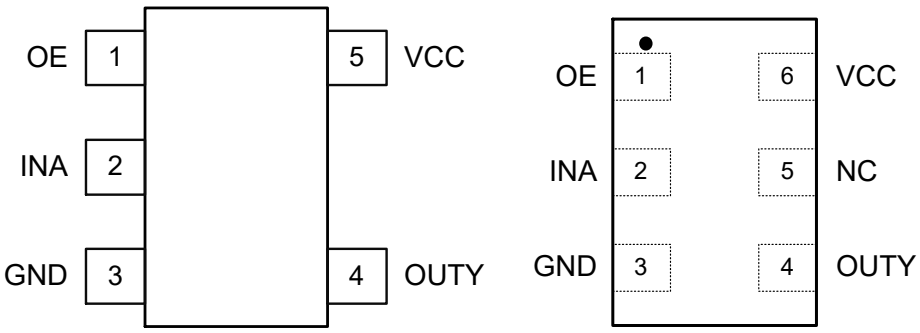
General Description

The SN74AUP1G126 is a single non-inverting buffer with 3−State output from ultra low power series, which can operate from a 0.8V 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



SOT23-5/SC70-5 DFN6

Figure1. Top View

Pin Function

SC70-5/ SOT23-5

Pin No.	Function
1	OE
2	INA
3	GND
4	OUTY
5	VCC

DFN6

Pin No.	Function
1	OE
2	IN A
3	GND
4	OUTY
5	NC
6	VCC

Block Diagram

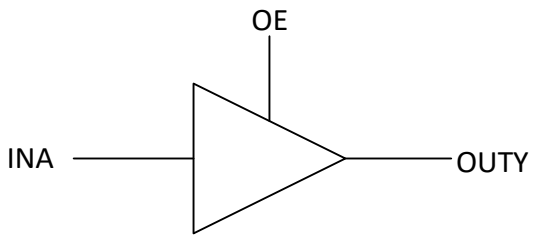


Figure2.

Functional Description

Function Table

Input		Output
OE	INA	OUTY
H	L	L
H	H	H
L	X	Z

Absolute Maximum Ratings

Symbol	Parameter		Value	Unit
V_{CC}	DC Supply Voltage		−0.5 to 4.6	V
V_I	DC Input Voltage		−0.5 ≤V_I ≤+4.6	V
V_O	DC Output Voltage Output in Higher or Low State (1)		−0.5 to 4.6	V
I_{IK}	DC Input Diode Current V_I < GND		−50	mA
I_{OK}	DC Output Diode Current V_O < GND, V_O > V_{CC}		±50	mA
I_O	DC Output Sink Current		±20	mA
I_{CC}	DC Supply Current per Supply Pin		±50	mA
I_{GND}	DC Ground Current per Supply Pin		±50	mA
T_{STG}	Storage Temperature Range		−65 to 150	°C
T_L	Lead Temperature, 1 mm from Case for 10 Seconds		260	°C
T_J	Junction Temperature Under Bias		150	°C
P_D	Power Dissipation in Still Air at 85°C		200	mW
ESD	ESD Classification	Human Body Model (2)	4000	V
		Machine Model (3)	200	
		Charged Device Model (4)	1000	
I_{LU}	Latchup Current Above V_{CC} and GND at 125°C (5)		±100	mA

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Notes:

