Low-power dual buffer Rev. 7 — 7 July 2021

74AUP2G34

### 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<sub>CC</sub> range from 0.8 V to 3.6 V. This device is fully specified for partial power down applications using I<sub>OFF</sub>. The I<sub>OFF</sub> 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



# 3. Ordering information

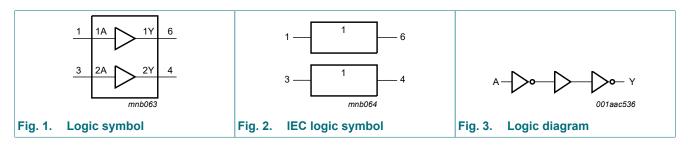
Type number	Package						
	Temperature range	Name	Description	Version			
74AUP2G34GW	-40 °C to +125 °C	SC-88	plastic surface-mounted package; 6 leads	SOT363			
74AUP2G34GM	-40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm	SOT886			
74AUP2G34GN	-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	
Type number	Marking code[1]
74AUP2G34GW	aA
74AUP2G34GM	aA
74AUP2G34GN	aA
74AUP2G34GS	aA
74AUP2G34GX	aA

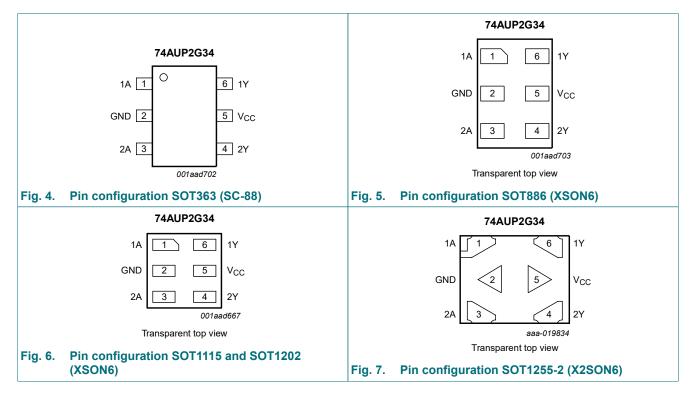
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

### 5. Functional diagram



### 6. Pinning information





### 6.2. 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

### 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>1</sub> < 0 V	-50	-	mA
VI	input voltage	[1	] -0.5	+4.6	V
I <sub>ОК</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
lo	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	$T_{amb} = -40 \text{ °C to } +125 \text{ °C}$ [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 (SC-88) package:  $P_{tot}$  derates linearly with 3.7 mW/K above 83 °C.

For SOT886 (XSON6) package:  $\mathsf{P}_{tot}$  derates linearly with 3.3 mW/K above 74 °C.

For SOT1115 (XSON6) package: P<sub>tot</sub> derates linearly with 3.2 mW/K above 71 °C.

For SOT1202 (XSON6) package: P<sub>tot</sub> derates linearly with 3.3 mW/K above 74 °C.

For SOT1255-2 (X2SON6) package:  $\mathsf{P}_{tot}$  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; $V_{CC}$ = 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

