Low-power 2-input multiplexer Rev. 8 — 4 November 2021

**Product data sheet** 

### 1. General description

The 74AUP1G157 is a single 2-input multiplexer. Schmitt trigger action at all inputs makes the circuit tolerant to slower input rise and fall times. This device ensures a 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 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>
- IOFF circuitry provides partial Power-down mode operation
- Low static power consumption; I<sub>CC</sub> = 0.9 μA (maximum)
- Latch-up performance exceeds 100 mA per JESD 78 Class II
  - 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 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

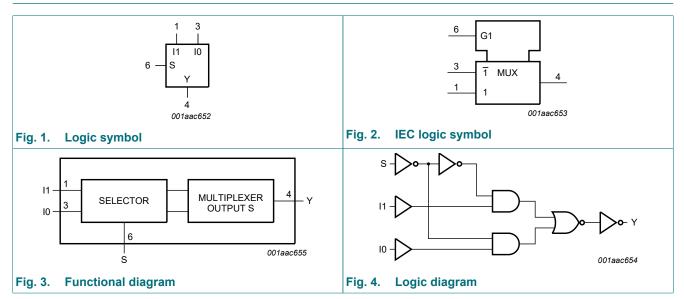
Table 1. Ordering in	Table 1. Ordering information										
Type number	Package										
	Temperature range	Name	Description	Version							
74AUP1G157GW	-40 °C to +125 °C	SC-88	plastic surface-mounted package; 6 leads	SOT363							
74AUP1G157GM	-40 °C to +125 °C	XSON6	plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm	SOT886							
74AUP1G157GN	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 0.9 × 1.0 × 0.35 mm	SOT1115							
74AUP1G157GS	-40 °C to +125 °C	XSON6	extremely thin small outline package; no leads; 6 terminals; body 1.0 × 1.0 × 0.35 mm	SOT1202							
74AUP1G157GX	-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]					
74AUP1G157GW	aP					
74AUP1G157GM	aP					
74AUP1G157GN	aP					
74AUP1G157GS	aP					
74AUP1G157GX	aP					

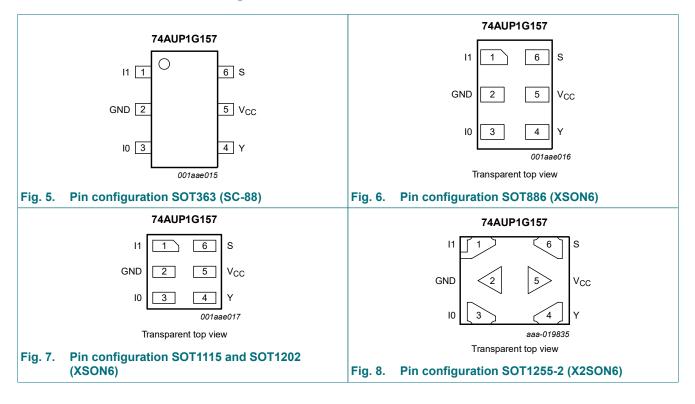
[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

# 5. Functional diagram



### 6. Pinning information

### 6.1. Pinning



### 6.2. Pin description

#### Table 3. Pin description

Symbol	Pin	Description
11	1	data input from source 1
GND	2	ground (0 V)
10	3	data input from source 0
Y	4	multiplexer output
V <sub>CC</sub>	5	supply voltage
S	6	common data select input

### 7. Functional description

#### Table 4. Function table

H = HIGH voltage level; L = LOW voltage level; X = don't care.

