General Description

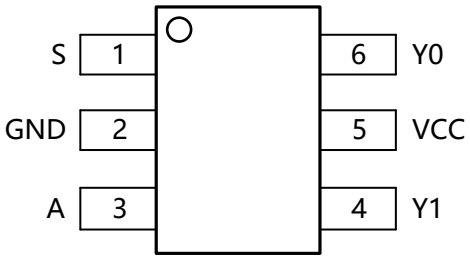
The 74LVC1G19 is a high−performance non−inverting 1−to−2 demultiplexer. With the Select input [S] at Low, data at A is passed to Y0 and Y1 is set to high impedance. With the Select input [S] at High, data at A is passed to Y1 and Y0 is set to high impedance. The device operates over the voltage range from 1.65V to 5.5V.

This device has been optimized for on−board buffering applications and offers mixed (1.65V, 2.3V, 3.0V and 5.5V) voltage capability by providing over voltage tolerance (OVT) circuitry on I/O pins.

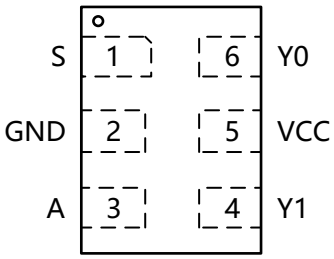
Features

- Designed for 1.65V to 5.5V VCC Operation
- High−Speed Propagation Delay t_{PD}
  2.9nS (Typ)@3.3V, Load 50pF
- Power Down Impedance Outputs in High−Z
- Output Drive Capability 32mA
- These Devices are Pb−Free and are RoHS Compliant
- Packages are SC70-6,SOT23-6 or small DFN6
- MSL3(SC70-6,SOT23-6，DFN6)

Pin Configuration



SC70-5/SOT23-5



DFN6（1*1.5）

Figure1. Pin Top View

Pin Function

Pin No.	Pin Name	Pin Function
1	S	Demultiplexer Select
2	GND	Ground
3	A	Data Input
4	Y1	Output 2
5	VCC	Power
6	Y0	Output 1

Block Diagram

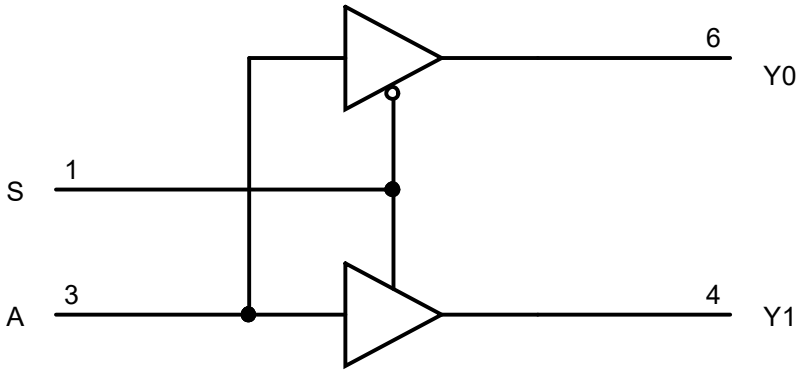


Figure2. Logic Symbol

Functional Description

Function Table

Input		Output	
S	**A**	**Y0**	**Y1**
L	L	L	H
L	H	H	H
H	L	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(1)		-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	°C
T_L	Lead Temperature, Soldering 10 Seconds		260	°C
T_J	Max Junction Temperature		150	°C
V_{ESD}	ESD Classification	Human Body Model	±4000	V
		Charged Device Model	±1000	
I_{LU}	Max Latch up Current Above V_{CC} and GND at 125°C		±100	mA

Thermal Characteristics

Symbol	Package	Ratings	Value	Unit
$R_{\theta JA}$	SC70-6	Thermal Characteristics, Thermal Resistance, Junction-to-Air	280	°C/W
	SOT23-6		180	
	DFN6(1.0×1.5)		440	
P_D	SC70-6	Power Dissipation in Still Air at 85°C	230	mW
	SOT23-6		360	
	DFN6(1.0×1.5)		150	

Recommended Operating Conditions

Symbol	Parameter		Min	Max	Unit
V_{CC}	DC Supply Voltage		1.65	5.5	V
	Operating Date Retention		1.5	5.5	
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	°C
t_r,t_f	Input Rise and Fall Time	V_{CC} = 2.5 V ± 0.2 V	0	20	ns/V
		V_{CC} = 3.0 V ± 0.3 V	0	10	
		V_{CC} = 5.0 V ± 0.5 V	0	5	

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		1.65-1.95 2.3-5.5	0.75Vcc 0.7Vcc			0.75Vcc 0.7Vcc		V
V_{IL}	Low−Level Input Voltage		1.65-1.95 2.3-5.5			0.25Vcc 0.3Vcc		0.25Vcc 0.3Vcc	V
V_{OH}	High−Level Output Voltage	I_{OH}=-100uA	1.65-5.5	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	I_{OL}=100uA	1.65-5.5		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	0-5.5		±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

