		[1] -0.5	+4.6	V
I _{OK}	output clamping current	V _O < 0 V	-50	-	mA
V _O	output voltage	active mode	[1] -0.5	V _{CC} + 0.5	V
		power-down mode; V _{CC} = 0 V	[1] -0.5	+4.6	V
I _O	output current	V _O = 0 V to V _{CC}	-	± 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 °C to +125 °C			
		TSSOP5, SC-74A, XSON6, XSON5 and X2SON5 packages	[2] -	250	mW
		X2SON4 package	[3] -	150	mW

- [1] The minimum input and output voltage ratings may be exceeded if the input and output current ratings are observed.
- [2] For SOT753 (SC-74A) package: P_{tot} derates linearly with 3.8 mW/K above 85 °C.
For SOT353-1 (TSSOP5) package: P_{tot} derates linearly with 3.3 mW/K above 74 °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.
For SOT1226-3 (X2SON5) package: P_{tot} derates linearly with 3.0 mW/K above 67 °C.
For SOT8065-1 (XSON5) package: P_{tot} derates linearly with 3.2 mW/K above 72 °C.
- [3] For SOT1269-2 (X2SON4) package: P_{tot} derates linearly with 1.7 mW/K above 57 °C.

9. Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
V _{CC}	supply voltage		0.8	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 V	0	3.6	V
T _{amb}	ambient temperature		-40	+125	°C
Δt/ΔV	input transition rise and fall rate	V _{CC} = 0.8 V to 3.6 V	0	200	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	Max	Unit
T _{amb} = 25 °C						
V _{IH}	HIGH-level input voltage	V _{CC} = 0.8 V	0.70×V _{CC}	-	-	V
		V _{CC} = 0.9 V to 1.95 V	0.65×V _{CC}	-	-	V
		V _{CC} = 2.3 V to 2.7 V	1.6	-	-	V
		V _{CC} = 3.0 V to 3.6 V	2.0	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} = 0.8 V	-	-	0.30×V _{CC}	V
		V _{CC} = 0.9 V to 1.95 V	-	-	0.35×V _{CC}	V
		V _{CC} = 2.3 V to 2.7 V	-	-	0.7	V
		V _{CC} = 3.0 V to 3.6 V	-	-	0.9	V
V _{OH}	HIGH-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = -20 µA; V _{CC} = 0.8 V to 3.6 V	V _{CC} - 0.1	-	-	V
		I _O = -1.1 mA; V _{CC} = 1.1 V	0.75×V _{CC}	-	-	V
		I _O = -1.7 mA; V _{CC} = 1.4 V	1.11	-	-	V
		I _O = -1.9 mA; V _{CC} = 1.65 V	1.32	-	-	V
		I _O = -2.3 mA; V _{CC} = 2.3 V	2.05	-	-	V
		I _O = -3.1 mA; V _{CC} = 2.3 V	1.9	-	-	V
		I _O = -2.7 mA; V _{CC} = 3.0 V	2.72	-	-	V
V _{OL}	LOW-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = 20 µA; V _{CC} = 0.8 V to 3.6 V	-	-	0.1	V
		I _O = 1.1 mA; V _{CC} = 1.1 V	-	-	0.3×V _{CC}	V
		I _O = 1.7 mA; V _{CC} = 1.4 V	-	-	0.31	V
		I _O = 1.9 mA; V _{CC} = 1.65 V	-	-	0.31	V
		I _O = 2.3 mA; V _{CC} = 2.3 V	-	-	0.31	V
		I _O = 3.1 mA; V _{CC} = 2.3 V	-	-	0.44	V
		I _O = 2.7 mA; V _{CC} = 3.0 V	-	-	0.31	V
		I _O = 4.0 mA; V _{CC} = 3.0 V	-	-	0.44	V
I _I	input leakage current	V _I = GND to 3.6 V; V _{CC} = 0 V to 3.6 V	-	-	± 0.1	µA
I _{OFF}	power-off leakage current	V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V	-	-	± 0.2	µA
ΔI _{OFF}	additional power-off leakage current	V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V to 0.2 V	-	-	± 0.2	µA
I _{CC}	supply current	V _I = GND or V _{CC} ; I _O = 0 A; V _{CC} = 0.8 V to 3.6 V	-	-	0.5	µA
ΔI _{CC}	additional supply current	V _I = V _{CC} - 0.6 V; I _O = 0 A; V _{CC} = 3.3 V	-	-	40	µA
C _I	input capacitance	V _{CC} = 0 V to 3.6 V; V _I = GND or V _{CC}	-	0.8	-	pF
C _O	output capacitance	V _O = GND; V _{CC} = 0 V	-	1.7	-	pF

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T_{amb} = -40 °C to +85 °C						
V _{IH}	HIGH-level input voltage	V _{CC} = 0.8 V	0.70×V _{CC}	-	-	V
		V _{CC} = 0.9 V to 1.95 V	0.65×V _{CC}	-	-	V
		V _{CC} = 2.3 V to 2.7 V	1.6	-	-	V
		V _{CC} = 3.0 V to 3.6 V	2.0	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} = 0.8 V	-	-	0.30×V _{CC}	V
		V _{CC} = 0.9 V to 1.95 V	-	-	0.35×V _{CC}	V
		V _{CC} = 2.3 V to 2.7 V	-	-	0.7	V
		V _{CC} = 3.0 V to 3.6 V	-	-	0.9	V
V _{OH}	HIGH-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = -20 µA; V _{CC} = 0.8 V to 3.6 V	V _{CC} - 0.1	-	-	V
		I _O = -1.1 mA; V _{CC} = 1.1 V	0.7×V _{CC}	-	-	V
		I _O = -1.7 mA; V _{CC} = 1.4 V	1.03	-	-	V
		I _O = -1.9 mA; V _{CC} = 1.65 V	1.30	-	-	V
		I _O = -2.3 mA; V _{CC} = 2.3 V	1.97	-	-	V
		I _O = -3.1 mA; V _{CC} = 2.3 V	1.85	-	-	V
		I _O = -2.7 mA; V _{CC} = 3.0 V	2.67	-	-	V
		I _O = -4.0 mA; V _{CC} = 3.0 V	2.55	-	-	V
V _{OL}	LOW-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = 20 µA; V _{CC} = 0.8 V to 3.6 V	-	-	0.1	V
		I _O = 1.1 mA; V _{CC} = 1.1 V	-	-	0.3×V _{CC}	V
		I _O = 1.7 mA; V _{CC} = 1.4 V	-	-	0.37	V
		I _O = 1.9 mA; V _{CC} = 1.65 V	-	-	0.35	V
		I _O = 2.3 mA; V _{CC} = 2.3 V	-	-	0.33	V
		I _O = 3.1 mA; V _{CC} = 2.3 V	-	-	0.45	V
		I _O = 2.7 mA; V _{CC} = 3.0 V	-	-	0.33	V
		I _O = 4.0 mA; V _{CC} = 3.0 V	-	-	0.45	V
I _I	input leakage current	V _I = GND to 3.6 V; V _{CC} = 0 V to 3.6 V	-	-	± 0.5	µA
I _{OFF}	power-off leakage current	V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V	-	-	± 0.5	µA
ΔI _{OFF}	additional power-off leakage current	V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V to 0.2 V	-	-	± 0.6	µA
I _{CC}	supply current	V _I = GND or V _{CC} ; I _O = 0 A; V _{CC} = 0.8 V to 3.6 V	-	-	0.9	µA
ΔI _{CC}	additional supply current	V _I = V _{CC} - 0.6 V; I _O = 0 A; V _{CC} = 3.3 V	-	-	50	µA
T_{amb} = -40 °C to +125 °C						
V _{IH}	HIGH-level input voltage	V _{CC} = 0.8 V	0.75×V _{CC}	-	-	V
		V _{CC} = 0.9 V to 1.95 V	0.70×V _{CC}	-	-	V
		V _{CC} = 2.3 V to 2.7 V	1.6	-	-	V
		V _{CC} = 3.0 V to 3.6 V	2.0	-	-	V
V _{IL}	LOW-level input voltage	V _{CC} = 0.8 V	-	-	0.25×V _{CC}	V
		V _{CC} = 0.9 V to 1.95 V	-	-	0.30×V _{CC}	V
		V _{CC} = 2.3 V to 2.7 V	-	-	0.7	V
		V _{CC} = 3.0 V to 3.6 V	-	-	0.9	V