Input	Output		
S	11	10	Y
L	Х	L	L
L	Х	Н	Н
Н	L	Х	L
Н	Н	Х	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	Мах	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
I <sub>O</sub>	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 (SC-88) package: P<sub>tot</sub> 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:  $\mathrm{P}_{tot}$  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	0	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	25 °C					
VIH	HIGH-level input	V <sub>CC</sub> = 0.8 V	0.70 × V <sub>CC</sub>	-	-	V
• IT	voltage	V <sub>CC</sub> = 0.9 V to 1.95 V	$0.65 \times V_{CC}$	-	-	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	V <sub>CC</sub> = 0.8 V	-	-	$0.30 \times V_{CC}$	V
	voltage	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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
	voltage	$I_{O}$ = -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	0.75 × 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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
	voltage	$I_{O}$ = 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 × 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
I <sub>I</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	$V_{I}$ 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	$V_{I}$ or $V_{O}$ = 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; $V_{CC}$ = 0.8 V to 3.6 V	-	-	0.5	μA
ΔI <sub>CC</sub>	additional supply current	$V_{I} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}; \text{ One input at } V_{CC} - 0.6 \text{ V},$ other inputs at $V_{CC}$ or GND.	-	-	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 2-input multiplexer

Symbo	Parameter	Conditions	Min	Тур	Мах	Unit
T <sub>amb</sub> =	-40 °C to +85 °C					
VIH	HIGH-level input	V <sub>CC</sub> = 0.8 V	0.70 × V <sub>CC</sub>	-	-	V
	voltage	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	V <sub>CC</sub> = 0.8 V	-	-	$0.30 \times V_{CC}$	V
IL.	voltage	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	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>				
	voltage	$I_{O}$ = -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	$0.7 \times V_{CC}$	-	-	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 × 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
I <sub>I</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	$V_1 \text{ or } V_0 = 0 \text{ V to } 3.6 \text{ V}; V_{CC} = 0 \text{ V}$	-	-	±0.5	μA
ΔI <sub>OFF</sub>	additional power-off leakage current	$V_1 \text{ or } V_0 = 0 \text{ V to } 3.6 \text{ V}; V_{CC} = 0 \text{ V to } 0.2 \text{ V}$	-	-	±0.6	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
ΔI <sub>CC</sub>	additional supply current	$V_{1} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}; \text{ One input at } V_{CC} - 0.6 \text{ V},$ other inputs at $V_{CC}$ or GND.	-	-	50	μA
T <sub>amb</sub> =	-40 °C to +125 °C				1	
VIH	HIGH-level input	V <sub>CC</sub> = 0.8 V	0.75 × V <sub>CC</sub>	-	-	V
	voltage	V <sub>CC</sub> = 0.9 V to 1.95 V	0.70 × V <sub>CC</sub>	-	-	V
		$V_{CC} = 2.3 V \text{ to } 2.7 V$	1.6	-	-	V
		$V_{CC} = 3.0 \text{ V to } 3.6 \text{ V}$	2.0	-	-	V
V <sub>IL</sub>	LOW-level input	V <sub>CC</sub> = 0.8 V	-	-	0.25 × V <sub>CC</sub>	V
	voltage	$V_{CC} = 0.9 V \text{ to } 1.95 V$	-	_	0.30 × V <sub>CC</sub>	V
						V
		$V_{CC}$ = 2.3 V to 2.7 V		-	0.7	V

#### Low-power 2-input multiplexer

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V <sub>OH</sub>	HIGH-level output	$V_{I} = V_{IH} \text{ or } V_{IL}$				
	voltage	$I_{O}$ = -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 × 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	$V_{I} = V_{IH} \text{ or } V_{IL}$				
	voltage	$I_{O} = 20 \ \mu A; V_{CC} = 0.8 \ V \text{ to } 3.6 \ V$	-	-	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
I <sub>I</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	$V_1$ or $V_0 = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	±0.75	μA
∆I <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; $V_{CC}$ = 0.8 V to 3.6 V	-	-	1.4	μA
ΔI <sub>CC</sub>	additional supply current	$V_{I} = V_{CC} - 0.6 \text{ V}; I_{O} = 0 \text{ A};$ $V_{CC} = 3.3 \text{ V}; \text{ One input at } V_{CC} - 0.6 \text{ V},$ other inputs at $V_{CC}$ or GND.	-	-	75	μA

## **11. Dynamic characteristics**

#### Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 10.

