# **74AUP1T97**

Low-power configurable gate with voltage-level translator
Rev. 9 — 17 July 2023 Product data sheet

### 1. General description

The 74AUP1T97 is a configurable multiple function gate with level translating, Schmitt-trigger inputs. The device can be configured as any of the following logic functions MUX, AND, OR, NAND, NOR, 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
- CMOS low power dissipation
- High noise immunity
- Overvoltage tolerant inputs to 3.6 V
- Low noise overshoot and undershoot < 10 % of V<sub>CC</sub>
- I<sub>OFF</sub> circuitry provides partial power-down mode operation
- Latch-up performance exceeds 100 mA per JESD 78 Class II
- Low static power consumption; I<sub>CC</sub> = 1.5 μA (maximum)
- 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)
- 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



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

# 3. Ordering information

**Table 1. Ordering information** 

Type number	Package								
	Temperature range	Name	Description	Version					
74AUP1T97GW	-40 °C to +125 °C	TSSOP6	plastic thin shrink small outline package; 6 leads; body width 1.25 mm	SOT363-2					
74AUP1T97GM	-40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm	<u>SOT886</u>					
74AUP1T97GN	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm	<u>SOT1115</u>					
74AUP1T97GS	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm	SOT1202					
74AUP1T97GX	-40 °C to +125 °C	X2SON6	plastic thermal enhanced extremely thin small outline package; no leads; 6 terminals; body 1.0 × 0.8 × 0.32 mm	SOT1255-2					

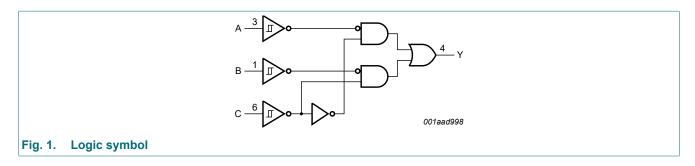
## 4. Marking

Table 2. Marking

Marking code[1]
59
59
59
59
59

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

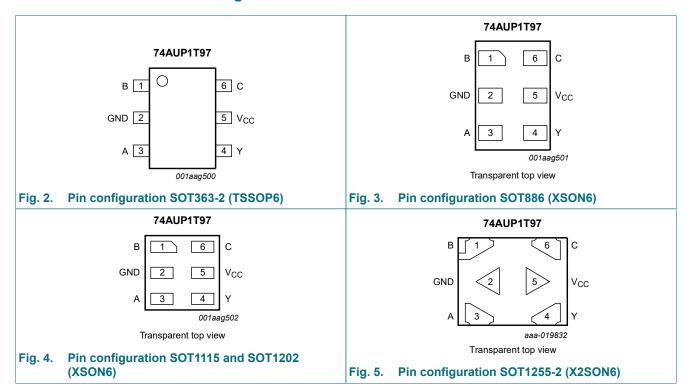
# 5. Functional diagram



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

## 6. Pinning information

#### 6.1. Pinning



### 6.2. Pin description

Table 3. Pin description

Symbol	Pin	Description
В	1	data input
GND	2	ground (0 V)
Α	3	data input
Υ	4	data output
V <sub>CC</sub>	5	supply voltage
С	6	data input

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

## 7. Functional description

#### **Table 4. Function table**

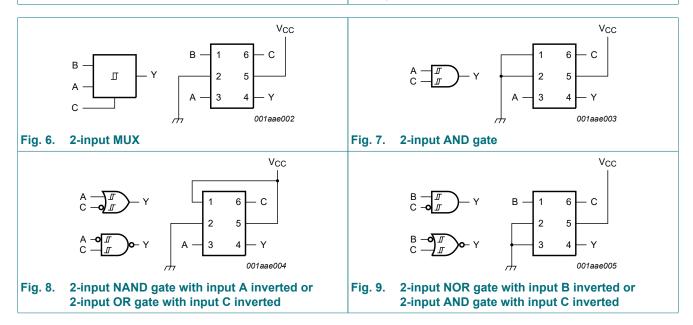
 $H = HIGH \ voltage \ level; \ L = LOW \ voltage \ level.$ 

