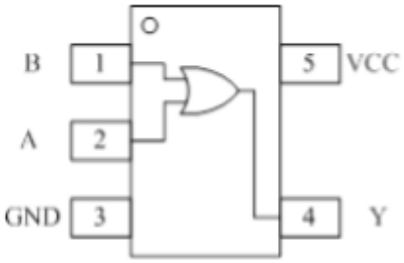
General Description

The SN74LVC1G32 is a single 2−input OR Gate in three tiny footprint packages. The device performs much as LCX multi−gate products in
speed and drive.

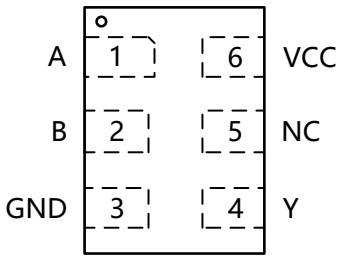
Features

- Tiny SC70-5 /SOT23-5/DFN Packages
- 2.4ns t_{PD} at 5V (typ)
- Source/Sink 24mA at 3.0V
- Over−Voltage Tolerant Inputs
- Designed for 1.65V to 5.5V V_{CC} Operation
- These Devices are Pb−Free and are RoHS Compliant

Pin Configuration



SC70-5/SOT23-5



DFN6

Figure1: Top View

Pin Function

(SC70 -5/ SOT23-5 /DFN6)

PIN	FUNCTION
1	IN B
2	INA
3	GND
4	Y
5	VCC

Block Diagram

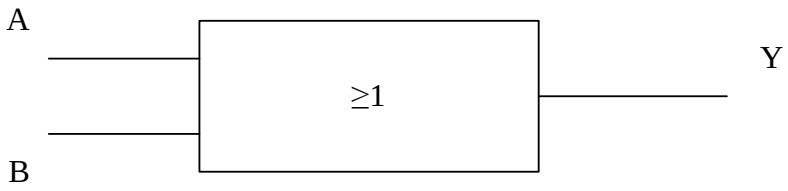


Figure2.Logic symbol

Functional Description

Function Table

Input		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	−0.5 to 7.0	V
V_I	DC Input Voltage	−0.5 ≤V_I ≤+7.0	V
V_O	DC Output Voltage Output in Higher or Low State	−0.5 to V_{CC} + 0.5	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	±50	mA
I_{CC}	DC Supply Current per Supply Pin	±100	mA
I_{GND}	DC Ground Current per Supply Pin	±100	mA
T_{STG}	Storage Temperature Range	−65 to 150	℃
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	℃
T_J	Junction Temperature Under Bias	150	℃
θ_{JA}	Thermal Resistance SC70-5 SOT23-5	435 300 423	℃/W
P_D	Power Dissipation in Still Air at 85℃	200	mW
MSL	Moisture Sensitivity	Level 1	
ESD	ESD Classification Human Body Model (Note 2) Machine Model (Note 3) Charged Device Model (Note 4)	2000 200 N/A	V
$I_{Latchup}$	Latchup Performance Above V_{CC} and Below GND at 125℃ (Note 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.

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 Date Retention	1.65 1.5	5.5 5.5	V
V_{IN}	DC Input Voltage	0	5.5	V
V_{OUT}	DC Output Voltage (High or Low State)	0	5.5	V
T_A	Operating Temperature Range	-40	85	℃
t_r, t_f	Input Rise and Fall Time V_{CC} = 2.5 V ±0.2 V V_{CC} = 3.0 V ±0.3 V V_{CC} = 5.0 V ±0.5 V	0 0 0	20 10 5	ns/V

