# **74AUP2G34**

# Low-power dual buffer Rev. 8 — 31 January 2022

**Product data sheet** 

### 1. General description

The 74AUP2G34 is a dual buffer. Schmitt-trigger action at all inputs makes the circuit tolerant of slower input rise and fall times. This device ensures 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 potentially 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
- · 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 Level B
- Low static power consumption; I<sub>CC</sub> = 0.9 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 (1.2 V to 1.95 V)
  - JESD8-5 (1.8 V to 2.7 V)
  - JESD8C (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
- Multiple package options
- Specified from -40 °C to +85 °C and -40 °C to +125 °C



Low-power dual buffer

# 3. Ordering information

**Table 1. Ordering information** 

Type number	Package									
	Temperature range Name Description									
74AUP2G34GW	-40 °C to +125 °C	TSSOP6	plastic thin shrink small outline package; 6 leads; body width 1.25 mm	SOT363-2						
74AUP2G34GM	-40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm	SOT886						
74AUP2G34GN	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm	SOT1115						
74AUP2G34GS	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm	SOT1202						
74AUP2G34GX	-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						

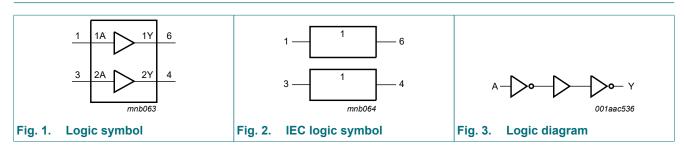
# 4. Marking

Table 2. Marking

- casio ar marking						
Type number	Marking code[1]					
74AUP2G34GW	аА					
74AUP2G34GM	аА					
74AUP2G34GN	аА					
74AUP2G34GS	аА					
74AUP2G34GX	аА					

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

# 5. Functional diagram



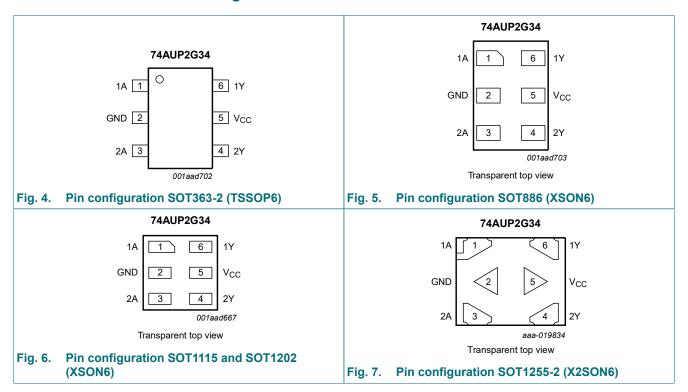
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**Product data sheet** 

Low-power dual buffer

# 6. Pinning information

### 6.1. Pinning



### 6.2. Pin description

Table 3. Pin description

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

# 7. Functional description

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

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

Input	Output
nA	nY
L	L
Н	Н

Low-power dual buffer

# 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 <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 <sub>O</sub> = 0 V to V <sub>CC</sub>		-	±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	$T_{amb} = -40  ^{\circ}\text{C} \text{ to } +125  ^{\circ}\text{C}$ [2	2]	-	250	mW

<sup>[1]</sup> The minimum input and output voltage ratings may be exceeded if the input and output current ratings are observed.

For SOT886 (XSON6) package: P<sub>tot</sub> 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: Ptot derates linearly with 3.3 mW/K above 75 °C.

### 9. Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>CC</sub>	supply voltage		0.8	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
Δt/ΔV	input transition rise and fall rate	V <sub>CC</sub> = 0.8 V to 3.6 V	-	200	ns/V

<sup>[2]</sup> For SOT363-2 (TSSOP6) package: Ptot derates linearly with 3.7 mW/K above 83 °C.

