# **74AUP1G07**

# Low-power buffer with open-drain output

Rev. 7 — 16 July 2012

**Product data sheet** 

## 1. General description

The 74AUP1G07 provides the single non-inverting buffer with open-drain output. The output of the device is an open drain and can be connected to other open-drain outputs to implement active-LOW wired-OR or active-HIGH wired-AND functions.

Schmitt-trigger action at all inputs makes the circuit tolerant to 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<sub>OFF</sub>. The I<sub>OFF</sub> circuitry disables the output, preventing the 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;  $I_{CC} = 0.9 \mu A$  (maximum)
- Latch-up performance exceeds 100 mA per JESD 78 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 buffer with open-drain output

# 3. Ordering information

Table 1. Ordering information

Type number	Package									
	Temperature range Name		Description	Version						
74AUP1G07GW	–40 °C to +125 °C	TSSOP5	plastic thin shrink small outline package; 5 leads; body width 1.25 mm	SOT353-1						
74AUP1G07GM	–40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 $\times$ 1.45 $\times$ 0.5 mm	SOT886						
74AUP1G07GF	–40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 $\times$ 1 $\times$ 0.5 mm	SOT891						
74AUP1G07GN	–40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body $0.9 \times 1.0 \times 0.35$ mm	SOT1115						
74AUP1G07GS	–40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 1.0 $\times$ 1.0 $\times$ 0.35 mm	SOT1202						
74AUP1G07GX	–40 °C to +125 °C	X2SON5	X2SON5: plastic thermal enhanced extremely thin small outline package; no leads; 5 terminals; body $0.8 \times 0.8 \times 0.35$ mm	SOT1226						

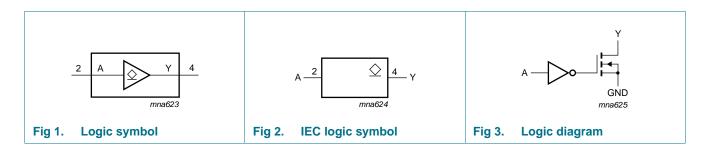
# 4. Marking

Table 2. Marking

Type number	Marking code <sup>[1]</sup>
74AUP1G07GW	pS
74AUP1G07GM	pS
74AUP1G07GF	pS
74AUP1G07GN	pS
74AUP1G07GS	pS
74AUP1G07GX	pS

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

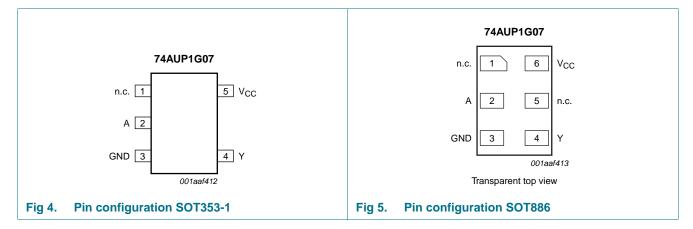
# 5. Functional diagram



### Low-power buffer with open-drain output

# 6. Pinning information

## 6.1 Pinning





## 6.2 Pin description

Table 3. Pin description

Symbol	Pin		Description
	TSSOP5 and X2SON5 XSON6		
n.c.	1	1	not connected
A	2	2	data input
GND	3	3	ground (0 V)
Υ	4	4	data output
n.c.	-	5	not connected
V <sub>CC</sub>	5	6	supply voltage

### Low-power buffer with open-drain output

# 7. Functional description

Table 4. Function table[1]

Input	Output
A	Υ
L	L
H	Z

<sup>[1]</sup> H = HIGH voltage level;

# 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 <sub>IK</sub>	input clamping current	V <sub>I</sub> < 0 V	-50	-	mA
V <sub>I</sub>	input voltage		[ <u>1</u> ] -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	[ <u>1</u> ] -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 input and output voltage ratings may be exceeded if the input and output current ratings are observed.

# 9. Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CC}$	supply voltage		8.0	3.6	V
$V_{I}$	input voltage		0	3.6	V
V <sub>O</sub>	output voltage	Active mode and Power-down mode	0	3.6	V
T <sub>amb</sub>	ambient temperature		-40	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V <sub>CC</sub> = 0.8 V to 3.6 V	0	200	ns/V

L = LOW voltage level;

Z = high-impedance OFF state.

