

74AUP3G34

Low-power triple buffer

Rev. 3 — 3 July 2017

Product data sheet

1 General description

The 74AUP3G34 is a triple buffer.

Schmitt trigger action at all inputs makes the circuit tolerant of slower input rise and fall times.

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 a 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
- 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 (1.2 V to 1.95 V)
 - JESD8-5 (1.8 V to 2.7 V)
 - JESD8-B (2.7 V to 3.6 V)
- ESD protection:
 - HBM JESD22-A114F Class 3A exceeds 5000 V
 - MM JESD22-A115-A exceeds 200 V
 - CDM JESD22-C101E exceeds 1000 V
- Low static power consumption; $I_{CC} = 0.9 \mu\text{A}$ (maximum)
- Latch-up performance exceeds 100 mA per JESD 78B Class II
- Inputs accept voltages up 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
- Specified from -40 °C to +85 °C and -40 °C to +125 °C

3 Ordering information

Table 1. Ordering information

Type number	Package			Version
	Temperature range	Name	Description	
74AUP3G34DC	-40 °C to +125 °C	VSSOP8	plastic very thin shrink small outline package; 8 leads; body width 2.3 mm	SOT765-1
74AUP3G34GT	-40 °C to +125 °C	XSON8	plastic extremely thin small outline package; no leads; 8 terminals; body 1 x 1.95 x 0.5 mm	SOT833-1
74AUP3G34GF	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.35 x 1 x 0.5 mm	SOT1089
74AUP3G34GM	-40 °C to +125 °C	XQFN8	plastic, extremely thin quad flat package; no leads; 8 terminals; body 1.6 x 1.6 x 0.5 mm	SOT902-2
74AUP3G34GN	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.2 x 1.0 x 0.35 mm	SOT1116
74AUP3G34GS	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.35 x 1.0 x 0.35 mm	SOT1203
74AUP3G34GX	-40 °C to +125 °C	X2SON8	plastic thermal enhanced extremely thin small outline package; no leads; 8 terminals; body 1.35 x 0.8 x 0.35 mm	SOT1233

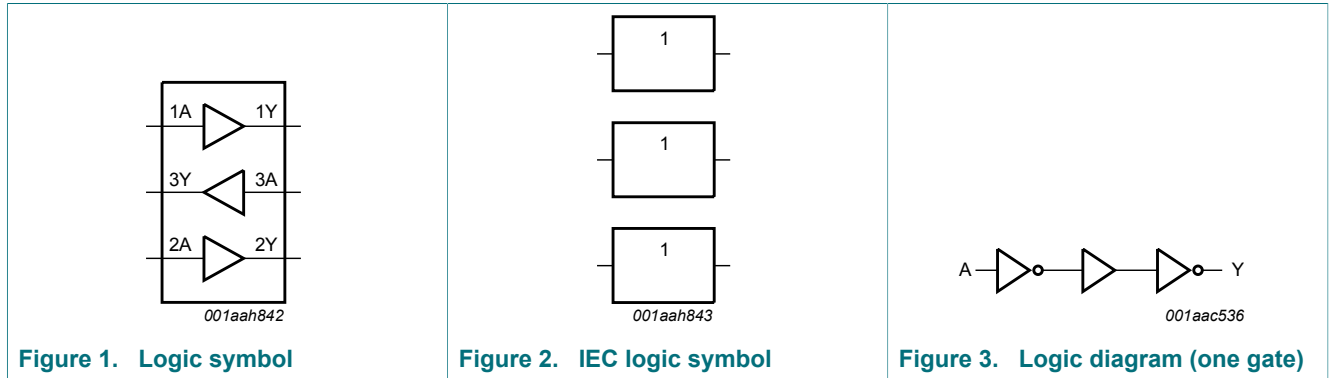
4 Marking

Table 2. Marking codes

Type number	Marking code ^[1]
74AUP3G34DC	a34
74AUP3G34GT	a34
74AUP3G34GF	aA
74AUP3G34GM	a34
74AUP3G34GN	aA
74AUP3G34GS	aA
74AUP3G34GX	aA

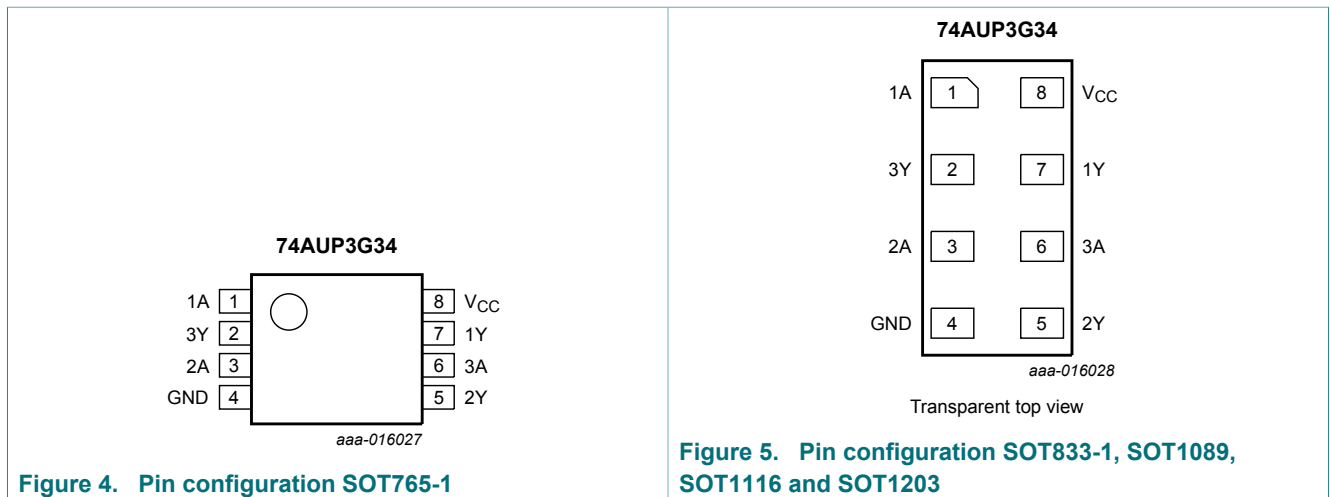
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

