UMW SN74LVC1G00

1.Description

The UMW SN74LVC1G00 is a 2-input NAND integrated circuit, which can realize the mathematical logic operation of $Y=\overline{A \times B}$ and $Y=\overline{A}+\overline{B}$. Advanced CMOS process design is adopted, which has the working characteristics of low power consumption and high output driving capability. The chip can work normally when the power supply voltage VCC is between 1.65V and 5.5V V. And UMW SN74LVC1G00 has a variety of small package shapes,It can be widely used in high-end precision instruments, miniaturized low-power handheld devices, artificial intelligence and other fields.

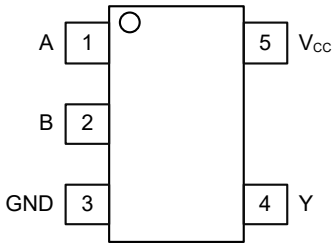
2.Features

- Low input current: 0.1μA typical
- Low static power consumption: 0.1μA typical
- High output drive: V_{CC}=4.5V, more than 32MA
- Wide working voltage range: 1.65V to 5.5V
- Package form: SOT23-5/SC70-5/SOT-553, SFN/SON-6, DSBGA-5, X2SON-5

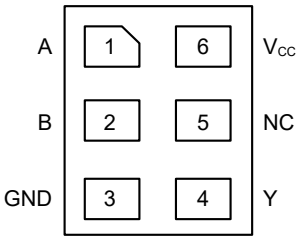
3.Product Usage

- Portable audio interface
- digital television
- Wireless headphones, smart watches, etc.
- Blu-ray player and home theater
- Solid state drive
- Smart wearable devices

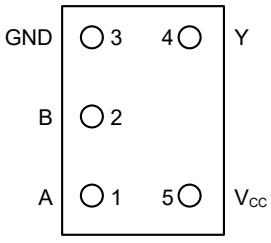
4.Pinning information



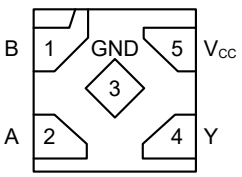
SOT23-5/SC70-5
SOT-553



DFN/SON-6



DSBGA-5



X2SON-5

5.Pin Function

Pin				Description
Name	SOT23-5/SC70-5/SOT-553, DSBGA-5	DFN/SON-6	X2SON-5	
A	1	1	2	Input
B	2	2	1	Input
GND	3	3	3	Ground
Y	4	4	4	Output
V_{CC}	5	6	5	Power pin
NC		5		Not connected

Notes: NC null pin, no connecting wire inside.

6.Limit parameter

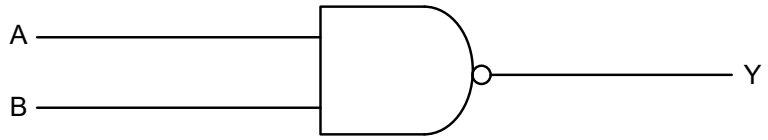
Parameter	Symbol	Limit Value	Unit
operating voltage	V_{CC}	6.5	V
input	V_{IN}	-0.5 ~ 6.5	V
Output voltage(1)	V_{OUT}	-0.5 ~ 6.5	V
Single pin output current	I_{OUT}	25	mA
or V_{CC} current.	I_{CC}	50	mA
Storage temperature	T_S	-65 to 150	°C
Pin welding temperature	T_W	260, 10s	°C
Working temperature	T_A	-40 to 105	°C

Note:

1. In the power-off state of V_{CC}=0V, the limit voltage that the output can bear,

2. Limit parameter refers to the limit value that can't be exceeded under any conditions. If it exceeds this limit value, it may cause physical damage such as product deterioration; At the same time, the chip can't work normally when it is close to the limit parameters.

