

**General Description**

The 74AUP2G17 is a high performance dual buffer operating from a 0.8 to 3.6V supply. This device is fabricated with advanced CMOS technology to achieve ultra-high speed with high output drive.

**Features**

- Designed for 0.8V to 3.6V VCC Operation
- Low static power consumption; ICC = 0.7µA (maximum)
- 4mA Balanced Output Sink and Source Capability
- Near Zero Static Supply Current Substantially Reduces System Power Requirements
- These Devices are Pb-Free and are RoHS Compliant

**Pin Configuration**

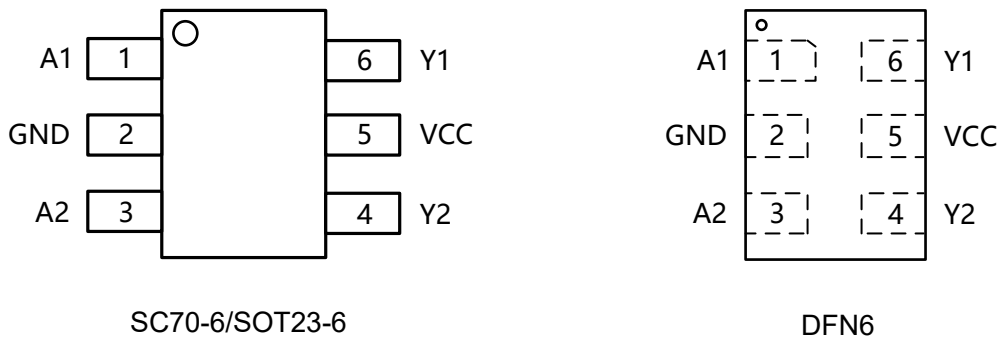


Figure1. Top View

**Pin Function**

SC70-6/ SOT23-6

Pin No.	Function
1	A1
2	GND
3	A2
4	Y2
5	VCC
6	Y1

DFN6

Pin No.	Function
1	A1
2	GND
3	A2
4	Y2
5	VCC
6	Y1

**Block Diagram**

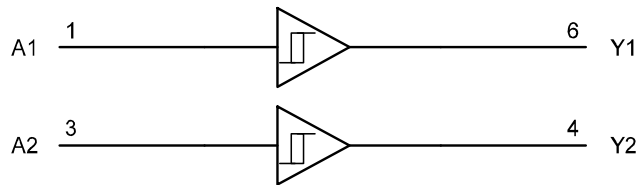


Figure2.

**Functional Description**

Function Table

A Input	Y Output
H	H
L	L

**Absolute Maximum Ratings**

Symbol	Parameter		Value	Unit
V <sub>CC</sub>	DC Supply Voltage		-0.5 to 4.6	V
V <sub>I</sub>	DC Input Voltage		-0.5 ≤ V <sub>I</sub> ≤ +4.6	V
V <sub>O</sub>	DC Output Voltage Output in Higher or Low State <sup>(1)</sup>		-0.5 to 4.6	V
I <sub>IK</sub>	DC Input Diode Current	V <sub>I</sub> < GND	-50	mA
I <sub>OK</sub>	DC Output Diode Current	V <sub>O</sub> < GND, V <sub>O</sub> > V <sub>CC</sub>	±50	mA
I <sub>O</sub>	DC Output Sink Current		±20	mA
I <sub>CC</sub>	DC Supply Current per Supply Pin		±50	mA
I <sub>GND</sub>	DC Ground Current per Supply Pin		±50	mA
T <sub>STG</sub>	Storage Temperature Range		-65 to 150	°C
T <sub>L</sub>	Lead Temperature, 1 mm from Case for 10 Seconds		260	°C
T <sub>J</sub>	Junction Temperature Under Bias		150	°C
P <sub>D</sub>	Power Dissipation in Still Air at 85°C		200	mW
ESD	ESD Classification	Human Body Model	±4000	V
		Machine Model	±200	
		Charged Device Model	±1000	
I <sub>LU</sub>	Latchup Current Above V <sub>CC</sub> and GND at 125°C		±100	mA

**Recommended Operating Conditions**

Symbol	Parameter		Min	Max	Unit
V <sub>CC</sub>	DC Supply Voltage Operating		0.8	3.6	V
V <sub>IN</sub>	DC Input Voltage		0	3.6	V
V <sub>OUT</sub>	DC Output Voltage (High or Low State)		0	3.6	V
T <sub>A</sub>	Operating Temperature Range		-40	85	°C
t <sub>r</sub> , t <sub>f</sub>	Input Rise and Fall Time	V <sub>CC</sub> = 0.8V to 3.6V	0	20	ns/V

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied.