Input			Output
С	В	A	Υ
L	L	L	L
L	L	Н	L
L	Н	L	Н
L	Н	Н	Н
Н	L	L	L
Н	L	Н	Н
Н	Н	L	L
Н	Н	Н	Н

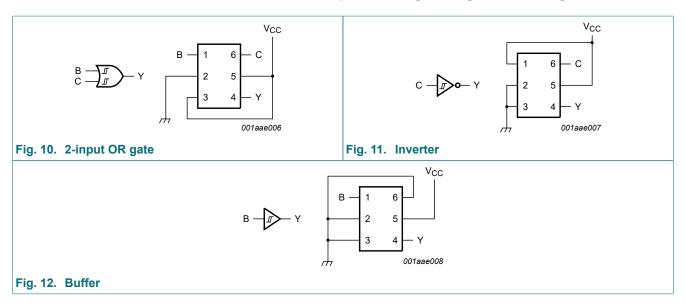
## 7.1. Logic configurations

**Table 5. Function selection table** 

Logic function	Figure
2-input MUX	see Fig. 6
2-input AND	see Fig. 7
2-input OR with one input inverted	see Fig. 8
2-input NAND with one input inverted	see Fig. 8
2-input AND with one input inverted	see Fig. 9
2-input NOR with one input inverted	see Fig. 9
2-input OR	see Fig. 10
Inverter	see <u>Fig. 11</u>
Buffer	see Fig. 12



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



## 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 <sub>CC</sub>	supply voltage			-0.5	+4.6	V
I <sub>IK</sub>	input clamping current	V <sub>I</sub> < 0 V		-50	-	mA
VI	input voltage		[1]	-0.5	+4.6	V
I <sub>OK</sub>	output clamping current	V <sub>O</sub> < 0 V		-50	-	mA
Vo	output voltage	Active mode and Power-down mode	[1]	-0.5	+4.6	V
Io	output current	$V_O = 0 V \text{ to } V_{CC}$		-	±20	mA
I <sub>CC</sub>	supply current			-	50	mA
I <sub>GND</sub>	ground current			-50	-	mA
T <sub>stg</sub>	storage temperature			-65	+150	°C
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = -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 SOT363-2 (TSSOP6) package: Ptot 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: Ptot derates linearly with 3.2 mW/K above 71 °C.

For SOT1202 (XSON6) package: Ptot derates linearly with 3.3 mW/K above 74 °C.

For SOT1255-2 (X2SON6) package:  $P_{tot}$  derates linearly with 3.3 mW/K above 75 °C.

## 9. Recommended operating conditions

Table 7. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>CC</sub>	supply voltage		2.3	3.6	V
VI	input voltage		0	3.6	V
Vo	output voltage	Active mode	0	V <sub>CC</sub>	V
		Power-down mode; V <sub>CC</sub> = 0 V	0	3.6	V
T <sub>amb</sub>	ambient temperature		-40	+125	°C

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

## 10. Static characteristics

#### **Table 8. Static characteristics**

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

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = 2	5 °C					
V <sub>T+</sub>	positive-going threshold	V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.16	V
V <sub>T-</sub>	negative-going threshold	V <sub>CC</sub> = 2.3 V to 2.7 V	0.35	-	0.60	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.50	-	0.85	V
V <sub>H</sub>	hysteresis voltage	$(V_{H} = V_{T+} - V_{T-})$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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
V <sub>T+</sub>		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	μΑ
I <sub>OFF</sub>	power-off leakage current	$V_{I}$ or $V_{O} = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.1	μΑ
Δl <sub>OFF</sub>	additional power-off leakage current	$V_1$ or $V_0 = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	±0.2	μA
I <sub>CC</sub>	supply current	$V_I$ = GND or $V_{CC}$ ; $I_O$ = 0 A; $V_{CC}$ = 2.3 V to 3.6 V	-	-	1.2	μΑ
Cı	input capacitance	$V_{CC}$ = 0 V to 3.6 V; $V_I$ = GND or $V_{CC}$	-	0.8	-	pF
Co	output capacitance	$V_O = GND; V_{CC} = 0 V$	-	1.7	-	pF

