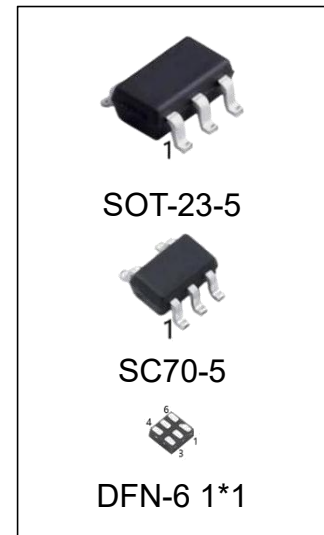


Single 2-input Or Gate

Features:

- Wide supply voltage range from 1.65V to 5.5V
- $\pm 24\text{mA}$ output drive ($V_{CC}=3.0\text{V}$)
- CMOS low power consumption
- Input accepts voltages up to 5V
- Specified from -40°C to $+125^{\circ}\text{C}$
- Packaging information: SOT-23-5/SC70-5/DFN-6



Ordering Information

DEVICE	Package Type	MARKING	Packing	Packing Qty
74LVC1G32M5/TR-HG	SOT-23-5	C325,C32F,C32J, C32K,C32R,ALXX	REEL	3000pcs/reel
74LVC1G32M7/TR-HG	SC70-5(SOT-353)	CG5,CGF,CGJ, CGK,CGR,ALXX	REEL	3000pcs/reel
74LVC1G32DQ1/TR-HG	DFN-6 1*1	CG6,CGF,CGJ, CGK,CGR,ALXX	REEL	5000pcs/reel

Note 1:Marking“XX” refers to variable content, meaning year and package batch serial number

Note 2:If the physical information is inconsistent with the ordering information, please refer to the actual product.

General Description

The 74LVC1G32 provides one 2-input OR function. Inputs can be driven from either 3.3V or 5V devices. This feature allows the use of these devices as translators in mixed 3.3V and 5V applications.

Block Diagram

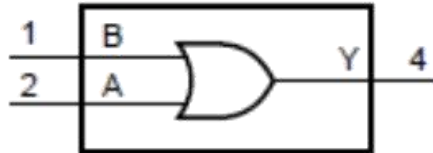


Figure 1. Logic symbol

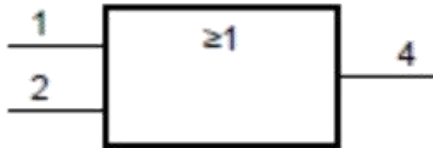


Figure 2. IEC logic symbol

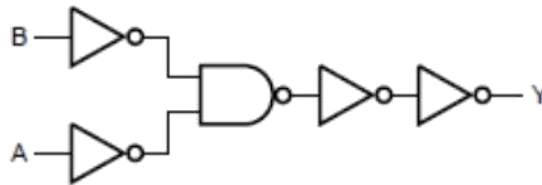


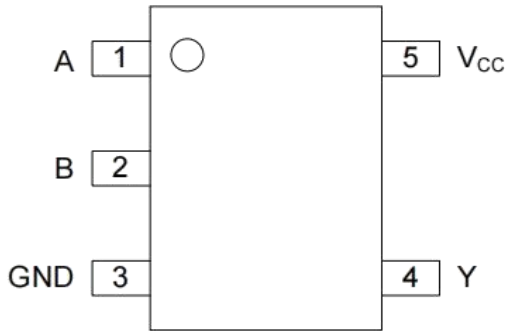
Figure 3. Logic diagram

Function Table

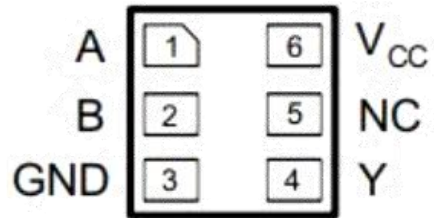
Input		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

Note: H=HIGH voltage level; L=LOW voltage level.

Pin Configurations



SOT-23-5/SC70-5



DFN-6 1*1

Pin Description

Pin No.		Pin Name	Description
SOT/SC70	DFN		
1	1	A	data input
2	2	B	data input
3	3	GND	ground (0V)
4	4	Y	data output
5	6	Vcc	supply voltage
	5	NC	No Connected