1. IO absolute maximum rating must be observed.

2. Tested to EIA/JESD22−A114−A, rated to EIA/JESD22−A114−B.

3. Tested to EIA/JESD22−A115−A, rated to EIA/JESD22−A115−A.

4. Tested to JESD22−C101−A.

5. Tested to EIA/JESD78.

Recommended Operating Conditions

Symbol	Parameter		Min	Max	Unit
V_{CC}	DC Supply Voltage Operating		0.8	3.6	V
V_{IN}	DC Input Voltage		0	3.6	V
V_{OUT}	DC Output Voltage (High or Low State)		0	3.6	V
T_A	Operating Temperature Range		-40	85	°C
t_r,t_f	Input Rise and Fall Time	V_{CC} = 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_{CC}(V)	T_A = 25°C			−40°C ≤T_A≤85°C		Unit
				Min	Typ	Max	Min	Max	
V_{IH}	High−Level Input Voltage		0.8V	0.75Vcc			0.75Vcc		V
			0.9 to 1.95V	0.7Vcc			0.7Vcc		
			2.3 to 2.7V	1.6			1.6		
			3.0 to 3.6V	2.0			2.0		
V_{IL}	Low−Level Input Voltage		0.8V			0.25Vcc		0.25Vcc	V
			0.9 to 1.95V			0.3Vcc		0.3Vcc	
			2.3 to 2.7V			0.7		0.7	
			3.0 to 3.6V			0.9		0.9	
V_{OH}	High−Level Output Voltage	I_{OH}=−20uA	0.8 to 3.6V	V_{CC}−0.1			V_{CC}−0.1		V
		I_{OH}=−1.1mA	1.1	0.82	1.02		0.77		
		I_{OH}=−1.7mA	1.4	1.11	1.32		1.03		
		I_{OH}=−1.9mA	1.65	1.32	1.58		1.30		
		I_{OH}=−2.3mA	2.3	2.05	2.24		1.97		
		I_{OH}=−3.1mA		1.9	2.22		1.85		
		I_{OH}=-2.7mA	3.0	2.72	2.95		2.67		
		I_{OH}=-4.0mA		2.6	2.92		2.55		
V_{OL}	Low−Level Output Voltage	I_{OL}=20uA	0.8 to 3.6V			0.1		0.1	V
		I_{OL}=1.1mA	1.1		0.11	0.33		0.33	
		I_{OL}=1.7mA	1.4		0.12	0.31		0.37	
		I_{OL}=1.9mA	1.65		0.11	0.31		0.35	
		I_{OL}=2.3mA	2.3		0.14	0.31		0.33	
		I_{OL}=3.1mA			0.19	0.44		0.45	
		I_{OL}=2.7mA	3.0		0.11	0.31		0.33	
		I_{OL}=4.0mA			0.16	0.44		0.45	
I_{IN}	Input Leakage Current	V_{IN} = V_{CC} or GND	0 to 3.6V			±0.1		±0.2	uA
I_{OFF}	Power Off Leakage Current	V_{IN} = 3.6 V or V_{OUT} = 3.6 V	0			±0.2		±0.5	uA
I_{CC}	Quiescent Supply Current	V_{IN} = 3.6V or GND	3.6			±0.2		±0.7	uA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

AC Electrical Characteristics

$t_r = t_f = 2.5ns$

Symbol	Parameter	Condition	V_{CC}(V)	T_A = 25°C			−40°C ≤T_A≤85°C		Unit
				Min	Typ	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay (Figure3 And 4)	C_L= 5 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 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 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 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 = 0 V or V_{CC}		2	pF
C_O	output capacitance	V_{CC}= 0V, V_{OUT} = GND		3	pF
C_{PD}	Power Dissipation Capacitance (7)	1 MHz, V_I = 0 V 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}= 3.3 V	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. Average operating current can be obtained by the equation: $I_{CC(OPR)}=C_{PD}\times V_{CC}\times fin+I_{CC}\times C_{PD}$ is used to determine the no−load dynamic power consumption; $P_D=C_{PD}\times V_{CC}^2\times fin+I_{CC}\times V_{CC}\times Fig.$

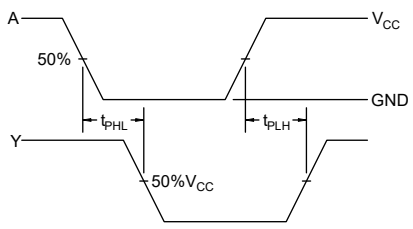


Figure 3. Switching Waveforms

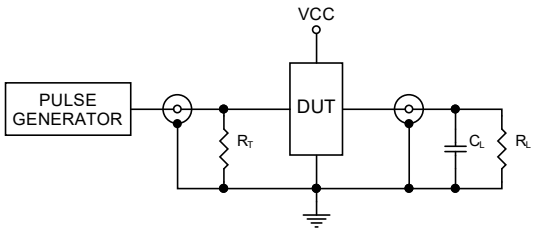
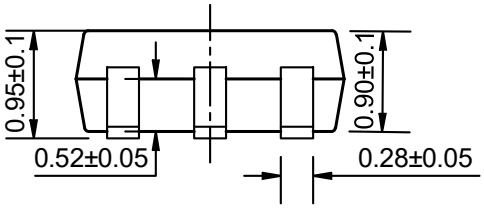
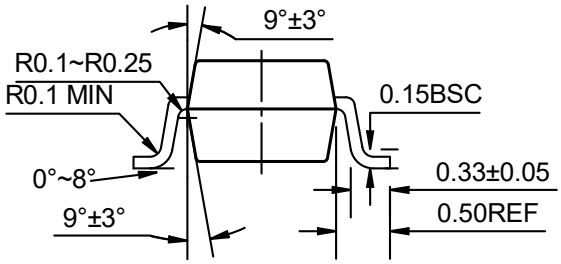