5 Functional diagram



6 Pinning information

6.1 Pinning



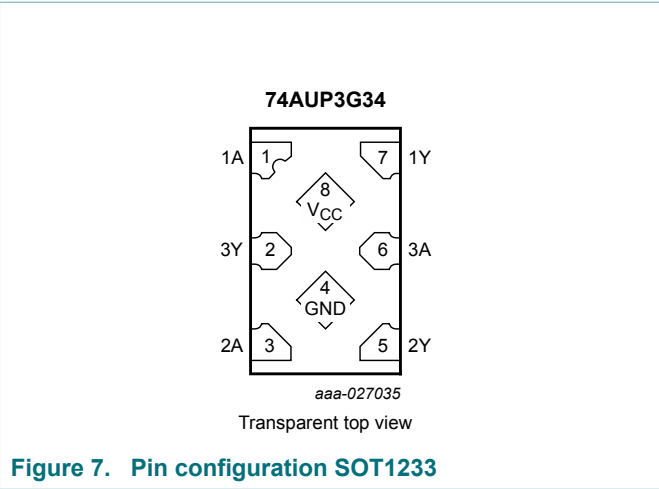
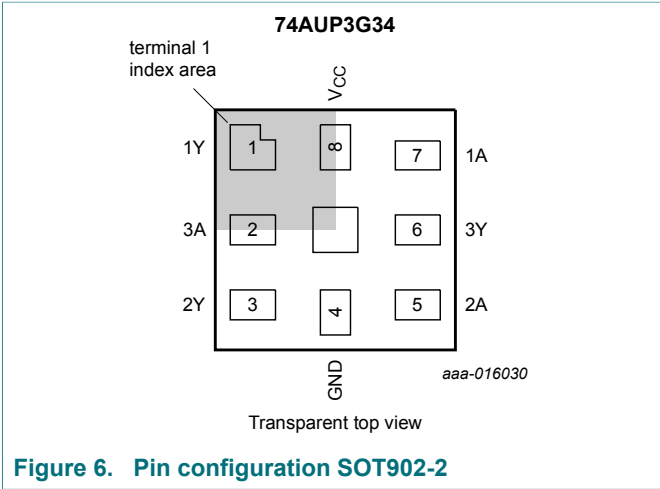


Figure 6. Pin configuration SOT902-2

Figure 7. Pin configuration SOT1233

6.2 Pin description

Table 3. Pin description

Symbol	Pin		Description
	SOT765-1, SOT833-1, SOT1089, SOT1116, SOT1203 and SOT1233	SOT902-2	
1A, 2A, 3A	1, 3, 6	7, 5, 2	data input
1Y, 2Y, 3Y	7, 5, 2	1, 3, 6	data output
GND	4	4	ground (0 V)
V _{CC}	8	8	supply voltage

7 Functional description

Table 4. Function table

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

Input	Output
nA	nY
L	L
H	H

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 and Power-down mode [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 [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 VSSOP8 packages: above 110 °C the value of P_{tot} derates linearly with 8.0 mW/K.

For XSON8 and XQFN8 packages: above 118 °C the value of P_{tot} derates linearly with 7.8 mW/K.

For X2SON8 package: above 118 °C the value of P_{tot} derates linearly with 7.7 mW/K.

9 Recommended operating conditions

Table 6. 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
$\Delta t/\Delta V$	input transition rise and fall rate	$V_{CC} = 0.8$ V to 3.6 V	-	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
$T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$						
V_{IH}	HIGH-level input voltage	$V_{\text{CC}} = 0.8\text{ V}$	$0.70V_{\text{CC}}$	-	-	V
		$V_{\text{CC}} = 0.9\text{ V to }1.95\text{ V}$	$0.65V_{\text{CC}}$	-	-	V
		$V_{\text{CC}} = 2.3\text{ V to }2.7\text{ V}$	1.6	-	-	V
		$V_{\text{CC}} = 3.0\text{ V to }3.6\text{ V}$	2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{\text{CC}} = 0.8\text{ V}$	-	-	$0.30V_{\text{CC}}$	V
		$V_{\text{CC}} = 0.9\text{ V to }1.95\text{ V}$	-	-	$0.35V_{\text{CC}}$	V
		$V_{\text{CC}} = 2.3\text{ V to }2.7\text{ V}$	-	-	0.7	V
		$V_{\text{CC}} = 3.0\text{ V to }3.6\text{ V}$	-	-	0.9	V
V_{OH}	HIGH-level output voltage	$V_{\text{I}} = V_{\text{IH}} \text{ or } V_{\text{IL}}$				
		$I_{\text{O}} = -20\text{ }\mu\text{A}; V_{\text{CC}} = 0.8\text{ V to }3.6\text{ V}$	$V_{\text{CC}} - 0.1$	-	-	V
		$I_{\text{O}} = -1.1\text{ mA}; V_{\text{CC}} = 1.1\text{ V}$	$0.75V_{\text{CC}}$	-	-	V
		$I_{\text{O}} = -1.7\text{ mA}; V_{\text{CC}} = 1.4\text{ V}$	1.11	-	-	V
		$I_{\text{O}} = -1.9\text{ mA}; V_{\text{CC}} = 1.65\text{ V}$	1.32	-	-	V
		$I_{\text{O}} = -2.3\text{ mA}; V_{\text{CC}} = 2.3\text{ V}$	2.05	-	-	V
		$I_{\text{O}} = -3.1\text{ mA}; V_{\text{CC}} = 2.3\text{ V}$	1.9	-	-	V
		$I_{\text{O}} = -2.7\text{ mA}; V_{\text{CC}} = 3.0\text{ V}$	2.72	-	-	V
		$I_{\text{O}} = -4.0\text{ mA}; V_{\text{CC}} = 3.0\text{ V}$	2.6	-	-	V
V_{OL}	LOW-level output voltage	$V_{\text{I}} = V_{\text{IH}} \text{ or } V_{\text{IL}}$				
		$I_{\text{O}} = 20\text{ }\mu\text{A}; V_{\text{CC}} = 0.8\text{ V to }3.6\text{ V}$	-	-	0.1	V
		$I_{\text{O}} = 1.1\text{ mA}; V_{\text{CC}} = 1.1\text{ V}$	-	-	$0.3V_{\text{CC}}$	V
		$I_{\text{O}} = 1.7\text{ mA}; V_{\text{CC}} = 1.4\text{ V}$	-	-	0.31	V
		$I_{\text{O}} = 1.9\text{ mA}; V_{\text{CC}} = 1.65\text{ V}$	-	-	0.31	V
		$I_{\text{O}} = 2.3\text{ mA}; V_{\text{CC}} = 2.3\text{ V}$	-	-	0.31	V
		$I_{\text{O}} = 3.1\text{ mA}; V_{\text{CC}} = 2.3\text{ V}$	-	-	0.44	V
		$I_{\text{O}} = 2.7\text{ mA}; V_{\text{CC}} = 3.0\text{ V}$	-	-	0.31	V
$I_{\text{O}} = 4.0\text{ mA}; V_{\text{CC}} = 3.0\text{ V}$	-	-	0.44	V		
I_{I}	input leakage current	$V_{\text{I}} = \text{GND to }3.6\text{ V}; V_{\text{CC}} = 0\text{ V to }3.6\text{ V}$	-	-	± 0.1	μA
I_{OFF}	power-off leakage current	$V_{\text{I}} \text{ or } V_{\text{O}} = 0\text{ V to }3.6\text{ V}; V_{\text{CC}} = 0\text{ V}$	-	-	± 0.2	μA
ΔI_{OFF}	additional power-off leakage current	$V_{\text{I}} \text{ or } V_{\text{O}} = 0\text{ V to }3.6\text{ V}; V_{\text{CC}} = 0\text{ V to }0.2\text{ V}$	-	-	± 0.2	μA
I_{CC}	supply current	$V_{\text{I}} = \text{GND or }V_{\text{CC}}; I_{\text{O}} = 0\text{ A}; V_{\text{CC}} = 0.8\text{ V to }3.6\text{ V}$	-	-	0.5	μA
ΔI_{CC}	additional supply current	$V_{\text{I}} = V_{\text{CC}} - 0.6\text{ V}; I_{\text{O}} = 0\text{ A}; V_{\text{CC}} = 3.3\text{ V}$	-	-	40	μA