Electrical Parameter

Absolute Maximum Ratings

(Voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V_{CC}	-	-0.5	+6.5	V
input voltage	V_I	-	-0.5	+6.5	V
output voltage	V_O	Active mode	-0.5	$V_{CC}+0.5$	V
		Power-down mode; $V_{CC}=0V$	-0.5	+6.5	V
input clamping current	I_{IK}	$V_I < 0V$	-50	-	mA
output clamping current	I_{OK}	$V_O > V_{CC}$ or $V_O < 0V$	-	± 50	mA
output current	I_O	$V_O=0V$ to V_{CC}	-	± 50	mA
supply current	I_{CC}	-	-	100	mA
ground current	I_{GND}	-	-100	-	mA
storage temperature	T_{stg}	-	-65	+150	°C
total power dissipation	P_{tot}	-	-	250	mW
soldering temperature	T_L	10s	-	260	°C

Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	V_{CC}	-	1.65	-	5.5	V
input voltage	V_I	-	0	-	5.5	V
output voltage	V_O	Active mode	0	-	V_{CC}	V
		Power-down mode; $V_{CC}=0V$	0	-	5.5	V
ambient temperature	T_{amb}	-	-40	-	+125	°C

Note: Operating temperature range: -40°C to +125°C. This product is designed for industrial grade applications. For automotive grade versions compliant with AEC-Q100, please conduct internal screening per the standard or contact our sales team for availability.

Electrical Characteristics

DC Characteristics 1

($T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
HIGH-level input voltage	V_{IH}	$V_{CC}=1.65\text{V}$ to 1.95V	$0.65 \times V_{CC}$	-	-	V	
		$V_{CC}=2.3\text{V}$ to 2.7V	1.7	-	-	V	
		$V_{CC}=2.7\text{V}$ to 3.6V	2.0	-	-	V	
		$V_{CC}=4.5\text{V}$ to 5.5V	$0.7 \times V_{CC}$	-	-	V	
LOW-level input voltage	V_{IL}	$V_{CC}=1.65\text{V}$ to 1.95V	-	-	$0.35 \times V_{CC}$	V	
		$V_{CC}=2.3\text{V}$ to 2.7V	-	-	0.7	V	
		$V_{CC}=2.7\text{V}$ to 3.6V	-	-	0.8	V	
		$V_{CC}=4.5\text{V}$ to 5.5V	-	-	$0.3 \times V_{CC}$	V	
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL}	$I_O = -100\mu\text{A}$; $V_{CC}=1.65\text{V}$ to 5.5V	$V_{CC} - 0.1$	-	-	V
			$I_O = -4\text{mA}$; $V_{CC}=1.65\text{V}$	1.2	-	-	V
			$I_O = -8\text{mA}$; $V_{CC}=2.3\text{V}$	1.9	-	-	V
			$I_O = -12\text{mA}$; $V_{CC}=2.7\text{V}$	2.2	-	-	V
			$I_O = -24\text{mA}$; $V_{CC}=3.0\text{V}$	2.3	-	-	V
			$I_O = -32\text{mA}$; $V_{CC}=4.5\text{V}$	3.8	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL}	$I_O = 100\mu\text{A}$; $V_{CC}=1.65\text{V}$ to 5.5V	-	-	0.10	V
			$I_O = 4\text{mA}$; $V_{CC}=1.65\text{V}$	-	-	0.45	V
			$I_O = 8\text{mA}$; $V_{CC}=2.3\text{V}$	-	-	0.30	V
			$I_O = 12\text{mA}$; $V_{CC}=2.7\text{V}$	-	-	0.40	V
			$I_O = 24\text{mA}$; $V_{CC}=3.0\text{V}$	-	-	0.55	V
			$I_O = 32\text{mA}$; $V_{CC}=4.5\text{V}$	-	-	0.55	V
input leakage current	I_I	$V_I = 5.5\text{V}$ or GND; $V_{CC} = 0\text{V}$ to 5.5V	-	-	± 1	μA	
power-off Leakage current	I_{OFF}	V_I or $V_O = 5.5\text{V}$; $V_{CC} = 0\text{V}$	-	-	± 2	μA	
supply current	I_{CC}	$V_I = 5.5\text{V}$ or GND; $I_O = 0\text{A}$; $V_{CC} = 1.65\text{V}$ to 5.5V	-	-	4	μA	
additional supply current	ΔI_{CC}	per pin; $V_I = V_{CC} - 0.6\text{V}$; $I_O = 0\text{A}$; $V_{CC} = 2.3\text{V}$ to 5.5V	-	-	500	μA	
input capacitance	C_i	$V_{CC} = 3.3\text{V}$; $V_I = \text{GND}$ to V_{CC}	-	5	-	pF	

Note: All typical values are measured at $V_{CC} = 3.3\text{V}$ and $T_{amb} = 25^{\circ}\text{C}$.