Symbol	Parameter	Conditions	25 °C		-40 °C to	o +85 °C	-40 °C to	+125 °C	Unit			
			Min	Typ[1]	Max	Min	Max	Min	Мах			
C <sub>L</sub> = 5 pF												
t <sub>pd</sub>	propagation	I0, I1 or S to Y; see <u>Fig. 9</u> [2]										
	delay	V <sub>CC</sub> = 0.8 V	-	19.9	-	-	-	-	-	ns		
				V <sub>CC</sub> = 1.1 V to 1.3 V	2.3	5.7	11.2	2.1	11.4	2.1	12.6	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	1.7	4.0	6.5	1.9	7.0	1.9	7.7	ns		
		V <sub>CC</sub> = 1.65 V to 1.95 V	1.6	3.2	5.2	1.5	5.8	1.5	6.4	ns		
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.4	2.5	3.8	1.1	4.2	1.1	4.7	ns		
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.2	2.2	3.2	0.9	3.5	0.9	3.9	ns		

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## 74AUP1G157

#### Low-power 2-input multiplexer

Symbol	Parameter	Conditions		25 °C		-40 °C t	o +85 °C	-40 °C to +125 °C		Unit
			Min	Typ[1]	Мах	Min	Max	Min	Max	
C <sub>L</sub> = 10	pF									
t <sub>pd</sub>	propagation	I0, I1 or S to Y; see Fig. 9 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	23.5	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.7	6.6	12.8	2.4	13.0	2.4	14.3	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.1	4.6	7.5	2.3	8.1	2.3	9.0	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.0	3.8	6.0	1.8	6.7	1.8	7.4	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	1.8	3.0	4.5	1.5	5.0	1.5	5.5	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.6	2.8	3.9	1.3	4.2	1.3	4.7	ns
C <sub>L</sub> = 15	pF									
t <sub>pd</sub>	propagation	I0, I1 or S to Y; see Fig. 9 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	27.2	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	3.1	7.4	14.3	2.7	14.8	2.7	16.3	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.4	5.1	8.5	2.6	9.2	2.6	10.2	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.3	4.2	6.8	2.0	7.6	2.0	8.4	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.1	3.5	5.1	1.8	5.7	1.8	6.3	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.9	3.2	4.5	1.6	4.9	1.6	5.4	ns
C <sub>L</sub> = 30	pF									
t <sub>pd</sub>	propagation	I0, I1 or S to Y; see Fig. 9 [2]								
	delay	V <sub>CC</sub> = 0.8 V	-	35.3	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	4.1	9.6	19.1	3.5	19.9	3.5	21.9	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	3.2	6.7	11.1	3.3	12.1	3.3	13.4	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	3.0	5.5	8.9	2.6	10.1	2.6	11.2	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.8	4.6	6.6	2.5	7.5	2.5	8.3	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.6	4.3	6.0	2.3	6.4	2.3	7.1	ns
C <sub>L</sub> = 5 p	F, 10 pF, 15 pl	F and 30 pF								
C <sub>PD</sub>	power	$f_i = 1 \text{ MHz}; V_1 = \text{GND to } V_{\text{CC}}$ [3]								
	dissipation capacitance	V <sub>CC</sub> = 0.8 V	-	2.6	-	-	-	-	-	pF
	capacitance	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	-	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

[1] All typical values are measured at formula v<sub>CC</sub>. [2]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ . [3]  $C_{PD}$  is used to determine the dynamic power dissipation (P<sub>D</sub> in µW).  $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  where:

 $f_i$  = input frequency in MHz;

 $f_o$  = output frequency in MHz;

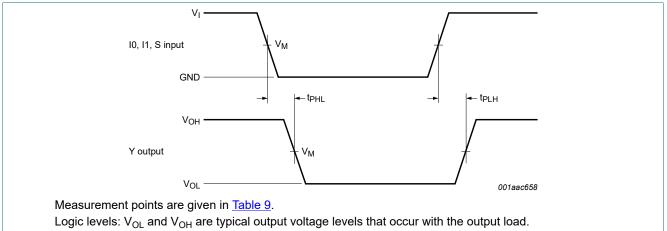
 $C_L$  = output load capacitance in pF;