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
C_I	input capacitance	$V_{CC} = 0\text{ V to }3.6\text{ V}$; $V_I = \text{GND or }V_{CC}$	-	1.0	-	pF
C_O	output capacitance	$V_O = \text{GND}$; $V_{CC} = 0\text{ V}$	-	1.8	-	pF
$T_{\text{amb}} = -40\text{ }^\circ\text{C to }+85\text{ }^\circ\text{C}$						
V_{IH}	HIGH-level input voltage	$V_{CC} = 0.8\text{ V}$	$0.70V_{CC}$	-	-	V
		$V_{CC} = 0.9\text{ V to }1.95\text{ V}$	$0.65V_{CC}$	-	-	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.6	-	-	V
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC} = 0.8\text{ V}$	-	-	$0.30V_{CC}$	V
		$V_{CC} = 0.9\text{ V to }1.95\text{ V}$	-	-	$0.35V_{CC}$	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	-	-	0.7	V
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	-	-	0.9	V
V_{OH}	HIGH-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$				
		$I_O = -20\text{ }\mu\text{A}$; $V_{CC} = 0.8\text{ V to }3.6\text{ V}$	$V_{CC} - 0.1$	-	-	V
		$I_O = -1.1\text{ mA}$; $V_{CC} = 1.1\text{ V}$	$0.7V_{CC}$	-	-	V
		$I_O = -1.7\text{ mA}$; $V_{CC} = 1.4\text{ V}$	1.03	-	-	V
		$I_O = -1.9\text{ mA}$; $V_{CC} = 1.65\text{ V}$	1.30	-	-	V
		$I_O = -2.3\text{ mA}$; $V_{CC} = 2.3\text{ V}$	1.97	-	-	V
		$I_O = -3.1\text{ mA}$; $V_{CC} = 2.3\text{ V}$	1.85	-	-	V
		$I_O = -2.7\text{ mA}$; $V_{CC} = 3.0\text{ V}$	2.67	-	-	V
V_{OL}	LOW-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$				
		$I_O = 20\text{ }\mu\text{A}$; $V_{CC} = 0.8\text{ V to }3.6\text{ V}$	-	-	0.1	V
		$I_O = 1.1\text{ mA}$; $V_{CC} = 1.1\text{ V}$	-	-	$0.3V_{CC}$	V
		$I_O = 1.7\text{ mA}$; $V_{CC} = 1.4\text{ V}$	-	-	0.37	V
		$I_O = 1.9\text{ mA}$; $V_{CC} = 1.65\text{ V}$	-	-	0.35	V
		$I_O = 2.3\text{ mA}$; $V_{CC} = 2.3\text{ V}$	-	-	0.33	V
		$I_O = 3.1\text{ mA}$; $V_{CC} = 2.3\text{ V}$	-	-	0.45	V
		$I_O = 2.7\text{ mA}$; $V_{CC} = 3.0\text{ V}$	-	-	0.33	V
	$I_O = 4.0\text{ mA}$; $V_{CC} = 3.0\text{ V}$	-	-	0.45	V	
I_I	input leakage current	$V_I = \text{GND to }3.6\text{ V}$; $V_{CC} = 0\text{ V to }3.6\text{ V}$	-	-	± 0.5	μA
I_{OFF}	power-off leakage current	$V_I\text{ or }V_O = 0\text{ V to }3.6\text{ V}$; $V_{CC} = 0\text{ V}$	-	-	± 0.5	μA
ΔI_{OFF}	additional power-off leakage current	$V_I\text{ or }V_O = 0\text{ V to }3.6\text{ V}$; $V_{CC} = 0\text{ V to }0.2\text{ V}$	-	-	± 0.6	μA
I_{CC}	supply current	$V_I = \text{GND or }V_{CC}$; $I_O = 0\text{ A}$; $V_{CC} = 0.8\text{ V to }3.6\text{ V}$	-	-	0.9	μA
ΔI_{CC}	additional supply current	$V_I = V_{CC} - 0.6\text{ V}$; $I_O = 0\text{ A}$; $V_{CC} = 3.3\text{ V}$	-	-	50	μA

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$T_{amb} = -40\text{ °C to }+125\text{ °C}$						
V_{IH}	HIGH-level input voltage	$V_{CC} = 0.8\text{ V}$	$0.75V_{CC}$	-	-	V
		$V_{CC} = 0.9\text{ V to }1.95\text{ V}$	$0.70V_{CC}$	-	-	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	1.6	-	-	V
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC} = 0.8\text{ V}$	-	-	$0.25V_{CC}$	V
		$V_{CC} = 0.9\text{ V to }1.95\text{ V}$	-	-	$0.30V_{CC}$	V
		$V_{CC} = 2.3\text{ V to }2.7\text{ V}$	-	-	0.7	V
		$V_{CC} = 3.0\text{ V to }3.6\text{ V}$	-	-	0.9	V
V_{OH}	HIGH-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$				
		$I_O = -20\text{ }\mu\text{A}; V_{CC} = 0.8\text{ V to }3.6\text{ V}$	$V_{CC} - 0.11$	-	-	V
		$I_O = -1.1\text{ mA}; V_{CC} = 1.1\text{ V}$	$0.6V_{CC}$	-	-	V
		$I_O = -1.7\text{ mA}; V_{CC} = 1.4\text{ V}$	0.93	-	-	V
		$I_O = -1.9\text{ mA}; V_{CC} = 1.65\text{ V}$	1.17	-	-	V
		$I_O = -2.3\text{ mA}; V_{CC} = 2.3\text{ V}$	1.77	-	-	V
		$I_O = -3.1\text{ mA}; V_{CC} = 2.3\text{ V}$	1.67	-	-	V
		$I_O = -2.7\text{ mA}; V_{CC} = 3.0\text{ V}$	2.40	-	-	V
V_{OL}	LOW-level output voltage	$V_I = V_{IH}\text{ or }V_{IL}$				
		$I_O = 20\text{ }\mu\text{A}; V_{CC} = 0.8\text{ V to }3.6\text{ V}$	-	-	0.11	V
		$I_O = 1.1\text{ mA}; V_{CC} = 1.1\text{ V}$	-	-	$0.33V_{CC}$	V
		$I_O = 1.7\text{ mA}; V_{CC} = 1.4\text{ V}$	-	-	0.41	V
		$I_O = 1.9\text{ mA}; V_{CC} = 1.65\text{ V}$	-	-	0.39	V
		$I_O = 2.3\text{ mA}; V_{CC} = 2.3\text{ V}$	-	-	0.36	V
		$I_O = 3.1\text{ mA}; V_{CC} = 2.3\text{ V}$	-	-	0.50	V
		$I_O = 2.7\text{ mA}; V_{CC} = 3.0\text{ V}$	-	-	0.36	V
	$I_O = 4.0\text{ mA}; V_{CC} = 3.0\text{ V}$	-	-	0.50	V	
I_I	input leakage current	$V_I = \text{GND to }3.6\text{ V}; V_{CC} = 0\text{ V to }3.6\text{ V}$	-	-	± 0.75	μA
I_{OFF}	power-off leakage current	$V_I\text{ or }V_O = 0\text{ V to }3.6\text{ V}; V_{CC} = 0\text{ V}$	-	-	± 0.75	μA
ΔI_{OFF}	additional power-off leakage current	$V_I\text{ or }V_O = 0\text{ V to }3.6\text{ V}; V_{CC} = 0\text{ V to }0.2\text{ V}$	-	-	± 0.75	μA
I_{CC}	supply current	$V_I = \text{GND or }V_{CC}; I_O = 0\text{ A}; V_{CC} = 0.8\text{ V to }3.6\text{ V}$	-	-	1.4	μA
ΔI_{CC}	additional supply current	$V_I = V_{CC} - 0.6\text{ V}; I_O = 0\text{ A}; V_{CC} = 3.3\text{ V}$	-	-	75	μA

11 Dynamic characteristics

Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit, see [Figure 9](#).

