

1.Description

The UMW 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.

2.Features

- Designed for 1.65V to 5.5V VCC Operation
- High-Speed Propagation Delay tPD
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)

3.Pinning information

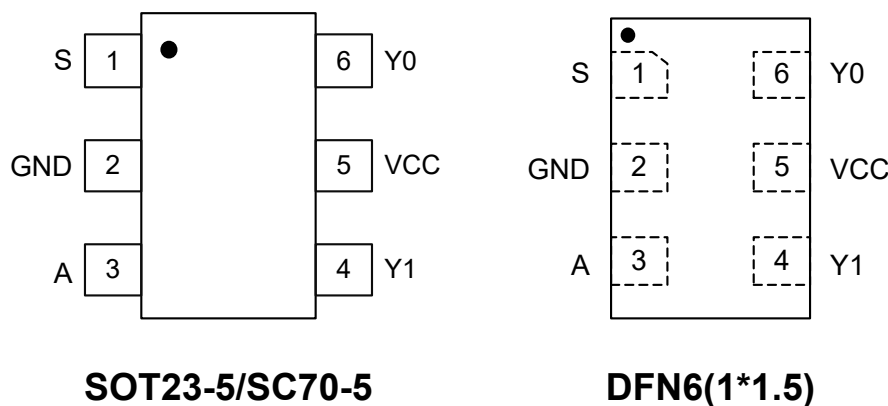


Figure1. Top View

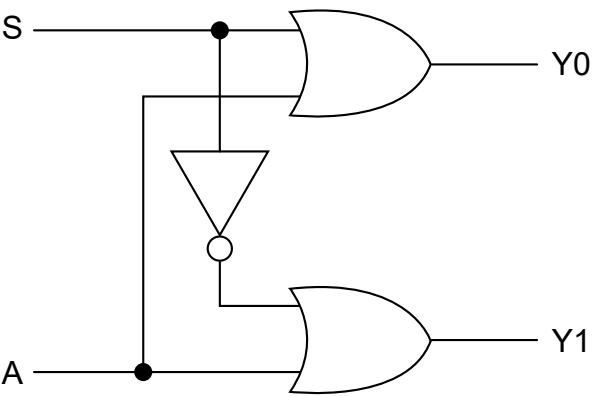


4.Pin Function

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



5.Block Diagram



Function Table

Input		Output	
S	A	Y0	Y1
L	L	L	H
L	H	H	H
H	L	H	L
H	H	H	H



6. Absolute Maximum Ratings

Parameter		Symbol	Value	Units
DC Supply Voltage		V_{CC}	-0.5 to 7	V
DC Input Voltage		V_I	$-0.5 \leq V_I \leq 7$	V
DC Output Voltage Output in Higher or Low State		V_O	-0.5 to 0.5	V
DC Input Diode Current $V_I < GND$		I_{IK}	-50	mA
DC Output Diode Current $V_O < GND, V_O > V_{CC}$		I_{OK}	± 50	mA
DC Output Sink Current		I_O	± 50	mA
DC Supply Current per Supply Pin		I_{CC}	± 100	mA
Storage Temperature Range		T_{STG}	-65 to 150	°C
Lead Temperature, 1 mm from Case for 10 Seconds		T_L	260	°C
Max Junction Temperature		T_J	150	°C
ESD Classification	Human Body Model	V_{ESD}	± 4000	V
	Charged Device Model		± 1000	V
Max Latch up Current Above V_{CC} and GND at 125°C		I_{LU}	± 100	mA



7. Thermal Characteristics

Ratings	Package	Symbol	Value	Units
Thermal Characteristics, Thermal Resistance, Junction-to-Air	SC70-5	$R_{\theta JA}$	280	°C/W
	SOT23-5		180	
	DFN6(1.0x1.5)		440	
Power Dissipation in Still Air at 85°C	SC70-5	P_D	230	mW
	SOT23-5		360	
	DFN6(1.0x1.5)		150	

8. Recommended Operating Conditions

Parameter		Symbol	Min	Max	Unit
DC Supply Voltage Operating		V _{CC}	1.65	5.5	V
Date Retention			1.5	5.5	V
DC Input Voltage		V _{IN}	0	5.5	V
DC Output Voltage (High or Low State)		V _{OUT}	0	5.5	V
Operating Temperature Range		T _A	-40	85	°C
Input Rise and Fall Time	V _{CC} =2.5V ± 0.2V	t _r , t _f	0	20	ns/V
	V _{CC} =3V ± 0.3V		0	10	ns/V
	V _{CC} =5V ± 0.5V		0	5	ns/V