DC Characteristics 2

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
HIGH-level input voltage	V_{IH}	$V_{CC}=1.65V$ to $1.95V$		$0.65 \times V_{CC}$	-	-	V
		$V_{CC}=2.3V$ to $2.7V$		1.7	-	-	V
		$V_{CC}=2.7V$ to $3.6V$		2.0	-	-	V
		$V_{CC}=4.5V$ to $5.5V$		$0.7 \times V_{CC}$	-	-	V
LOW-level input voltage	V_{IL}	$V_{CC}=1.65V$ to $1.95V$		-	-	$0.35 \times V_{CC}$	V
		$V_{CC}=2.3V$ to $2.7V$		-	-	0.7	V
		$V_{CC}=2.7V$ to $3.6V$		-	-	0.8	V
		$V_{CC}=4.5V$ to $5.5V$		-	-	$0.3 \times V_{CC}$	V
HIGH-level output voltage	V_{OH}	$V_I = V_{IH}$ or V_{IL}	$I_o = -100\mu A$; $V_{CC}=1.65V$ to $5.5V$	$V_{CC} - 0.1$	-	-	V
			$I_o = -4mA$; $V_{CC}=1.65V$	0.95	-	-	V
			$I_o = -8mA$; $V_{CC}=2.3V$	1.7	-	-	V
			$I_o = -12mA$; $V_{CC}=2.7V$	1.9	-	-	V
			$I_o = -24mA$; $V_{CC}=3.0V$	2.0	-	-	V
			$I_o = -32mA$; $V_{CC}=4.5V$	3.4	-	-	V
LOW-level output voltage	V_{OL}	$V_I = V_{IH}$ or V_{IL}	$I_o = 100\mu A$; $V_{CC}=1.65V$ to $5.5V$	-	-	0.10	V
			$I_o = 4mA$; $V_{CC}=1.65V$	-	-	0.70	V
			$I_o = 8mA$; $V_{CC}=2.3V$	-	-	0.45	V
			$I_o = 12mA$; $V_{CC}=2.7V$	-	-	0.60	V
			$I_o = 24mA$; $V_{CC}=3.0V$	-	-	0.80	V
			$I_o = 32mA$; $V_{CC}=4.5V$	-	-	0.80	V
input leakage current	I_I	$V_I=5.5V$ or GND; $V_{CC}=0V$ to $5.5V$		-	-	± 1	μA
power-off Leakage current	I_{OFF}	V_I or $V_O=5.5V$; $V_{CC}=0V$		-	-	± 2	μA
supply current	I_{CC}	$V_I=5.5V$ or GND; $I_o=0A$; $V_{CC}=1.65V$ to $5.5V$		-	-	4	μA
additional supply current	ΔI_{CC}	per pin; $V_I=V_{CC}-0.6V$; $I_o=0A$; $V_{CC}=2.3V$ to $5.5V$		-	-	500	μA

AC Characteristics 1

($T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ. ^[1]	Max.	Unit	
A, B to Y propagation delay	t_{PHL}	see Figure 5	$V_{CC}=1.65\text{V to }1.95\text{V}$	-	12.5	18.8	ns
			$V_{CC}=2.3\text{V to }2.7\text{V}$	-	10.5	15.8	ns
			$V_{CC}=2.7\text{V}$	-	10	15	ns
			$V_{CC}=3.0\text{V to }3.6\text{V}$	-	9.5	14.3	ns
			$V_{CC}=4.5\text{V to }5.5\text{V}$	-	9	13.5	ns
A, B to Y propagation delay	t_{PLH}	see Figure 5	$V_{CC}=1.65\text{V to }1.95\text{V}$	-	14	21	ns
			$V_{CC}=2.3\text{V to }2.7\text{V}$	-	10	15	ns
			$V_{CC}=2.7\text{V}$	-	9.5	14.3	ns
			$V_{CC}=3.0\text{V to }3.6\text{V}$	-	8.5	12.8	ns
			$V_{CC}=4.5\text{V to }5.5\text{V}$	-	7.5	11.3	ns

Note:

[1] Typical values are measured at $T_{amb}=25^{\circ}\text{C}$ and $V_{CC}=1.8\text{V}, 2.5\text{V}, 2.7\text{V}, 3.3\text{V}$ and 5.0V respectively.

