

1.Description

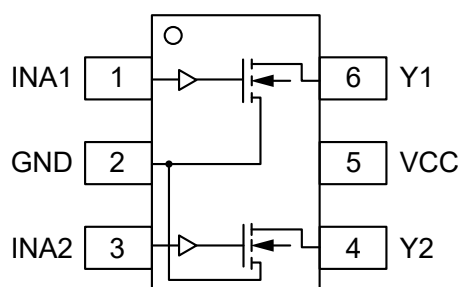
The UMW SN74LVC2G07 is a high performance dual buffer with open drain outputs operating from a 1.65 to 5.5V supply. The internal circuit is composed of multiple stages, including an open drain output. The open drain output provides the capability to set the output switching level to a user selectable value with an external resistor and power supply.

The logic high output value is set by the external power supply and can be less than, equal or greater than the VCC power supply, provided the voltage supply is less than 5.5V.

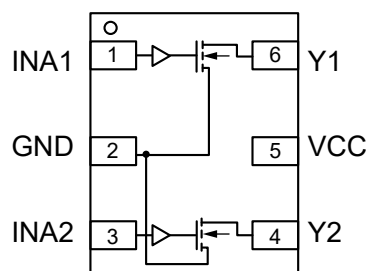
2.Features

- Extremely High Speed: t_{PD} 2.3ns (typical) at $V_{CC}=5V$
- Designed for 1.65V to 5.5V V_{CC} Operation, CMOS compatible
- Over Voltage Tolerant Inputs
- LVTTTL Compatible – Interface Capability with 5V TTL Logic with $V_{CC}=3V$
- LVCMOS Compatible
- 24mA Output Sink Capability
- Near Zero Static Supply Current Substantially Reduces System Power Requirements
- Chip Complexity: FET=72; Equivalent Gate=18
- These Devices are Pb– Free and are RoHS Compliant

3.Pinning information



SOT23-6/SC70-6



DFN6

Figure1. Top View



4.Pin Function

Pin	Function
1	INA1
2	GND
3	INA2
4	Y2
5	VCC
6	Y1

5.Block Diagram

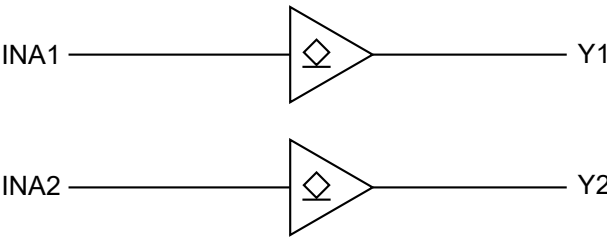


Figure2. Logic Symbol

Function Table

Input	Output
A	Y
L	L
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 (Note 1)		V_O	-0.5 to $V_{CC} + 0.5$	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
Junction Temperature Under Bias		T_J	150	°C
Thermal Resistance		θ_{JA}	333	°C/W
Power Dissipation in Still Air at 85°C		P_D	200	mW
Moisture Sensitivity		MSL	Level 1	
Flammability Rating Oxygen Index: 28 to 34		F_R	UL94V-0@0.12in	
ESD Classification Human	Body Model (Note 2)	ESD	2000	V
	Machine Model (Note 3)		200	V
	Charged Device Model (Note 4)		N/A	V
Latchup Performance Above V_{CC} and Below GND at 125°C (Note 5)		$I_{LATCHUP}$	± 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.



7. Recommended Operating Conditions

Parameter		Symbol	Min	Max	Unit
DC Supply Voltage Operating		V _{CC}	1.65	5.5	V
Data 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	125	°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. Extended exposure to stresses beyond the Recommended.



8.DC Electrical Characteristics

Parameter	Condition	Symbol	V _{CC} (V)	T _A =25°C			-40°C≤T _A ≤125°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}	V
			2.3 to 5.5			0.3V _{CC}		0.3V _{CC}	
Low-Level Output Voltage V _{IN} =V _{IL}	I _{OH} =100μA	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	μA
Quiescent Supply Current	V _{IN} =5.5V or GND	I _{CC}	5.5			1		10	μA

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.