**Electrical Characteristics**
**DC Electrical Characteristics**

Symbol	Parameter	Condition	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			-40°C ≤ T <sub>A</sub> ≤ 85°C		Unit
				Min	Typ	Max	Min	Max	
V <sub>IH</sub>	High-Level Input Voltage		0.8V	0.75V <sub>CC</sub>			0.75V <sub>CC</sub>		V
			0.9 to 1.95V	0.7V <sub>CC</sub>			0.7V <sub>CC</sub>		
			2.3 to 2.7V	1.6			1.6		
			3.0 to 3.6V	2.0			2.0		
V <sub>IL</sub>	Low-Level Input Voltage		0.8V			0.25V <sub>CC</sub>		0.25V <sub>CC</sub>	V
			0.9 to 1.95V			0.3V <sub>CC</sub>		0.3V <sub>CC</sub>	
			2.3 to 2.7V			0.7		0.7	
			3.0 to 3.6V			0.9		0.9	
V <sub>OH</sub>	High-Level Output Voltage	I <sub>OH</sub> = -20μA	0.8 to 3.6V	V <sub>CC</sub> - 0.1			V <sub>CC</sub> - 0.1		V
		I <sub>OH</sub> = -1.1mA	1.1	0.82	1.02		0.77		
		I <sub>OH</sub> = -1.7mA	1.4	1.11	1.32		1.03		
		I <sub>OH</sub> = -1.9mA	1.65	1.32	1.58		1.30		
		I <sub>OH</sub> = -2.3mA	2.3	2.05	2.24		1.97		
		I <sub>OH</sub> = -3.1mA		1.9	2.22		1.85		
		I <sub>OH</sub> = -2.7mA	3.0	2.72	2.95		2.67		
		I <sub>OH</sub> = -4.0mA		2.6	2.92		2.55		
V <sub>OL</sub>	Low-Level Output Voltage	I <sub>OL</sub> = 20μA	0.8 to 3.6V			0.1		0.1	V
		I <sub>OL</sub> = 1.1mA	1.1		0.11	0.33		0.33	
		I <sub>OL</sub> = 1.7mA	1.4		0.12	0.31		0.37	
		I <sub>OL</sub> = 1.9mA	1.65		0.11	0.31		0.35	
		I <sub>OL</sub> = 2.3mA	2.3		0.14	0.31		0.33	
		I <sub>OL</sub> = 3.1mA			0.19	0.44		0.45	
		I <sub>OL</sub> = 2.7mA	3.0		0.11	0.31		0.33	
		I <sub>OL</sub> = 4.0mA			0.16	0.44		0.45	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	0 to 3.6V			±0.1		±0.2	μA
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 3.6 V or V <sub>OUT</sub> = 3.6 V	0			±0.2		±0.5	μA
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = 3.6V or GND	3.6			±0.2		±0.7	μA

### AC Electrical Characteristics

$t_r = t_f = 2.5\text{ns}$

Symbol	Parameter	Condition	$V_{CC}(V)$	$T_A = 25^\circ\text{C}$			$-40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		Unit
				Min	Typ	Max	Min	Max	
$t_{PLH}$ $t_{PHL}$	Propagation Delay (Figure3 And 4)	$C_L = 5\text{ pF}^{(6)}$	0.8	13.2	29	90.1	11.9	220	ns
			1.2	5.0	7.6	14.3	4.6	14.4	
			1.5	3.4	4.8	8.9	3	9.6	
			1.8	2.7	3.6	6.9	2.3	7.6	
			2.5	1.9	2.4	5.1	1.6	5.6	
			3.3	1.5	1.9	4.4	1.3	4.8	
		$C_L = 10\text{ pF}^{(6)}$	0.8	14.3	31.3	97.9	12.8	239	ns
			1.2	5.4	8.3	15.3	5.0	15.3	
			1.5	3.7	5.2	9.5	3.2	10.2	
			1.8	2.9	3.9	7.4	2.5	8.1	
			2.5	2.0	2.6	5.4	1.7	6.0	
			3.3	1.6	2.0	4.6	1.3	5.1	
		$C_L = 15\text{ pF}^{(6)}$	0.8	15.3	32.5	106	13.8	259	ns
			1.2	5.8	8.9	16.3	5.3	16.3	
			1.5	4.0	5.6	10.1	3.5	10.9	
			1.8	3.1	4.2	7.8	2.6	8.6	
			2.5	2.1	2.8	5.8	1.8	6.4	
			3.3	1.7	2.2	4.9	1.4	5.4	
		$C_L = 30\text{ pF}^{(6)}$	0.8	18.3	37.5	130	16.6	323	ns
			1.2	7.0	10.7	19.3	6.4	19.3	
			1.5	4.8	6.9	12.0	4.2	12.9	
			1.8	3.7	5.1	9.2	3.2	10.2	
			2.5	2.6	3.5	6.7	2.2	7.5	
			3.3	2.0	2.2	5.6	1.7	6.3	

Note6.  $C_L$  includes probe and jig capacitance.

