# 74AUP3G0434

## Low-power dual inverter and single buffer

Rev. 4 — 13 January 2021

**Product data sheet** 

### 1. General description

The 74AUP3G0434 is a dual inverter and single buffer.

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 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<sub>CC</sub> = 0.9 μA (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<sub>CC</sub>
- I<sub>OFF</sub> circuitry provides partial Power-down mode operation
- · Multiple package options
- Specified from -40 °C to +85 °C and -40 °C to +125 °C



#### Low-power dual inverter and single buffer

## 3. Ordering information

**Table 1. Ordering information** 

Type number	Package							
	Temperature range	Name	Description	Version				
74AUP3G0434DC	-40 °C to +125 °C	VSSOP8	plastic very thin shrink small outline package; 8 leads; body width 2.3 mm	SOT765-1				
74AUP3G0434GT	-40 °C to +125 °C	XSON8	plastic extremely thin small outline package; no leads; 8 terminals; body 1 × 1.95 × 0.5 mm	SOT833-1				
74AUP3G0434GF	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.35 × 1 × 0.5 mm	SOT1089				
74AUP3G0434GN	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.2 × 1.0 × 0.35 mm	SOT1116				
74AUP3G0434GS	-40 °C to +125 °C	XSON8	extremely thin small outline package; no leads; 8 terminals; body 1.35 × 1.0 × 0.35 mm	SOT1203				

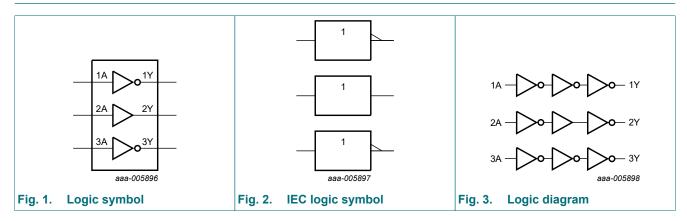
## 4. Marking

Table 2. Marking codes

Type number	Marking code[1]
74AUP3G0434DC	pΖ
74AUP3G0434GT	pΖ
74AUP3G0434GF	pΖ
74AUP3G0434GN	pΖ
74AUP3G0434GS	pΖ

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

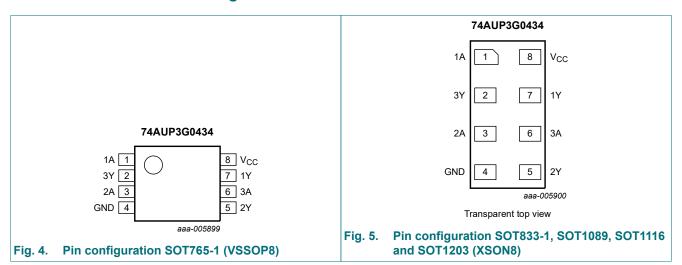
## 5. Functional diagram



Low-power dual inverter and single buffer

## 6. Pinning information

#### 6.1. Pinning



### 6.2. Pin description

#### Table 3. Pin description

Symbol	Pin	Description
1A, 2A, 3A	1, 3, 6	data input
1Y, 2Y, 3Y	7, 5, 2	data output
GND	4	ground (0 V)
V <sub>CC</sub>	8	supply voltage

## 7. Functional description

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

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

Input	Output
1A, 3A	1Y, 3Y
L	Н
Н	L

#### **Table 5. Function table**

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

Input	Output
2A	2Y
L	L
Н	Н

#### Low-power dual inverter and single buffer

## 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	$T_{amb} = -40  ^{\circ}\text{C} \text{ to } +125  ^{\circ}\text{C}$ [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.

## 9. Recommended operating conditions

#### **Table 7. 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

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<sup>[2]</sup> For SOT765-1 (VSSOP8) package: Ptot derates linearly with 4.9 mW/K above 99 °C.

For SOT833-1 (XSON8) package: Ptot derates linearly with 3.1 mW/K above 68 °C.

For SOT1089 (XSON8) package: Ptot derates linearly with 4.0 mW/K above 88 °C.

For SOT1116 (XSON8) package: Ptot derates linearly with 4.2 mW/K above 90 °C.

For SOT1203 (XSON8) package: Ptot derates linearly with 3.6 mW/K above 81 °C.