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



9.DC Electrical Characteristics

Parameter	Condition	Symbol	$V_{CC}(V)$	$T_A=25^{\circ}C$			$-40^{\circ}C \leq T_A \leq 85^{\circ}C$		Units
				Min	Typ	Max	Min	Max	
High-Level Input Voltage		V_{IH}	1.65 to 1.95	$0.75V_{CC}$			$0.75V_{CC}$		V
			2.3 to 5.5	$0.7V_{CC}$			$0.7V_{CC}$		
Low-Level Input Voltage		V_{IL}	1.65 to 1.95			$0.25V_{CC}$		$0.25V_{CC}$	
			2.3 to 5.5			$0.3V_{CC}$		$0.3V_{CC}$	
High-Level Output Voltage	$I_{OH}=-100\mu A$	V_{OH}	1.65 to 5.5	$V_{CC}-0.1$	V_{CC}		$V_{CC}-0.1$		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	2.4	2.7		2.4		
	$I_{OH}=-24mA$		3	2.3	2.5		2.3		
	$I_{OH}=-32mA$		4.5	3.8	4		3.8		
Low-Level Output Voltage	$I_{OH}=100\mu A$	V_{OL}	1.65 to 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		0.2	0.3		0.3	
	$I_{OL}=12mA$		2.7		0.22	0.4		0.4	
	$I_{OL}=16mA$		3		0.28	0.4		0.4	
	$I_{OL}=24mA$		3		0.38	0.55		0.55	
	$I_{OL}=32mA$		4.5		0.42	0.55		0.55	
Input Leakage Current	$V_{IN}=5.5V$ or GND	I_{IN}	0 to 5.5		± 0.1			± 1	μA
Power Off Leakage Current	$V_{IN}=5.5V$ or $V_{OUT}=5.5V$	I_{OFF}	0			1		10	
Quiescent Supply Current	$V_{IN}=5.5V$ or GND	I_{CC}	5.5			1		10	

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.



10.AC Electrical Characteristics

$t_r = t_f = 5\text{ns}$;

Parameter	Condition	Symbol	$V_{CC}(V)$	$T_A=25^\circ\text{C}$			$-40^\circ\text{C} \leq T_A \leq 85^\circ\text{C}$		Units
				Min	Typ	Max	Min	Max	
Propagation Delay (Figure 3 and 4)	$R_L=1\text{M}\Omega, C_L=15\text{pF}$	t_{PLH}, t_{PHL}	1.65	2	5.3	11.4	2	12	ns
			1.8	2	4.4	9.5	2	10	
	$R_L=1\text{M}\Omega, C_L=15\text{pF}$		2.5 ± 0.2	0.2	3.5	6.5	0.8	7	
	$R_L=1\text{M}\Omega, C_L=15\text{pF}$		3.3 ± 0.3	0.8	2.1	4.5	0.5	4.7	
	$R_L=500\Omega, C_L=50\text{pF}$			1.2	2.9	5.5	1.5	5.2	
	$R_L=1\text{M}\Omega, C_L=15\text{pF}$		5.0 ± 0.5	0.5	1.8	3.9	0.5	4.1	
	$R_L=500\Omega, C_L=50\text{pF}$			0.8	2.4	4.3	0.8	4.5	

11.Capacitance Characteristics

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

Notes2:

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



12. Test Waveform

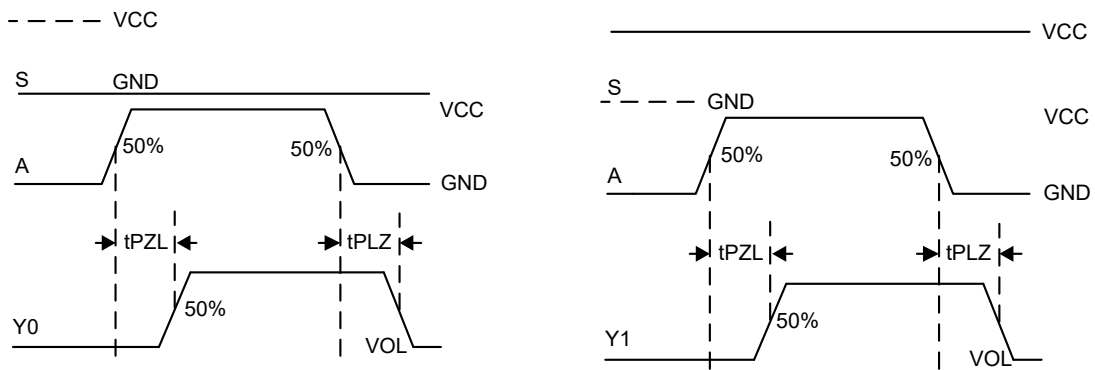


Figure3. Switching Waveforms

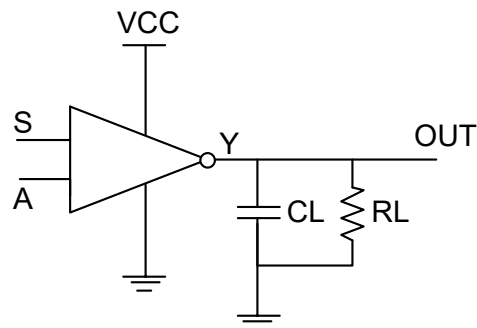
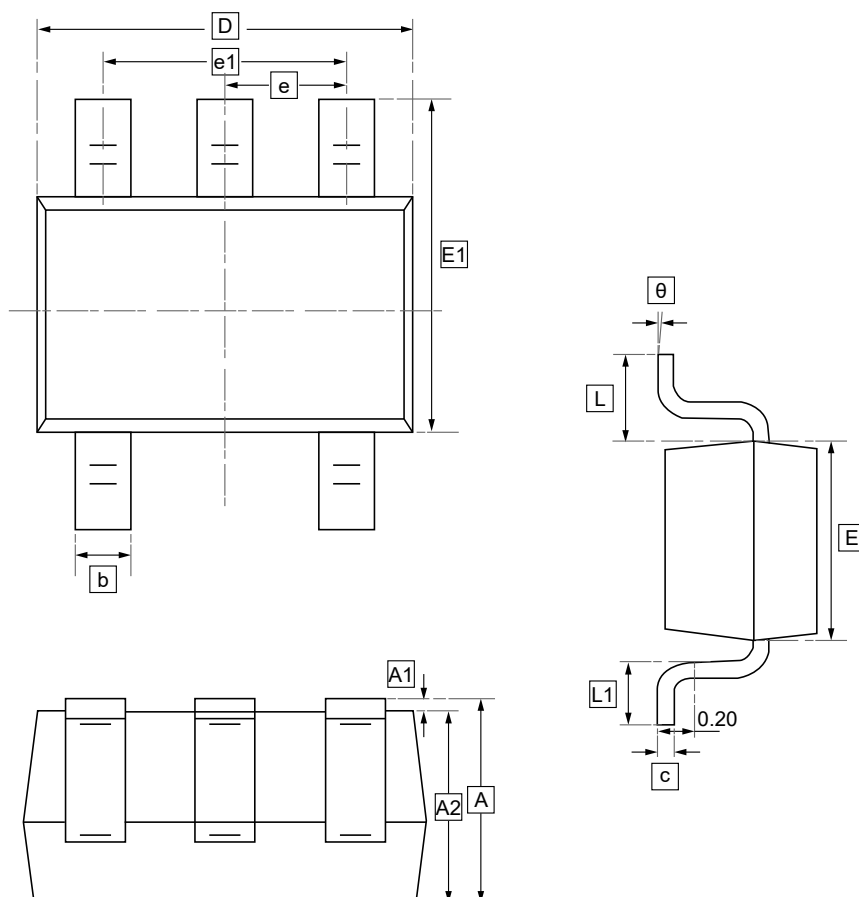