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -	40 °C to +85 °C					
V <sub>T+</sub> positive-going threshold		V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.19	V
V <sub>T-</sub>	negative-going threshold	V <sub>CC</sub> = 2.3 V to 2.7 V	0.35	-	0.60	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.50	-	0.85	V
V <sub>H</sub>	hysteresis voltage	$(V_{H} = V_{T+} - V_{T-})$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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	μΑ
l <sub>OFF</sub>	power-off leakage current	$V_{I}$ or $V_{O} = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.5	μΑ
ΔI <sub>OFF</sub>	additional power-off leakage current	$V_{I}$ or $V_{O} = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	±0.5	μA
I <sub>CC</sub>	supply current	$V_I$ = GND or $V_{CC}$ ; $I_O$ = 0 A; $V_{CC}$ = 2.3 V to 3.6 V	-	-	1.5	μΑ
ΔI <sub>CC</sub>	additional supply current	$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V; I}_{O} = 0 \text{ A}$ [1]	-	-	4	μΑ
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V; } I_O = 0 \text{ A}$ [2]	-	-	12	μΑ

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -	40 °C to +125 °C					
V <sub>T+</sub>	positive-going threshold	V <sub>CC</sub> = 2.3 V to 2.7 V	0.60	-	1.10	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.75	-	1.19	V
V <sub>T-</sub>	negative-going threshold	V <sub>CC</sub> = 2.3 V to 2.7 V	0.33	-	0.64	V
	voltage	V <sub>CC</sub> = 3.0 V to 3.6 V	0.46	-	0.85	V
V <sub>H</sub>	hysteresis voltage	$(V_{H} = V_{T+} - V_{T-})$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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	$V_I = V_{T+}$ or $V_{T-}$				
		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	$V_{I}$ or $V_{O} = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.75	μA
Δl <sub>OFF</sub>	additional power-off leakage current	$V_1$ or $V_0 = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	±0.75	μA
I <sub>CC</sub>	supply current	$V_I$ = GND or $V_{CC}$ ; $I_O$ = 0 A; $V_{CC}$ = 2.3 V to 3.6 V	-	-	3.5	μA
ΔI <sub>CC</sub>	additional supply current	$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V; } I_O = 0 \text{ A}$ [1]	-	-	7	μA
		V <sub>CC</sub> = 3.0 V to 3.6 V; I <sub>O</sub> = 0 A [2]	-	-	22	μΑ

One input at 0.3 V or 1.1 V, other input at  $V_{CC}$  or GND. One input at 0.45 V or 1.2 V, other input at  $V_{CC}$  or GND.

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

# 11. Dynamic characteristics

#### **Table 9. Dynamic characteristics**

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 14.