7.Principle Logic Diagram



Function Table

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

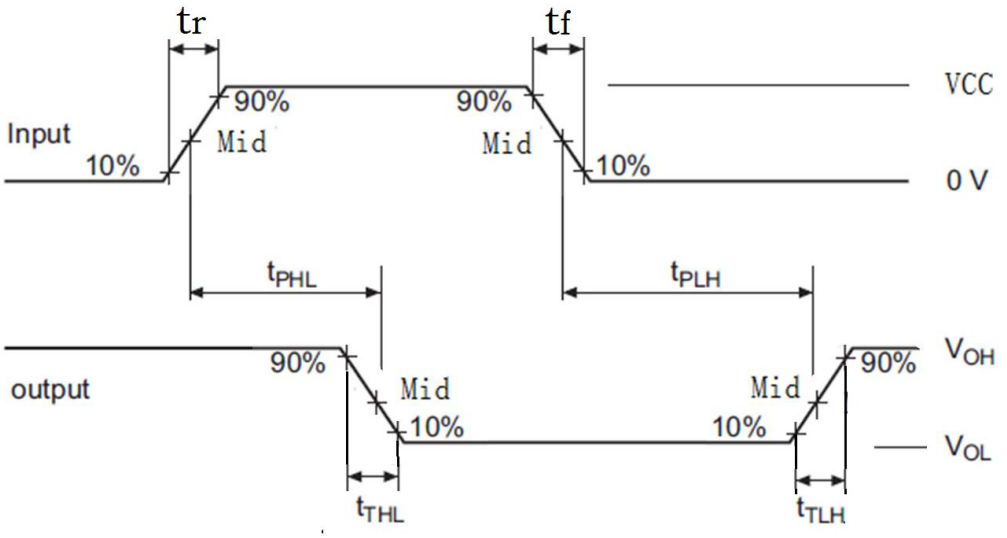
8.Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V_C		1.65		5.5	V
Input High Level Voltage	V_{IH}	V_C=1.65V~1.95V	0.65*VC			V
		V_C=2.3V~2.7V	1.7			V
		V_C=3V~5.5V	0.7*VC			V
Low-level Input Voltage	V_{IL}	V_C=1.65V~1.95V			0.35*VC	V
		V_C=2.3V~2.7V			0.7	V
		V_C=3V~5.5V			0.3*VC	V
Input Voltage	V_I		0		5.5	V
Output Voltage	V_O		0		VC	V
High Level Output Current	I_{OH}	V_C=1.65V			-4	mA
		V_C=2.3V			-8	mA
		V_C=3V			-16	mA
		V_C=4.5V			-32	mA
Low Level Output Current	I_{OL}	V_C=1.65V			4	mA
		V_C=2.3V			8	mA
		V_C=3V			16	mA
		V_C=4.5V			32	mA
High Level Load Voltage	V_{OH}	I_{OH}=-100μA,V_{CC}=1.6 to 5.5V	V_{CC}-0.1		5.5	V
		I_{OH}=-4mA,V_{CC}=1.65V	1.2			V
		I_{OH}=-8mA,V_{CC}=2.3V	1.9			V
		I_{OH}=-16mA,V_{CC}=3V	2.4			V
		I_{OH}=-32mA,V_{CC}=4.5V	3.8			V
Low Level Load Voltage	V_{OL}	I_{OH}=100μA,V_{CC}=1.6 to 5.5V			0.1	V
		I_{OH}=4mA,V_{CC}=1.65V			0.45	V
		I_{OH}=8mA,V_{CC}=2.3V			0.3	V
		I_{OH}=16mA,V_{CC}=3V			0.4	V
		I_{OH}=32mA,V_{CC}=4.5V			0.55	V

Parameter	Symbol		Conditions	Min.	Typ.	Max.	Unit
Incoming Current	I_I	A	V_I=5.5V or GND	0~5.5V	0.1	±5	μA
		B			0.1	±5	μA
Turn-off Current	I_{OFF}	V_I	V_I=5.5V	0	0.1	±10	μA
		V_O	V_O=5.5V	0	0.1	±10	μA
Operational Current	I_{CC}		V_I=5.5V, I_O=0	1.65V~5.5V	0.1	10	μA
			V_I=GND, I_O=0		0.1	10	μA
Working Current Variation Value	ΔI_{CC}		A=V_{CC} -0.6V B=V_{CC} or GND	3V~5.5V	25		μA
			B=V_{CC} -0.6V A=V_{CC} or GND		25		μA

Ta=25°C V(298)=5.0V,tr =≤20ns. See test method.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Maximum transmission delay time a, B to Y		C=15pF		10		ns
				10		ns