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{OH}	HIGH-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = -20 µA; V _{CC} = 0.8 V to 3.6 V	V _{CC} - 0.11	-	-	V
		I _O = -1.1 mA; V _{CC} = 1.1 V	0.6×V _{CC}	-	-	V
		I _O = -1.7 mA; V _{CC} = 1.4 V	0.93	-	-	V
		I _O = -1.9 mA; V _{CC} = 1.65 V	1.17	-	-	V
		I _O = -2.3 mA; V _{CC} = 2.3 V	1.77	-	-	V
		I _O = -3.1 mA; V _{CC} = 2.3 V	1.67	-	-	V
		I _O = -2.7 mA; V _{CC} = 3.0 V	2.40	-	-	V
V _{OL}	LOW-level output voltage	V _I = V _{IH} or V _{IL}				
		I _O = 20 µA; V _{CC} = 0.8 V to 3.6 V	-	-	0.11	V
		I _O = 1.1 mA; V _{CC} = 1.1 V	-	-	0.33×V _{CC}	V
		I _O = 1.7 mA; V _{CC} = 1.4 V	-	-	0.41	V
		I _O = 1.9 mA; V _{CC} = 1.65 V	-	-	0.39	V
		I _O = 2.3 mA; V _{CC} = 2.3 V	-	-	0.36	V
		I _O = 3.1 mA; V _{CC} = 2.3 V	-	-	0.50	V
		I _O = 2.7 mA; V _{CC} = 3.0 V	-	-	0.36	V
I _I	input leakage current	I _O = 4.0 mA; V _{CC} = 3.0 V	-	-	0.50	V
		V _I = GND to 3.6 V; V _{CC} = 0 V to 3.6 V	-	-	± 0.75	µA
		V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V	-	-	± 0.75	µA
		V _I or V _O = 0 V to 3.6 V; V _{CC} = 0 V to 0.2 V	-	-	± 0.75	µA
		V _I = GND or V _{CC} ; I _O = 0 A; V _{CC} = 0.8 V to 3.6 V	-	-	1.4	µA
		V _I = V _{CC} - 0.6 V; I _O = 0 A; V _{CC} = 3.3 V	-	-	75	µA
I _{OFF}	power-off leakage current					
ΔI _{OFF}	additional power-off leakage current					
I _{CC}	supply current					
ΔI _{CC}	additional supply current					

11. Dynamic characteristics

Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 5

Symbol	Parameter	Conditions	Min	Typ[1]	Max	Unit
T _{amb} = 25 °C; C _L = 5 pF						
t _{pd}	propagation delay	A to Y; see Fig. 4 [2]				
		V _{CC} = 0.8 V	-	16.0	-	ns
		V _{CC} = 1.1 V to 1.3 V	2.4	5.0	10.3	ns
		V _{CC} = 1.4 V to 1.6 V	1.8	3.6	6.4	ns
		V _{CC} = 1.65 V to 1.95 V	1.5	2.9	5.0	ns
		V _{CC} = 2.3 V to 2.7 V	1.2	2.4	3.9	ns
		V _{CC} = 3.0 V to 3.6 V	1.1	2.1	3.2	ns

Symbol	Parameter	Conditions	Min	Typ[1]	Max	Unit
T _{amb} = 25 °C; C _L = 10 pF						
t _{pd}	propagation delay	A to Y; see Fig. 4 [2]				
		V _{CC} = 0.8 V	-	19.8	-	ns
		V _{CC} = 1.1 V to 1.3 V	2.8	5.9	12.2	ns
		V _{CC} = 1.4 V to 1.6 V	2.3	4.2	7.5	ns
		V _{CC} = 1.65 V to 1.95 V	2.0	3.5	5.9	ns
		V _{CC} = 2.3 V to 2.7 V	1.7	2.9	4.6	ns
		V _{CC} = 3.0 V to 3.6 V	1.6	2.7	3.8	ns
T _{amb} = 25 °C; C _L = 15 pF						
t _{pd}	propagation delay	A to Y; see Fig. 4 [2]				
		V _{CC} = 0.8 V	-	23.3	-	ns
		V _{CC} = 1.1 V to 1.3 V	3.2	6.7	13.0	ns
		V _{CC} = 1.4 V to 1.6 V	2.6	4.7	8.6	ns
		V _{CC} = 1.65 V to 1.95 V	2.3	4.0	6.7	ns
		V _{CC} = 2.3 V to 2.7 V	2.1	3.3	5.1	ns
		V _{CC} = 3.0 V to 3.6 V	2.0	3.1	4.2	ns
T _{amb} = 25 °C; C _L = 30 pF						
t _{pd}	propagation delay	A to Y; see Fig. 4 [2]				
		V _{CC} = 0.8 V	-	33.6	-	ns
		V _{CC} = 1.1 V to 1.3 V	4.4	8.9	16.0	ns
		V _{CC} = 1.4 V to 1.6 V	3.6	6.3	10.8	ns
		V _{CC} = 1.65 V to 1.95 V	3.2	5.3	9.0	ns
		V _{CC} = 2.3 V to 2.7 V	2.9	4.5	6.5	ns
		V _{CC} = 3.0 V to 3.6 V	2.9	4.2	5.4	ns
T _{amb} = 25 °C						
C _{PD}	power dissipation capacitance	f = 1 MHz; V _I = GND to V _{CC} [3]				
		V _{CC} = 0.8 V	-	2.5	-	pF
		V _{CC} = 1.1 V to 1.3 V	-	2.7	-	pF
		V _{CC} = 1.4 V to 1.6 V	-	2.8	-	pF
		V _{CC} = 1.65 V to 1.95 V	-	3.0	-	pF
		V _{CC} = 2.3 V to 2.7 V	-	3.5	-	pF
		V _{CC} = 3.0 V to 3.6 V	-	4.0	-	pF

[1] All typical values are measured at nominal V_{CC}.