Symbol	Parameter	Conditions		25 °C		-40 °C to	o +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	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
	delay	C <sub>L</sub> = 5 pF	2.2	3.5	5.5	0.5	6.8	0.5	7.5	ns
		C <sub>L</sub> = 10 pF	2.6	4.1	6.3	1.0	7.9	1.0	8.7	ns
		C <sub>L</sub> = 15 pF	2.9	4.6	6.9	1.0	8.7	1.0	9.6	ns
		C <sub>L</sub> = 30 pF	3.7	5.8	8.4	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	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
	delay	C <sub>L</sub> = 5 pF	1.8	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	2.5	4.4	6.8	1.0	7.9	1.0	8.7	ns
		C <sub>L</sub> = 30 pF	3.2	5.6	8.3	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	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
C	delay	C <sub>L</sub> = 5 pF	1.4	3.1	5.0	0.5	5.5	0.5	6.1	ns
		C <sub>L</sub> = 10 pF	1.8	3.7	5.7	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	2.9	5.3	7.9	1.5	9.5	1.5	10.5	ns
$V_{CC} = 3$ .	0 V to 3.6 V; V <sub>I</sub>	= 1.65 V to 1.95 V								
$t_{pd}$	propagation	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
	delay	C <sub>L</sub> = 5 pF	2.1	2.9	3.9	0.5	8.0	0.5	8.8	ns
		C <sub>L</sub> = 10 pF	2.5	3.4	4.6	1.0	8.5	1.0	9.4	ns
		C <sub>L</sub> = 15 pF	2.9	3.9	5.2	1.0	9.1	1.0	10.1	ns
		C <sub>L</sub> = 30 pF	3.6	5.0	6.7	1.5	9.8	1.5	10.8	ns
$V_{CC} = 3.$	0 V to 3.6 V; V <sub>I</sub>	= 2.3 V to 2.7 V								
$t_{pd}$	propagation	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
	delay	C <sub>L</sub> = 5 pF	1.7	2.8	4.2	0.5	5.3	0.5	5.9	ns
		C <sub>L</sub> = 10 pF	2.1	3.4	5.0	1.0	6.1	1.0	6.8	ns
		C <sub>L</sub> = 15 pF	2.4	3.8	5.6	1.0	6.8	1.0	7.5	ns
		C <sub>L</sub> = 30 pF	3.2	5.0	7.1	1.5	8.5	1.5	9.4	ns
$V_{CC} = 3$ .	0 V to 3.6 V; V <sub>I</sub>	= 3.0 V to 3.6 V								
t <sub>pd</sub>	propagation	A, B, C to Y; see <u>Fig. 13</u> [2	2]							
	delay	C <sub>L</sub> = 5 pF	1.4	2.7	4.2	0.5	4.7	0.5	5.2	ns
		C <sub>L</sub> = 10 pF	1.8	3.3	5.0	1.0	5.7	1.0	6.3	ns
		C <sub>L</sub> = 15 pF	2.1	3.8	5.6	1.0	6.2	1.0	6.9	ns
		C <sub>L</sub> = 30 pF	2.9	4.9	7.1	1.5	7.8	1.5	8.6	ns

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

Symbol	Parameter	Conditions	25 °C		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	$f_i = 1 \text{ MHz}; V_I = \text{GND to } V_{CC}$ [3]								
	dissipation capacitance	V <sub>CC</sub> = 2.3 V to 2.7 V	-	3.6	-	-	-	-	-	pF
	capacitance	V <sub>CC</sub> = 3.0 V to 3.6 V	-	4.3	-	-	-	-	-	pF

- All typical values are measured at nominal V<sub>CC</sub>.
- $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu W$ ).  $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma (C_L \times V_{CC}^2 \times f_o)$  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;

 $\Sigma(C_L \times V_{CC}^2 \times f_0)$  = sum of the outputs.

#### 11.1. Waveform and test circuit

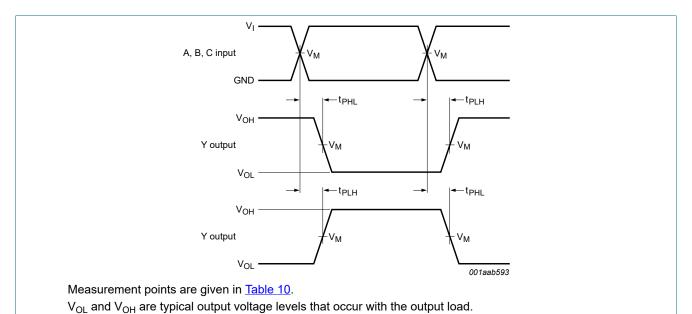
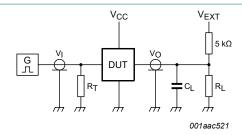


Fig. 13. Input A, B and C to output Y propagation delay times

**Table 10. Measurement points** 

;	Supply voltage	Input			Output
1	V <sub>CC</sub>	V <sub>M</sub>	VI	$t_r = t_f$	V <sub>M</sub>
2	2.3 V to 3.6 V	0.5 × V <sub>I</sub>	1.65 V to 3.6 V	≤ 3.0 ns	0.5 × V <sub>CC</sub>

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



Test data is given in Table 11.