<sup>[2]</sup> For TSSOP5 packages: above 87.5 °C the value of P<sub>tot</sub> derates linearly with 4.0 mW/K.
For XSON6 and X2SON5 packages: above 118 °C the value of P<sub>tot</sub> derates linearly with 7.8 mW/K.

## Low-power buffer with open-drain output

# 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	Uni
T <sub>amb</sub> = 2	5 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	$0.70 \times V_{CC}$	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	$0.65 \times V_{CC}$	-	-	٧
		$V_{CC}$ = 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	-	-	$0.30 \times V_{CC}$	٧
		V <sub>CC</sub> = 0.9 V to 1.95 V	-	-	$0.35 \times V_{CC}$	٧
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$	-	-	0.7	٧
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	-	0.9	V
V <sub>OL</sub>	LOW-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
		$I_O = 20 \mu A$ ; $V_{CC} = 0.8 \text{ V to } 3.6 \text{ V}$	-	-	0.1	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	$0.3 \times V_{CC}$	٧
		$I_O = 1.7 \text{ mA}; V_{CC} = 1.4 \text{ V}$	-	-	0.31	٧
		$I_O = 1.9 \text{ mA}; V_{CC} = 1.65 \text{ V}$	-	-	0.31	٧
		$I_O = 2.3 \text{ mA}; V_{CC} = 2.3 \text{ V}$	-	-	0.31	٧
		$I_O = 3.1 \text{ mA}; V_{CC} = 2.3 \text{ V}$	-	-	0.44	V
		$I_O = 2.7 \text{ mA}; V_{CC} = 3.0 \text{ V}$	-	-	0.31	V
		$I_O = 4.0 \text{ mA}; V_{CC} = 3.0 \text{ V}$	-	-	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>OZ</sub>	OFF-state output current	$V_I = V_{IH}$ ; $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ 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
$\Delta I_{OFF}$	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	μΑ
I <sub>CC</sub>	supply current	$V_1 = GND \text{ or } V_{CC}; I_O = 0 \text{ A};$ $V_{CC} = 0.8 \text{ V to } 3.6 \text{ V}$	-	-	0.5	μΑ
$\Delta I_{CC}$	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	$V_{CC} = 0 \text{ V to } 3.6 \text{ V; } V_{I} = \text{GND or } V_{CC}$	-	0.8	-	pF
Co	output capacitance	output enabled; V <sub>O</sub> = GND; V <sub>CC</sub> = 0 V	-	1.7	-	pF
		output disabled; V <sub>O</sub> = GND; V <sub>CC</sub> = 0 V	-	1.1	-	pF
T <sub>amb</sub> = -	40 °C to +85 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	0.70 × V <sub>CC</sub>	-	-	٧
	-	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

## Low-power buffer with open-drain output

**Table 7. Static characteristics** ...continued
At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
$V_{OL}$	LOW-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
		$I_O$ = 20 $\mu$ A; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.1	V
		$I_O = 1.1 \text{ mA}; V_{CC} = 1.1 \text{ V}$	-	-	$0.3 \times V_{CC}$	٧
		$I_O = 1.7 \text{ mA}; V_{CC} = 1.4 \text{ V}$	-	-	0.37	٧
		$I_O = 1.9 \text{ mA}; V_{CC} = 1.65 \text{ V}$	-	-	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
l <sub>l</sub>	input leakage current	$V_I = GND$ to 3.6 V; $V_{CC} = 0$ V to 3.6 V	-	-	±0.5	μΑ
l <sub>OZ</sub>	OFF-state output current	$V_I = V_{IH}$ ; $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ 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	μΑ
$\Delta I_{OFF}$	additional power-off leakage current	$V_1$ or $V_0 = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	±0.6	μΑ
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	μΑ
$\Delta I_{CC}$	additional supply current	$V_{I} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A}; V_{CC} = 3.3 \text{ V}$	-	-	50	μΑ
T <sub>amb</sub> = -	40 °C to +125 °C					
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 0.8 V	$0.75 \times V_{CC}$	-	-	V
		V <sub>CC</sub> = 0.9 V to 1.95 V	$0.70 \times V_{CC}$	-	-	٧
		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
$V_{IL}$	LOW-level input voltage	V <sub>CC</sub> = 0.8 V	-	-	$0.25 \times V_{CC}$	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
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$	-	-	0.9	V
V <sub>OL</sub>	LOW-level output voltage	$V_I = V_{IH}$ or $V_{IL}$				
		$I_O$ = 20 $\mu$ A; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.11	V
		$I_O = 1.1 \text{ mA}; V_{CC} = 1.1 \text{ V}$	-	-	$0.33 \times V_{CC}$	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	٧
		$I_{O} = 3.1 \text{ mA}; V_{CC} = 2.3 \text{ V}$	-	-	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 <sub>I</sub>	input leakage current	$V_I$ = GND to 3.6 V; $V_{CC}$ = 0 V to 3.6 V	-	-	±0.75	μΑ
l <sub>OZ</sub>	OFF-state output current	$V_I = V_{IH}$ ; $V_O = 0 \text{ V to } 3.6 \text{ V}$ ; $V_{CC} = 0 \text{ V}$ to 3.6 V	-	-	±0.75	μΑ
l <sub>OFF</sub>	power-off leakage current	$V_1$ or $V_0 = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.75	μΑ