Electrical Characteristics

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	V_{CC}(V)	TA = 25℃			−40℃ ≤TA≤85℃		Unit
				Min	Typ	Max	Min	Max	
V_{IH}	High−Level Input Voltage		1.65to1.95 2.3 to 5.5	0.75Vcc 0.7Vcc			0.75Vcc 0.7Vcc		V
V_{IL}	Low−Level Input Voltage		1.65to1.95 2.3 to 5.5			0.25Vcc 0.3Vcc		0.25Vcc 0.3Vcc	V
V_{OH}	High−Level Output Voltage V_{IN} = V_{IL}	I_{OH} =−100uA	1.65to5.5	Vcc−0.1	Vcc		Vcc−0.1		V
		I_{OH} =−3mA	1.65	1.29	1.52		1.29		
		I_{OH} =−8mA	2.3	1.9	2.1		1.9		
		I_{OH} =−12mA	2.7	2.2	2.4		2.2		
		I_{OH} =−16mA	3.0	2.4	2.7		2.4		
		I_{OH} =−24mA	3.0	2.3	2..5		2.3		
		I_{OH} =-32mA	4.5	3.8	4.0		3.8		
V_{OL}	Low−Level Output Voltage V_{IN} = V_{IH}	I_{OH} =100uA	1.65to5.5		0.0	0.1		0.1	V
		I_{OL} =3mA	1.65		0.08	0.24		0.24	
		I_{OL} =8mA	2.3		0.20	0.3		0.3	
		I_{OL} =12mA	2.7		0.22	0.4		0.4	
		I_{OL} =16mA	3.0		0.28	0.4		0.4	
		I_{OL} =24mA	3.0		0.38	0.55		0.55	
		I_{OL} =32mA	4.5		0.42	0.55		0.55	
I_{IN}	Input Leakage Current	V_{IN} = 5.5V or GND	0 to 5.5		±0.1			±1.0	uA
I_{OFF}	Power Off Leakage Current	V_{IN} = 5.5V or V_{OUT} = 5.5V	0			1		10	uA
I_{CC}	Quiescent Supply Current	V_{IN} = 5.5V or GND	5.5					10	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

tr=tf= 3ns;

Symbol	Parameter	Condition	V_{CC}(V)	TA = 25 ℃			−40℃ ≤TA≤85℃		Unit
				Min	Typ	Max	Min	Max	
t_{PD}	Propagation Delay (Figure3and4)	R_L= 1MΩ C_L= 15 pF	1.65	2.0	10.1	12.9	2.0	13.9	ns
			1.8	2.0	9.1	11.6	2.0	12.4	
		R_L= 1MΩ C_L= 15 pF	2.5	0.2	6.0	7.7	0.8	8.2	
		R_L= 1MΩ C_L= 15 pF	3.3	0.8	5.0	6.5	0.5	7.0	
		R_L= 500Ω C_L=50 pF		1.2	5.6	7.1	1.5	7.6	
		R_L= 1MΩ C_L= 15 pF	5.0	0.5	4.4	5.6	0.5	6.1	
		R_L= 500Ω C_E=50 pF		0.8	4.8	6.1	0.8	6.6	

CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	V_{CC}= 5.5 V,V_I = 0 V or V_{CC}	>2.5	pF
C_{PD}	Power Dissipation Capacitance (Note 6)	10MHz,V_{CC} = 3.3 V,V_I = 0 V orV_{CC} 10MHz, V_{CC} = 5.5 V,V_I = 0 V orV_{CC}	21 21	pF

6. 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}*V_{CC}*fin+I_{CC}*C_{PD} is used to determine the no−load dynamic power consumption;
P_D=C_{PD}*V_{CC}^2*fin+I_{CC}*V_{CC}*Fig.