[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).
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum (C_L \times V_{CC}^2 \times f_o)$ 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;
 $\sum (C_L \times V_{CC}^2 \times f_o)$ = sum of the outputs.

Table 9. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 5

Symbol	Parameter	Conditions	-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Max	Min	Max	
C _L = 5 pF							
t _{pd}	propagation delay	A to Y; see Fig. 4 [1]					
		V _{CC} = 1.1 V to 1.3 V	2.1	11.4	2.1	12.6	ns
		V _{CC} = 1.4 V to 1.6 V	1.6	7.4	1.6	8.2	ns
		V _{CC} = 1.65 V to 1.95 V	1.4	5.9	1.4	6.5	ns
		V _{CC} = 2.3 V to 2.7 V	1.1	4.5	1.1	5.0	ns
		V _{CC} = 3.0 V to 3.6 V	1.0	3.9	1.0	4.3	ns
C _L = 10 pF							
t _{pd}	propagation delay	A to Y; see Fig. 4 [1]					
		V _{CC} = 1.1 V to 1.3 V	2.6	13.7	2.6	15.1	ns
		V _{CC} = 1.4 V to 1.6 V	2.1	8.7	2.1	9.6	ns
		V _{CC} = 1.65 V to 1.95 V	1.8	7.0	1.8	7.7	ns
		V _{CC} = 2.3 V to 2.7 V	1.5	5.4	1.5	6.0	ns
		V _{CC} = 3.0 V to 3.6 V	1.4	4.5	1.4	5.0	ns
C _L = 15 pF							
t _{pd}	propagation delay	A to Y; see Fig. 4 [1]					
		V _{CC} = 1.1 V to 1.3 V	3.0	15.8	3.0	17.4	ns
		V _{CC} = 1.4 V to 1.6 V	2.4	10.0	2.4	11.0	ns
		V _{CC} = 1.65 V to 1.95 V	2.1	8.0	2.1	8.8	ns
		V _{CC} = 2.3 V to 2.7 V	1.8	6.1	1.8	6.8	ns
		V _{CC} = 3.0 V to 3.6 V	1.8	5.0	1.8	5.5	ns
C _L = 30 pF							
t _{pd}	propagation delay	A to Y; see Fig. 4 [1]					
		V _{CC} = 1.1 V to 1.3 V	4.0	19.0	4.0	20.9	ns
		V _{CC} = 1.4 V to 1.6 V	3.2	12.9	3.2	14.2	ns
		V _{CC} = 1.65 V to 1.95 V	2.9	10.5	2.9	11.6	ns
		V _{CC} = 2.3 V to 2.7 V	2.6	7.6	2.6	8.4	ns
		V _{CC} = 3.0 V to 3.6 V	2.6	6.2	2.6	6.9	ns

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

11.1. Waveform and test circuit

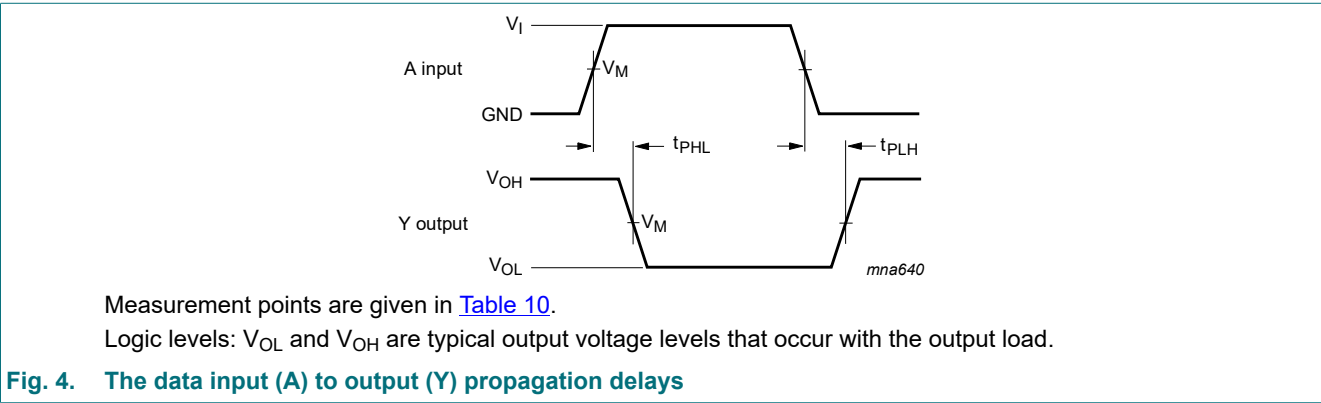


Table 10. Measurement points

Supply voltage	Output	Input		
V_{CC}	V_M	V_M	V_I	$t_r = t_f$
0.8 V to 3.6 V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	V_{CC}	$\leq 3.0 \text{ ns}$