Definitions test circuit:

 $R_T$  = termination resistance should be equal to output impedance  $Z_o$  of the pulse generator;

 $C_L$  = load capacitance including jig and probe capacitance;

R<sub>L</sub> = load resistance.

Fig. 14. Test circuit for measuring switching times

#### Table 11. Test data

Supply voltage	ipply voltage Load		V <sub>EXT</sub>		
V <sub>CC</sub>	C <sub>L</sub>	R <sub>L</sub> [1]	t <sub>PLH</sub> , t <sub>PHL</sub>	t <sub>PZH</sub> , t <sub>PHZ</sub>	t <sub>PZL</sub> , t <sub>PLZ</sub>
2.3 V to 3.6 V	5 pF, 10 pF, 15 pF and 30 pF	5 kΩ or 1 MΩ	open	GND	2 × V <sub>CC</sub>

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

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

## 12. Package outline

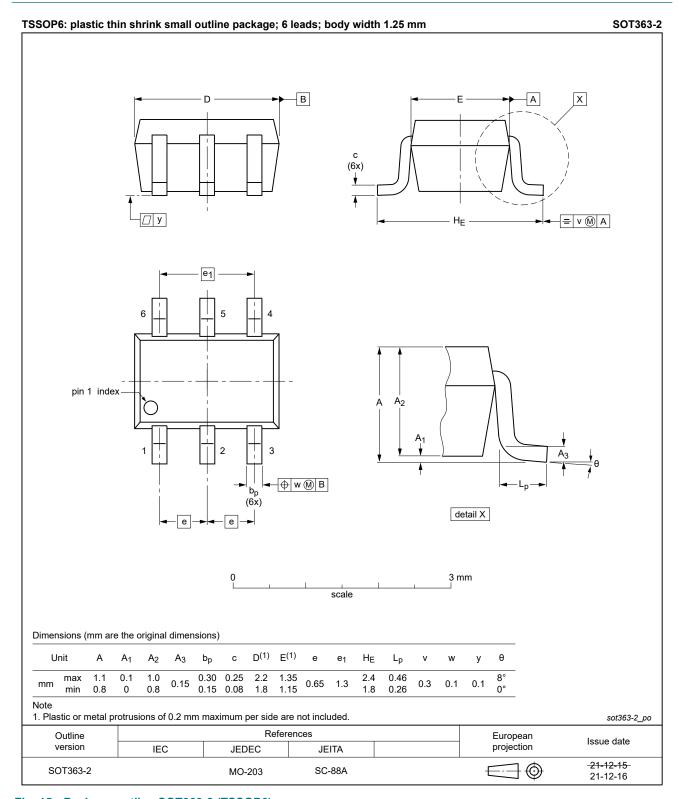


Fig. 15. Package outline SOT363-2 (TSSOP6)

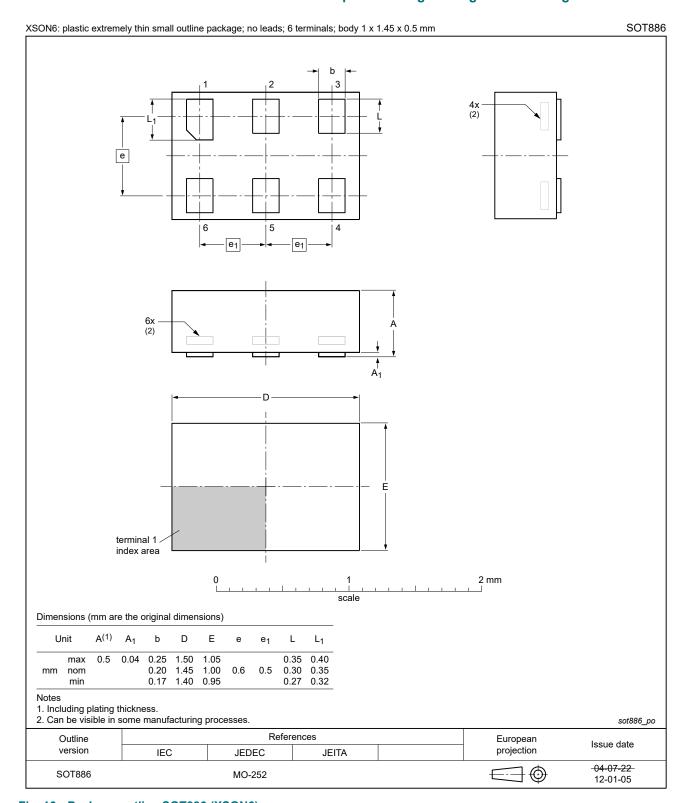


Fig. 16. Package outline SOT886 (XSON6)