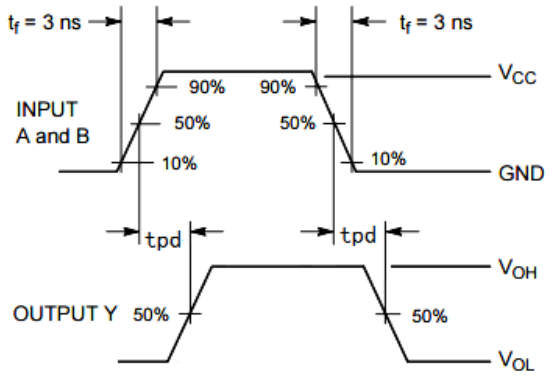


Figure 3. Switching Waveform

PROPAGATION DELAYS
tR = tF = 3ns, 10% to 90%;
f = 1 MHz; tW = 500 ns

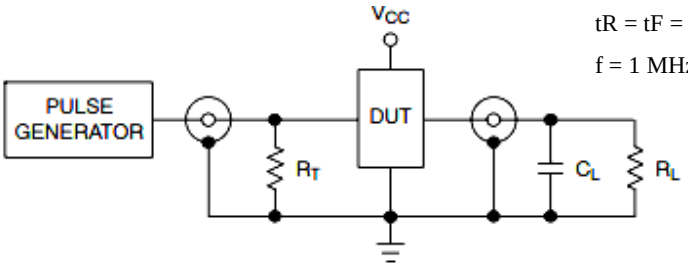
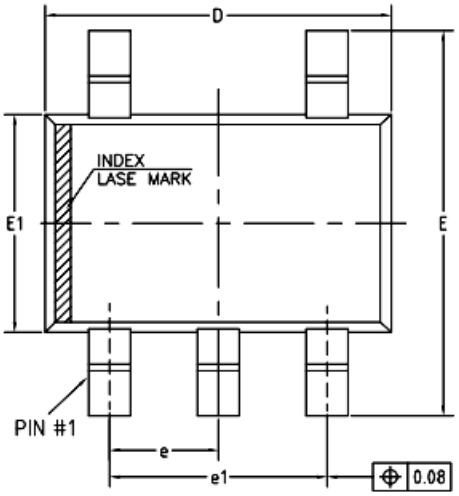
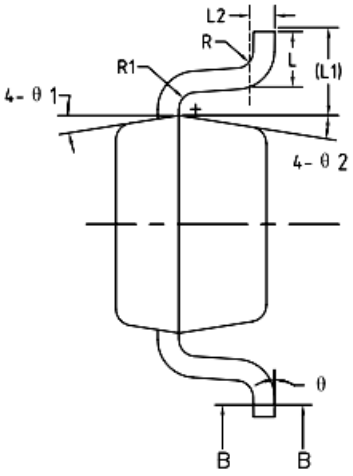