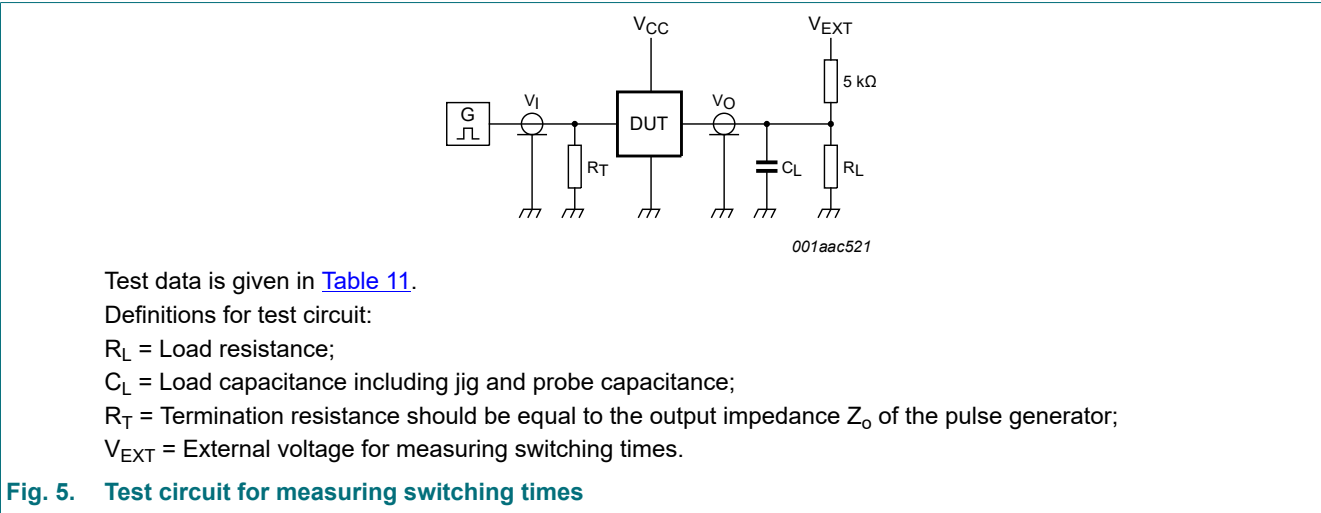


Table 11. Test data

Supply voltage	Load		V_{EXT}		
V_{CC}	C_L	R_L [1]	t_{PLH} , t_{PHL}	t_{PZH} , t_{PHZ}	t_{PZL} , t_{PLZ}
0.8 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

TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mmSOT353-1

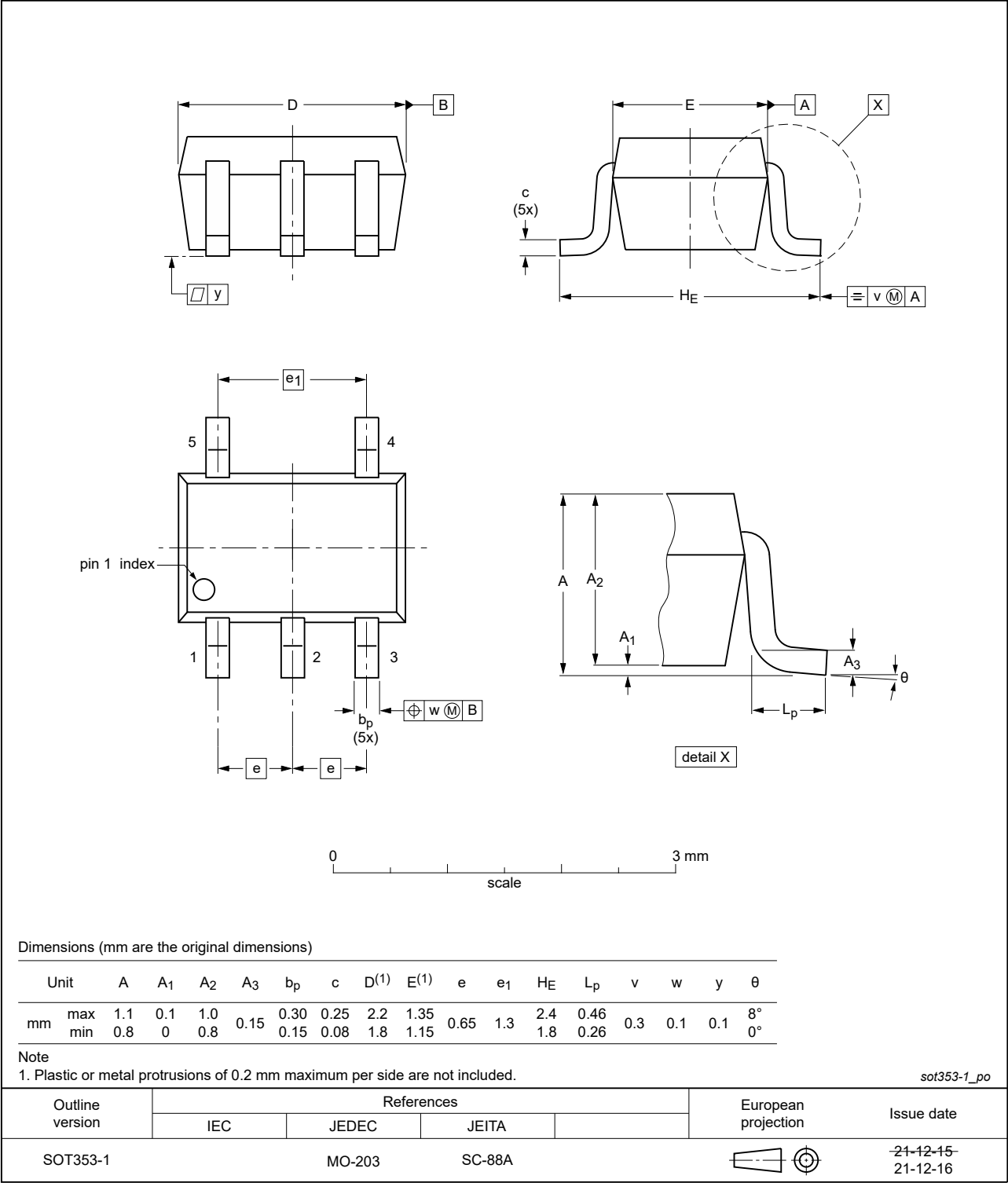


Fig. 6. Package outline SOT353-1 (TSSOP5)