AC Characteristics 2

($T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
A, B to Y propagation delay	t_{PHL}	see Figure 5	$V_{CC}=1.65\text{V to }1.95\text{V}$	-	-	20.8	ns
			$V_{CC}=2.3\text{V to }2.7\text{V}$	-	-	17.8	ns
			$V_{CC}=2.7\text{V}$	-	-	17	ns
			$V_{CC}=3.0\text{V to }3.6\text{V}$	-	-	16.3	ns
			$V_{CC}=4.5\text{V to }5.5\text{V}$	-	-	15.5	ns
A, B to Y propagation delay	t_{PLH}	see Figure 5	$V_{CC}=1.65\text{V to }1.95\text{V}$	-	-	23	ns
			$V_{CC}=2.3\text{V to }2.7\text{V}$	-	-	17	ns
			$V_{CC}=2.7\text{V}$	-	-	16.3	ns
			$V_{CC}=3.0\text{V to }3.6\text{V}$	-	-	14.8	ns
			$V_{CC}=4.5\text{V to }5.5\text{V}$	-	-	13.3	ns

Testing Circuit

AC Testing Circuit

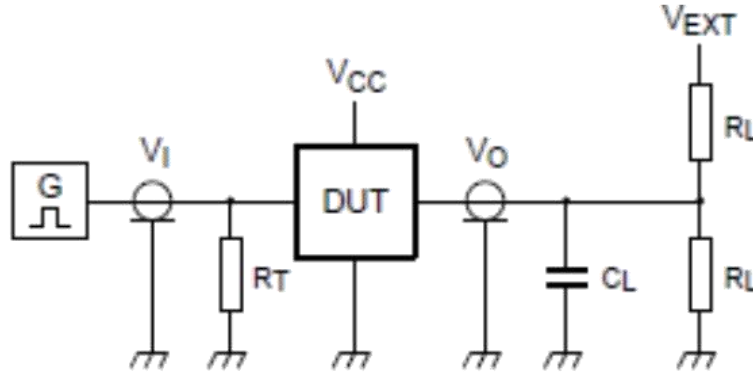


Figure 4. Test circuit for measuring switching times

Definitions for test circuit:

R_L =Load resistance.

C_L =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_{EXT} =External voltage for measuring switching times.

AC Testing Waveforms

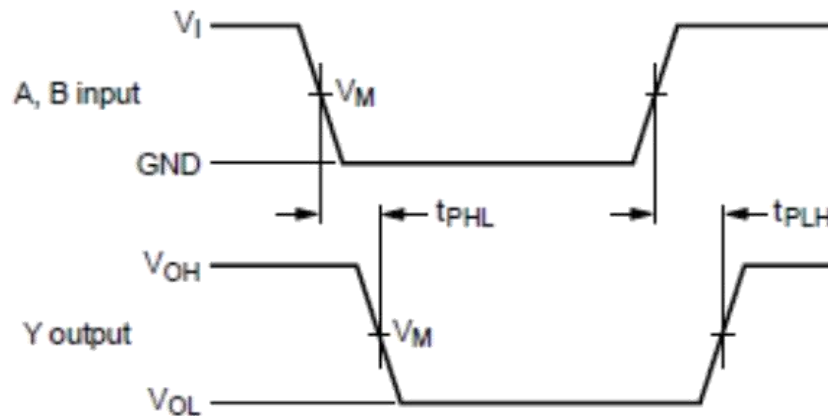


Figure 5. The input A, B to output Y propagation delays

Measurement Points

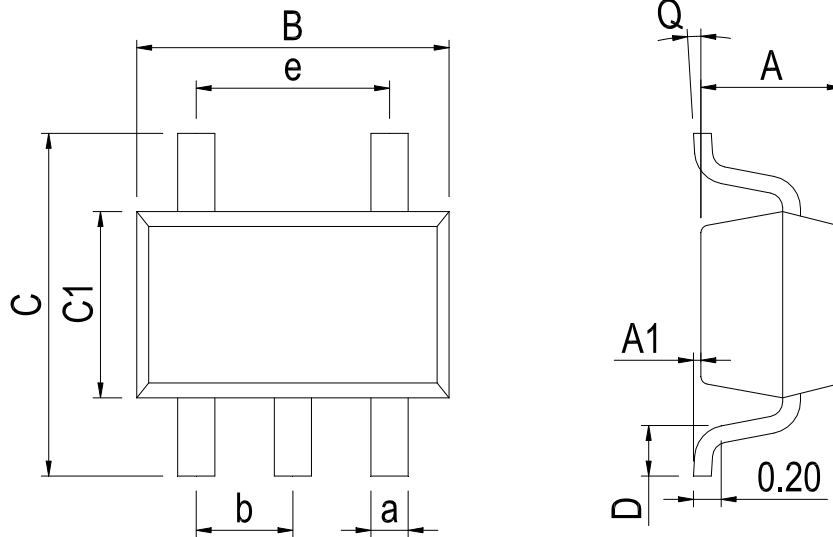
Supply voltage	Input	Output
V_{CC}	V_M	V_M
1.65V to 1.95V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
2.3V to 2.7V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
2.7V	1.5V	1.5V
3.0V to 3.6V	1.5V	1.5V
4.5V to 5.5V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$