**Capacitance Characteristics**

Symbol	Parameter	Condition	Typical	Unit	
$C_{IN}$	Input Capacitance	$V_{CC} = 3.6V, V_I = 0V \text{ or } V_{CC}$	2	pF	
$C_O$	output capacitance	$V_{CC} = 0V, V_{OUT} = GND$	3	pF	
$C_{PD}$	Power Dissipation Capacitance <sup>(7)</sup>	1 MHz, $V_I = 0V \text{ to } V_{CC}$	$V_{CC} = 0.8V$	7.6	pF
			$V_{CC} = 1.2V$	8.1	
			$V_{CC} = 1.5V$	8.5	
			$V_{CC} = 1.8V$	8.6	
			$V_{CC} = 2.5V$	9.0	
			$V_{CC} = 3.3V$	9.6	

Note7.  $C_{PD}$  is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load.

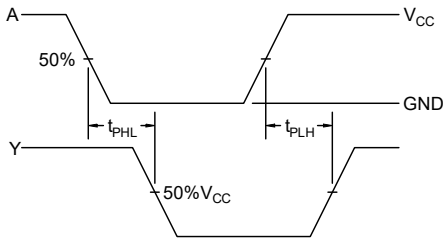


Figure 3. Switching Waveforms

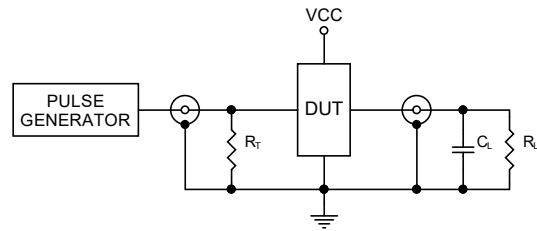
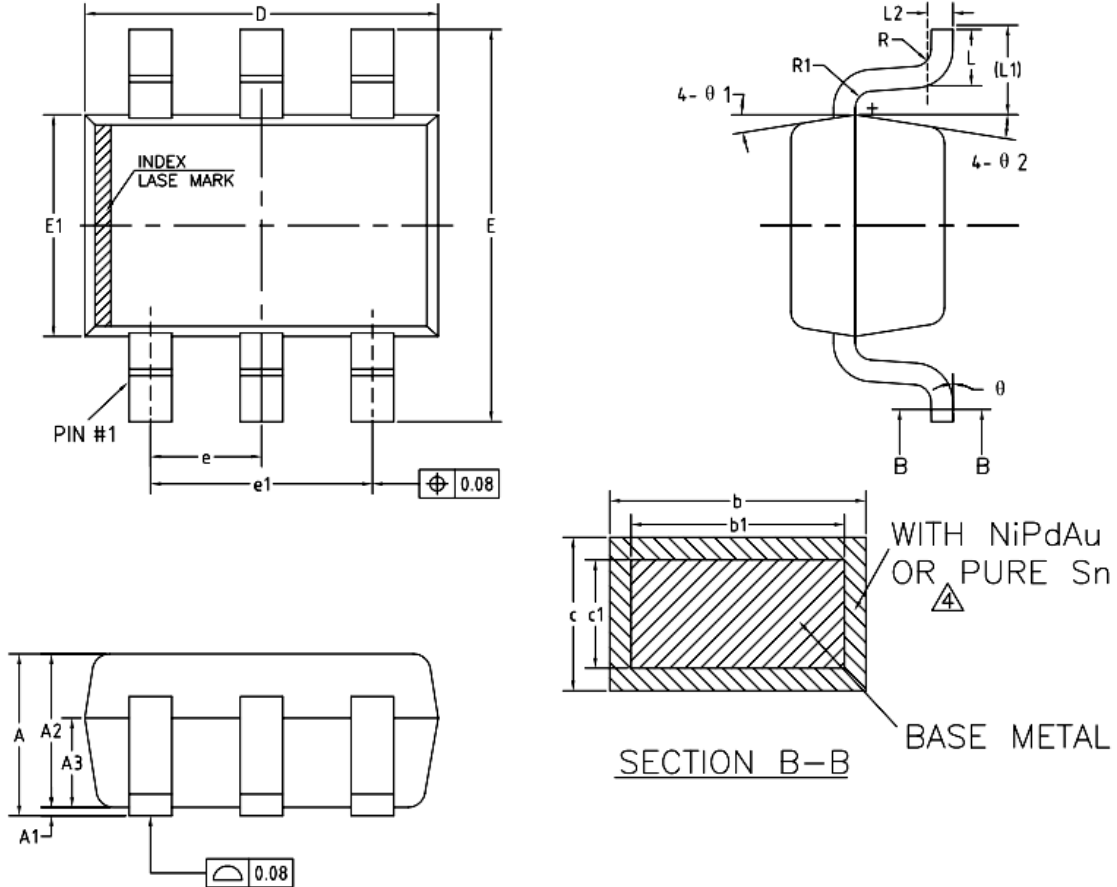