Plastic surface-mounted package; 5 leads

SOT753

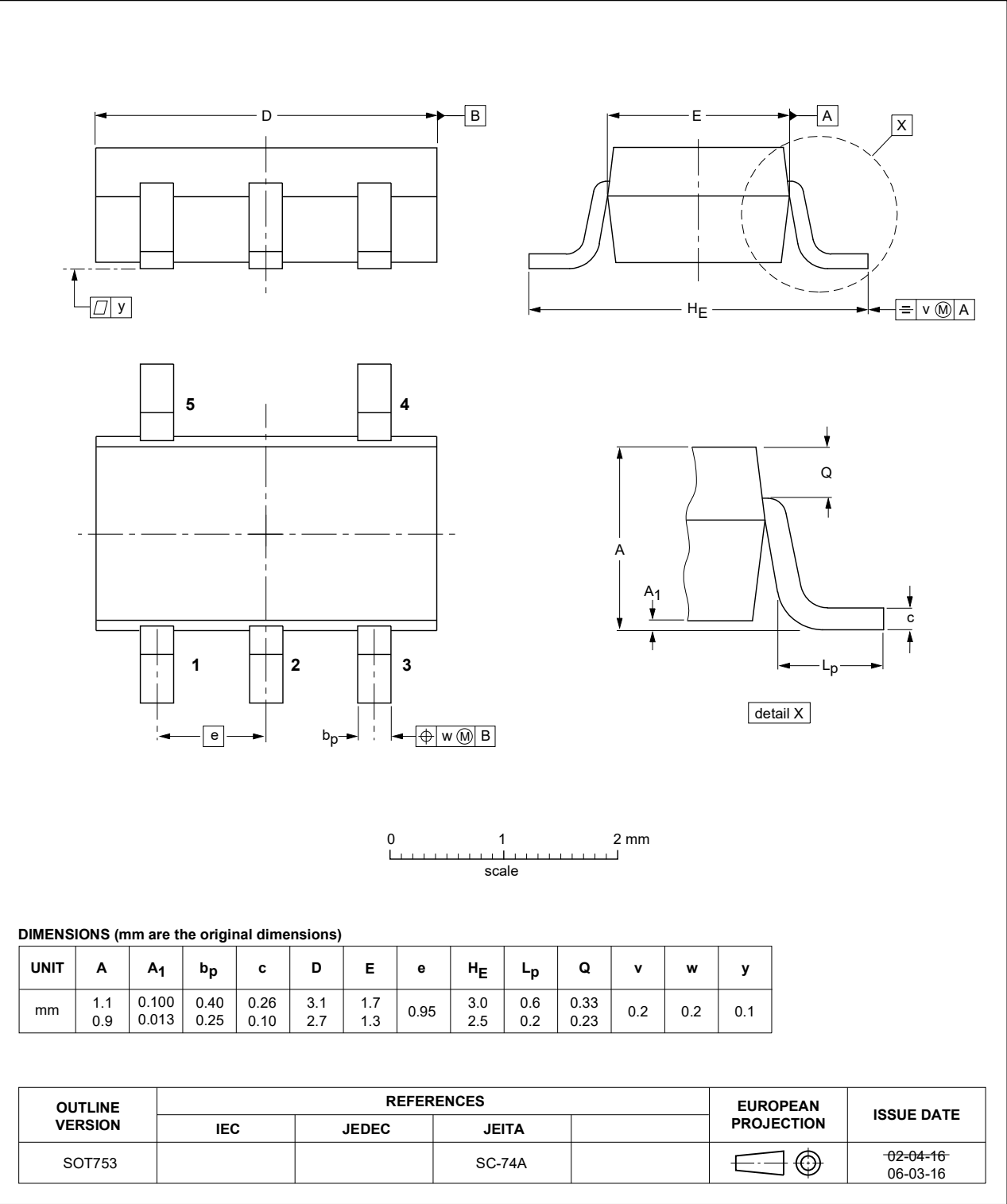


Fig. 7. Package outline SOT753 (SC-74A)

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

SOT886

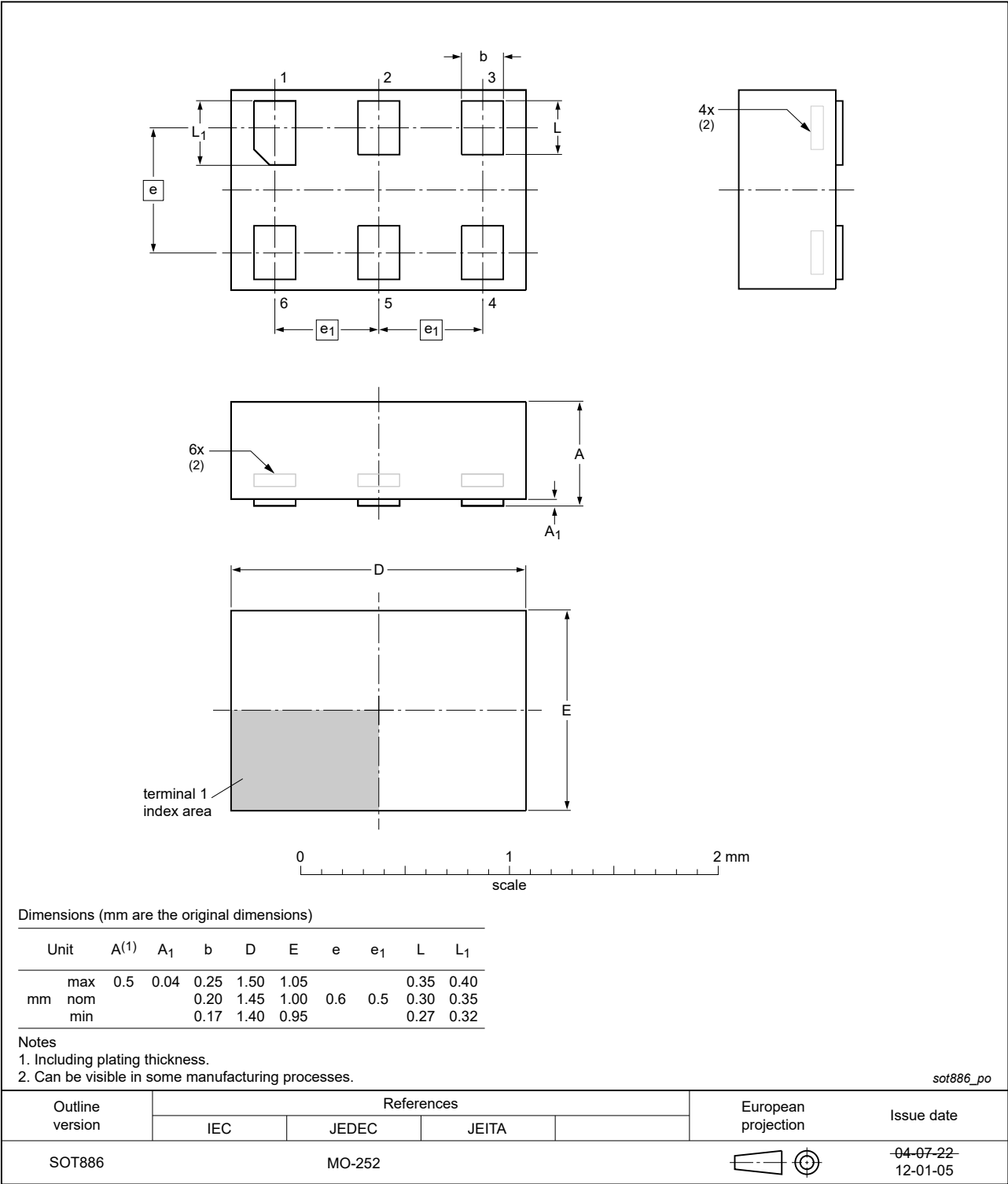


Fig. 8. Package outline SOT886 (XSON6)