Symbol	Parameter	Conditions	25 °C			-40 °C to +125 °C			Unit
			Min	Typ ^[1]	Max	Min	Max (85 °C)	Max (125 °C)	
C_L = 5 pF									
t _{pd}	propagation delay	nA to nY; see Figure 8 ^[2]							
		• V _{CC} = 0.8 V	-	14.9	-	-	-	-	ns
		• V _{CC} = 1.1 V to 1.3 V	2.6	4.7	9.2	2.0	10.0	11.0	ns
		• V _{CC} = 1.4 V to 1.6 V	2.1	3.4	5.7	1.6	6.5	7.2	ns
		• V _{CC} = 1.65 V to 1.95 V	1.8	2.9	4.5	1.4	5.2	5.8	ns
		• V _{CC} = 2.3 V to 2.7 V	1.5	2.3	3.5	1.2	4.2	4.6	ns
		• V _{CC} = 3.0 V to 3.6 V	1.4	2.1	3.2	1.0	3.8	4.2	ns
C_L = 10 pF									
t _{pd}	propagation delay	nA to nY; see Figure 8 ^[2]							
		• V _{CC} = 0.8 V	-	18.4	-	-	-	-	ns
		• V _{CC} = 1.1 V to 1.3 V	3.2	5.6	10.9	2.3	11.8	13.1	ns
		• V _{CC} = 1.4 V to 1.6 V	2.6	4.1	6.7	1.9	7.7	8.5	ns
		• V _{CC} = 1.65 V to 1.95 V	2.3	3.4	5.3	1.7	6.2	6.9	ns
		• V _{CC} = 2.3 V to 2.7 V	2.0	2.9	4.2	1.5	5.0	5.5	ns
		• V _{CC} = 3.0 V to 3.6 V	1.7	2.6	3.8	1.4	4.6	5.1	ns
C_L = 15 pF									
t _{pd}	propagation delay	nA to nY; see Figure 8 ^[2]							
		• V _{CC} = 0.8 V	-	21.9	-	-	-	-	ns
		• V _{CC} = 1.1 V to 1.3 V	3.6	6.4	12.6	2.6	13.8	15.2	ns
		• V _{CC} = 1.4 V to 1.6 V	3.0	4.6	7.6	2.2	8.9	9.8	ns
		• V _{CC} = 1.65 V to 1.95 V	2.6	3.9	6.0	2.0	7.2	7.9	ns
		• V _{CC} = 2.3 V to 2.7 V	2.3	3.3	4.8	1.8	5.7	6.3	ns
		• V _{CC} = 3.0 V to 3.6 V	2.1	3.1	4.2	1.6	5.0	5.5	ns
C_L = 30 pF									
t _{pd}	propagation delay	nA to nY; see Figure 8 ^[2]							
		• V _{CC} = 0.8 V	-	32.1	-	-	-	-	ns
		• V _{CC} = 1.1 V to 1.3 V	4.8	8.7	16.3	3.6	18.9	20.8	ns
		• V _{CC} = 1.4 V to 1.6 V	4.0	6.2	10.3	3.4	12.2	13.4	ns
		• V _{CC} = 1.65 V to 1.95 V	3.6	5.2	8.1	3.2	9.8	10.8	ns
		• V _{CC} = 2.3 V to 2.7 V	3.0	4.4	6.4	2.7	7.7	8.5	ns
		• V _{CC} = 3.0 V to 3.6 V	2.9	4.2	5.6	2.5	6.5	7.2	ns

Symbol	Parameter	Conditions	25 °C			-40 °C to +125 °C			Unit
			Min	Typ ^[1]	Max	Min	Max (85 °C)	Max (125 °C)	
C _L = 5 pF, 10 pF, 15 pF and 30 pF									
C _{PD}	power dissipation capacitance	f _i = 1 MHz; V _I = GND to V _{CC} ^{[3] [4]}							
		• V _{CC} = 0.8 V	-	2.5	-	-	-	-	pF
		• V _{CC} = 1.1 V to 1.3 V	-	2.6	-	-	-	-	pF
		• V _{CC} = 1.4 V to 1.6 V	-	2.7	-	-	-	-	pF
		• V _{CC} = 1.65 V to 1.95 V	-	2.9	-	-	-	-	pF
		• V _{CC} = 2.3 V to 2.7 V	-	3.4	-	-	-	-	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] All specified values are the average typical values over all stated loads.
- [4] 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 = load capacitance in pF;
 V_{CC} = supply voltage in V;
 N = number of inputs switching;
 Σ(C_L × V_{CC}² × f_o) = sum of the outputs.

11.1 Waveforms and test circuit

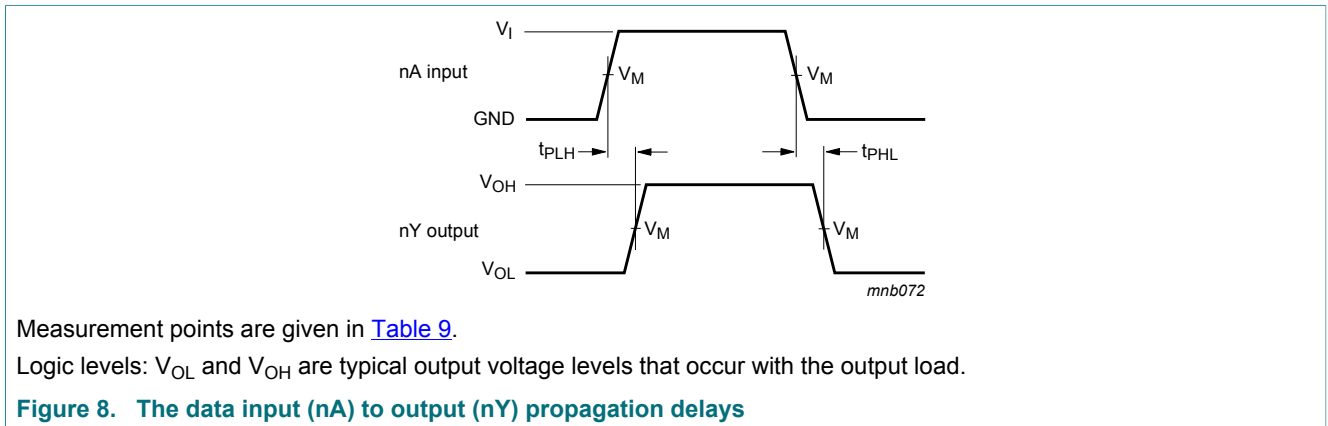
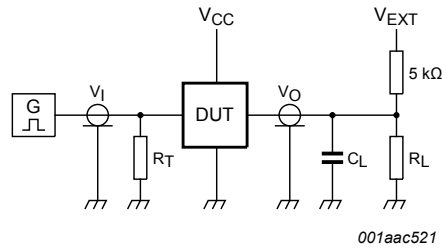


Table 9. Measurement points

Supply voltage	Output	Input		
V _{CC}	V _M	V _M	V _I	t _r = t _f
0.8 V to 3.6 V	0.5V _{CC}	0.5V _{CC}	V _{CC}	≤ 3.0 ns



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.