## Low-power buffer with open-drain output

 Table 7.
 Static characteristics ...continued

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

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
$\Delta I_{OFF}$	additional power-off leakage current	$V_1$ or $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	±0.75	μΑ
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	μΑ
$\Delta I_{CC}$	additional supply current	$V_I = V_{CC} - 0.6 \text{ V}; I_O = 0 \text{ A}; V_{CC} = 3.3 \text{ V}$	-	-	75	μΑ

# 11. Dynamic characteristics

#### Table 8. Dynamic characteristics

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

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Symbol	Parameter	Conditions		25 °C			-4	-40 °C to +125 °C		
				Min	Typ[1]	Max	Min	Max (85 °C)	Max (125 °C)	
$C_L = 5 p$	F				'	,		•		
t <sub>pd</sub>	propagation delay	A to Y; see Figure 8	[2]							
		$V_{CC} = 0.8 \text{ V}$		-	11.6	-	-	-	-	ns
		$V_{CC} = 1.1 \text{ V to } 1.3 \text{ V}$		2.1	4.1	7.5	1.7	9.1	10.0	ns
		$V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$		1.6	3.0	5.1	1.3	6.1	6.7	ns
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		1.6	2.7	4.0	1.2	5.0	5.5	ns
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$		1.1	2.1	3.2	0.9	4.0	4.4	ns
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$		1.4	2.2	2.8	1.1	3.3	3.6	ns
C <sub>L</sub> = 10	ρF									
t <sub>pd</sub>	propagation delay	A to Y; see Figure 8	[2]							
		$V_{CC} = 0.8 \text{ V}$		-	14.7	-	-	-	-	ns
		$V_{CC} = 1.1 \text{ V to } 1.3 \text{ V}$		3.0	5.1	9.0	2.4	11.2	12.3	ns
		$V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$		2.3	3.8	6.1	2.0	7.4	8.1	ns
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		2.4	3.6	4.8	1.8	6.1	6.7	ns
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$		1.7	2.8	3.8	1.3	4.8	5.3	ns
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$		2.2	3.1	4.2	1.6	4.5	5.0	ns
C <sub>L</sub> = 15	ρF									
t <sub>pd</sub>	propagation delay	A to Y; see Figure 8	[2]							
		$V_{CC} = 0.8 \text{ V}$		-	17.7	-	-	-	-	ns
		$V_{CC} = 1.1 \text{ V to } 1.3 \text{ V}$		3.5	6.1	10.4	3.2	13.1	14.5	ns
		$V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$		3.0	4.5	6.8	2.6	8.6	9.4	ns
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		2.8	4.4	6.7	2.2	7.8	8.6	ns
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$		2.4	3.4	4.5	1.9	5.3	5.8	ns
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$		2.2	4.0	5.7	1.9	6.1	6.7	ns