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

SOT1115

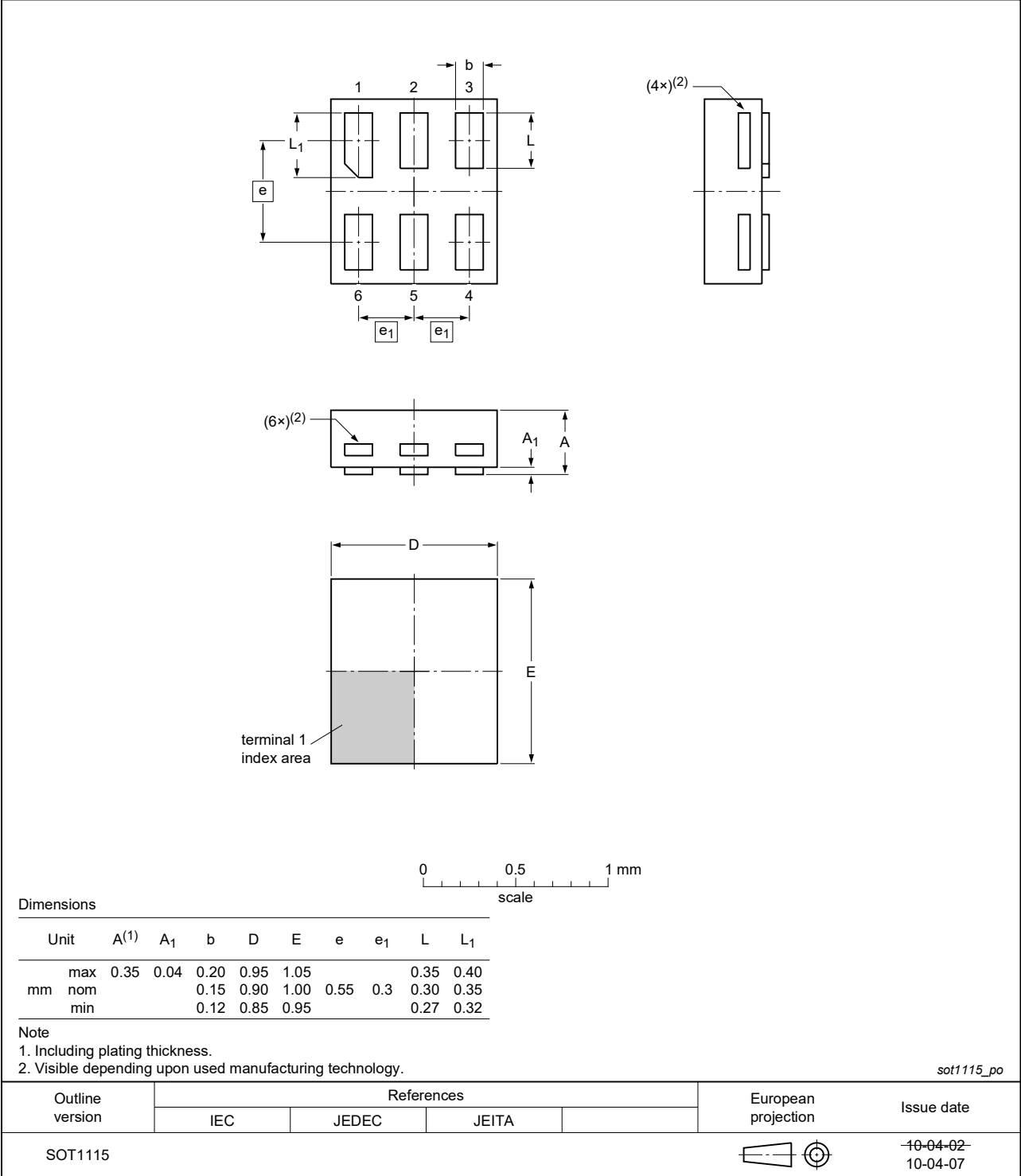
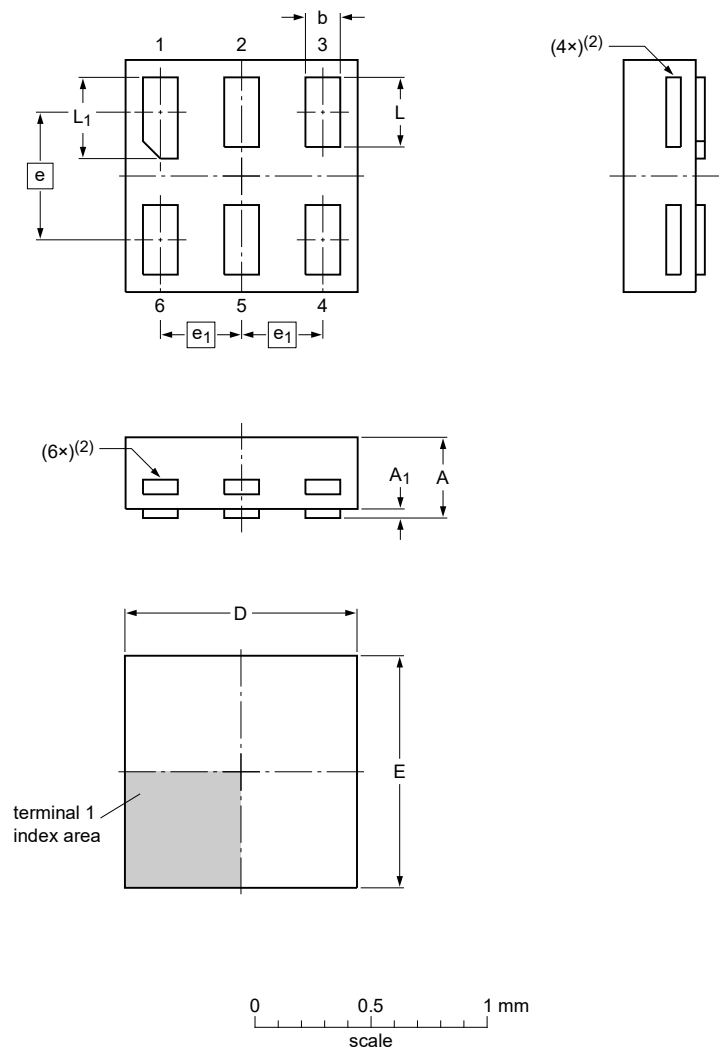


Fig. 9. Package outline SOT1115 (XSON6)

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	0.30	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. 10. Package outline SOT1202 (XSON6)

X2SON5: plastic thermal enhanced extremely thin small outline package; no leads;
5 terminals; body 0.8 x 0.8 x 0.32 mm