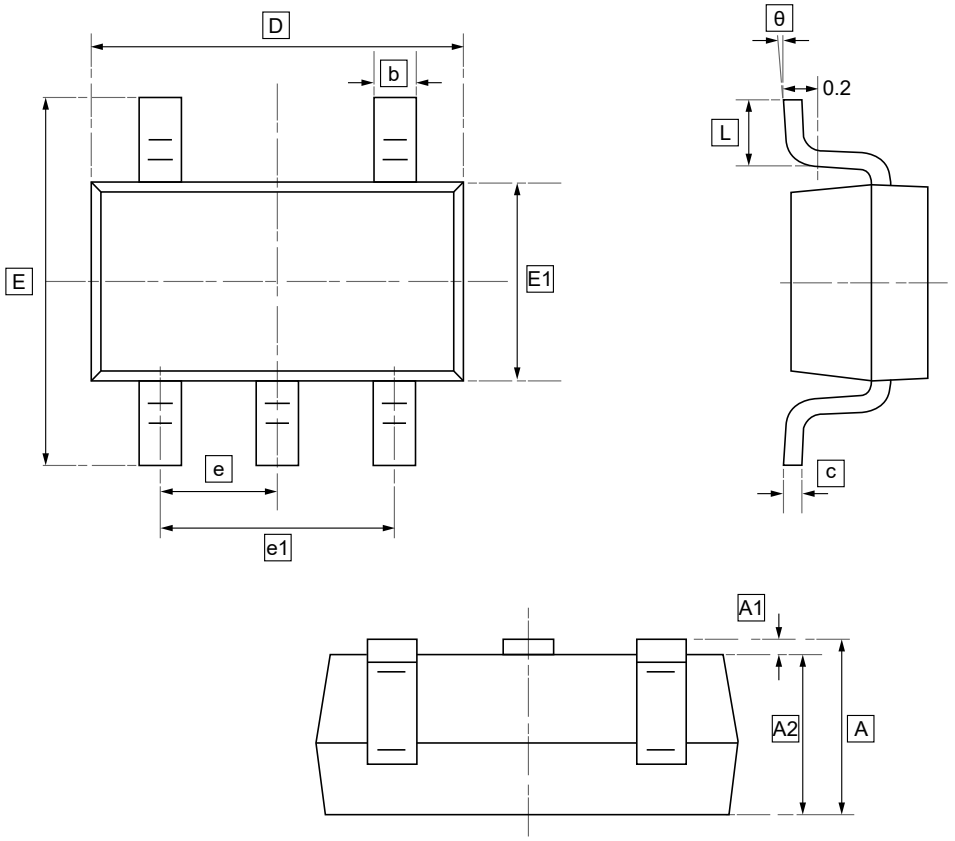


Note: 1. CL capacitor is external chip capacitor (0603), which is connected close to the output pin, and the capacitor ground is close to the chip GND;