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

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

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#### Low-power 2-input multiplexer

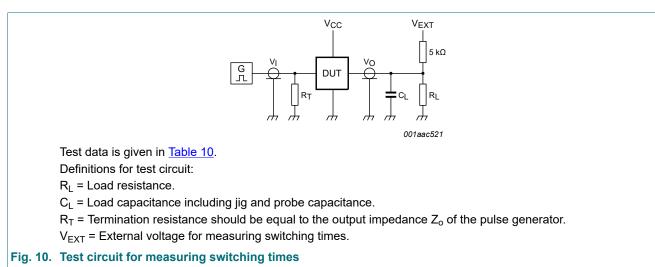


### 11.1. Waveforms and test circuit

Fig. 9. The data inputs (I0, I1) and common data select input (S) to output (Y) propagation delays

#### Table 9. Measurement points

Supply voltage	Output	Input					
V <sub>cc</sub>	V <sub>M</sub>	$V_{M}$ $V_{I}$ $t_{r} = t_{f}$					
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			



#### 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, set-up and hold times and pulse width R<sub>L</sub> = 1 M $\Omega$ .

#### Low-power 2-input multiplexer

## 12. Package outline

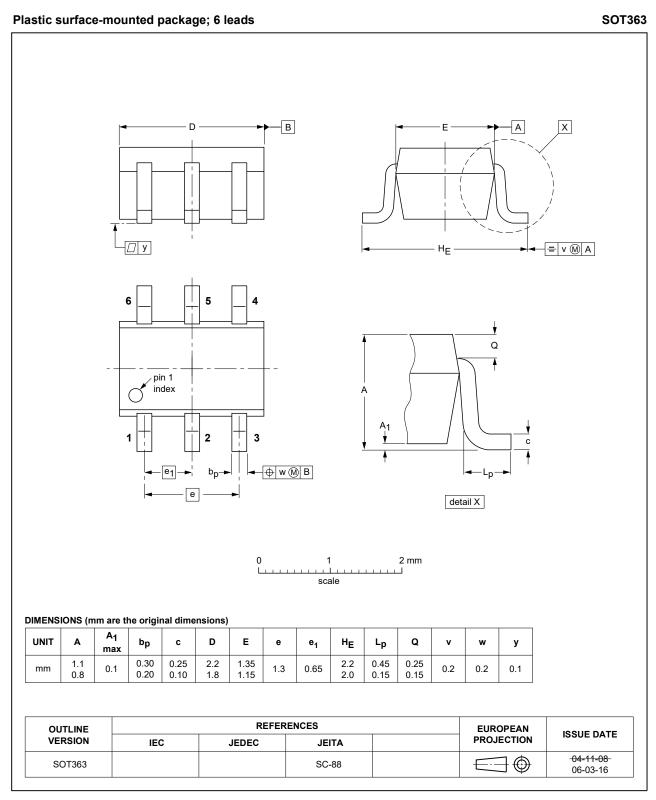


Fig. 11. Package outline SOT363 (SC-88)