Low-power dual buffer

# 10. Static characteristics

#### **Table 7. 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>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.65 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.6	-	-	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.0	-	-	V
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.30 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.35 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	-	0.7	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	-	0.9	V
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>				
		I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.75 × V <sub>CC</sub>	_	-	V
		I <sub>O</sub> = -1.7 mA; V <sub>CC</sub> = 1.4 V	1.11	-	-	V
		I <sub>O</sub> = -1.9 mA; V <sub>CC</sub> = 1.65 V	1.32	-	-	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	$V_I = V_{IH}$ or $V_{IL}$				
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.1	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.3 × V <sub>CC</sub>	V
		I <sub>O</sub> = 1.7 mA; V <sub>CC</sub> = 1.4 V	-	-	0.31	V
		I <sub>O</sub> = 1.9 mA; V <sub>CC</sub> = 1.65 V	-	-	0.31	V
		$I_O = 2.3 \text{ mA}; V_{CC} = 2.3 \text{ V}$	-	-	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
l <sub>l</sub>	input leakage current	$V_I = GND \text{ to } 3.6 \text{ V}; V_{CC} = 0 \text{ V to } 3.6 \text{ V}$	-	-	±0.1	μΑ
l <sub>OFF</sub>	power-off leakage current	$V_{I}$ or $V_{O} = 0 V$ to 3.6 V; $V_{CC} = 0 V$	-	-	±0.2	μA
Δl <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	$V_I = GND \text{ or } V_{CC}; I_O = 0 \text{ A};$ $V_{CC} = 0.8 \text{ V to } 3.6 \text{ V}$	-	-	0.5	μA
ΔI <sub>CC</sub>	additional supply current	$V_1 = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}$	-	-	40	μA
C <sub>I</sub>	input capacitance	$V_{CC}$ = 0 V to 3.6 V; $V_I$ = GND or $V_{CC}$	-	8.0	-	pF
Co	output capacitance	V <sub>O</sub> = GND; V <sub>CC</sub> = 0 V	-	1.7	-	pF

### Low-power dual buffer

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -4	40 °C to +85 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.65 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.6	-	-	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.0	-	-	V
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.30 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.35 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	-	0.7	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	-	0.9	V
V <sub>OH</sub>	HIGH-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
		$I_{O}$ = -20 $\mu$ A; $V_{CC}$ = 0.8 $V$ to 3.6 $V$	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.7 × V <sub>CC</sub>	-	-	V
		I <sub>O</sub> = -1.7 mA; V <sub>CC</sub> = 1.4 V	1.03	-	-	V
		I <sub>O</sub> = -1.9 mA; V <sub>CC</sub> = 1.65 V	1.30	-	-	V
		$I_{O}$ = -2.3 mA; $V_{CC}$ = 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>IH</sub> or V <sub>IL</sub>				
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.1	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.3 × V <sub>CC</sub>	V
		I <sub>O</sub> = 1.7 mA; V <sub>CC</sub> = 1.4 V	-	-	0.37	V
		I <sub>O</sub> = 1.9 mA; V <sub>CC</sub> = 1.65 V	-	-	0.35	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
l <sub>l</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
I <sub>OFF</sub>	power-off leakage current	$V_{I}$ or $V_{O} = 0 V$ to 3.6 V; $V_{CC} = 0 V$	-	-	±0.5	μA
Δl <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	-	-	±0.6	μA
I <sub>CC</sub>	supply current	$V_{I}$ = GND or $V_{CC}$ ; $I_{O}$ = 0 A; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.9	μA
Δl <sub>CC</sub>	additional supply current	$V_1 = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}$	-	-	50	μΑ

### Low-power dual buffer

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -4	10 °C to +125 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.75 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.70 × V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.6	-	-	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.0	-	-	V
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.25 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.30 × V <sub>CC</sub>	V
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	-	0.7	V
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	-	0.9	V
V <sub>OH</sub>	HIGH-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
		$I_{O}$ = -20 $\mu$ A; $V_{CC}$ = 0.8 $V$ to 3.6 $V$	V <sub>CC</sub> - 0.11	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.6 × V <sub>CC</sub>	-	-	V
		I <sub>O</sub> = -1.7 mA; V <sub>CC</sub> = 1.4 V	0.93	-	-	V
		I <sub>O</sub> = -1.9 mA; V <sub>CC</sub> = 1.65 V	1.17	-	-	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	$V_I = V_{IH}$ or $V_{IL}$				
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.11	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.33 × V <sub>CC</sub>	V
		I <sub>O</sub> = 1.7 mA; V <sub>CC</sub> = 1.4 V	-	-	0.41	V
		I <sub>O</sub> = 1.9 mA; V <sub>CC</sub> = 1.65 V	-	-	0.39	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
l <sub>l</sub>	input leakage current	$V_{I}$ = GND to 3.6 V; $V_{CC}$ = 0 V to 3.6 V	-	-	±0.75	μΑ
I <sub>OFF</sub>	power-off leakage current	$V_I$ or $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.75	μΑ
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	μΑ
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> = 0.8 V to 3.6 V	-	-	1.4	μΑ
ΔI <sub>CC</sub>	additional supply current	$V_1 = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}$	-	-	75	μΑ

Low-power dual buffer

# 11. Dynamic characteristics

#### **Table 8. Dynamic characteristics**

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 9.