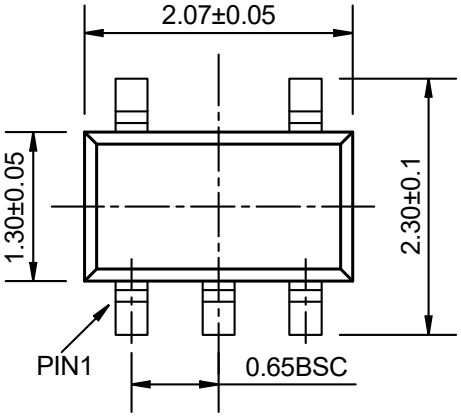
Figure 4. Test Circuit

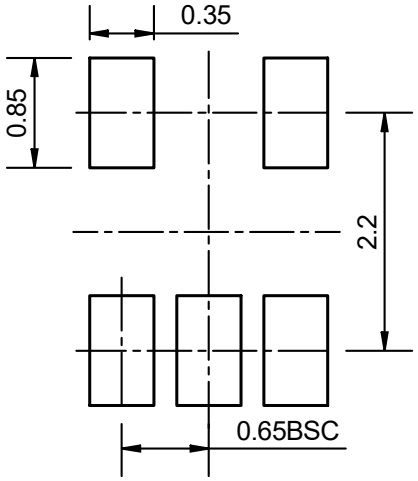
Package Dimension

SC70-5



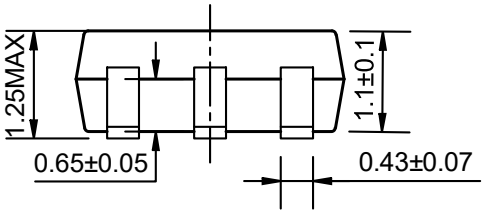


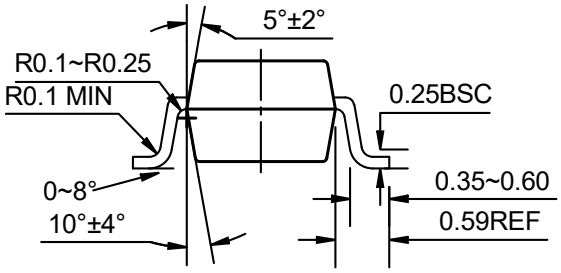


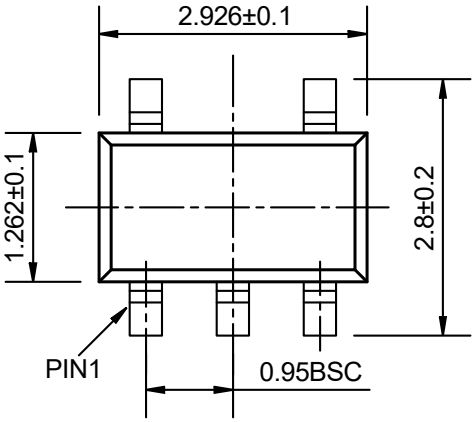


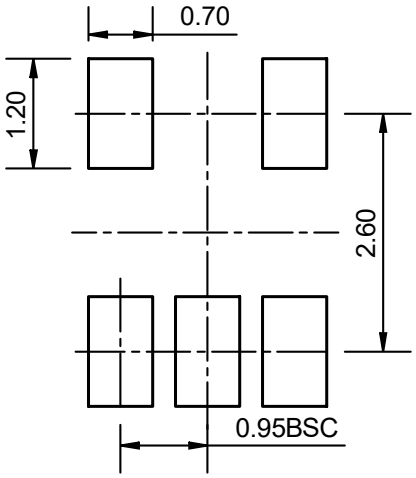
Recommended Land Pattern

SOT23-5



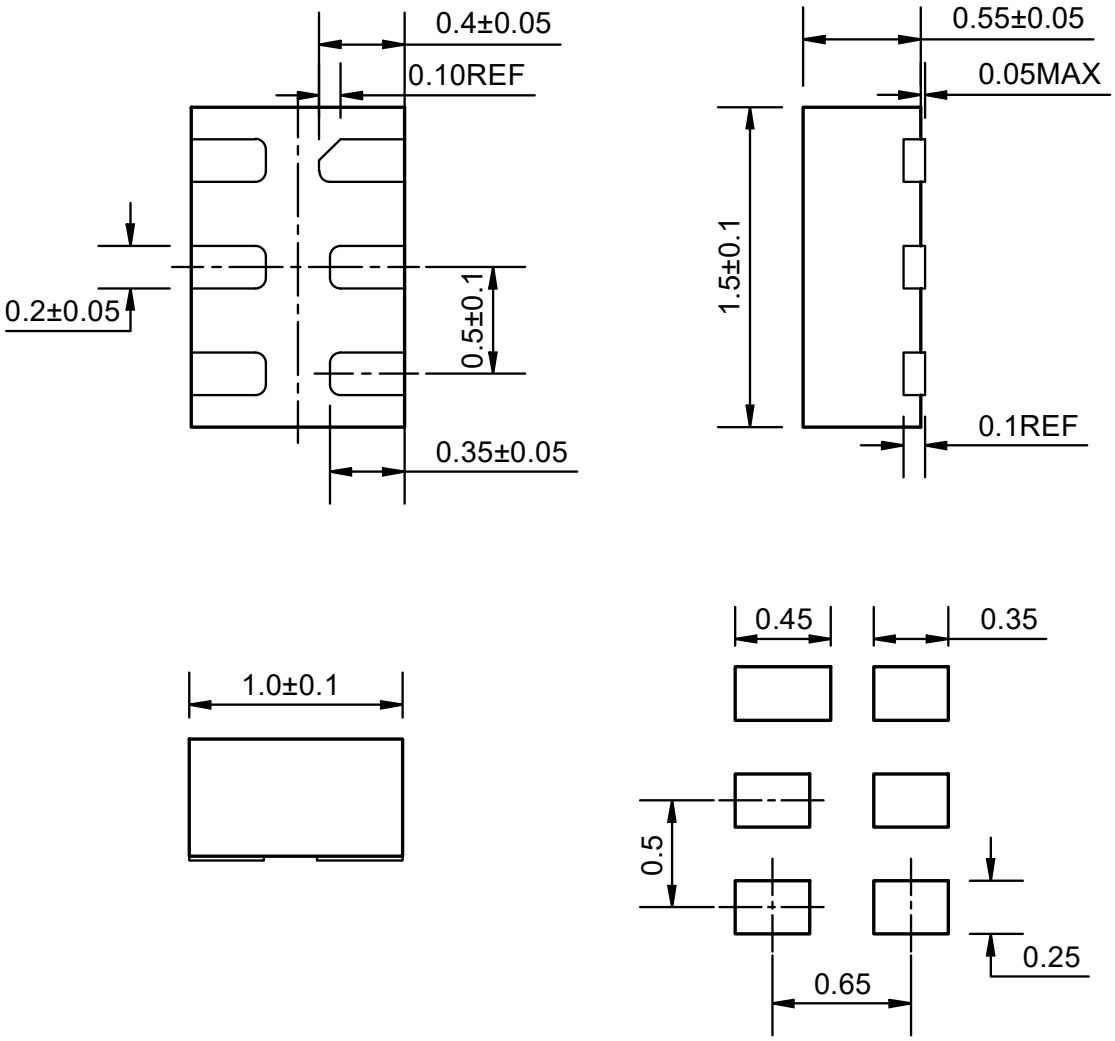






Recommended Land Pattern

DFN6



Recommended Land Pattern

Orderinginformation

Order code	Marking code	Package	Baseqty	Deliverymode
UMW SN74AUP1G126DCKR	HN5	SC70-5	3000	Tape and reel
UMW SN74AUP1G126DBVR	H26R	SOT23-5	3000	Tape and reel
UMW SN74AUP1G126DSFR	HN	DFN6	5000	Tape and reel

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UMW:

SN74LVC1G126DRYR 78M08 BAS21S SN74LVC1G32DRYR 1N60L LM2903DR TMP75AIDGKR TSV6291ILT FQD17P06TM LM293DR P4SMA6.8CA SI2318A SN74LV1T08DCKR SN74LVC2G07DBVR BAT54 HT7550S LM2596HVS-12 PESD24VL1BA XC6206P362MR SN74AHCT1G86DBVR XC6206P302PR AMS1117-1.5 FDD4685 HT7330-A LM2576HVS-ADJ SMBJ188CA TSV611ILT LM317MDT LMV612MAX LMV722IDR