### Low-power buffer with open-drain output

 Table 8.
 Dynamic characteristics ...continued

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

Symbol Parameter		Conditions			25 °C		-4	0 °C to +1	25 °C	Unit
				Min	Typ[1]	Max	Min	Max (85 °C)	Max (125 °C)	
$C_{L} = 30$	pF		·				•	'		
t <sub>pd</sub>	propagation delay	A to Y; see Figure 8	[2]							
		$V_{CC} = 0.8 \text{ V}$		-	24.6	-	-	-	-	ns
		$V_{CC} = 1.1 \text{ V to } 1.3 \text{ V}$		4.8	9.0	15.6	4.3	18.8	20.7	ns
		$V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$		4.1	6.7	9.4	3.7	11.8	13.0	ns
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		3.8	6.8	9.7	3.2	11.0	12.1	ns
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$		3.7	5.2	6.7	3.0	7.1	7.8	ns
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$		3.6	6.4	9.7	2.8	10.4	11.4	ns
$C_L = 5 p$	F, 10 pF, 15 pF and	30 pF								
$C_{PD}$	power dissipation capacitance	$f_i = 1 \text{ MHz};$ $V_I = \text{GND to } V_{CC}$	[3]							
		$V_{CC} = 0.8 \text{ V}$		-	0.5	-	-	-	-	pF
		$V_{CC} = 1.1 \text{ V to } 1.3 \text{ V}$		-	0.6	-	-	-	-	pF
		$V_{CC} = 1.4 \text{ V to } 1.6 \text{ V}$		-	0.6	-	-	-	-	pF
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		-	0.7	-	-	-	-	pF
		$V_{CC} = 2.3 \text{ V to } 2.7 \text{ V}$		-	0.9	-	-	-	-	pF
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$		-	1.2	-	-	-	-	pF

<sup>[1]</sup> All typical values are measured at nominal  $V_{\mbox{\scriptsize CC}}.$ 

 $P_D = C_{PD} \times V_{CC}{}^2 \times f_i \times N$  where:

 $f_i$  = input frequency in MHz;

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

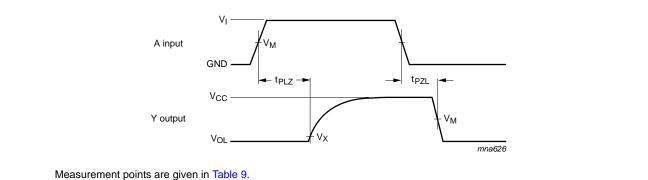
N = number of inputs switching.

<sup>[2]</sup>  $t_{pd}$  is the same as  $t_{PZL}$  and  $t_{PLZ}$ .

<sup>[3]</sup>  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu W$ ).

### Low-power buffer with open-drain output

## 12. Waveforms



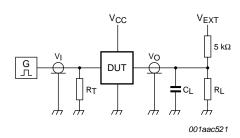
illeasurement points are given in table 9.

Logic level:  $V_{\text{OL}}$  is the typical output voltage level that occurs with the output load.

Fig 8. The data input (A) to output (Y) propagation delays

Table 9. Measurement points

Supply voltage	Input	Output			
V <sub>CC</sub>	V <sub>M</sub>	V <sub>M</sub>	V <sub>X</sub>		
0.8 V to 1.6 V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	V <sub>OL</sub> + 0.1 V		
1.65 V to 2.7 V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	V <sub>OL</sub> + 0.15 V		
3.0 V to 3.6 V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	V <sub>OL</sub> + 0.3 V		



Test data is given in Table 10.

Definitions for test circuit:

 $R_L$  = 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<sub>EXT</sub> = External voltage for measuring switching times.

Fig 9. Load circuitry for 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 k $\Omega$ or 1 M $\Omega$	open	GND	$2 \times V_{CC}$