Figure 9. Test circuit for measuring switching times

Table 10. 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	$2V_{CC}$

[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

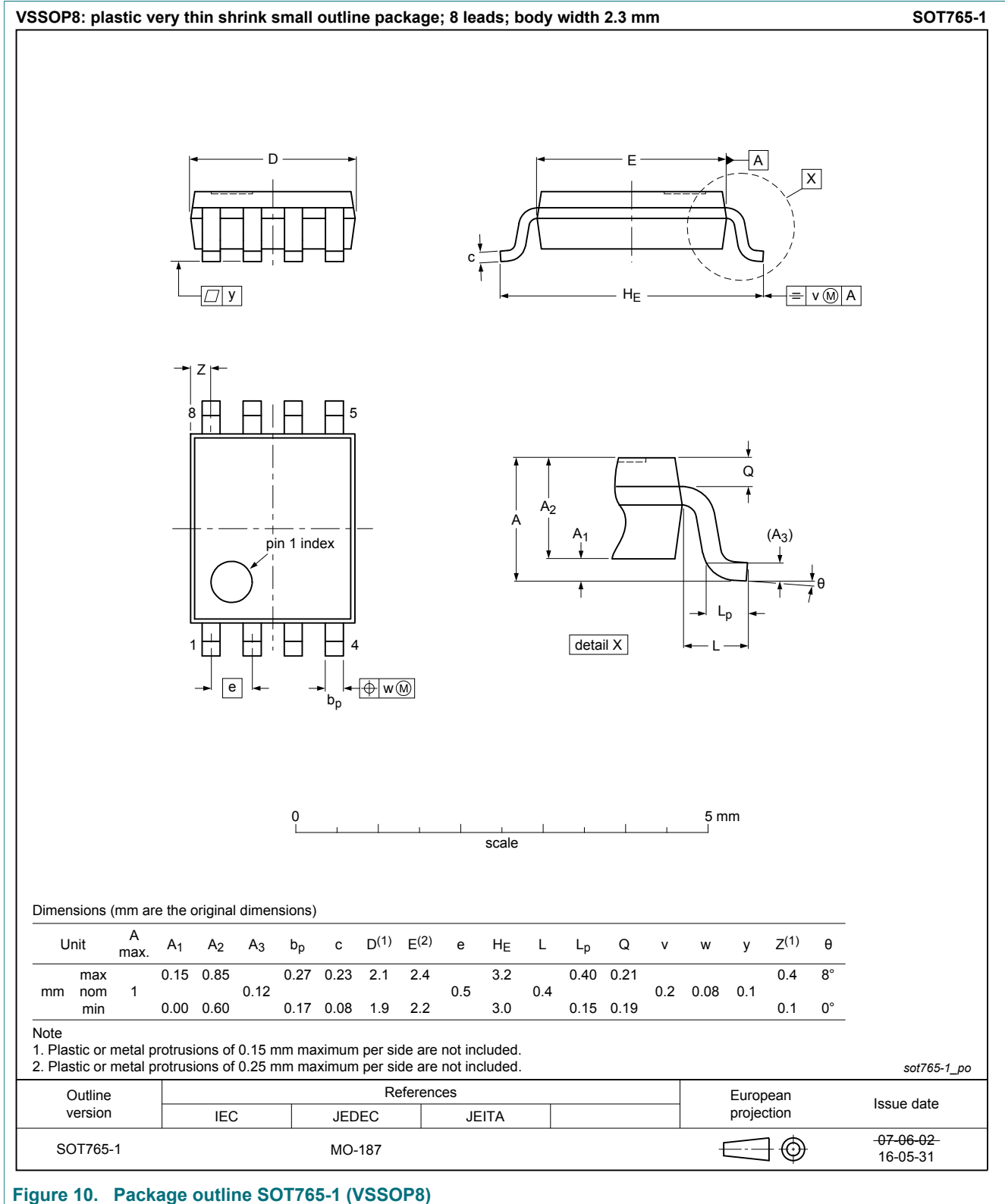
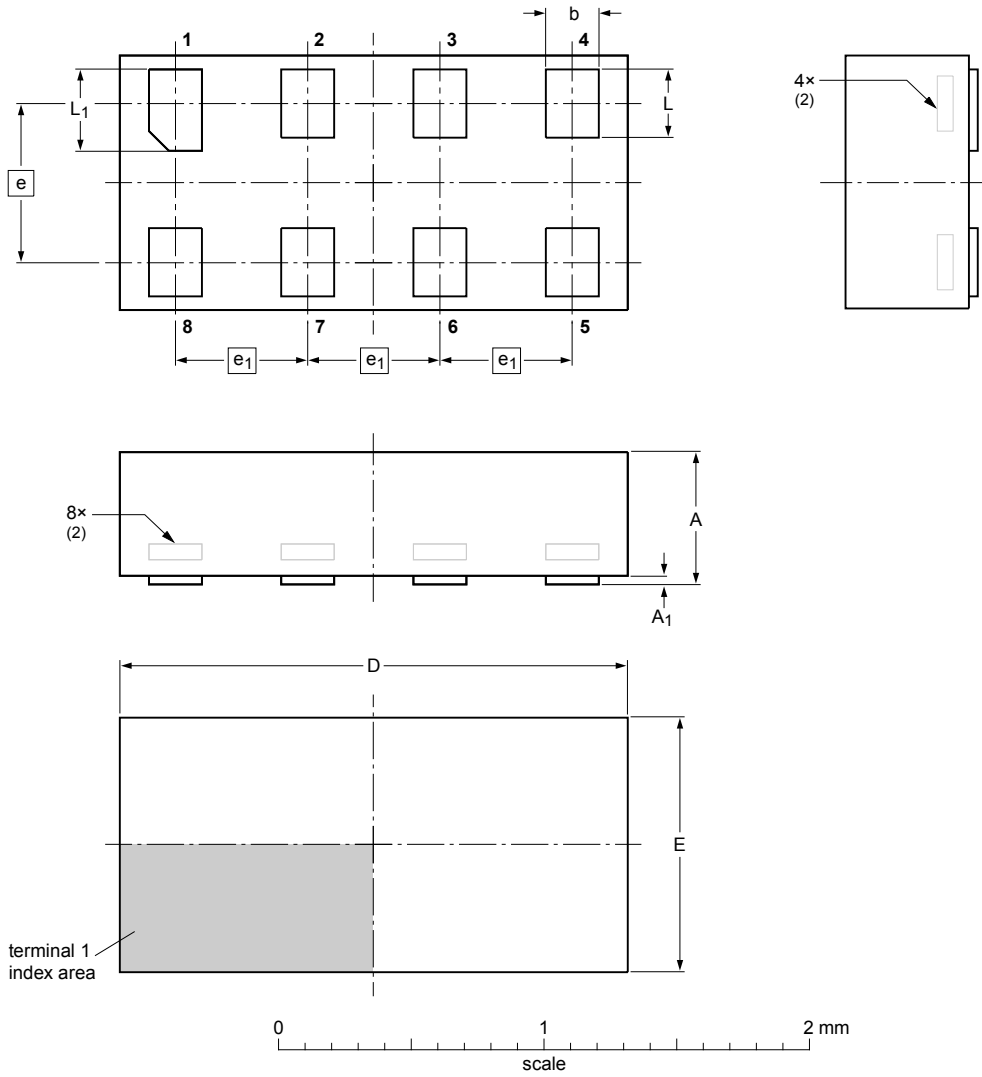