2. Input: port input level, f=500kHz,D=50%; tr=tf≤20ns;

3. Output: Y-terminal output test.

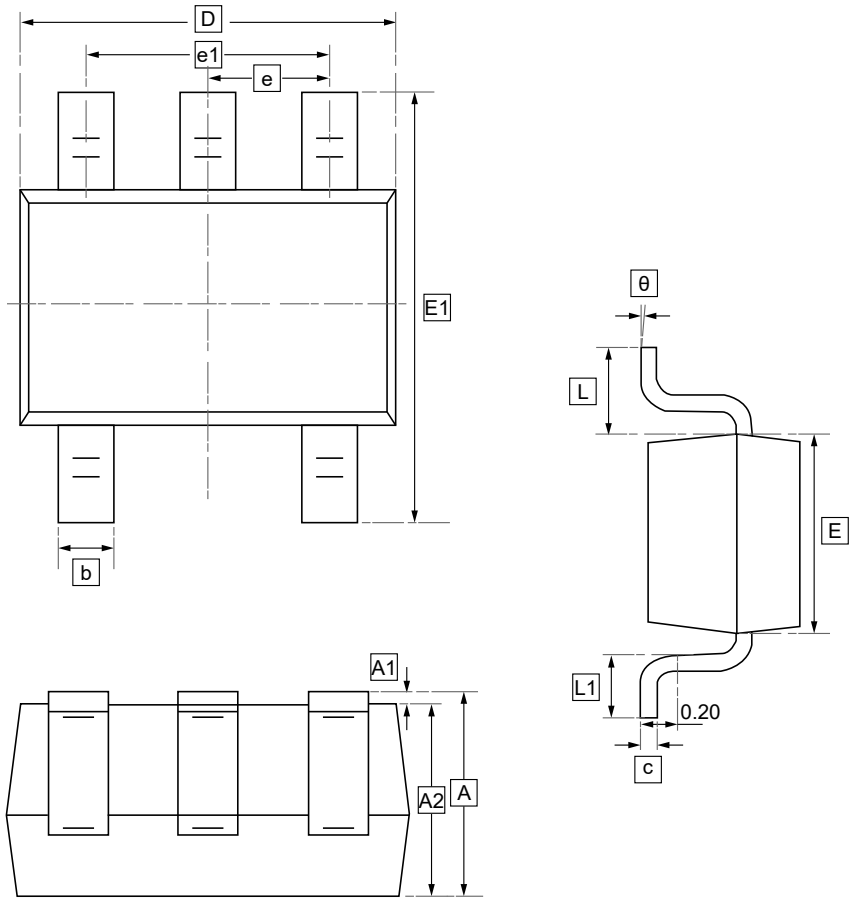
9.1 SOT23-5 Package Outline Dimensions



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°

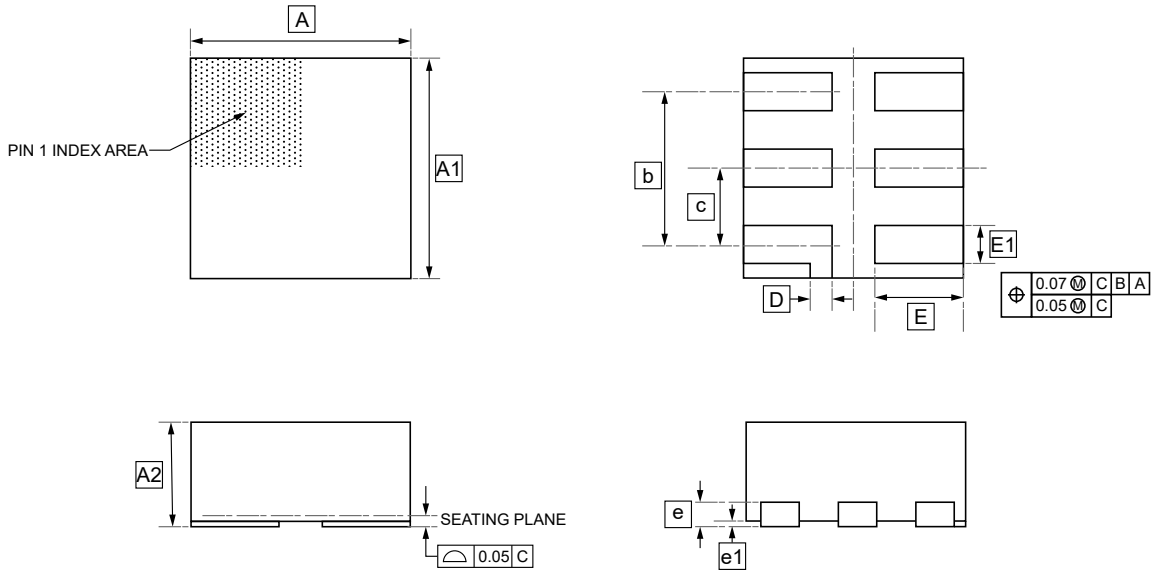
9.2 SC70-5 Package Outline Dimensions



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	1.80	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.

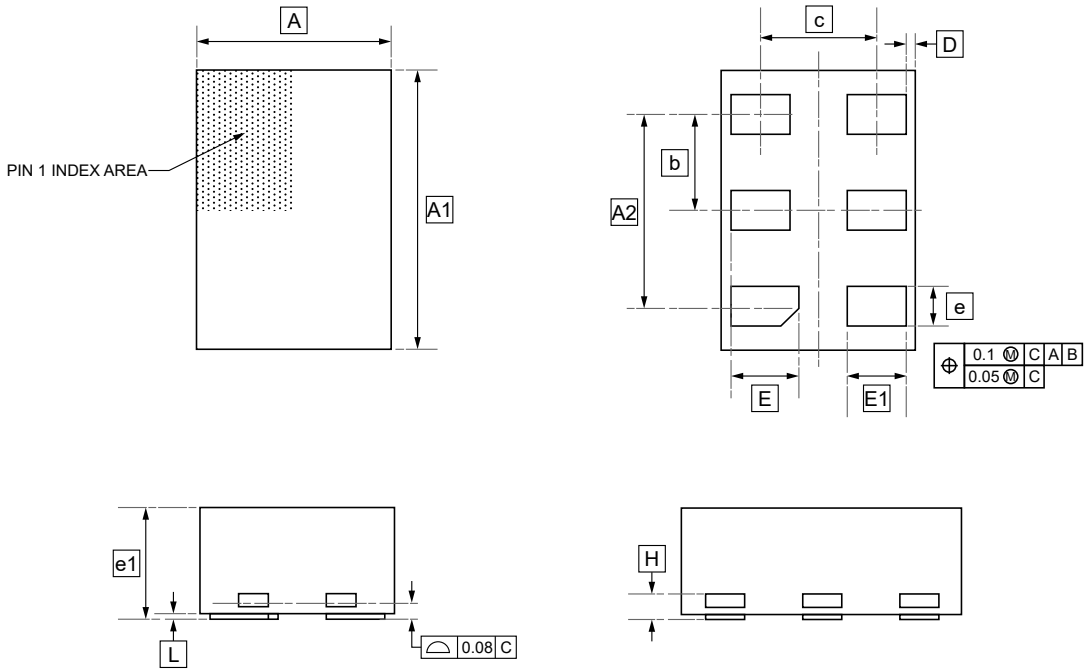
9.3 SON-6 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1
Min	0.95	0.95	-	0.7	0.35	0.1	0.35	0.12	0.11	0.00
Max	1.05	1.05	0.4				0.45	0.22	TYP	0.05