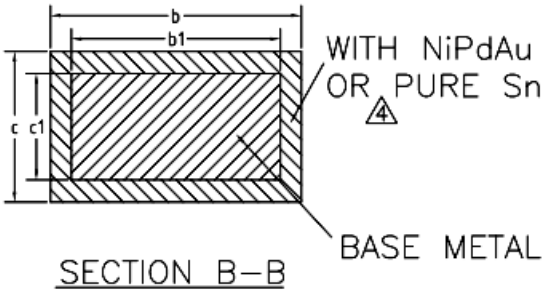
Figure 4. Test Circuit

Package Dimension

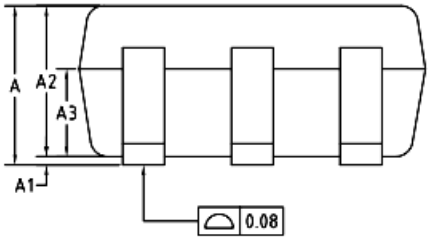
SC70-5







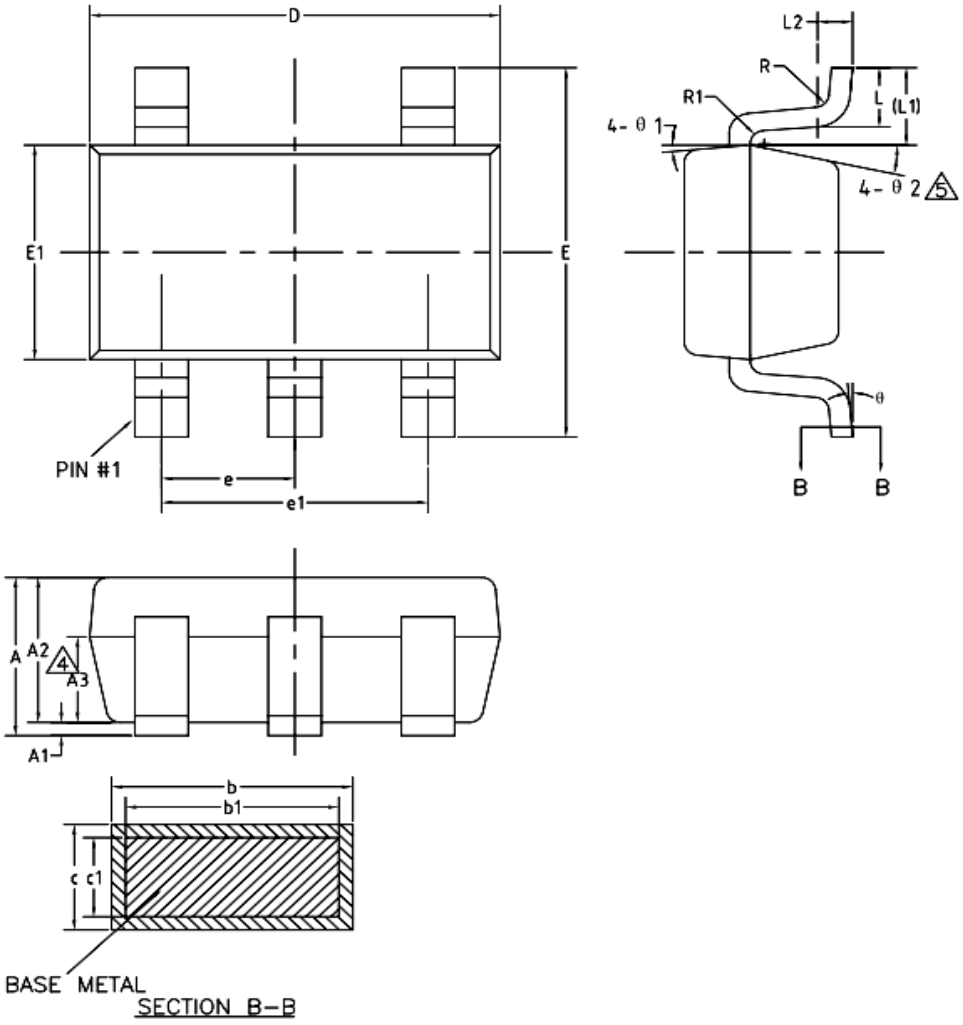
SECTION B–B



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	0.22	–	0.29
	PURE Sn	0.23	–	0.33
b1		0.22	0.25	0.28
c	NiPdAu	0.115	–	0.15
	PURE Sn	0.12	–	0.18
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°