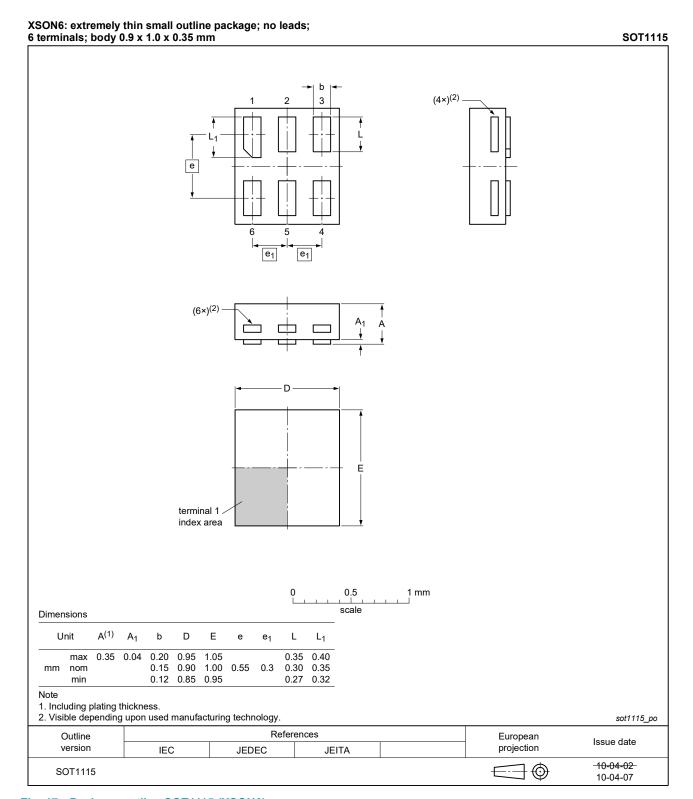


Fig. 17. Package outline SOT1115 (XSON6)

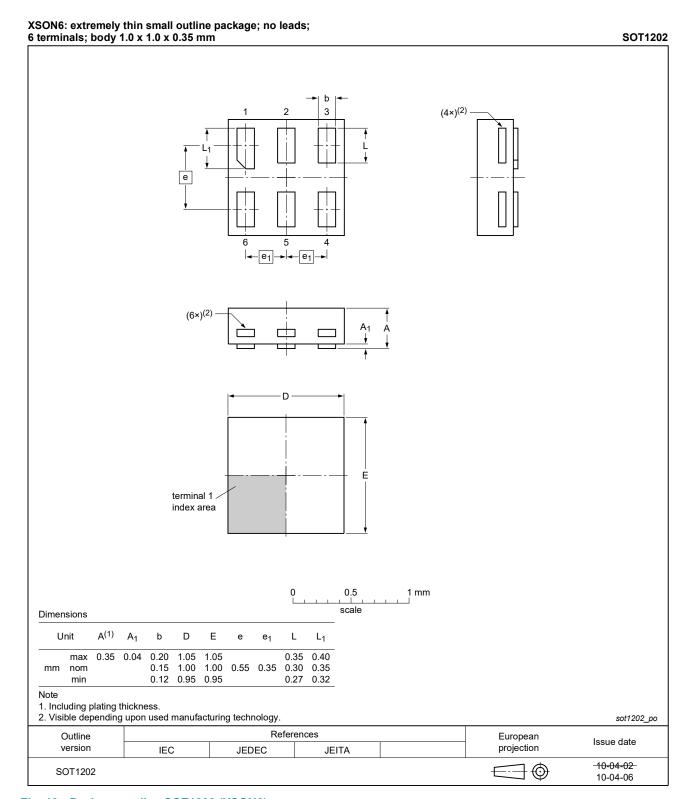


Fig. 18. Package outline SOT1202 (XSON6)