#### Low-power 2-input multiplexer

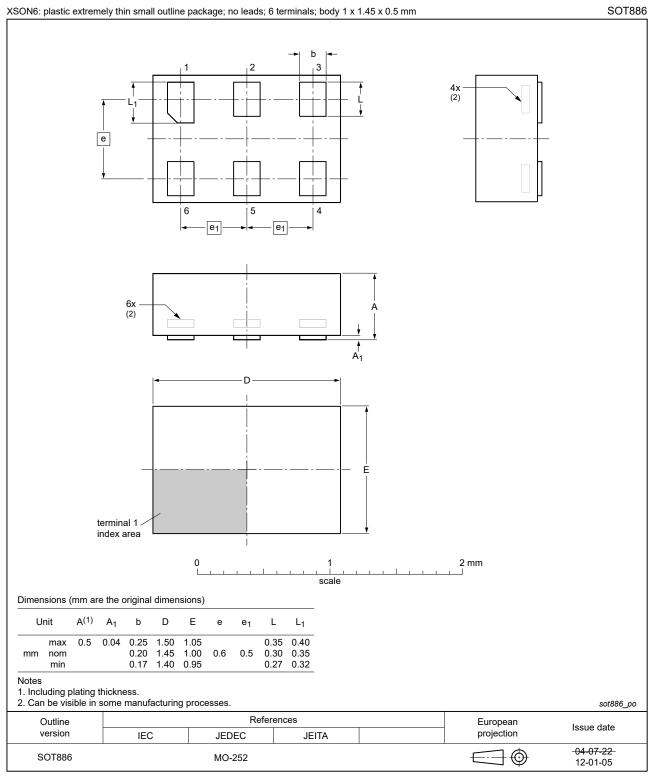
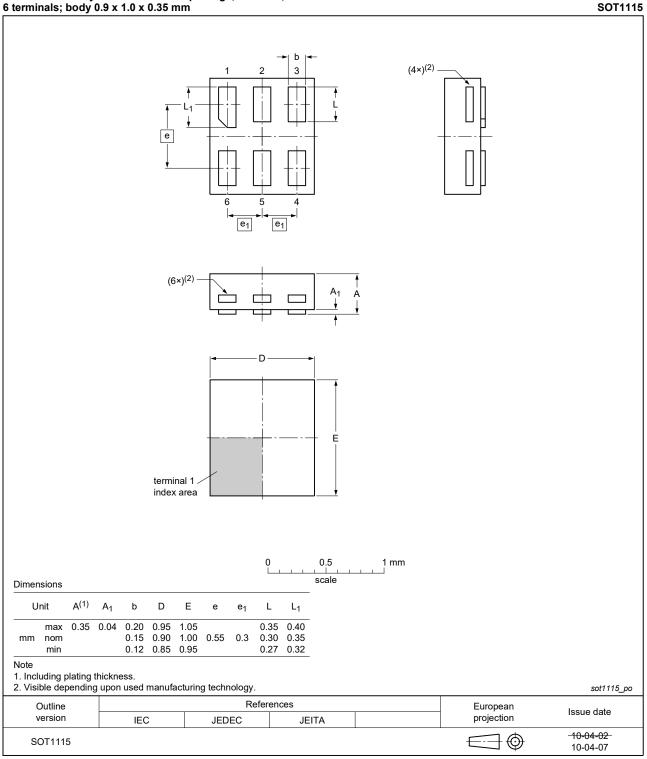


Fig. 12. Package outline SOT886 (XSON6)