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 (Figure 3/4)	R_L= 1MΩ C_L= 15pF	1.65	2.0	5.3	11.4	2.0	12.0	ns
			1.8	2.0	4.4	9.5	2.0	10.0	
		R_L= 1MΩ C_L= 15pF	2.5±0.2	0.2	3.5	6.5	0.8	7.0	
		R_L= 1MΩ C_L= 15pF	3.3±0.3	0.8	2.1	4.5	0.5	4.7	
		R_L= 500Ω C_L =50pF		1.2	2.9	5.5	1.5	5.2	
		R_L= 1MΩ C_L= 15pF	5.0±0.5	0.5	1.8	3.9	0.5	4.1	
		R_L= 500Ω C_L=50pF		0.8	2.4	4.3	0.8	4.5	

Capacitive Characteristics

Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	V_{CC}= 5.5V, V_I = 0V or V_{CC}	>2.5	pF
C_{PD}	Power Dissipation Capacitance (2)	10MHz, V_{CC} = 3.3V, V_I = 0V or V_{CC}	9	pF
		10MHz, V_{CC} = 5.5V, V_I = 0V or V_{CC}	11	

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

Test Waveform

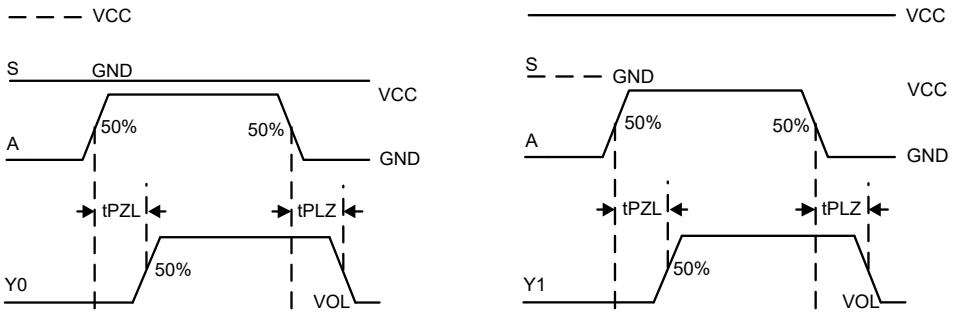


Figure 3/4 Switching Waveform

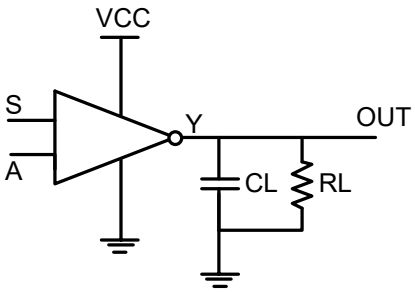
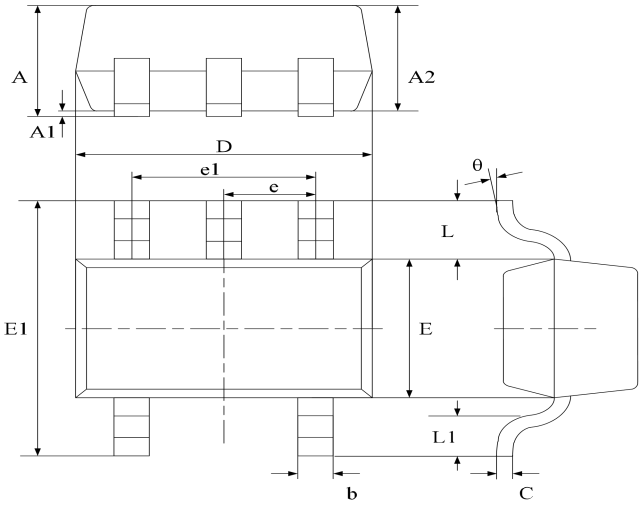