Figure 10. Package outline SOT765-1 (VSSOP8)

XSON8: plastic extremely thin small outline package; no leads; 8 terminals; body 1 x 1.95 x 0.5 mm

SOT833-1



DIMENSIONS (mm are the original dimensions)

UNIT	A ⁽¹⁾ max	A ₁ max	b	D	E	e	e ₁	L	L ₁
mm	0.5	0.04	0.25 0.17	2.0 1.9	1.05 0.95	0.6	0.5	0.35 0.27	0.40 0.32

Notes

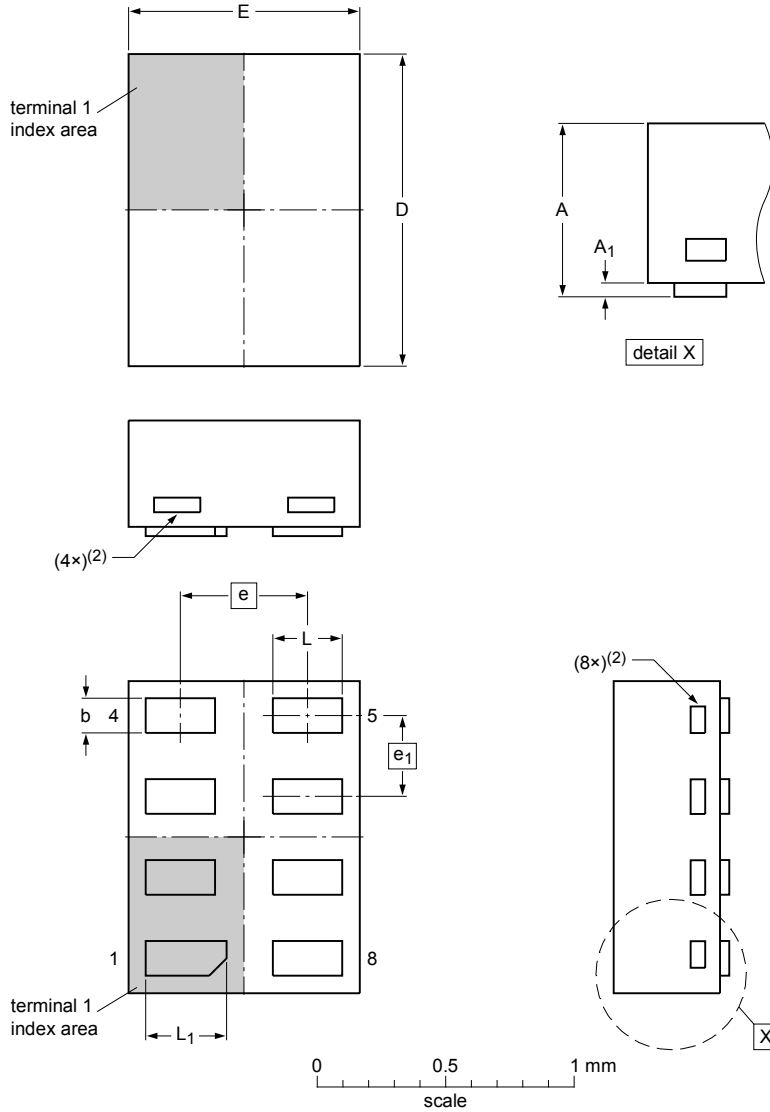
1. Including plating thickness.
2. Can be visible in some manufacturing processes.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT833-1	---	MO-252	---		07-11-14 07-12-07

Figure 11. Package outline SOT833-1 (XSON8)

XSON8: extremely thin small outline package; no leads;
8 terminals; body 1.35 x 1 x 0.5 mm

SOT1089



Dimensions

Unit	A ⁽¹⁾	A ₁	b	D	E	e	e ₁	L	L ₁
max	0.5	0.04	0.20	1.40	1.05			0.35	0.40
nom			0.15	1.35	1.00	0.55	0.35	0.30	0.35
min			0.12	1.30	0.95			0.27	0.32

Note

- Including plating thickness.
- Visible depending upon used manufacturing technology.