# **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				. 76	max	om
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70 x V <sub>CC</sub>	-		V
vн	night-level liput voltage	$V_{CC} = 0.9 V$ to 1.95 V	0.70 x V <sub>CC</sub>	-	-	V
				-	-	V
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$	1.6	-	-	V
. /		$V_{CC} = 3.0 \text{ V}$ to 3.6 V	2.0	-	-	
V <sub>IL</sub>	LOW-level input voltage	$V_{CC} = 0.8 V$	-	-	0.30 x V <sub>CC</sub>	V
		$V_{CC} = 0.9 \text{ V to } 1.95 \text{ V}$	-	-	0.35 x V <sub>CC</sub>	V
		$V_{CC} = 2.3 V \text{ to } 2.7 V$	-	-	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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
		$I_0 = -20 \ \mu\text{A}; \ V_{CC} = 0.8 \ \text{V} \text{ to } 3.6 \ \text{V}$	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.75 x 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
		$I_{O}$ = -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 <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>IH</sub> or V <sub>IL</sub>				
		$I_{O}$ = 20 µA; $V_{CC}$ = 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 x 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 <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
l <sub>l</sub>	input leakage current	$V_{I}$ = GND to 3.6 V; $V_{CC}$ = 0 V to 3.6 V	-	-	±0.1	μA
I <sub>OFF</sub>	power-off leakage current	$V_{\rm I}$ or $V_{\rm O}$ = 0 V to 3.6 V; $V_{\rm CC}$ = 0 V	-	-	±0.2	μA
ΔI <sub>OFF</sub>	additional power-off leakage current	$V_1 \text{ or } V_0 = 0 \text{ V to } 3.6 \text{ V};$ $V_{CC} = 0 \text{ V to } 0.2 \text{ V}$	-	-	±0.2	μA
I <sub>CC</sub>	supply current	$V_1$ = GND or $V_{CC}$ ; $I_0$ = 0 A; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.5	μA
ΔI <sub>CC</sub>	additional supply current	$V_{I} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}$	-	-	40	μA
CI	input capacitance	$V_{CC}$ = 0 V to 3.6 V; V <sub>I</sub> = GND or V <sub>CC</sub>	-	0.8	-	pF
Co	output capacitance	$V_0 = GND; V_{CC} = 0 V$	-	1.7	-	pF

### Low-power dual buffer

Symbol	Parameter	Conditions	Min	Тур	Мах	Unit
T <sub>amb</sub> = -4	10 °C to +85 °C		( ]			
VIH	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70 x V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.65 x 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 x V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	$0.35 \times V_{CC}$	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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
		$I_{O}$ = -20 µA; $V_{CC}$ = 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 x 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 <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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
		$I_{O}$ = 20 µA; $V_{CC}$ = 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 x 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	$V_I$ = GND to 3.6 V; $V_{CC}$ = 0 V to 3.6 V	-	-	±0.5	μA
I <sub>OFF</sub>	power-off leakage current	$V_{I}$ or $V_{O}$ = 0 V to 3.6 V; $V_{CC}$ = 0 V	-	-	±0.5	μA
∆I <sub>OFF</sub>	additional power-off leakage current	$V_1 \text{ or } V_0 = 0 \text{ V to } 3.6 \text{ V};$ $V_{CC} = 0 \text{ V to } 0.2 \text{ V}$	-	-	±0.6	μA
I <sub>CC</sub>	supply current	$V_{I} = GND \text{ or } V_{CC}; I_{O} = 0 \text{ A};$ $V_{CC} = 0.8 \text{ V to } 3.6 \text{ V}$	-	-	0.9	μA
ΔI <sub>CC</sub>	additional supply current	$V_{I} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}$	-	-	50	μA

### Low-power dual buffer

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -4	10 °C to +125 °C				-	
VIH	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.75 x V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.70 x 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	-	-	$0.25 \text{ x V}_{CC}$	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	$0.30 \times V_{CC}$	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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
		$I_{O}$ = -20 µA; $V_{CC}$ = 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 x 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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
		$I_{O}$ = 20 µA; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.11	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	$0.33 \times V_{CC}$	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	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
∆I <sub>OFF</sub>	additional power-off leakage current	$V_1 \text{ or } V_0 = 0 \text{ V to } 3.6 \text{ V};$ $V_{CC} = 0 \text{ V to } 0.2 \text{ V}$	-	-	±0.75	μA
I <sub>CC</sub>	supply current	$V_{I} = GND \text{ or } V_{CC}; I_{O} = 0 \text{ A};$ $V_{CC} = 0.8 \text{ V to } 3.6 \text{ V}$	-	-	1.4	μA
ΔI <sub>CC</sub>	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 Fig. 9.