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

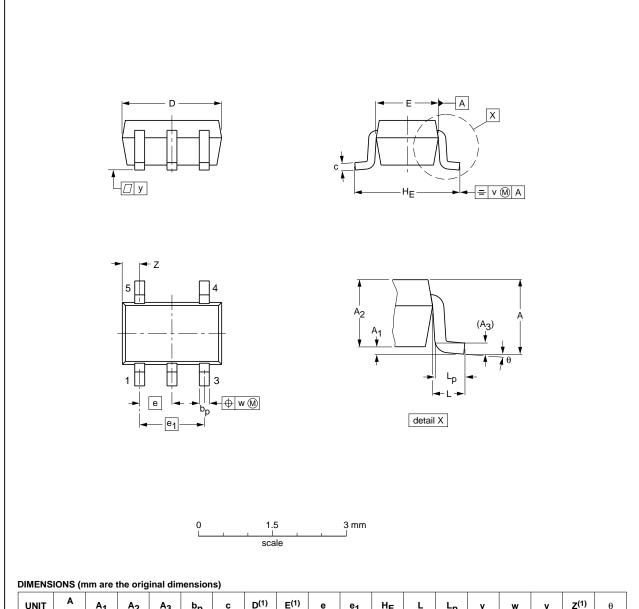
74AUP1G07

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# 13. Package outline

### TSSOP5: plastic thin shrink small outline package; 5 leads; body width 1.25 mm

SOT353-1



UN	IIT	A max.	A <sub>1</sub>	A <sub>2</sub>	А3	bp	С	D <sup>(1)</sup>	E <sup>(1)</sup>	е	e <sub>1</sub>	HE	L	Lp	v	w	у	Z <sup>(1)</sup>	θ
m	m	1.1	0.1 0	1.0 0.8	0.15	0.30 0.15	0.25 0.08	2.25 1.85	1.35 1.15	0.65	1.3	2.25 2.0	0.425	0.46 0.21	0.3	0.1	0.1	0.60 0.15	7° 0°

#### Note

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE		REFER	ENCES	EUROPEAN				
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE		
SOT353-1		MO-203	SC-88A			<del>-00-09-01</del> 03-02-19		

Fig 10. Package outline SOT353-1 (TSSOP5)

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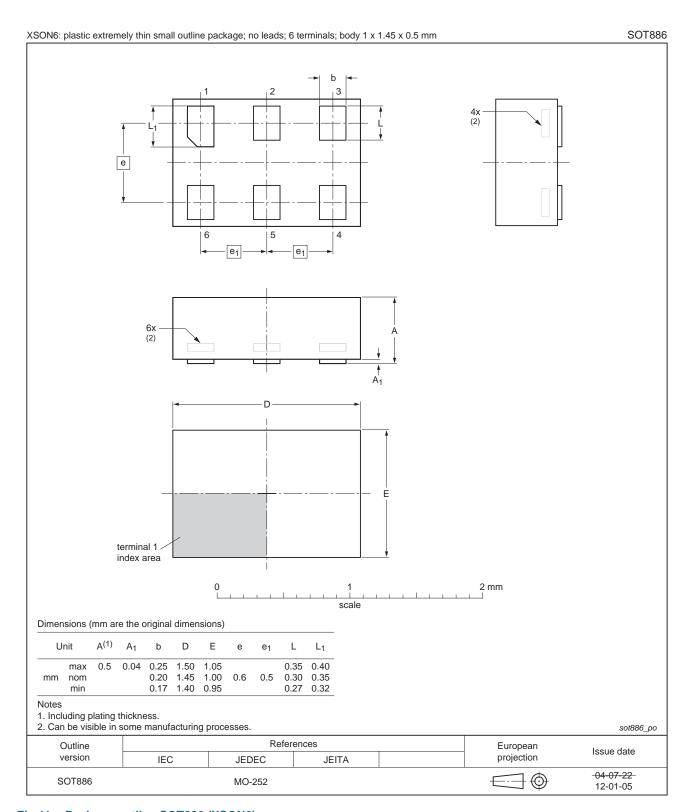


Fig 11. Package outline SOT886 (XSON6)