9.AC Electrical Characteristics

Parameter	Condition	Symbol	V _{CC} (V)	T _A =25°C			-55°C≤T _A ≤125°C		Units
				Min	Typ	Max	Min	Max	
Propagation Delay (Figure 3 and 4)	R _L =1MΩ, C _L =15pF	t _{PLH} , t _{PHL}	1.65	2	5.3	11.4	2	12	ns
			1.8	2	4.4	9.5	2	10	
			2.5±0.2	0.2	3.5	6.5	0.8	4.1	
			3.3±0.3	0.8	2.1	4.5	0.5	3.7	
	R _L =500Ω, C _L =15pF		3.3±0.3	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		5.0±0.5	0.8	2.4	4.3	0.8	4.5	

10.Capacitance Characteristics

Parameter	Symbol	Condition	Typ	Units
Input Capacitance	C _{IN}	V _{CC} =5.5V, V _I = 0V or V _{CC}	>2.5	pF
Power Dissipation Capacitance ⁽⁶⁾	C _{PD}	10MHz, V _{CC} =3.3V, V _I =0V or V _{CC}	4	pF
		10MHz, V _{CC} =5.5V, V _I =0V or V _{CC}	4	pF

Notes 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.

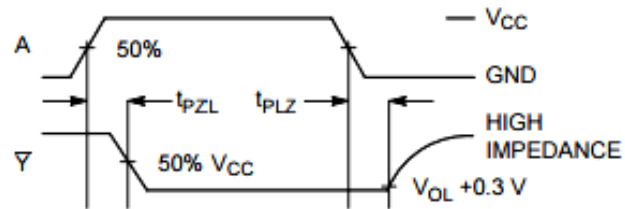


Figure 3. switching Waveforms

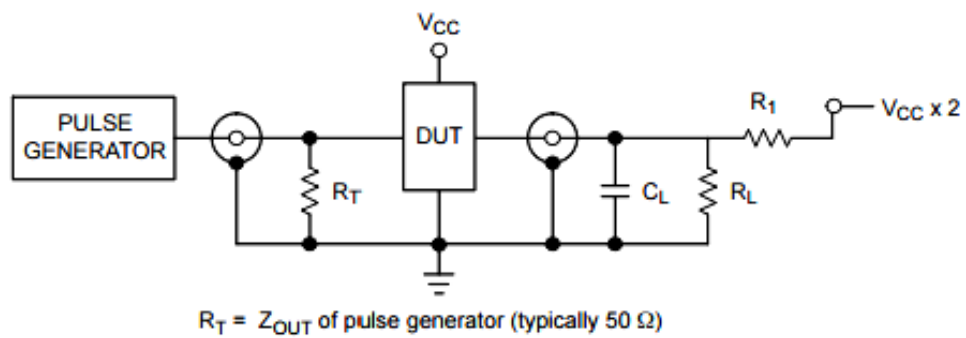
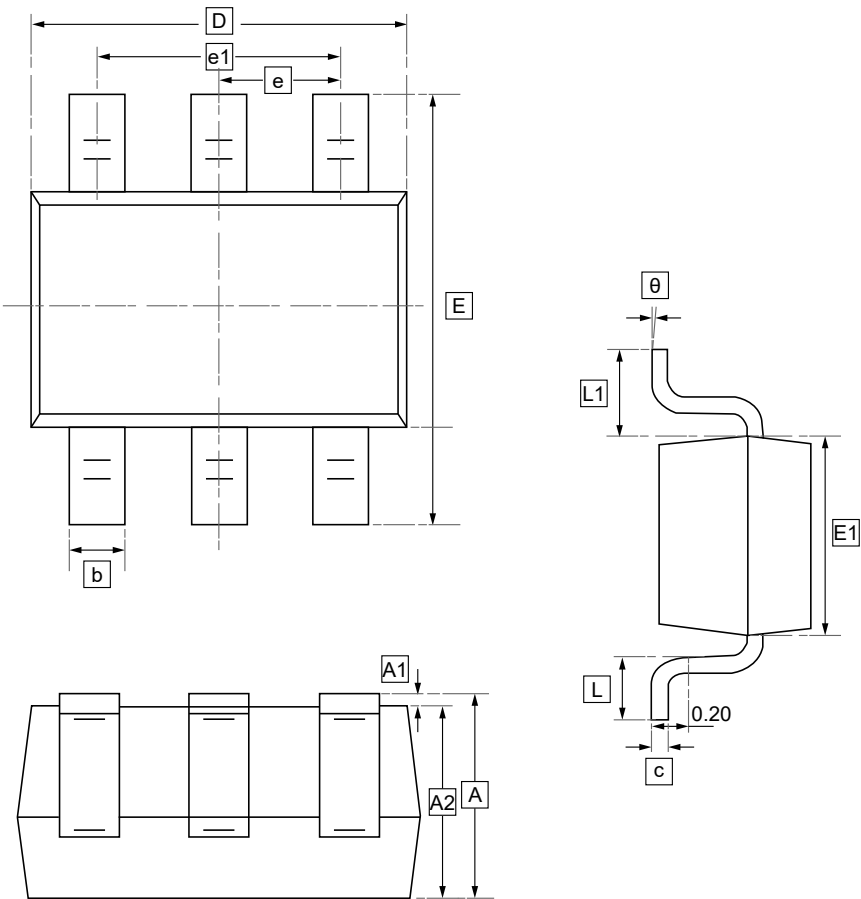