Symbol	Parameter	Conditions		25 °C		-40 °C to	+85 °C	-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
C <sub>L</sub> = 5 p	F							,		
t <sub>pd</sub>	propagation	nA to nY; see Fig. 8 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	14.9	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.6	4.7	9.2	2.0	10.0	2.0	11.0	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.1	3.4	5.7	1.6	6.5	1.6	7.2	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	1.8	2.9	4.5	1.4	5.2	1.4	5.8	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.5	2.3	3.5	1.2	4.2	1.2	4.6	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.4	2.1	3.2	1.0	3.8	1.0	4.2	ns
C <sub>L</sub> = 10	pF									
t <sub>pd</sub>	propagation	nA to nY; see Fig. 8 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	18.4	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	3.2	5.6	10.9	2.3	11.8	2.3	13.1	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.6	4.1	6.7	1.9	7.7	1.9	8.5	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.3	3.4	5.3	1.7	6.2	1.7	6.9	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.0	2.9	4.2	1.5	5.0	1.5	5.5	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.7	2.6	3.8	1.4	4.6	1.4	5.1	ns
C <sub>L</sub> = 15	pF									
t <sub>pd</sub>	propagation	nA to nY; see Fig. 8 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	21.9	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	3.6	6.4	12.6	2.6	13.8	2.6	15.2	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	3.0	4.6	7.6	2.2	8.9	2.2	9.8	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.6	3.9	6.0	2.0	7.2	2.0	7.9	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.3	3.3	4.8	1.8	5.7	1.8	6.3	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.1	3.1	4.2	1.6	5.0	1.6	5.5	ns
C <sub>L</sub> = 30	pF				'			1		
t <sub>pd</sub>	propagation	nA to nY; see Fig. 8 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	32.1	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	4.8	8.7	16.3	3.6	18.9	3.6	20.8	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	4.0	6.2	10.3	3.4	12.2	3.4	13.4	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	3.6	5.2	8.1	3.2	9.8	3.2	10.8	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	3.0	4.4	6.4	2.7	7.7	2.7	8.5	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.9	4.2	5.6	2.5	6.5	2.5	7.2	ns

#### Low-power dual buffer

Symbol	Parameter Conditions 25 °C			-40 °C to	o +85 °C	85 °C   -40 °C to +125 °C		Unit		
			Min	Typ[1]	Max	Min	Max	Min	Max	
C <sub>L</sub> = 5 p	F, 10 pF, 15 pF	and 30 pF	•	'						
- 1 0 1	power dissipation	$f_i$ = 1 MHz; [3][ $V_I$ = GND to $V_{CC}$	1]							
	capacitance	V <sub>CC</sub> = 0.8 V	-	2.5	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.1 V to 1.3 V	-	2.6	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.4 V to 1.6 V	-	2.7	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.65 V to 1.95 V	-	2.9	-	-	-	-	-	pF
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	3.4	-	-	-	-	-	pF
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	4.0	-	-	-	-	-	pF

- All typical values are measured at nominal V<sub>CC</sub>.
- $t_{\text{pd}}$  is the same as  $t_{\text{PLH}}$  and  $t_{\text{PHL}}$ .
- All specified values are the average typical values over all stated loads.
- $C_{PD}$  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:

$$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma (C_L \times V_{CC}^2 \times f_o)$$
 where:

f<sub>i</sub> = input frequency in MHz;

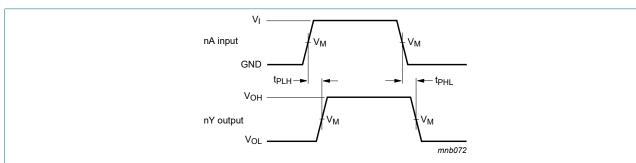
fo = output frequency in MHz;

C<sub>L</sub> = 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. Waveform and test circuit



Measurement points are given in Table 9.