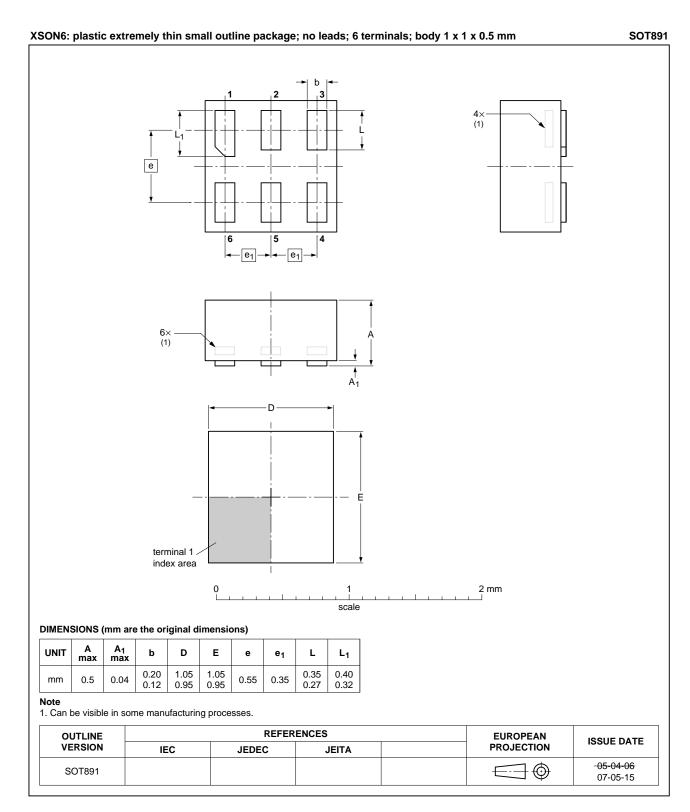


Fig 12. Package outline SOT891 (XSON6)

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12 of 19

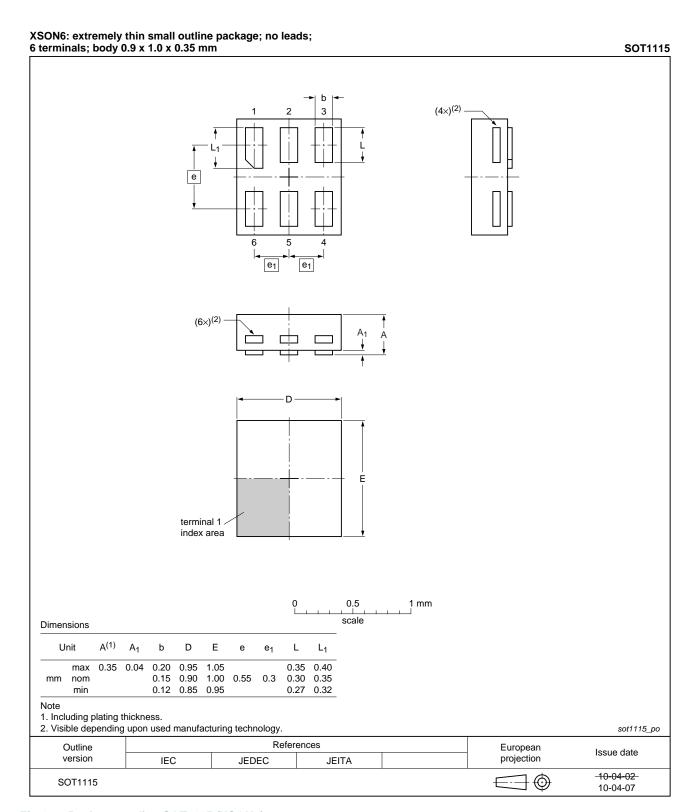


Fig 13. Package outline SOT1115 (XSON6)

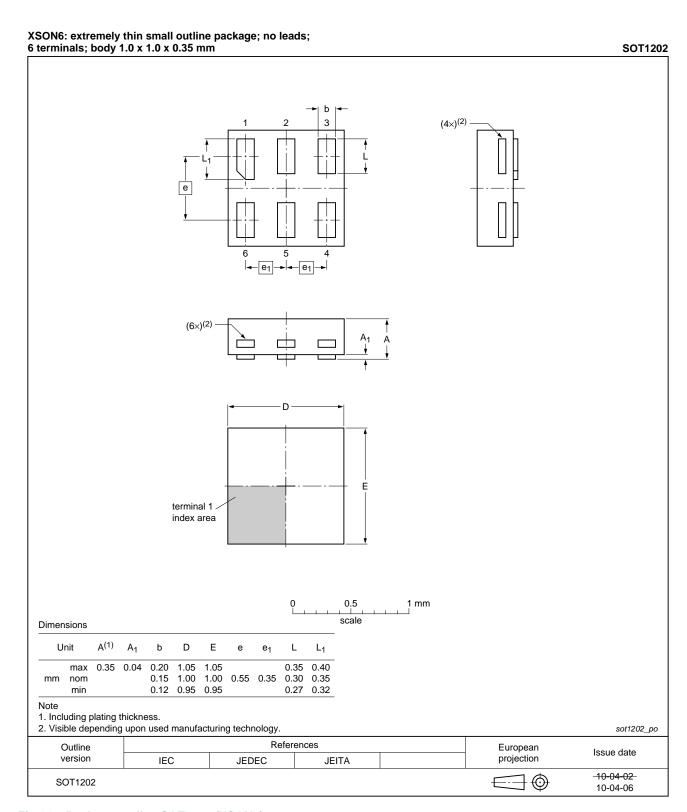


Fig 14. Package outline SOT1202 (XSON6)