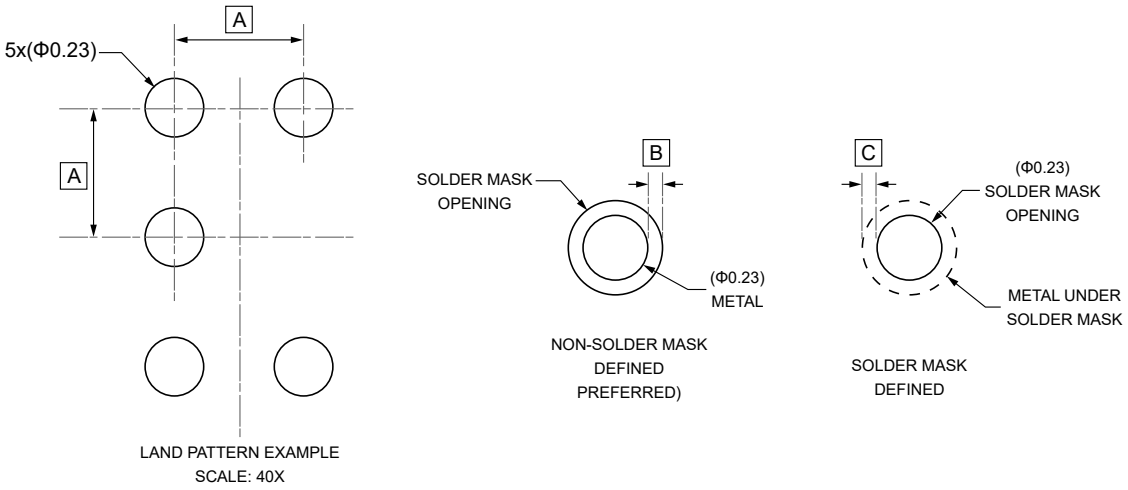
9.4 DFN(1*1.5) Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1	L	H
Min	0.95	1.4	1	0.5	0.6	0.05	0.3	0.25	0.15	-	0.00	0.127
Max	1.05	1.5				TYP	0.4	0.35	0.25	0.6	0.05	TYP

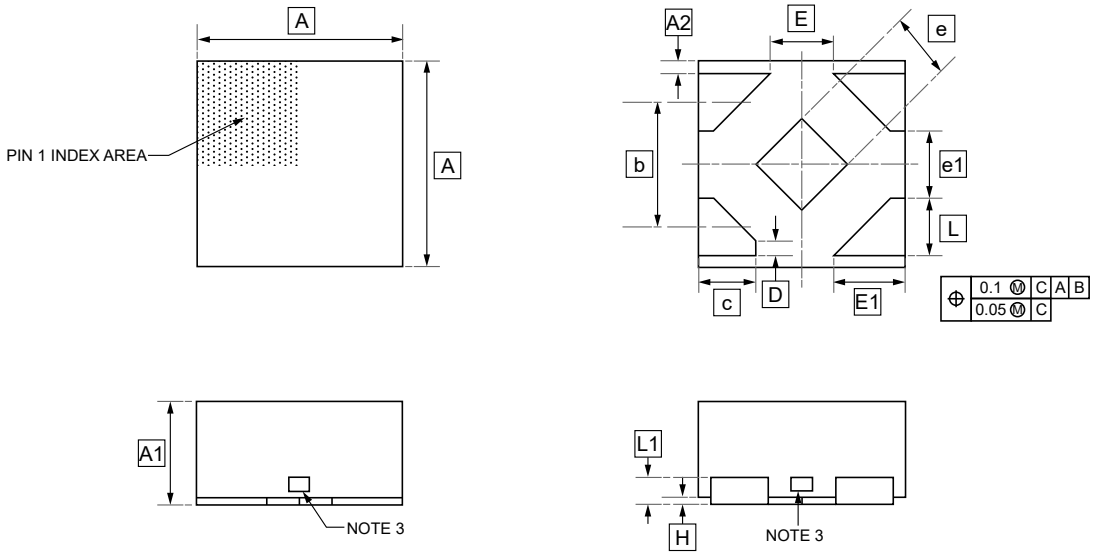
9.5 DSBGA-5 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C
Min	0.5	-	0.05
Max	TYP	0.05	-