SOT1226-3

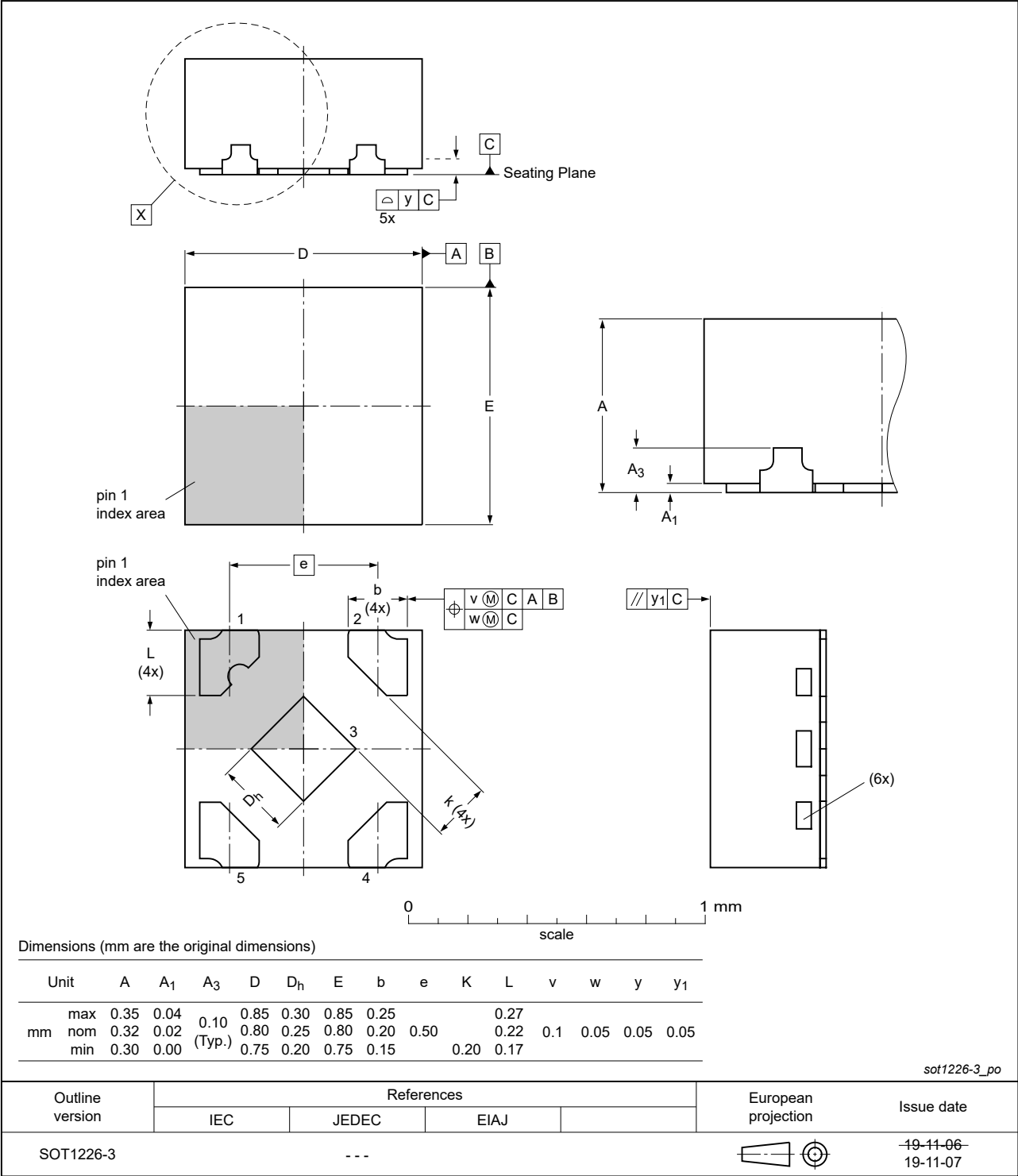


Fig. 11. Package outline SOT1226-3 (X2SON5)

X2SON4: plastic thermal enhanced extremely thin small outline package; no leads;
4 terminals; body 0.6 x 0.6 x 0.32 mm

SOT1269-2

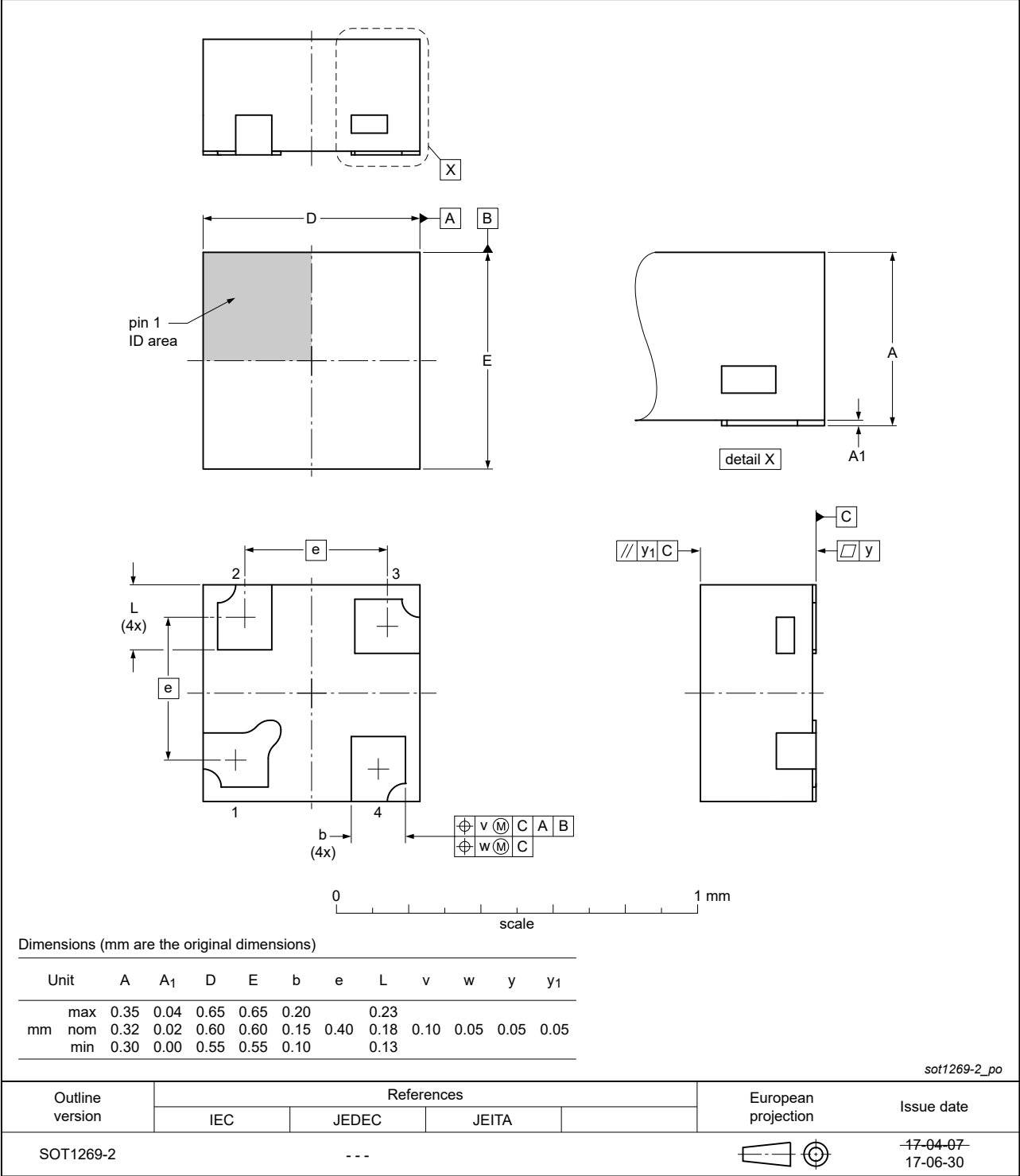


Fig. 12. Package outline SOT1269-2 (X2SON4)