Symbol	Parameter	Conditions		25 °C		-40 °C to	o +85 °C	-40 °C to +125 °C		Unit
			Min	Typ[1]	Мах	Min	Мах	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

### **Nexperia**

# 74AUP2G34

#### Low-power dual buffer

Symbol	Parameter	Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
				Typ[1]	Max	Min	Max	Min	Max	1
C <sub>L</sub> = 5 pF, 10 pF, 15 pF and 30 pF										
C <sub>PD</sub>	power dissipation capacitance	$      f_i = 1 \text{ MHz}; \qquad [3] \\ V_I = \text{GND to } V_{\text{CC}} \qquad [4] $								
		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  $V_{CC}$ . [1]

 $t_{\text{pd}}$  is the same as  $t_{\text{PLH}}$  and  $t_{\text{PHL}}.$ [2]

[3] 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).  $P_D = C_{PD} x V_{CC}^2 x f_i x N + \Sigma (C_L x V_{CC}^2 x f_o)$  where: [4]

 $f_i$  = input frequency in MHz;

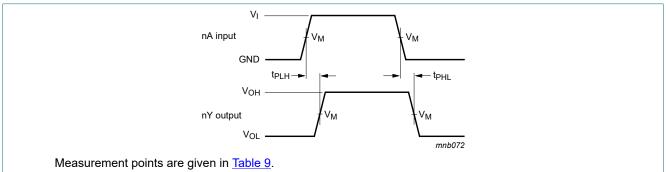
fo = output frequency in MHz;

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



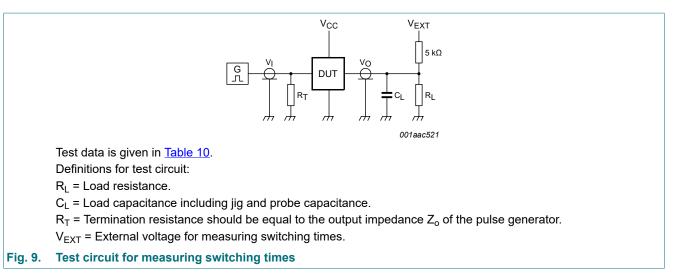
Logic levels:  $V_{OL}$  and  $V_{OH}$  are typical output voltage drop that occur with the output load.

#### 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>	VI	t <sub>r</sub> = t <sub>f</sub>		
0.8 V to 3.6 V	0.5 x V <sub>CC</sub>	0.5 x V <sub>CC</sub>	V <sub>CC</sub>	≤ 3.0 ns		

#### Low-power dual buffer



#### 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 x 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 $\Omega$ .

74AUP2G34

### 12. Package outline

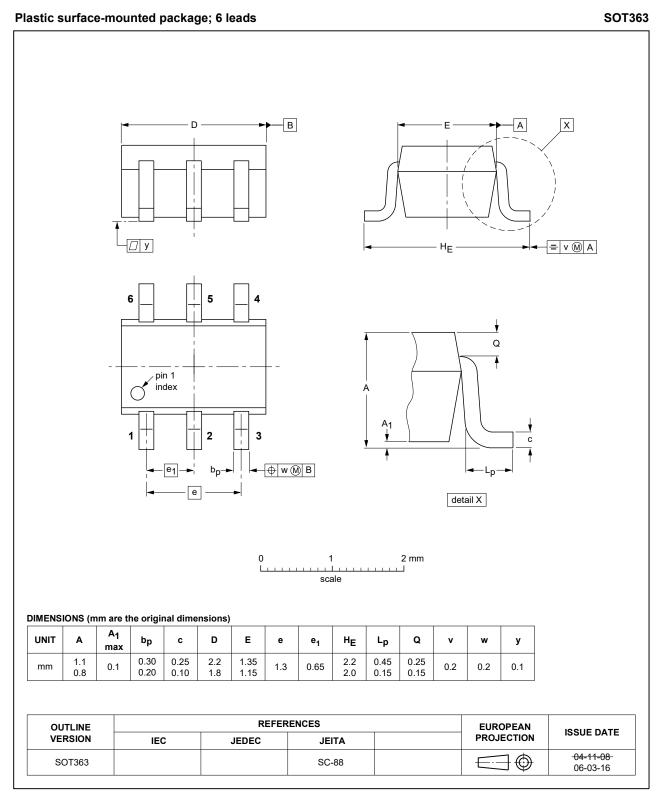


Fig. 10. Package outline SOT363 (SC-88)