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## 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>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.65V <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	95 V		V	
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.30V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.35V <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> H	HIGH-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
V <sub>OH</sub> HI		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	0.75V <sub>CC</sub>	-	-	V
V <sub>IL</sub> L  V <sub>OH</sub> H  V <sub>OL</sub> L  I <sub>I</sub> ir  I <sub>OFF</sub> p  ΔI <sub>OFF</sub> a  c  I <sub>CC</sub> sr  ΔI <sub>CC</sub> a		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
V <sub>OL</sub> L		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.3V <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 <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	-	-	±0.2	μΑ
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	μΑ
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	-	-	0.5	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	μΑ
Cı	input capacitance	$V_{CC}$ = 0 V to 3.6 V; $V_I$ = GND or $V_{CC}$	-	1.0	-	pF
Co	output capacitance	$V_O = GND; V_{CC} = 0 V$	-	1.8	-	pF

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -	40 °C to +85 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.65V <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	9 V to 1.95 V 3 V to 2.7 V 1.6 0 V to 3.6 V 2.0 8 V - 9 V to 1.95 V - 3 V to 2.7 V - 0 V to 3.6 V - 1.1 mA; V <sub>CC</sub> = 0.8 V to 3.6 V - 1.2 mA; V <sub>CC</sub> = 1.4 V - 1.9 mA; V <sub>CC</sub> = 1.65 V - 3.1 mA; V <sub>CC</sub> = 2.3 V - 4.0 mA; V <sub>CC</sub> = 3.0 V - 1.1 mA; V <sub>CC</sub> = 3.0 V - 1.1 mA; V <sub>CC</sub> = 1.1 V - 1.1 mA; V <sub>CC</sub> = 1.1 V - 1.2 mA; V <sub>CC</sub> = 1.1 V - 1.85 1.9 mA; V <sub>CC</sub> = 1.0 V - 1.1 mA; V <sub>CC</sub> = 1.1 V - 1.2 mA; V <sub>CC</sub> = 1.65 V - 1.3 mA; V <sub>CC</sub> = 1.65 V - 1.1 m	-	V	
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.30V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.35V <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 $V_{IL}$				
V <sub>OH</sub> F		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	0.7V <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	$V_I = V_{IH}$ 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	-	-	0.3V <sub>CC</sub>	V
/ <sub>OL</sub> I		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
ı	input leakage current	$V_{I}$ = GND to 3.6 V; $V_{CC}$ = 0 V to 3.6 V	-	-	±0.5	μA
OFF	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	-	-	±0.5	μA
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	-	-		
lcc	supply current	$V_I$ = GND or $V_{CC}$ ; $I_O$ = 0 A; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.9	μΑ
ΔI <sub>CC</sub>	additional supply current	$V_1 = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A}; V_{CC} = 3.3 \text{ V}$	-	-	50	μA

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
T <sub>amb</sub> = -	40 °C to +125 °C				•	
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.75V <sub>CC</sub>	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	0.70V <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	0.5 V	V		
V <sub>IL</sub>	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	0.25V <sub>CC</sub>	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	0.30V <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> H	HIGH-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	V <sub>CC</sub> - 0.11	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.6V <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	-	-	0.33V <sub>CC</sub>	V
V <sub>OH</sub> IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		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 $V_{O} = 0 \text{ V to } 3.6 \text{ V; } V_{CC} = 0 \text{ V}$	-	-	±0.75	μA
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	-	-	μΑ	
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	-	-	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

#### Low-power dual inverter and single buffer

## 11. Dynamic characteristics

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

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 7.

Symbol	Parameter	Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
				Typ[1]	Max	Min	Max	Min	Max	
C <sub>L</sub> = 5 p	F				'			'		
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 6 [2]								
		V <sub>CC</sub> = 0.8 V	-	16.0	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.4	5.0	10.3	2.0	11.4	2.0	12.6	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	1.8	3.6	6.4	1.6	7.4	1.6	8.2	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	1.5	2.9	5.0	1.4	5.9	1.4	6.5	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.2	2.4	3.9	1.1	4.5	1.1	5.0	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.1	2.1	3.2	1.0	3.9	1.0	4.3	ns
C <sub>L</sub> = 10	pF							•		
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 6 [2]								
		V <sub>CC</sub> = 0.8 V	-	19.8	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.8	5.9	12.2	2.3	13.7	2.3	15.1	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.3	4.2	7.5	1.9	8.7	1.9	9.6	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.0	3.5	5.9	1.7	7.0	1.7	7.7	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.7	2.9	4.6	1.5	5.4	1.5	6.0	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.6	2.7	3.8	1.4	4.5	1.4	5.1	ns
C <sub>L</sub> = 15	pF									
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 6 [2]								
		V <sub>CC</sub> = 0.8 V	-	23.3	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	3.2	6.7	13.0	2.6	15.8	2.6	17.4	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.6	4.7	8.6	2.2	10.0	2.2	11.0	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.3	4.0	6.7	2.0	8.0	2.0	8.8	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.1	3.3	5.1	1.8	6.1	1.8	6.8	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.0	3.1	4.2	1.6	5.0	1.6	5.5	ns
C <sub>L</sub> = 30	pF									
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 6 [2]								
		V <sub>CC</sub> = 0.8 V	-	33.6	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	4.4	8.9	16.3	3.6	19.0	3.6	20.9	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	3.6	6.3	10.8	3.2	12.9	3.2	14.2	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	3.2	5.3	9.0	2.9	10.5	2.9	11.6	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.9	4.5	6.5	2.6	7.6	2.6	8.5	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.9	4.2	5.6	2.5	6.2	2.5	7.2	ns