Figure 4. Test Circuit

Package Dimension

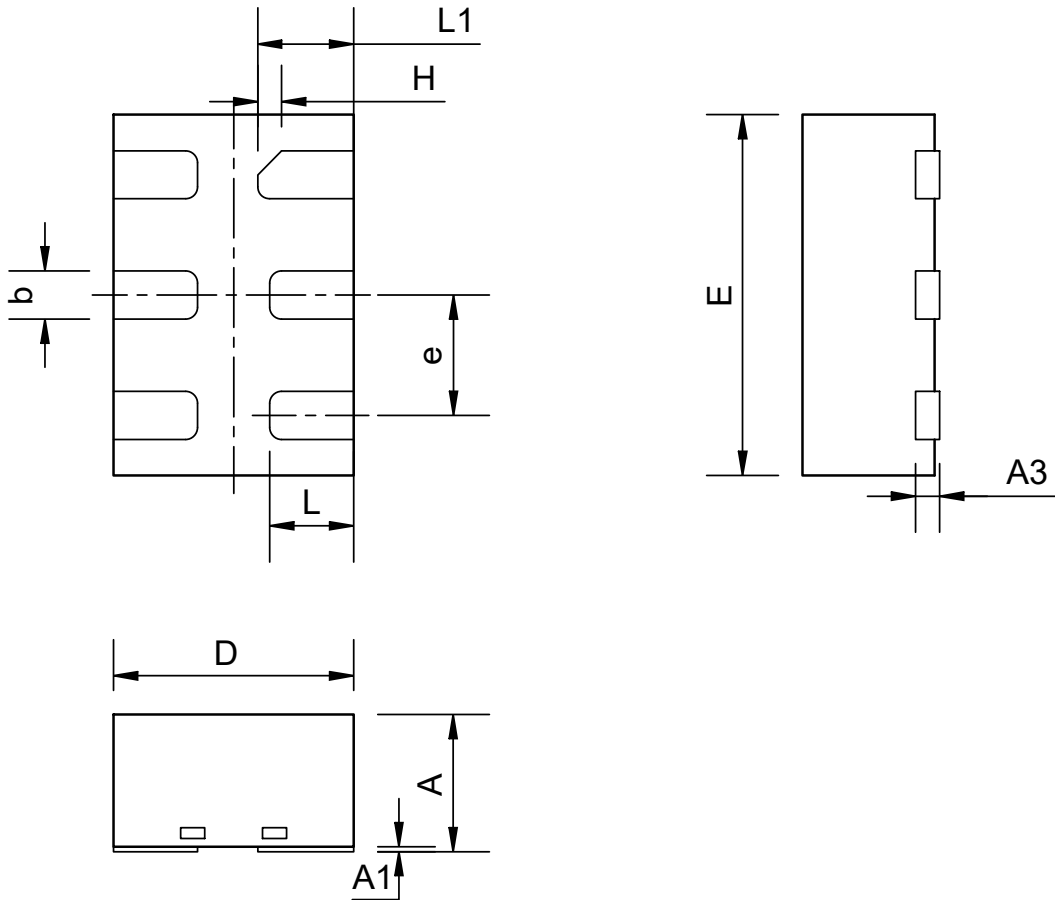
SC70-6



COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.85	—	1.05
A1	0	—	0.10
A2	0.80	0.90	1.00
A3	0.47	0.52	0.57
b	NiPdAu PURE Sn	0.22 —	— 0.29
b1	0.22	0.25	0.28
c	NiPdAu PURE Sn	0.115 —	— 0.15
c1	0.115	0.13	0.14
D	2.02	2.07	2.12
E	2.20	2.30	2.40
E1	1.25	1.30	1.35
e	0.60	0.65	0.70
e1	1.20	1.30	1.40
L	0.28	0.33	0.38
L1	0.50REF		
L2	0.15BSC		
R	0.10	—	—
R1	0.10	—	0.25
θ	0°	—	8°
θ 1	6°	9°	12°
θ 2	6°	9°	12°