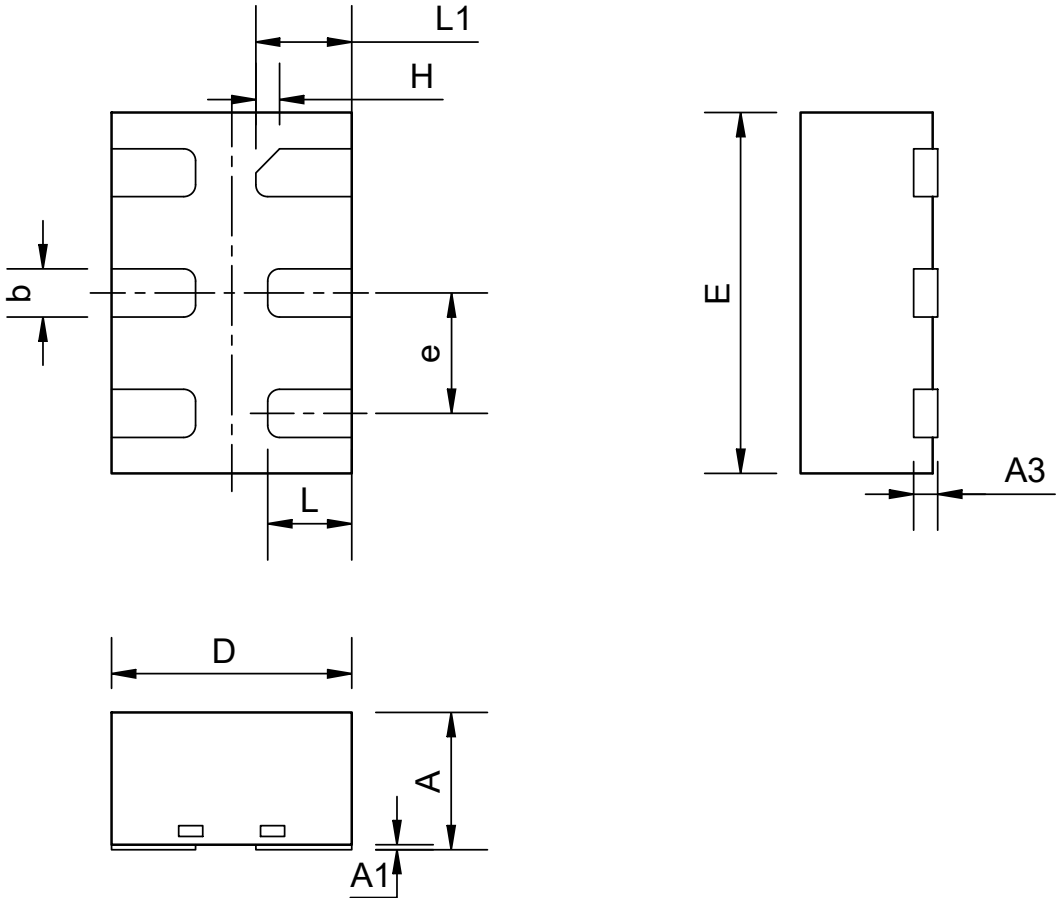
SOT23-5



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

	SYMBOL	MIN	NOM	MAX
	A	–	–	1.25
3	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
5	e	0.90	0.95	1.00
5	e1	1.80	1.90	2.00
	L	0.35	0.45	0.60
	L1		0.59REF	
	L2		0.25BSC	
	R	0.10	–	–
	R1	0.10	–	0.25
	θ	0°	–	8°
	θ 1	3°	5°	7°
5	θ 2	6°	–	14°

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

Orderinginformation

Order code	Marking code	Package	Baseqty	Deliverymode
UMW SN74LVC1G32DBVR	C32R	SOT23-5	3000	Tape and reel
UMW SN74LVC1G32DCKR	CG5	SC70-5	3000	Tape and reel
UMW SN74LVC1G32DRYR	CG	DFN6	5000	Tape and reel

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Logic Gates ***category:***

Click to view products by Youtai ***manufacturer:***

Other Similar products are found below :

74HC85N NL17SG32DFT2G CD4068BE NL17SG86DFT2G NLV14001UBDR2G NLX1G11AMUTCG NLX1G97MUTCG 74LS38 74LVC1G08Z-7 74LVC32ADTR2G CD4025BE MC74HCT20ADTR2G NLV17SZ00DFT2G NLV17SZ126DFT2G NLV27WZ17DFT2G NLV74HC02ADR2G 74HC32S14-13 74LS133 74LVC1G32Z-7 74LVC1G86Z-7 NLV74HC14ADR2G NLV74HC20ADR2G NLVVHC1G09DFT1G NLX2G86MUTCG 74LVC2G32RA3-7 74LVC2G00HD4-7 NL17SG02P5T5G 74LVC2G86HK3-7 NLV7SZ97DFT2G NLVVHC1G14DFT2G NLX1G99DMUTWG NLVVHC1G00DFT2G NLV7SZ57DFT2G NLV74VHC04DTR2G NLV27WZ00USG NLU1G86CMUTCG NLU1G08CMUTCG NL17SZ32P5T5G NL17SZ00P5T5G NL17SH02P5T5G 74AUP2G00RA3-7 NLVVHC1GT00DFT2G NLV74HC02ADTR2G NLX1G332CMUTCG NLVHCT132ADTR2G NL17SG86P5T5G NL17SZ05P5T5G NLV74VHC00DTR2G NLVVHC1G02DFT1G NLV74HC86ADR2G