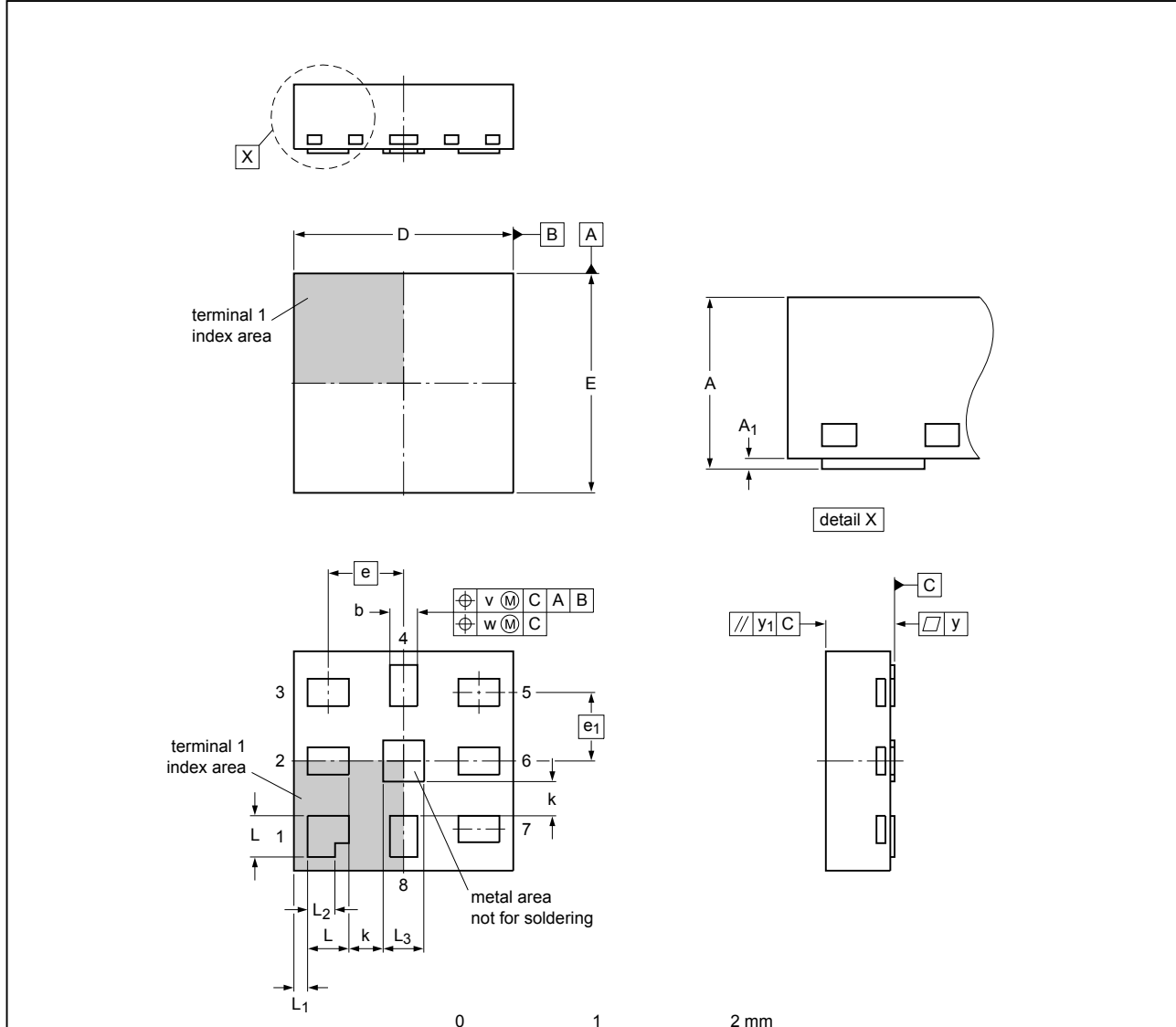
sot1089_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT1089		MO-252				10-04-09 10-04-12

Figure 12. Package outline SOT1089 (XSON8)

**XQFN8: plastic, extremely thin quad flat package; no leads;
8 terminals; body 1.6 x 1.6 x 0.5 mm**

SOT902-2



Dimensions

Unit ⁽¹⁾	A	A ₁	b	D	E	e	e ₁	k	L	L ₁	L ₂	L ₃	v	w	y	y ₁
max	0.5	0.05	0.25	1.65	1.65				0.35	0.15	0.25	0.35				
mm	nom		0.20	1.60	1.60	0.55	0.5		0.30	0.10	0.20	0.30	0.1	0.05	0.05	0.05
	min	0.00	0.15	1.55	1.55			0.2	0.25	0.05	0.15	0.25				

Note

1. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

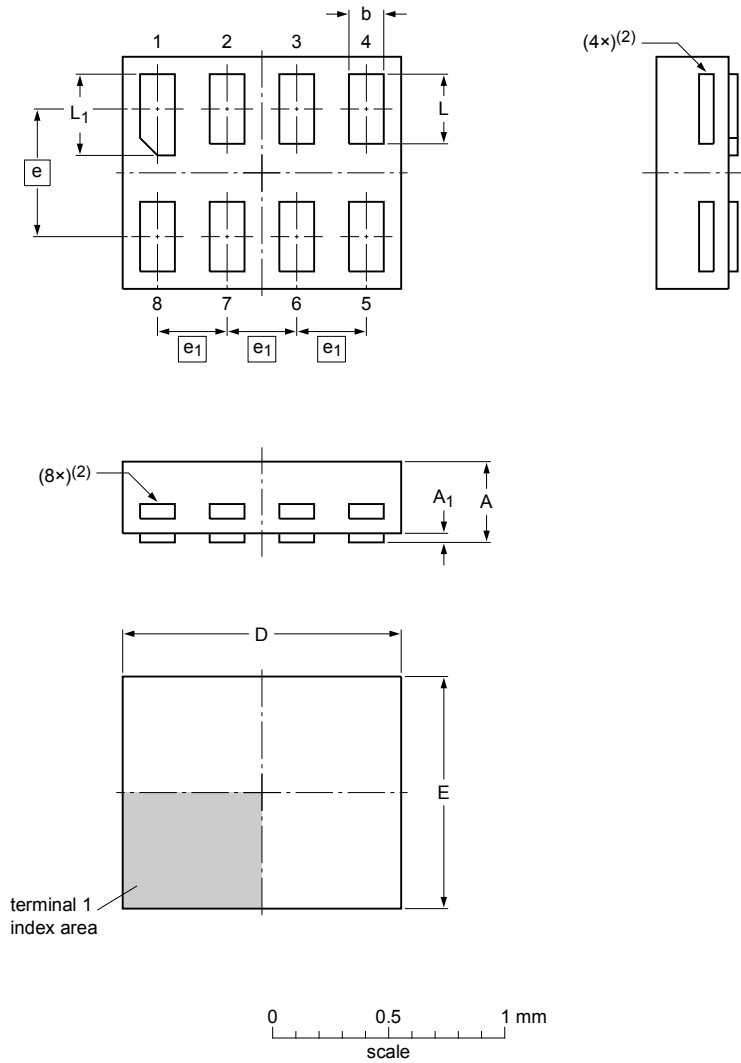
sot902-2_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT902-2	---	MO-255	---			16-07-14 16-11-08

Figure 13. Package outline SOT902-2 (XQFN8)

XSON8: extremely thin small outline package; no leads;
8 terminals; body 1.2 x 1.0 x 0.35 mm

SOT1116



Dimensions

Unit	A ⁽¹⁾	A ₁	b	D	E	e	e ₁	L	L ₁
max	0.35	0.04	0.20	1.25	1.05			0.35	0.40
nom			0.15	1.20	1.00	0.55	0.3	0.30	0.35
min			0.12	1.15	0.95			0.27	0.32

Note

- Including plating thickness.
- Visible depending upon used manufacturing technology.