#### Low-power 2-input multiplexer

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





SOT1202

#### Low-power 2-input multiplexer

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

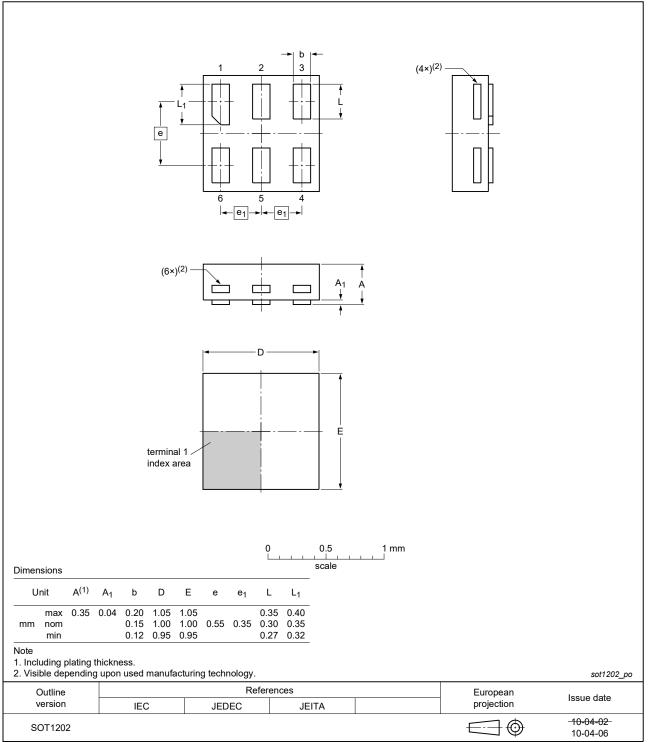
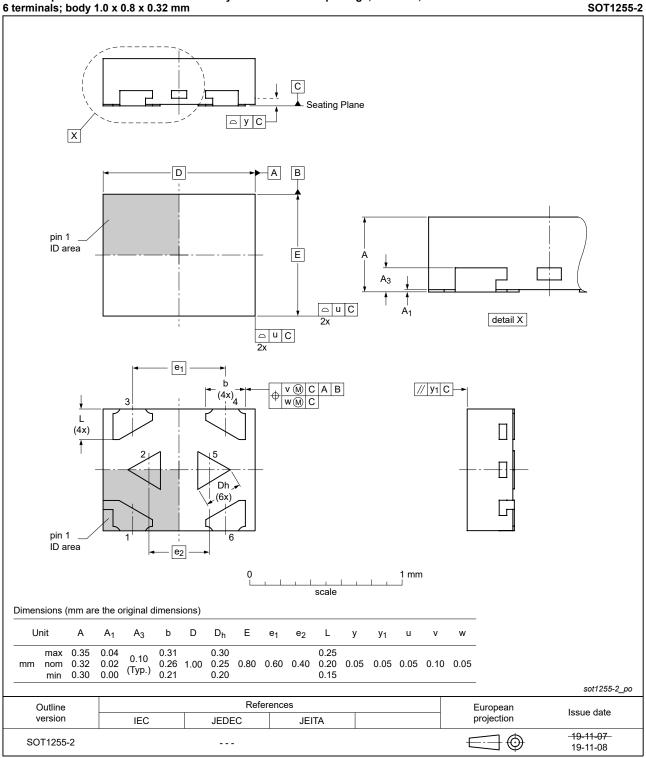


Fig. 14. Package outline SOT1202 (XSON6)

#### Low-power 2-input multiplexer



# 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
DUT	Device Under Test
ESD	ElectroStatic Discharge
НВМ	Human Body Model
MM	Machine Model

# 14. Revision history

#### Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP1G157 v.8	20211104	Product data sheet	-	74AUP1G157 v.7
Modifications:	<ul><li>SOT1255 (X</li><li>Type number</li></ul>	nd <u>Section 2</u> updated. (2SON6) package changed er 74AUP1G157GF (SOT8 rating values for P <sub>tot</sub> total p	91/XSON6) remov	ed.
74AUP1G157 v.7	20190128	Product data sheet	-	74AUP1G157 v.6
Modifications:	of Nexperia.		-	nply with the identity guidelines e where appropriate.
74AUP1G157 v.6	20150916	Product data sheet	-	74AUP1G157 v.5
Modifications:	Added type	number 74AUP1G157GX	(SOT1255/X2SON	6).
74AUP1G157 v.5	20120622	Product data sheet	-	74AUP1G157 v.4
Modifications:	Package ou	tline drawing of SOT886 (	-ig. 12) modified.	
74AUP1G157 v.4	20111129	Product data sheet	-	74AUP1G157 v.3
Modifications:	Legal pages	updated.		
74AUP1G157 v.3	20101028	Product data sheet	-	74AUP1G157 v.2
74AUP1G157 v.2	20080205	Product data sheet	-	74AUP1G157 v.1
74AUP1G157 v.1	20061109	Product data sheet	-	-

#### Low-power 2-input multiplexer

### 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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