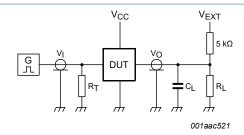
Logic levels:  $V_{OL}$  and  $V_{OH}$  are typical output voltage drop that occur with the output load.

Fig. 8. The data input (nA) to output (nY) propagation delays

**Table 9. Measurement points** 

Supply voltage	Output	Input		
V <sub>CC</sub>	V <sub>M</sub>	V <sub>M</sub>	V <sub>I</sub>	$t_r = t_f$
0.8 V to 3.6 V	0.5 × V <sub>CC</sub>	0.5 × V <sub>CC</sub>	V <sub>CC</sub>	≤ 3.0 ns

#### Low-power dual buffer



Test data is given in Table 10.

Definitions for test circuit:

R<sub>L</sub> = Load resistance;

C<sub>L</sub> = Load capacitance including jig and probe capacitance;

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

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

#### Fig. 9. Test circuit for measuring switching times

#### Table 10. Test data

Supply voltage	Load		V <sub>EXT</sub>		
V <sub>CC</sub>	CL	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>
0.8 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 $\Omega$ .

**Product data sheet** 

Low-power dual buffer

# 12. Package outline

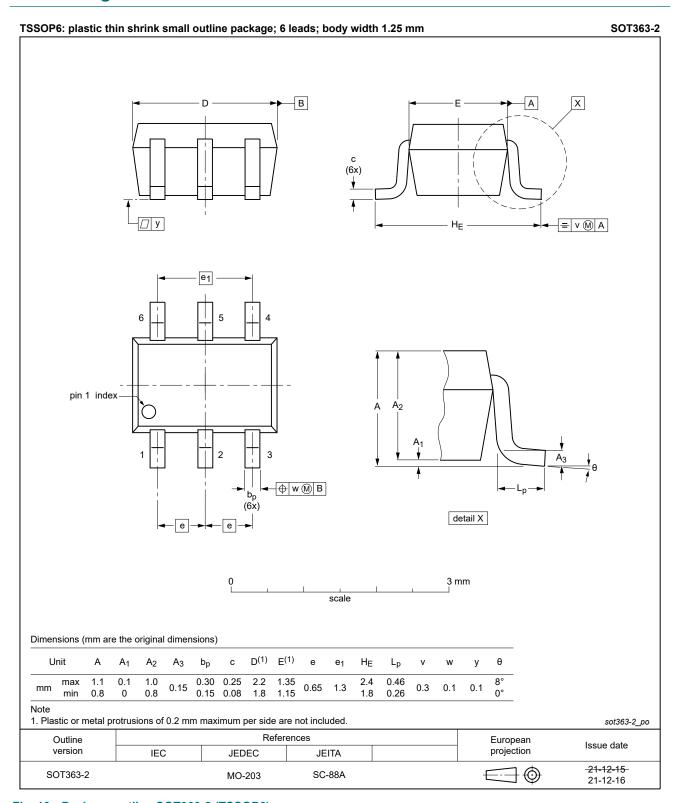


Fig. 10. Package outline SOT363-2 (TSSOP6)