**Product data sheet** 

#### Low-power dual inverter and single buffer

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 pF, 10 pF, 15 pF and 30 pF										
C <sub>PD</sub>	power dissipation capacitance	$ f_i = 1 \text{ MHz};                                    $								
		V <sub>CC</sub> = 0.8 V	-	2.5	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.1 V to 1.3 V	-	2.7	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.4 V to 1.6 V	-	2.8	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.65 V to 1.95 V	-	3.0	-	-	-	-	-	pF
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	3.5	-	-	-	-	-	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>.
- $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ . All specified values are the average typical values over all stated loads. [3]

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

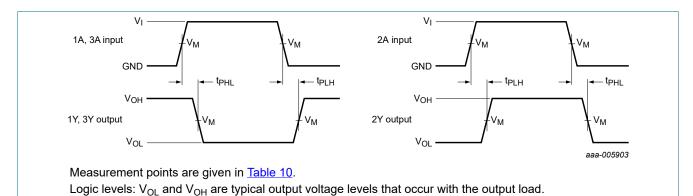
fo = output frequency in MHz;

C<sub>L</sub> = load capacitance in pF;

V<sub>CC</sub> = supply voltage in V;

N = number of inputs switching;  $\Sigma(C_L \times V_{CC}^2 \times f_0) = \text{sum of the outputs.}$ 

#### 11.1. Waveforms and test circuit



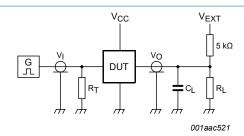
The data input 1A to output 1Y, input 2A to output 2Y and input 3A to output 3Y propagation delays

**Table 10. Measurement points** 

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

**Product data sheet** 

#### Low-power dual inverter and single buffer



Test data is given in Table 11.

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.

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

#### Fig. 7. Test circuit for measuring switching times

#### Table 11. 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	2V <sub>CC</sub>

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

#### Low-power dual inverter and single buffer

## 12. Package outline

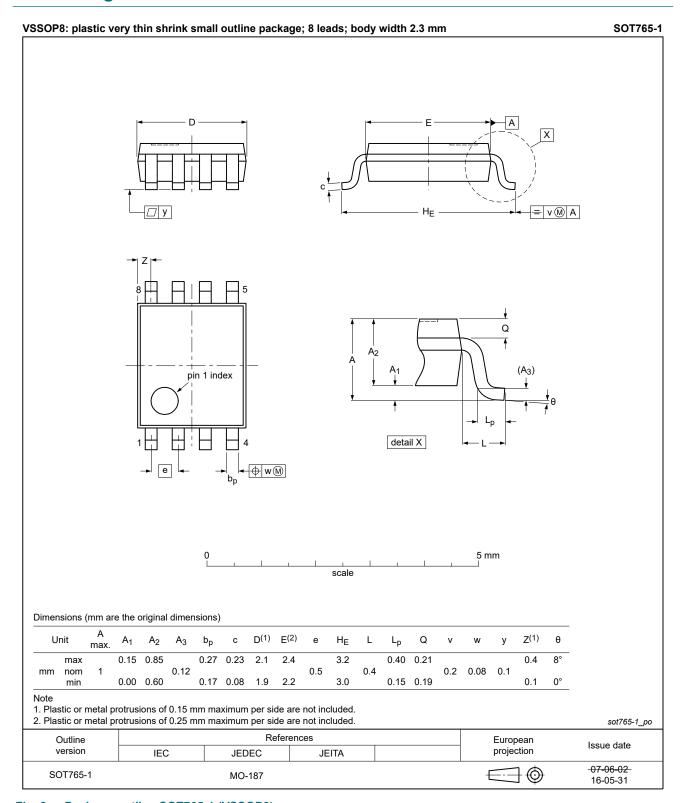


Fig. 8. Package outline SOT765-1 (VSSOP8)