### Low-power dual buffer

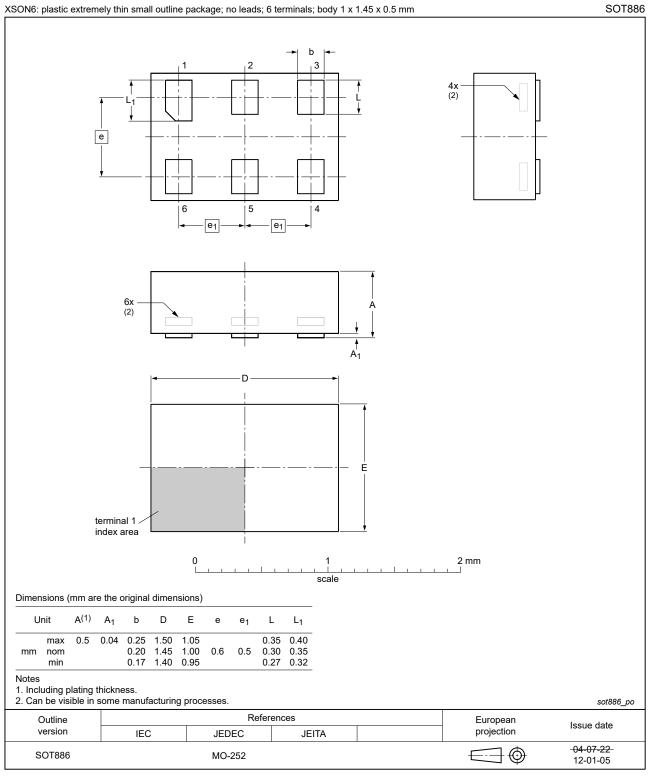
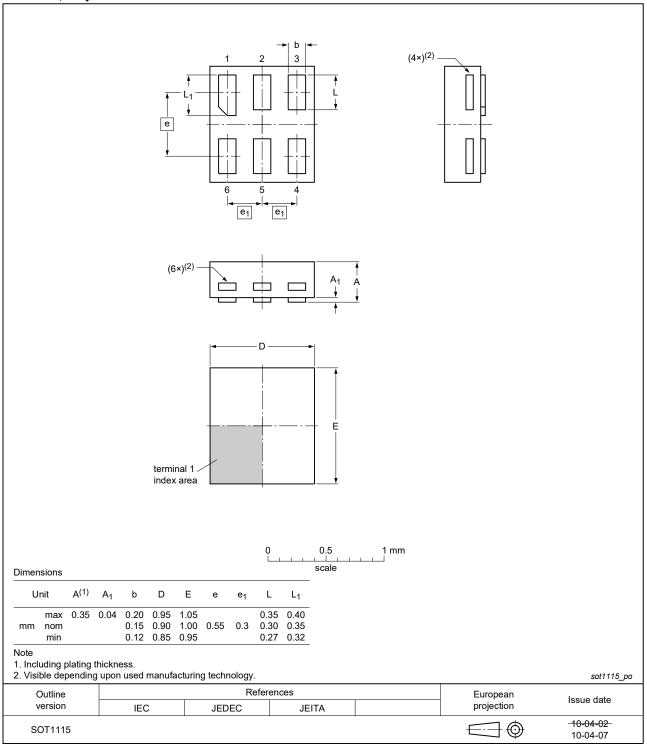


Fig. 11. Package outline SOT886 (XSON6)