XSON5: Plastic thermal enhanced extremely thin small outline package with side-wettable flanks (SWF); no leads; 5 terminals; body 1.1 × 0.85 × 0.5 mm

SOT8065-1

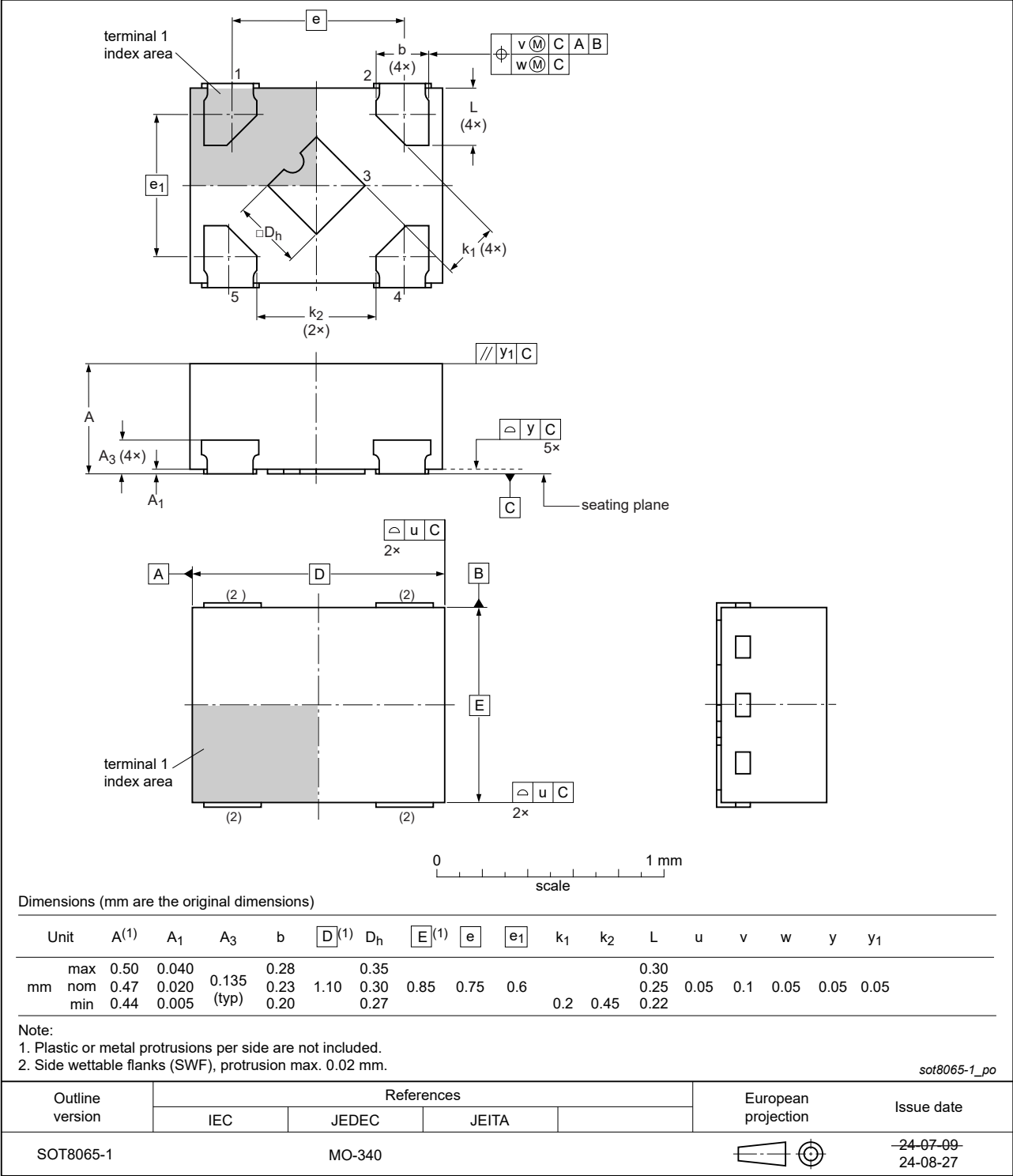


Fig. 13. Package outline SOT8065-1 (XSON5)

13. Abbreviations

Table 12. Abbreviations

Acronym	Description
ANSI	American National Standards Institute
CDM	Charged Device Model
DUT	Device Under Test
ESD	ElectroStatic Discharge
ESDA	ElectroStatic Discharge Association
HBM	Human Body Model
JEDEC	Joint Electron Device Engineering Council

14. Revision history

Table 13. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP1G04 v.13	20240828	Product data sheet	-	74AUP1G04 v.12.1
Modifications:	• Type number 74AUP1G04GZ (SOT8065-1/XSON5) added.			
74AUP1G04 v.12.1	20230711	Product data sheet	-	74AUP1G04 v.11
Modifications:	• Section 2 : ESD specification updated according to the latest JEDEC standard.			
74AUP1G04 v.11	20220113	Product data sheet	-	74AUP1G04 v.10
Modifications:	• Section 1 and Section 2 updated. • Fig. 6 : Package outline drawing for SOT353-1(TSSOP5) has changed.			
74AUP1G04 v.10	20210430	Product data sheet	-	74AUP1G04 v.9
Modifications:	• SOT1226 (X2SON5) package changed to SOT1226-3 (X2SON5) package. • Type number 74AUP1G04GF (SOT891/XSON6) removed. • Table 5 : Derating values for P _{tot} total power dissipation have been updated.			
74AUP1G04 v.9	20180608	Product data sheet	-	74AUP1G04 v.8
Modifications:	• Added type number 74AUP1G04GX4 (SOT1269-2/X2SON4)			
74AUP1G04 v.8	20171107	Product data sheet	-	74AUP1G04 v.7
Modifications:	• The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. • Legal texts have been adapted to the new company name where appropriate.			
74AUP1G04 v.7	20120627	Product data sheet	-	74AUP1G04 v.6
Modifications:	• Added type number 74AUP1G04GX (SOT1226)			
74AUP1G04 v.6	20120214	Product data sheet	-	74AUP1G04 v.5
Modifications:	• Package outline drawing of SOT886 (Fig. 8) modified.			
74AUP1G04 v.5	20111205	Product data sheet	-	74AUP1G04 v.4
Modifications:	• Legal pages updated.			
74AUP1G04 v.4	20100630	Product data sheet	-	74AUP1G04 v.3
74AUP1G04 v.3	20091105	Product data sheet	-	74AUP1G04 v.2
74AUP1G04 v.2	20060628	Product data sheet	-	74AUP1G04 v.1
74AUP1G04 v.1	20050718	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".
- [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 <https://www.nexperia.com>.

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