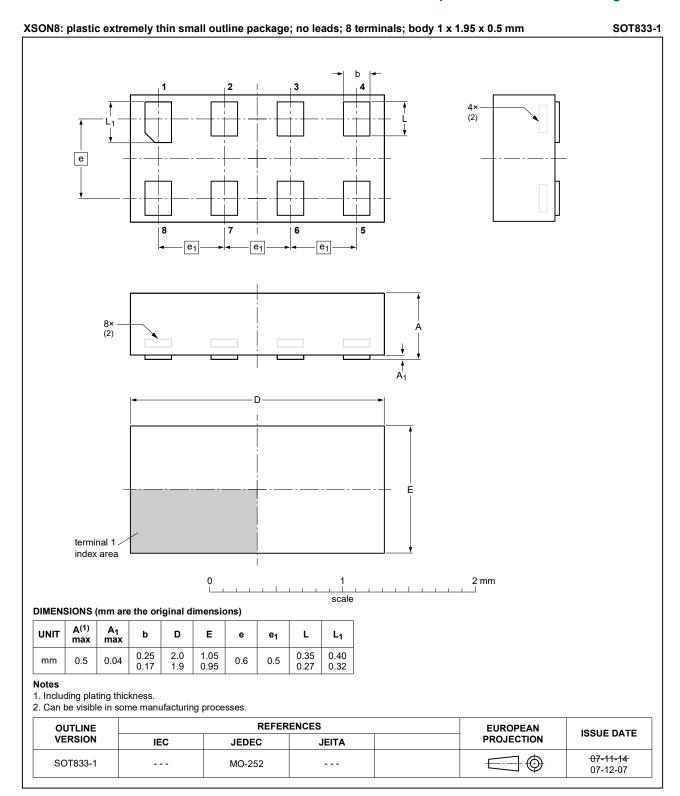


Fig. 9. Package outline SOT833-1 (XSON8)

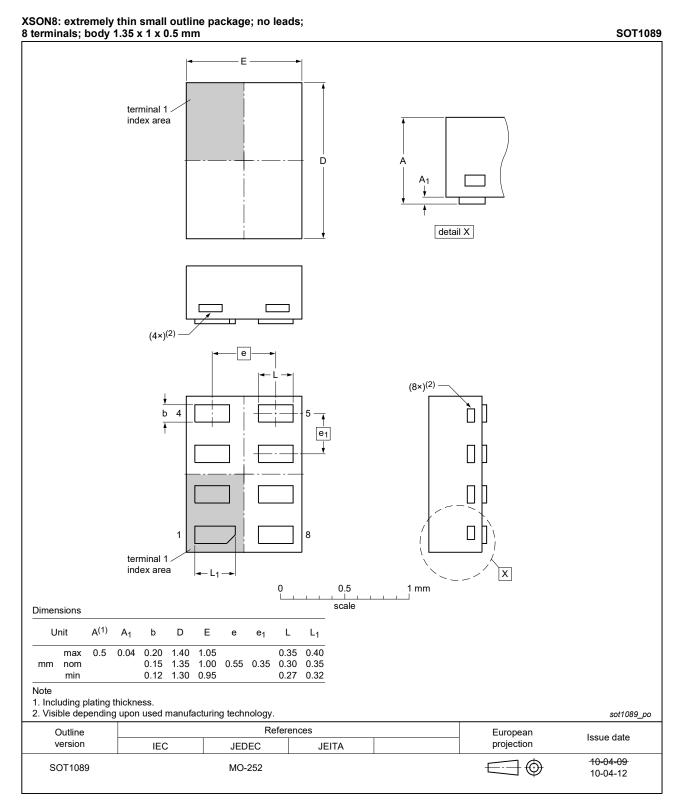


Fig. 10. Package outline SOT1089 (XSON8)