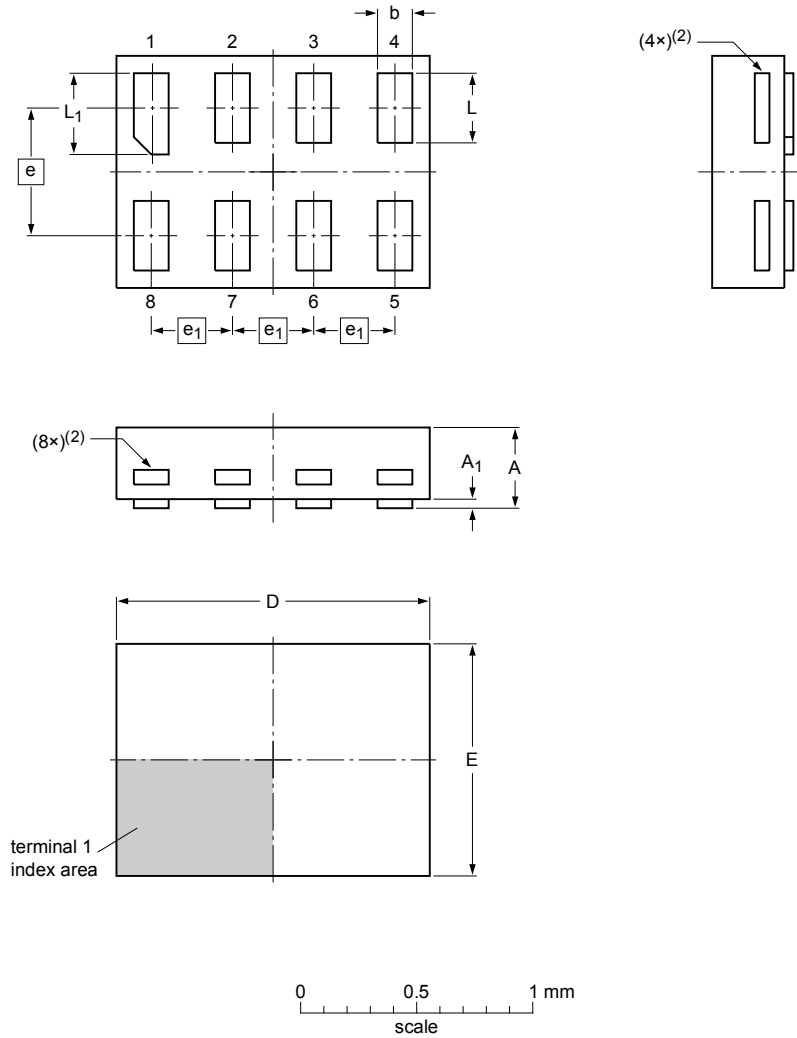
sot1116_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT1116						-10-04-02- 10-04-07

Figure 14. Package outline SOT1116 (XSON8)

XSON8: extremely thin small outline package; no leads;
8 terminals; body 1.35 x 1.0 x 0.35 mm

SOT1203



Dimensions

Unit	A ⁽¹⁾	A ₁	b	D	E	e	e ₁	L	L ₁
mm	max 0.35	0.04	0.20	1.40	1.05			0.35	0.40
	nom 0.15	1.35	1.00	0.55	0.35	0.30	0.35		
	min 0.12	1.30	0.95			0.27	0.32		

Note

- Including plating thickness.
- Visible depending upon used manufacturing technology.

sot1203_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT1203						-10-04-02- 10-04-06

Figure 15. Package outline SOT1203 (XSON8)

X2SON8: plastic thermal enhanced extremely thin small outline package; no leads; 8 terminals; body 1.35 x 0.8 x 0.35 mm

SOT1233

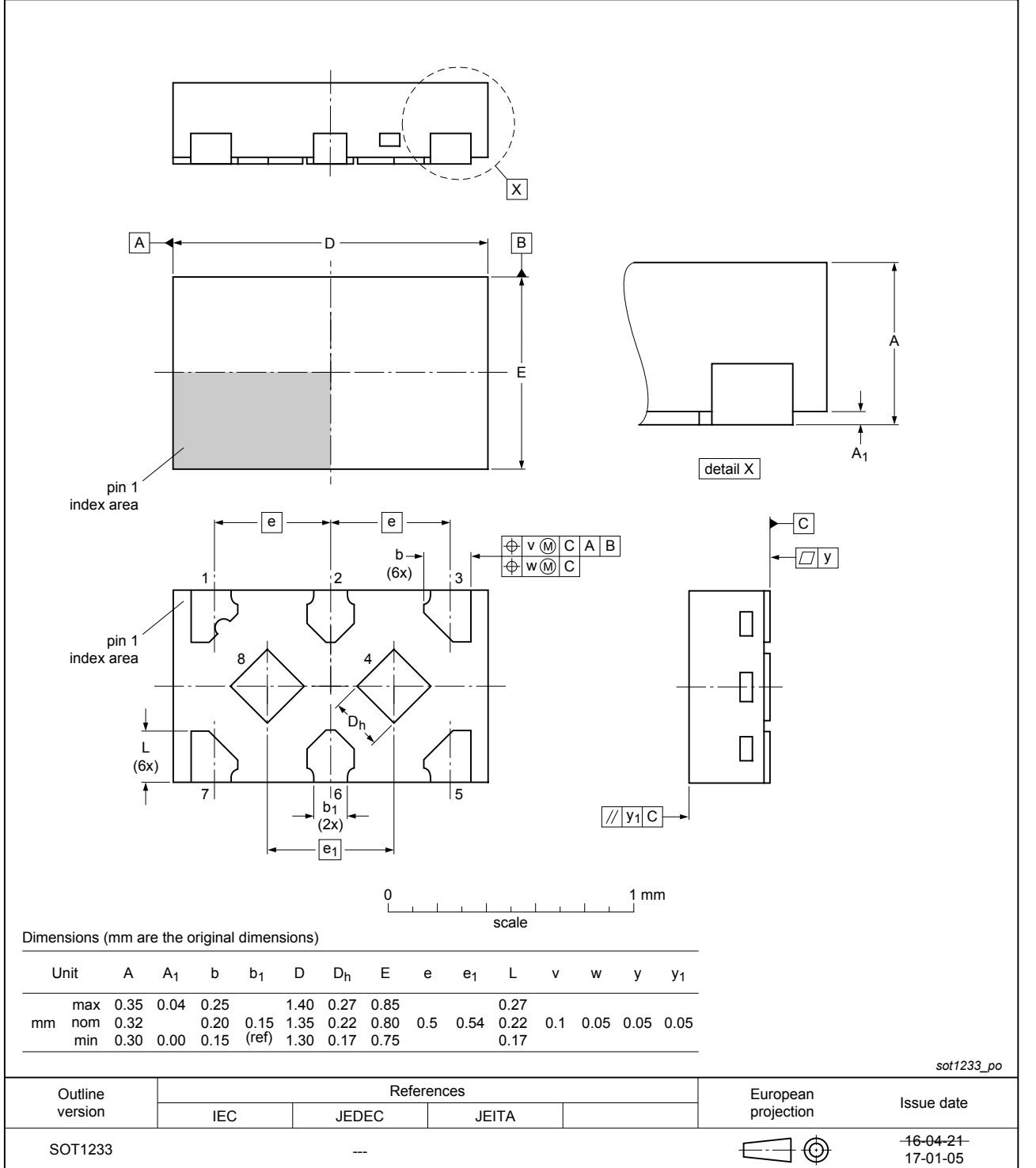


Figure 16. Package outline SOT1233 (X2SON8)

13 Abbreviations

Table 11. Abbreviations

Acronym	Description
CDM	Charged Device Model
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model
MM	Machine Model

14 Revision history

Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP3G34 v.3	20170703	Product data sheet	-	74AUP3G34 v.2
Modifications:	<ul style="list-style-type: none"> 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. Type number 74AUP3G34GX (SOT1233 / X2SON8) added. Type number 74AUP3G34GD removed. 			
74AUP3G34 v.2	20161011	Product data sheet	-	74AUP3G34 v.1
Modifications:	<ul style="list-style-type: none"> Type numbers 74AUP3G34DP removed. 			
74AUP3G34 v.1	20141218	Product data sheet	-	-

15 Legal information

15.1 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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