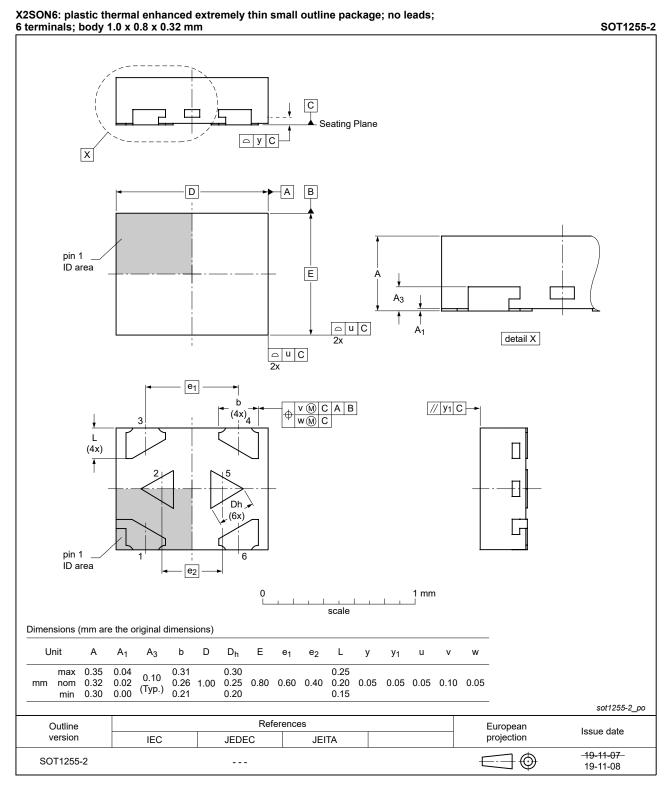


Fig. 19. Package outline SOT1255-2 (X2SON6)

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

## 13. Abbreviations

#### **Table 12. Abbreviations**

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

## 14. Revision history

#### Table 13. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes	
74AUP1T97 v.9	20230717	Product data sheet	-	74AUP1T97 v.8	
Modifications:	<u>Section 2</u> : ESD specification updated according to the latest JEDEC standard.				
74AUP1T97 v.8	20220127 Product data sheet - 74AUP1T97 v.7				
Modifications:	Package SOT363 (SC-88) changed to SOT363-2 (TSSOP6.				
74AUP1T97 v.7	20211104	Product data sheet	-	74AUP1T97 v.6	
Modifications:	<ul> <li>Section 1 and Section 2 updated.</li> <li>SOT1255 (X2SON6) package changed to SOT1255-2 (X2SON6) package.</li> <li>Type number 74AUP1T97GF (SOT891/XSON6) removed.</li> <li>Type number 74AUP1T97UK (SOT1454-1/WLCSP6) removed.</li> <li>Table 6: Derating values for P<sub>tot</sub> total power dissipation updated.</li> </ul>				
74AUP1T97 v.6	20170328 Product data sheet - 74AUP1T97 v.5				
Modifications:	Added type number 74AUP1T97UK (WLCSP6).				
74AUP1T97 v.5	20150917	Product data sheet	-	74AUP1T97 v.4	
Modifications:	Added type number 74AUP1T97GX (SOT1255/X2SON6).				
74AUP1T97 v.4	20120815	Product data sheet	-	74AUP1T97 v.3	
Modifications:	Package outline drawing of SOT886 ( <u>Fig. 16</u> ) modified.				
74AUP1T97 v.3	20111130	Product data sheet	-	74AUP1T97 v.2	
74AUP1T97 v.2	20101018	Product data sheet	-	74AUP1T97 v.1	
74AUP1T97 v.1	20071025	Product data sheet	-	-	

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

### 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.

- 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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