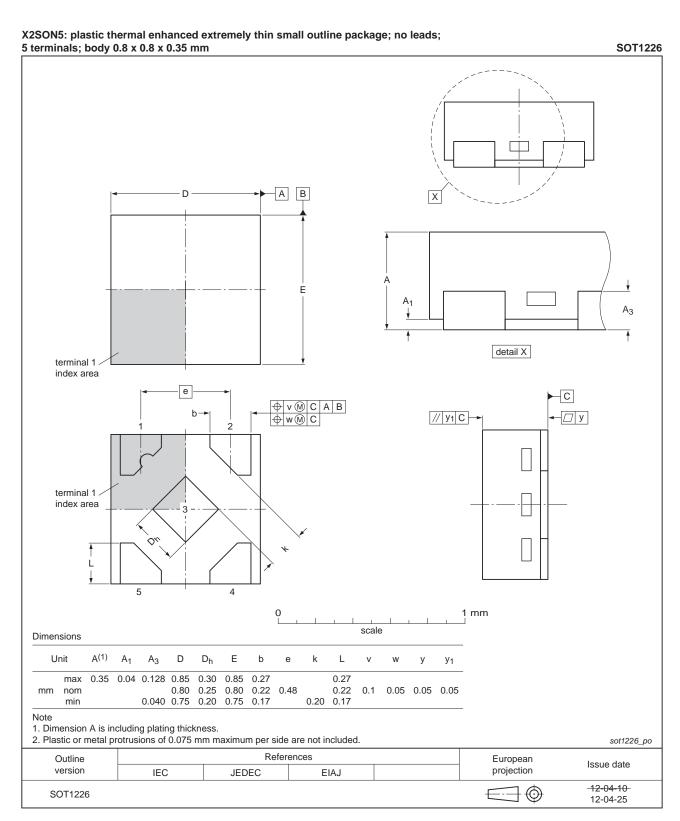


Fig 15. Package outline SOT1226 (X2SON5)