9.6 X2SON-5 Package Outline Dimensions

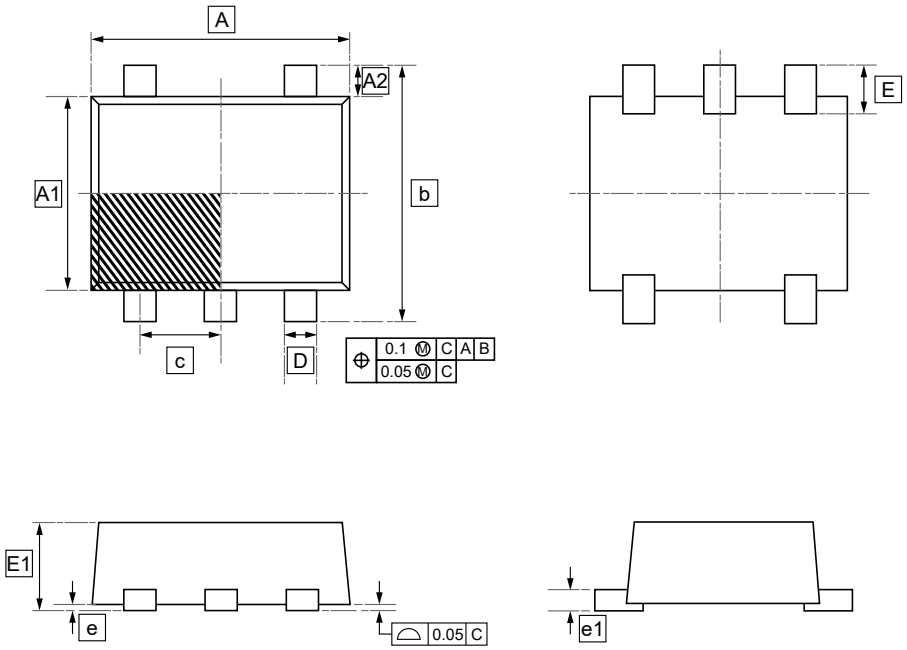


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1	L	L1
Min	0.75	-	0.05	0.48	0.17	0.06	0.25	0.23	0.15	0.26	0.17	0.1
Max	0.85	0.4			0.27			0.32	0.35		0.27	

Symbol	H
Min	0.00
Max	0.05

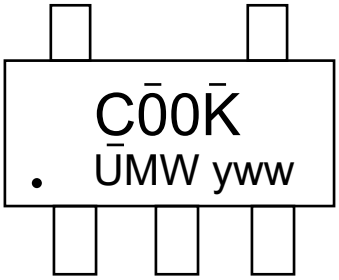
9.7 SOT-553 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E	E1	e	e1
Min	1.50	1.10	0.13	1.50	0.50	0.15	0.20	0.50	0.00	0.08
Max	1.70	1.30	0.27	1.70		0.25	0.40	0.60	0.05	0.18

10.Ordering Information



yww: Batch Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SN74LVC1G00DBVR	C00K	SOT23-5	3000	Tape and reel
UMW SN74LVC1G00DCKR	CA5	SC70-5	3000	Tape and reel
UMW SN74LVC1G00YZPR	CA7	DSBGA-5	3000	Tape and reel
UMW SN74LVC1G00DPWR	H4	X2SON-5	3000	Tape and reel
UMW SN74LVC1G00DRLR	CA7	SOT-553	4000	Tape and reel
UMW SN74LVC1G00DSFR	CA	SON-6	5000	Tape and reel
UMW SN74LVC1G00DRYR	CA	DFN(1*1.5)	5000	Tape and reel

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