Figure 5. Test Circuit

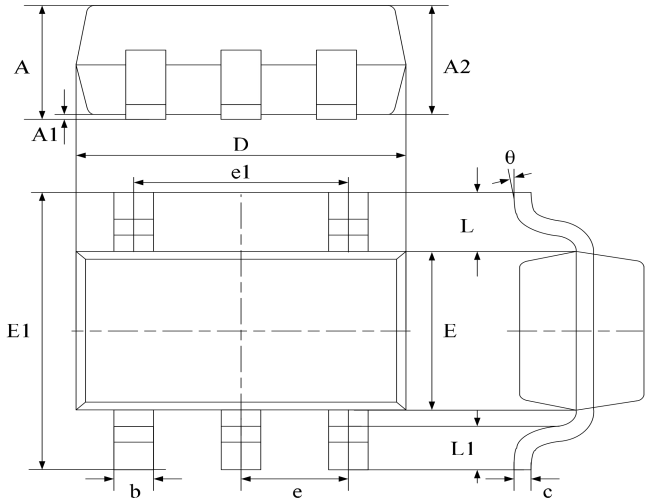
Package Dimension

SC70-5（SOT353）



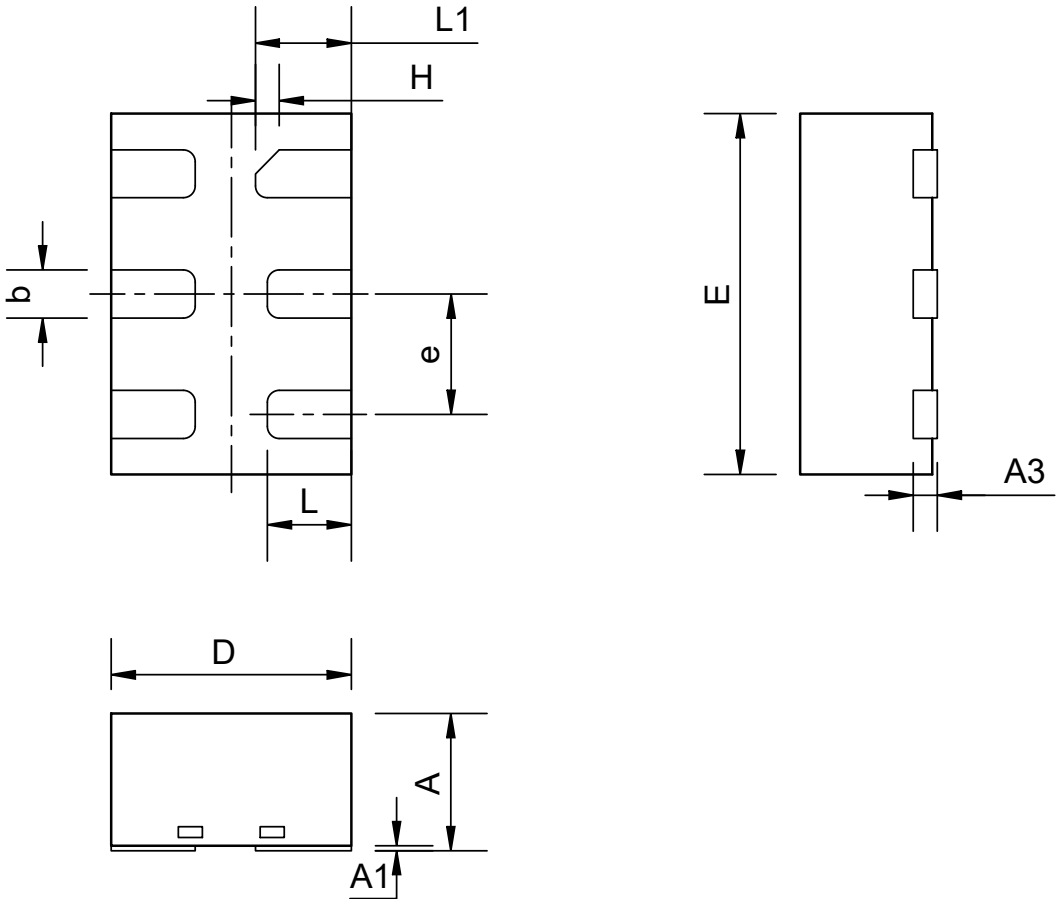
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.035	0.039
b	0.150	0.350	0.006	0.014
C	0.080	0.150	0.003	0.006
D	1.8500	2.150	0.079	0.087
E	1.100	1.400	0.045	0.053
E1	1.950	2.200	0.085	0.096
e	0.850 typ.		0.026 typ.	
e1	1.200	1.400	0.047	0.055
L	0.42 ref.		0.021 ref.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.040	1.350	0.042	0.055
A1	0.040	0.150	0.002	0.006
A2	1.000	1.200	0.041	0.049
b	0.380	0.480	0.015	0.020
c	0.110	0.210	0.004	0.009
D	2.720	3.120	0.111	0.127
E	1.400	1.800	0.057	0.073
E1	2.600	3.000	0.106	0.122
e	0.950 typ.		0.037 typ.	
e1	1.900 typ.		0.078 typ.	
L	0.700 ref.		0.028 ref.	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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

Ordering information

Order code	Package	Baseqty	Deliverymode	Marking code
UMW SN74LVC1G19DBVR	SOT23-5	3000	Tape and reel	C195 U
UMW SN74LVC1G19DCKR	SC70-5	3000	Tape and reel	CYF U
UMW SN74LVC1G19DRYR	DFN6	5000	Tape and reel	CY U

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