## Low-power buffer with open-drain output

# 14. Abbreviations

#### Table 11. Abbreviations

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

# 15. Revision history

#### Table 12. Revision history

74AUP1G07 v.7 20120716 Product data sheet - 74AUP1G07 v.6  Modifications: Package outline drawing of SOT1226 (Figure 15) modified.  74AUP1G07 v.6 20120412 Product data sheet - 74AUP1G07 v.5  Modifications: Added type number 74AUP1G07GX (SOT1226) Package outline drawing of SOT886 (Figure 11) modified.  74AUP1G07 v.5 20111115 Product data sheet - 74AUP1G07 v.4  Modifications: Legal pages updated.  74AUP1G07 v.4 20100902 Product data sheet - 74AUP1G07 v.3  74AUP1G07 v.3 20090617 Product data sheet - 74AUP1G07 v.2  74AUP1G07 v.2 20070614 Product data sheet - 74AUP1G07 v.1					
Modifications:         • Package outline drawing of SOT1226 (Figure 15) modified.           74AUP1G07 v.6         20120412         Product data sheet         -         74AUP1G07 v.5           Modifications:         • Added type number 74AUP1G07GX (SOT1226)         • Package outline drawing of SOT886 (Figure 11) modified.           74AUP1G07 v.5         20111115         Product data sheet         -         74AUP1G07 v.4           Modifications:         • Legal pages updated.           74AUP1G07 v.4         20100902         Product data sheet         -         74AUP1G07 v.3           74AUP1G07 v.3         20090617         Product data sheet         -         74AUP1G07 v.2           74AUP1G07 v.2         20070614         Product data sheet         -         74AUP1G07 v.1	Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP1G07 v.6  20120412 Product data sheet - 74AUP1G07 v.5  Modifications:  • Added type number 74AUP1G07GX (SOT1226)  • Package outline drawing of SOT886 (Figure 11) modified.  74AUP1G07 v.5  20111115 Product data sheet - 74AUP1G07 v.4  Modifications:  • Legal pages updated.  74AUP1G07 v.4  20100902 Product data sheet - 74AUP1G07 v.3  74AUP1G07 v.3  20090617 Product data sheet - 74AUP1G07 v.2  74AUP1G07 v.2  74AUP1G07 v.2	74AUP1G07 v.7	20120716	Product data sheet	-	74AUP1G07 v.6
Modifications:       ● Added type number 74AUP1G07GX (SOT1226)         ● Package outline drawing of SOT886 (Figure 11) modified.         74AUP1G07 v.5       20111115       Product data sheet       -       74AUP1G07 v.4         Modifications:       ● Legal pages updated.         74AUP1G07 v.4       20100902       Product data sheet       -       74AUP1G07 v.3         74AUP1G07 v.3       20090617       Product data sheet       -       74AUP1G07 v.2         74AUP1G07 v.2       20070614       Product data sheet       -       74AUP1G07 v.1	Modifications:	<ul> <li>Package out</li> </ul>	line drawing of SOT1226 (Fig	gure 15) modified.	
Package outline drawing of SOT886 (Figure 11) modified.         74AUP1G07 v.5       20111115       Product data sheet       -       74AUP1G07 v.4         Modifications:       • Legal pages updated.         74AUP1G07 v.4       20100902       Product data sheet       -       74AUP1G07 v.3         74AUP1G07 v.3       20090617       Product data sheet       -       74AUP1G07 v.2         74AUP1G07 v.2       20070614       Product data sheet       -       74AUP1G07 v.1	74AUP1G07 v.6	20120412	Product data sheet	-	74AUP1G07 v.5
74AUP1G07 v.5       20111115       Product data sheet       -       74AUP1G07 v.4         Modifications:       • Legal pages updated.         74AUP1G07 v.4       20100902       Product data sheet       -       74AUP1G07 v.3         74AUP1G07 v.3       20090617       Product data sheet       -       74AUP1G07 v.2         74AUP1G07 v.2       20070614       Product data sheet       -       74AUP1G07 v.1	Modifications:	<ul> <li>Added type r</li> </ul>	number 74AUP1G07GX (SO	T1226)	
Modifications:         • Legal pages updated.           74AUP1G07 v.4         20100902         Product data sheet         -         74AUP1G07 v.3           74AUP1G07 v.3         20090617         Product data sheet         -         74AUP1G07 v.2           74AUP1G07 v.2         20070614         Product data sheet         -         74AUP1G07 v.1		<ul> <li>Package out</li> </ul>	line drawing of SOT886 (Figu	ure 11) modified.	
74AUP1G07 v.4       20100902       Product data sheet       -       74AUP1G07 v.3         74AUP1G07 v.3       20090617       Product data sheet       -       74AUP1G07 v.2         74AUP1G07 v.2       20070614       Product data sheet       -       74AUP1G07 v.1	74AUP1G07 v.5	20111115	Product data sheet	-	74AUP1G07 v.4
74AUP1G07 v.3 20090617 Product data sheet - 74AUP1G07 v.2 74AUP1G07 v.1	Modifications:	<ul> <li>Legal pages</li> </ul>	updated.		
74AUP1G07 v.2 20070614 Product data sheet - 74AUP1G07 v.1	74AUP1G07 v.4	20100902	Product data sheet	-	74AUP1G07 v.3
	74AUP1G07 v.3	20090617	Product data sheet	-	74AUP1G07 v.2
74AUP1G07 v.1 20061010 Product data sheet	74AUP1G07 v.2	20070614	Product data sheet	-	74AUP1G07 v.1
	74AUP1G07 v.1	20061010	Product data sheet	-	-

#### Low-power buffer with open-drain output

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17 of 19

#### Low-power buffer with open-drain output

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## Low-power buffer with open-drain output

## 18. Contents

1	General description
2	Features and benefits
3	Ordering information 2
4	Marking 2
5	Functional diagram 2
6	Pinning information
6.1	Pinning
6.2	Pin description
7	Functional description 4
8	Limiting values 4
9	Recommended operating conditions 4
10	Static characteristics 5
11	Dynamic characteristics
12	Waveforms
13	Package outline
14	Abbreviations
15	Revision history
16	Legal information
16.1	Data sheet status
16.2	Definitions
16.3	Disclaimers
16.4	Trademarks
17	Contact information
18	Contents

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