#### Low-power dual buffer

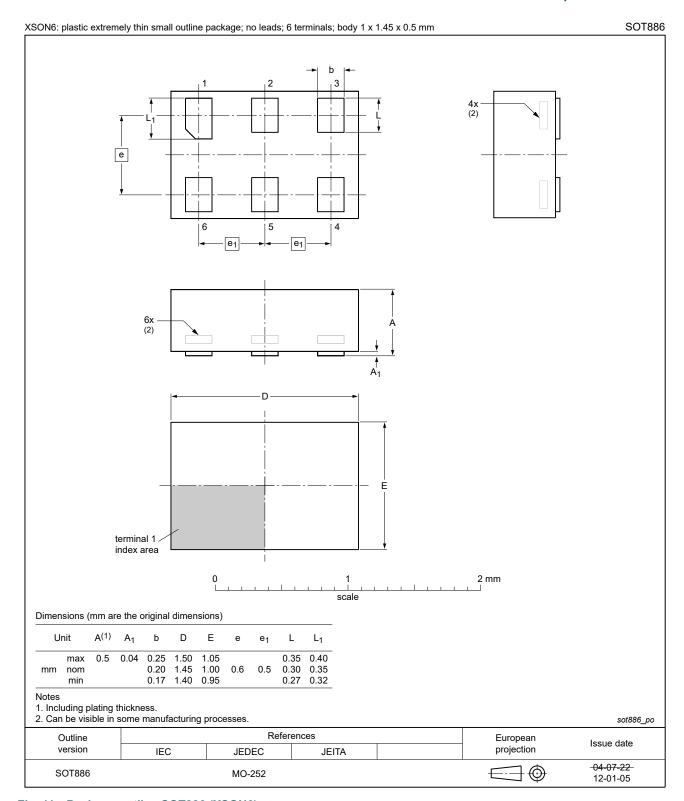


Fig. 11. Package outline SOT886 (XSON6)

Low-power dual buffer

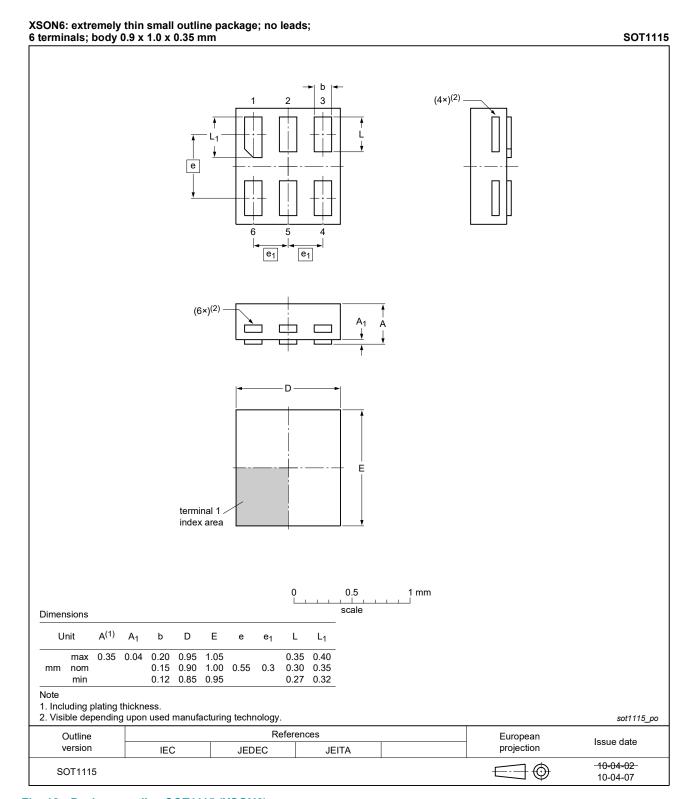


Fig. 12. Package outline SOT1115 (XSON6)

Low-power dual buffer

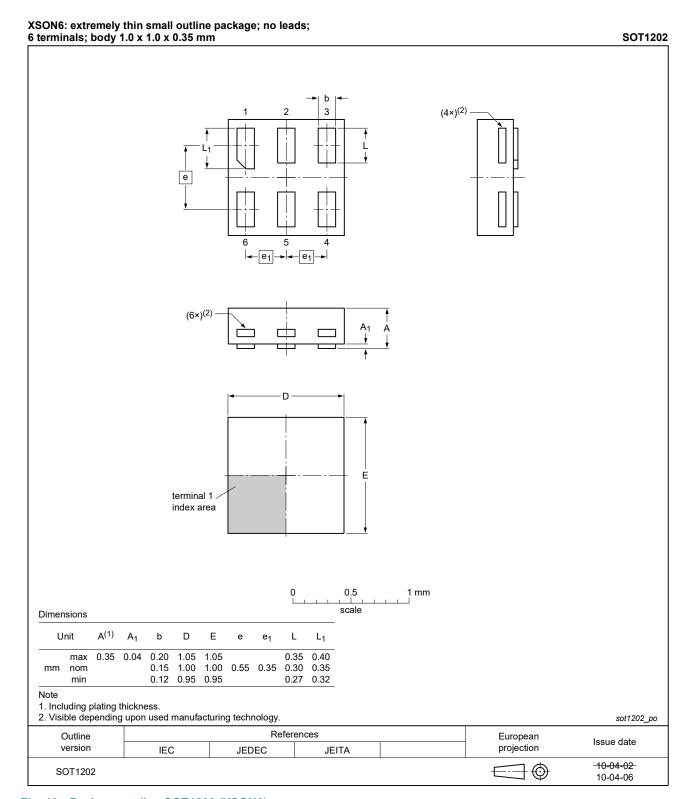


Fig. 13. Package outline SOT1202 (XSON6)