Test Data

Supply voltage	Input		Load		VEXT
V_{CC}	V_I	$t_r = t_f$	C_L	R_L	t_{PLH}, t_{PHL}
1.65V to 1.95V	V_{CC}	$\leq 3ns$	30pF	1k Ω	open
2.3V to 2.7V	V_{CC}	$\leq 3ns$	30pF	500 Ω	open
2.7V	2.7V	$\leq 3ns$	50pF	500 Ω	open
3.0V to 3.6V	2.7V	$\leq 3ns$	50pF	500 Ω	open
4.5V to 5.5V	V_{CC}	$\leq 3ns$	50pF	500 Ω	open

Physical Dimensions

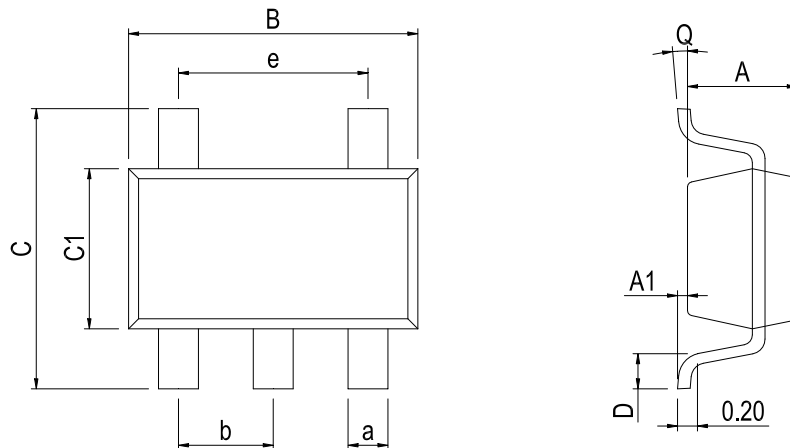
SOT-23-5



Dimensions In Millimeters(SOT-23-5)

Symbol:	A	A1	B	C	C1	D	Q	a	b	e
Min:	1.00	0.00	2.82	2.65	1.50	0.30	0°	0.30	0.95 BSC	1.90 BSC
Max:	1.15	0.15	3.02	2.95	1.70	0.60	8°	0.50		

SC70-5

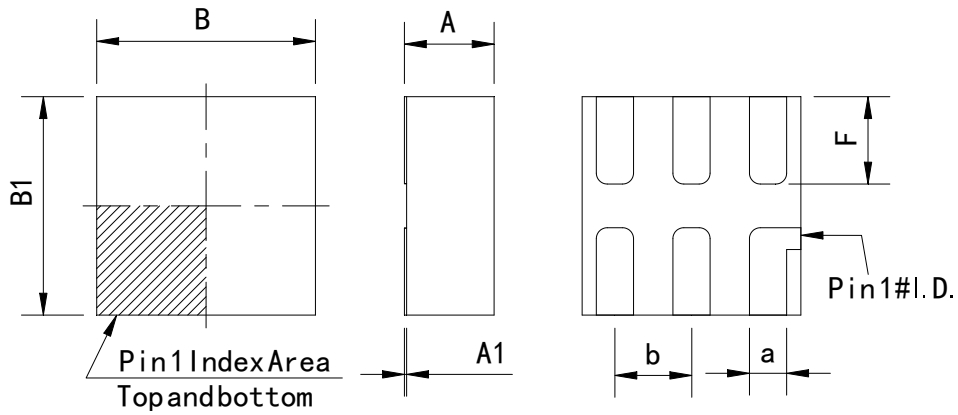


Dimensions In Millimeters(SC70-5)

Symbol:	A	A1	B	C	C1	D	Q	a	b	e
Min:	0.90	0.00	2.00	2.15	1.15	0.26	0°	0.15	0.65 BSC	1.30 BSC
Max:	1.00	0.15	2.20	2.45	1.35	0.46	8°	0.35		

Physical Dimensions

DFN-6 1*1



Dimensions In Millimeters(DFN-6 1*1)							
Symbol:	A	A1	B	B1	F	a	b
Min:	0.3	0.00	0.90	0.90	0.30	0.12	0.35 BSC
Max:	0.4	0.05	1.10	1.10	0.45	0.22	

Revision History

REVISION NUMBER	DATE	REVISION	PAGE
V1.0	2019-11	New	1-12
V1.1	2024-12	Document Reformatting	1-12
V1.2	2025-9	Update important statements	12

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