Figure 4. Test Circuit



11.1 SC70-6 Package Outline Dimensions



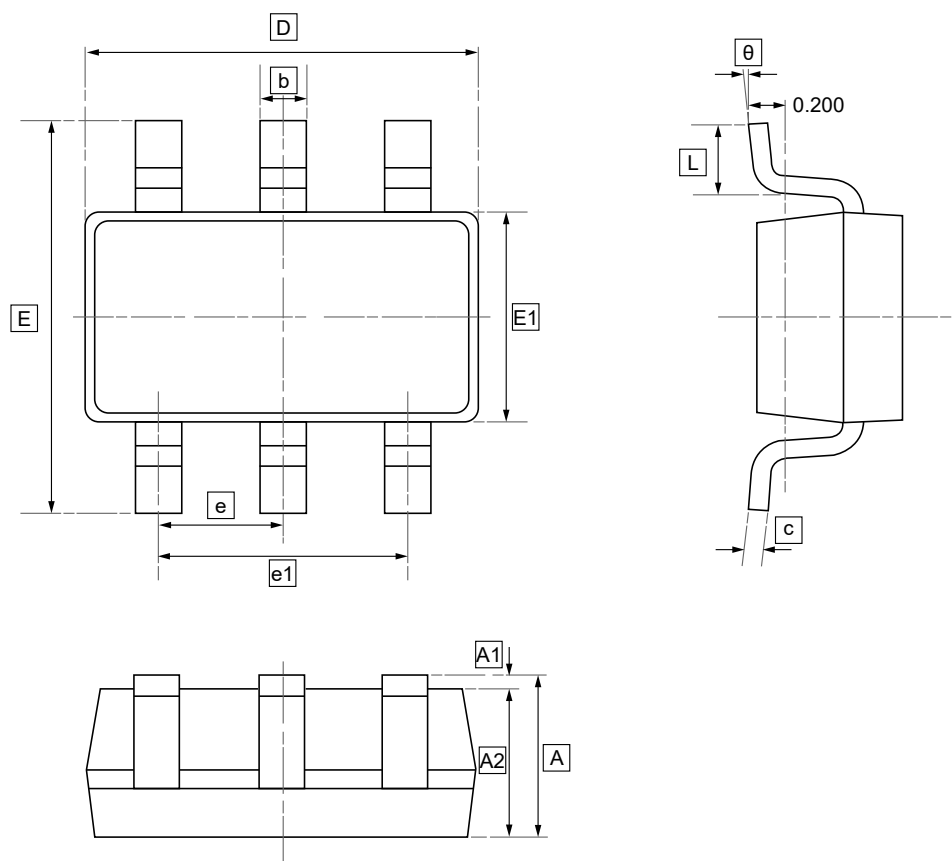
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1	L	L1
Min	0.90	0.00	0.90	0.15	0.08	2.05	2.15	1.15	0.65	1.2	0.26	0.525
Max	1.10	0.10	1.00	0.35	0.15	2.25	2.45	1.35	TYP.	1.4	0.46	REF.