Figure4. Test Circuit



13.1 SC70-5 Package Outline Dimensions

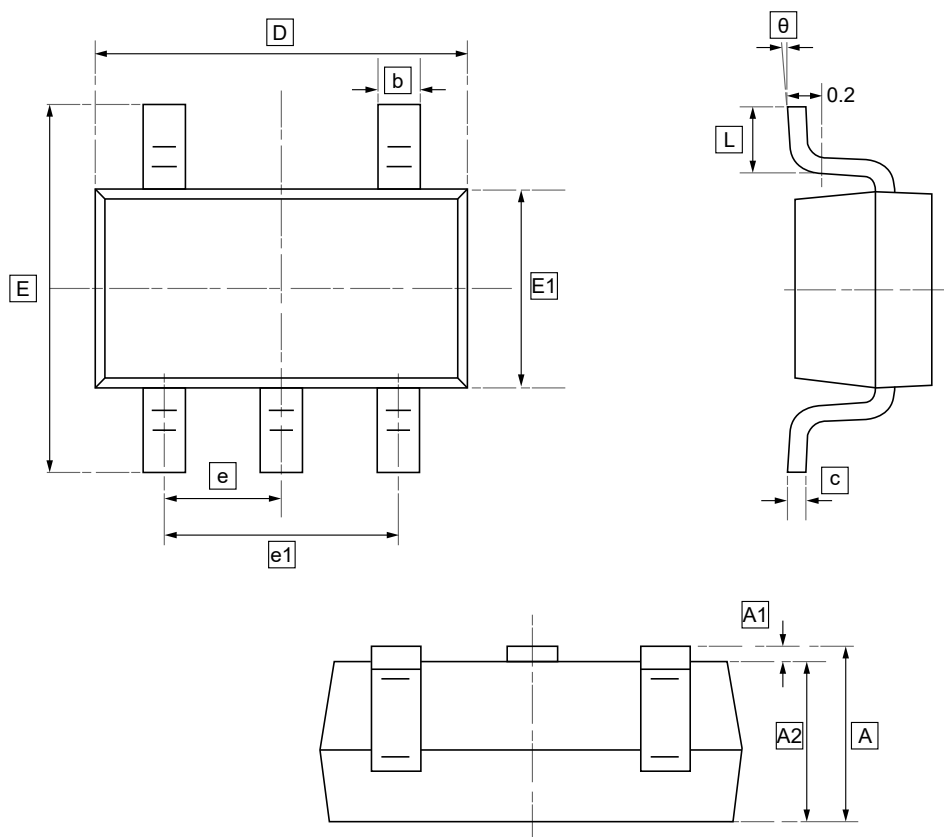


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1	L	θ
Min	0.90	0.00	0.90	0.15	0.08	2.05	1.15	2.15	0.65	1.20	0.26	7°
Max	1.10	0.10	1.00	0.35	0.15	2.25	1.35	2.45	TYP	1.40	0.46	REF.



13.2 SOT-23-5 Package Outline Dimensions

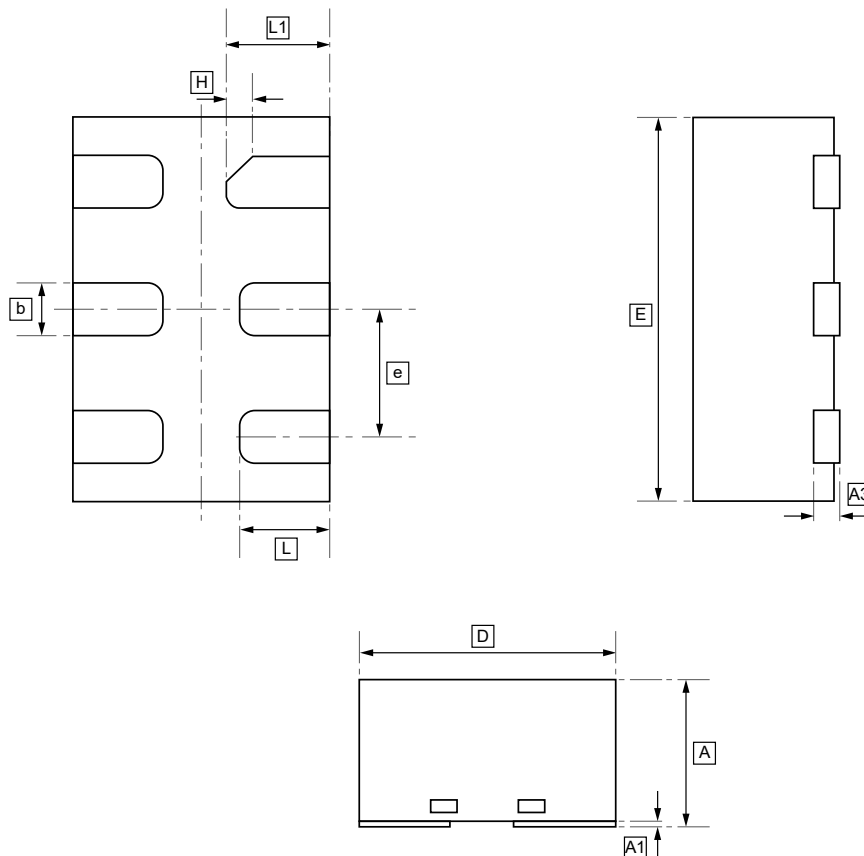


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E1	E	e	e1	L	θ
Min	1.050	0.000	1.050	0.300	0.100	2.820	1.500	2.650	0.950	1.800	0.300	0°
Max	1.250	0.100	1.150	0.500	0.200	3.020	1.700	2.950	BSC	2.000	0.600	8°



13.3 DFN6(1*1.5) Package Outline Dimensions

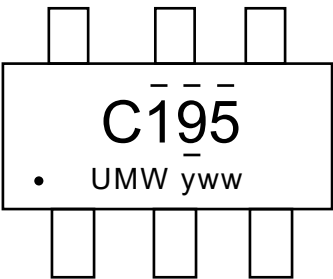


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A3	b	D	E	e	H	L	L1
Min	0.50	0	0.10	0.15	0.90	1.40	0.40	0.10	0.30	0.35
Max	0.60	0.05	REF	0.25	1.10	1.60	0.60	REF	0.40	0.45



14.Ordering information



yww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SN74LVC1G19DBVR	C195	SOT23-5	3000	Tape and reel
UMW SN74LVC1G19DCKR	CYF	SC70-5	3000	Tape and reel
UMW SN74LVC1G19DRYR	CY	DFN6	5000	Tape and reel



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