SOT1115

### Low-power dual buffer

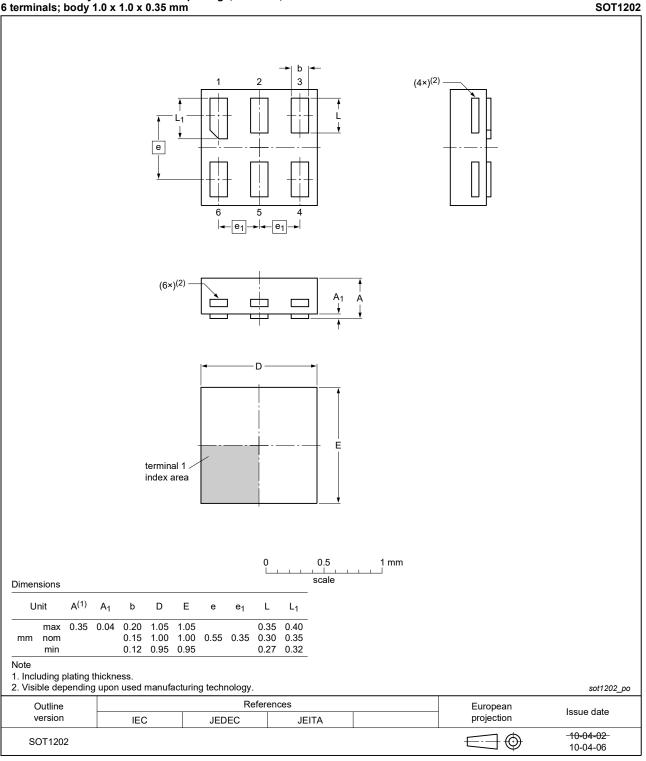
# XSON6: extremely thin small outline package; no leads; 6 terminals; body 0.9 x 1.0 x 0.35 mm





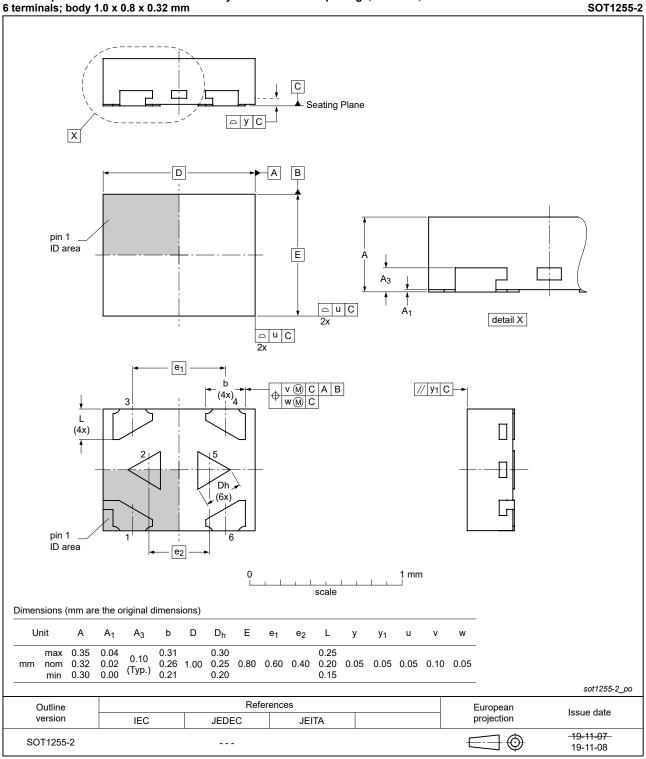
### Low-power dual buffer

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





#### Low-power dual buffer



# X2SON6: plastic thermal enhanced extremely thin small outline package; no leads; 6 terminals; body 1.0 x 0.8 x 0.32 mm



# 13. 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

Document ID	Release date	Data sheet status	Change notice	Supersedes		
74AUP2G34 v.7	20210707	Product data sheet	-	74AUP2G34 v.6		
Modifications:	Type numb	X2SON6) package changed t er 74AUP2G34GF (SOT891/ rating values for P <sub>tot</sub> total pov	XSON6) removed.	package.		
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:	<ul> <li>Package out</li> </ul>	utline drawing of SOT886 (Fig	<u>. 11</u> ) modified.	·		
74AUP2G34 v.4	20111206	Product data sheet	-	74AUP2G34 v.3		
Modifications:	Legal page	s updated.		I		
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	-	-		

### 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".
- [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 <u>https://www.nexperia.com</u>.

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