Low-power dual buffer

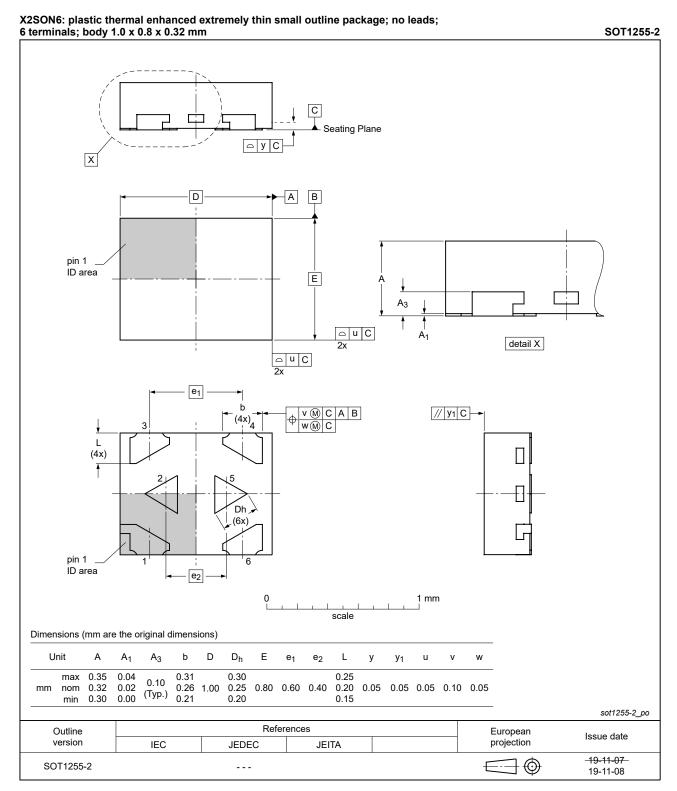


Fig. 14. Package outline SOT1255-2 (X2SON6)

Low-power dual buffer

### 13. Abbreviations

#### **Table 11. Abbreviations**

Acronym	Description
CDM	Charged Device Model
CMOS	Complementary Metal-Oxide Semiconductor
CMOS	Complementary Metal-Oxide Semiconductor
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	
74AUP2G34 v.8	20220131	Product data sheet	-	74AUP2G34 v.7	
Modifications:	SOT363 (SC-88) package changed to SOT363-2 (TSSOP6) package.				
74AUP2G34 v.7	20210707	Product data sheet	-	74AUP2G34 v.6	
Modifications:	<ul> <li>SOT1255 (X2SON6) package changed to SOT1255-2 (X2SON6) package.</li> <li>Type number 74AUP2G34GF (SOT891/XSON6) removed.</li> <li>Table 5: Derating values for P<sub>tot</sub> total power dissipation updated.</li> </ul>				
74AUP2G34 v.6	20150917	Product data sheet	-	74AUP2G34 v.5	
Modifications:	Added type number 74AUP2G34GX (SOT1255/X2SON6).				
74AUP2G34 v.5	20130110	Product data sheet	-	74AUP2G34 v.4	
Modifications:	Package outline drawing of SOT886 (Fig. 11) modified.				
74AUP2G34 v.4	20111206	Product data sheet	-	74AUP2G34 v.3	
Modifications:	Legal pages updated.				
74AUP2G34 v.3	20100903	Product data sheet	-	74AUP2G34 v.2	
74AUP2G34 v.2	20080131	Product data sheet	-	74AUP2G34 v.1	
74AUP2G34 v.1	20061122	Product data sheet	-	-	

### Low-power dual buffer

### 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.

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### Low-power dual buffer

# **Contents**

1. General description	1
2. Features and benefits	1
3. Ordering information	2
4. Marking	2
5. Functional diagram	2
6. Pinning information	3
6.1. Pinning	3
6.2. Pin description	3
7. Functional description	3
8. Limiting values	4
9. Recommended operating conditions	4
10. Static characteristics	5
11. Dynamic characteristics	8
11.1. Waveform and test circuit	9
12. Package outline	<b>1</b> 1
13. Abbreviations	16
14. Revision history	16
15. Legal information	17

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