DFN6(1.0×1.5)

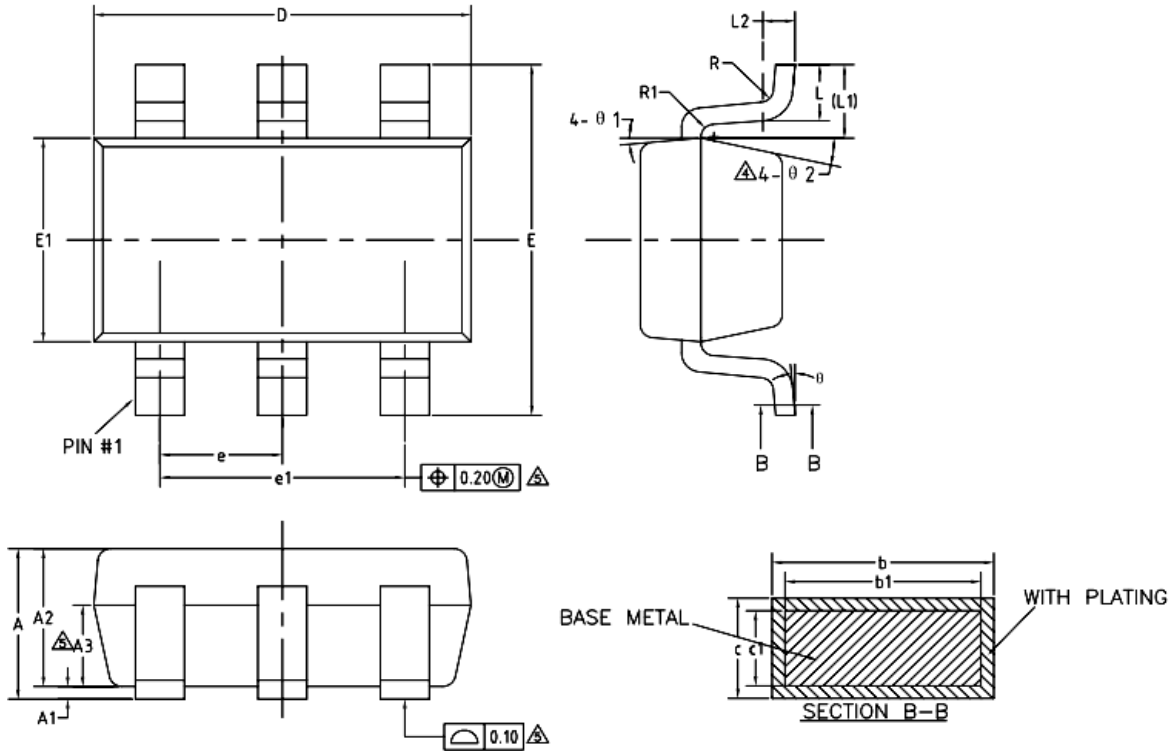


COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.50	--	0.60
A1	0	0.02	0.05
A3	0.10REF		
b	0.15	0.20	0.25
D	0.90	1.00	1.10
E	1.40	1.50	1.60
e	0.40	0.50	0.60
H	0.10REF		
L	0.30	0.35	0.40
L1	0.35	0.40	0.45



SOT23-6



COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.25
A1	0	—	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	—	0.50
b1	0.36	0.38	0.45
c	0.14	—	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
$\Delta$ e	0.90	0.95	1.00
$\Delta$ e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
$\Delta$ R	0.10	—	—
$\Delta$ R1	0.10	—	0.20
$\theta$	0°	—	8°
$\theta 1$	3°	5°	7°
$\Delta$ $\theta 2$	6°	—	14°

**Ordering information**

Order code	Package	Baseqty	Deliverymode	Marking code
UMW SN74AUP2G17DBVR	SOT23-6	3000	Tape and reel	HL U
UMW SN74AUP2G17DCKR	SC70- 6	3000	Tape and reel	HL5 U
UMW SN74AUP2G17DRYR	DFN6	5000	Tape and reel	HL U

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