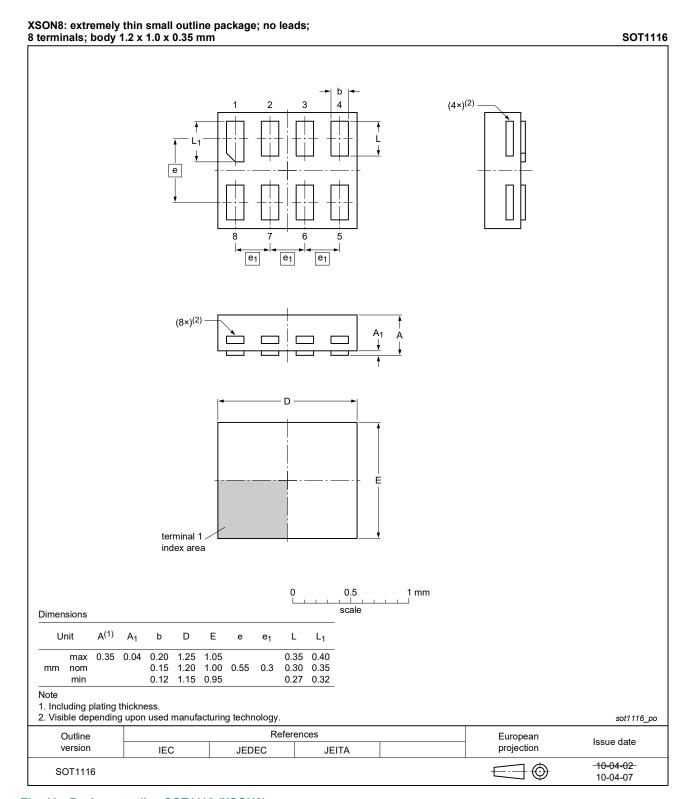


Fig. 11. Package outline SOT1116 (XSON8)

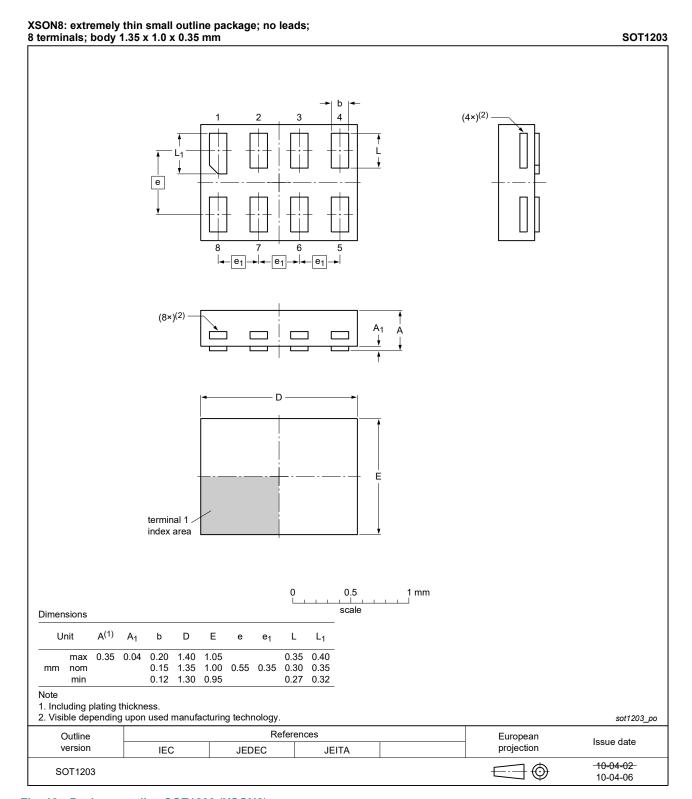


Fig. 12. Package outline SOT1203 (XSON8)

#### Low-power dual inverter and single buffer

## 13. Abbreviations

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

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

## 14. Revision history

#### **Table 13. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP3G0434 v.4	20210113	Product data sheet	-	74AUP3G0434 v.3
Modifications:	<ul> <li>Type number 74AUP3G0434GM (SOT902-2/XQFN8) removed.</li> <li>Section 8: Derating values for P<sub>tot</sub> total power dissipation updated.</li> </ul>			
74AUP3G0434 v.3	20190425	Product data sheet	-	74AUP3G0434 v.2
Modifications:	<ul> <li>The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia.</li> <li>Legal texts have been adapted to the new company name where appropriate.</li> <li>Type number 74AUP3G0434GD (SOT996-2/XSON8) removed.</li> <li>Package outline drawing SOT765-1 and SOT902-2 updated.</li> </ul>			
74AUP3G0434 v.2	20130117	Product data sheet	-	74AUP3G0434 v.1
Modifications:	For type number 74AUP3G0434GD XSON8U has changed to XSON8.			
74AUP3G0434 v.1	20121217	Product data sheet	-	-

## Low-power dual inverter and single 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.

- 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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