Symbol	θ
Min	0°
Max	8°



11.2 SOT23-6 Package Outline Dimensions

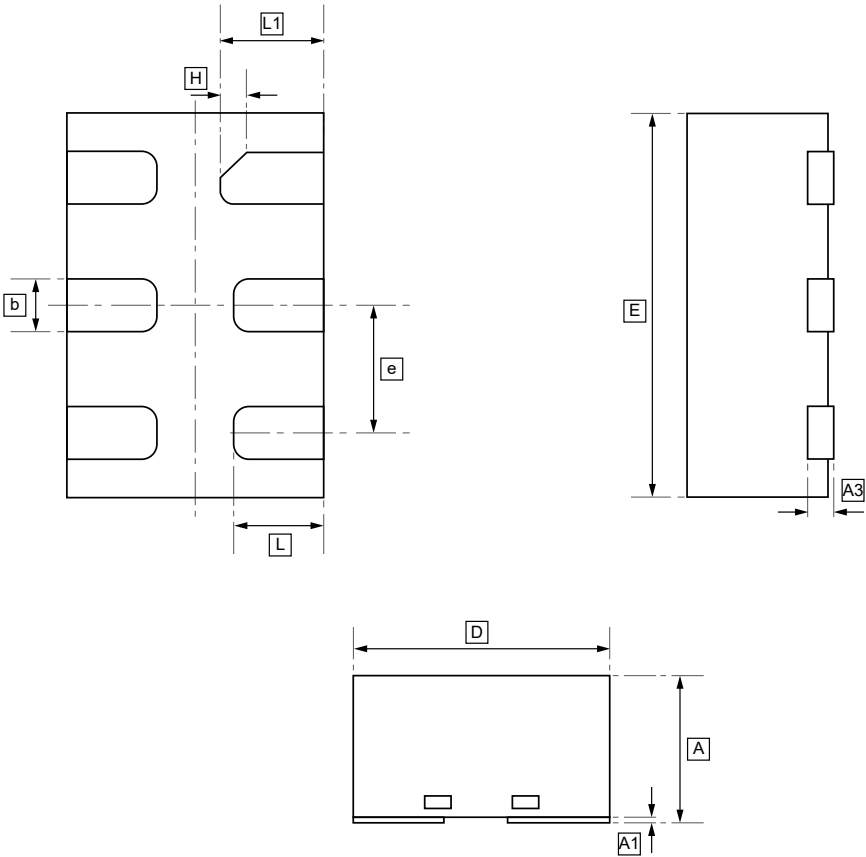


DIMENSIONS (mm are the original dimensions)

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°



11.3 DFN6(1*1.5) Package Outline Dimensions

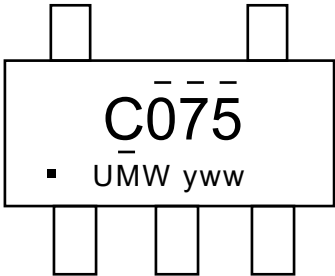


DIMENSIONS (mm are the original dimensions)

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



12.Ordering information



yww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SN74LVC2G07DBVR	C075	SOT23-5	3000	Tape and reel
UMW SN74LVC2G07DCKR	CV5	SC70-5	3000	Tape and reel
UMW SN74LVC2G07DRYR	CV	DFN6	5000	Tape and reel



13.Disclaimer

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