

Features

- Operate from 1.65V to 5.5V
- Input and Open-Drain Output
Accept Voltages to 5.5V
- High Noise Immunity
- ESD Protection Exceeds JESD 22
-2000-V Human-Body Model (A114-A)
-200-V Machine Model (A115-A)
-1000-V Charged-Device Model (C101)

General Description

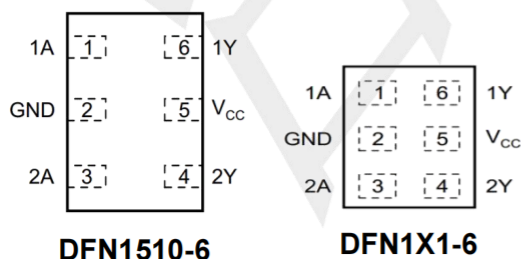
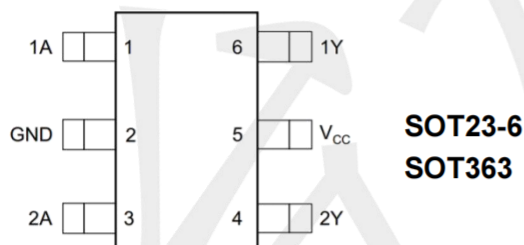
The TP74LVC2G06 is a dual inverting gate CMOS with open drain output and provides the Boolean function $Y = \overline{A}$ in positive logic device.

This device has a power-down protective circuit to prevent the device from destruction when it is powered down.

Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	Marking
TP74LVC2G06S6	SOT23-6	Tape and Reel,3000	S206
TP74LVC2G06C6	SOT363	Tape and Reel,3000	C206
TP74LVC2G06D6	DFN1X1-6	Tape and Reel,5000	CT
TP74LVC2G06N6	DFN1510-6	Tape and Reel,5000	CT

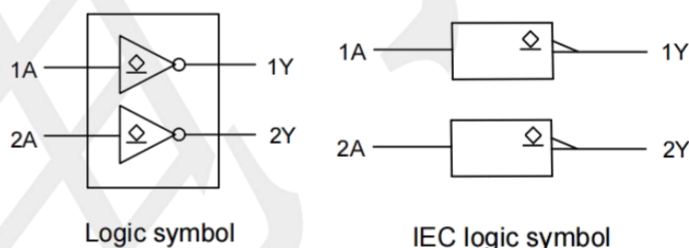
Pin Configuratio



Applications

- AV Receiver
- Audio Dock:Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power:Telecom/Server AC/DC Supply:Single
Controller:Analog and Digital
- Solid State Drive(SSD):Client and Enterprise
- Wireless Headset,Keyboard,and Mouse

Logic Diagram



Function Table

INPUT(A)	OUTPUT(Y)
H	L
L	Z

Note: H: High Voltage Level
L: Low Voltage Level
Z: High-Impedance OFF-State

Absolute Maximum Ratings

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	VCC		-0.5 ~ +6.5	V
Input Voltage	VIN		-0.5 ~ +6.5	V
Output Voltage	VOUT		-0.5 ~ +6.5	V
VCC or GND Current	ICC	Output in the Power-off state	±100	mA
Continuous Output Current	IOUT	VOUT=0~VCC	±50	mA
Input Clamp Current	IIK	VIN<0	-50	mA
Output Clamp Current	IOK	VOUT<0	-50	mA
Storage Temperature Range	TSTG		-65 ~ +150	°C
Junction to Ambient	θ_{JA}	SOT23-6	230	°C/W
		SOT363	280	°C/W
		DFN1X1-6	460	°C/W
		DFN1510-6	440	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Recommended Operating Conditions

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	VCC	Operating	1.65	--	5.5	V
		Data retention only	1.5	--	--	V
Input Voltage	VIN		0	--	5.5	V
Output Voltage	VOUT	High or low state	0	--	VCC	V
Low-Level Output Current	IOL	VCC=1.65V	--	--	4	mA
		VCC=2.3V	--	--	8	mA
		VCC=3V	--	--	16	mA
		VCC=3V	--	--	24	mA
		VCC=4.5V	--	--	32	mA
Input Transition Rise or Fall rate	$\Delta t/\Delta v$	VCC=1.8V±0.15V, 2.5V±0.2V	--	--	20	ns/V
		VCC=3.3V±0.3V	--	--	10	ns/V
		VCC=5V±0.5V	--	--	5	ns/V
Operating Temperature	TA		-40	--	125	°C

Electrical Characteristics (unless otherwise specified)

PARAMETER	SYM BOL	TEST Conditions	TA=25°C			TA=-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V _{IH}	V _{CC} =1.65V ~ 1.95V	0.65×V _{CC}	--	--	0.65×V _{CC}	--	--	V
		V _{CC} =2.3V ~ 2.7V	1.7	--	--	1.7	--	--	V
		V _{CC} =3V ~ 3.6V	2	--	--	2	--	--	V
		V _{CC} =4.5V ~ 5.5V	0.7×V _{CC}	--	--	0.7×V _{CC}	--	--	V
Low-Level Input Voltage	V _{IL}	V _{CC} =1.65V ~ 1.95V	--	--	0.35×V _{CC}	--	--	0.35×V _{CC}	V
		V _{CC} =2.3V ~ 2.7V	--	--	0.7	--	--	0.7	V
		V _{CC} =3V ~ 3.6V	--	--	0.8	--	--	0.8	V
		V _{CC} =4.5V ~ 5.5V	--	--	0.35×V _{CC}	--	--	0.35×V _{CC}	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65 ~ 5.5V, I _{OL} =100μA	--	--	0.1	--	--	0.1	V
		V _{CC} =1.65V, I _{OL} =4mA	--	--	0.45	--	--	0.7	V
		V _{CC} =2.3V, I _{OL} =8mA	--	--	0.3	--	--	0.45	V
		V _{CC} =3.0V, I _{OH} =16mA	--	--	0.4	--	--	0.6	V
		V _{CC} =3.0V, I _{OH} =24mA	--	--	0.55	--	--	0.8	V
		V _{CC} =4.5V, I _{OH} =32mA	--	--	0.55	--	--	0.8	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0 ~ 5.5V, V _{IN} =5.5V or GND	--	--	±5	--	--	±5	μA
Power OFF Leakage Current	I _{OFF}	V _{CC} =0V, V _{IN} or V _{OUT} =5.5V	--	--	±10	--	--	±10	μA
Quiescent Supply Current	I _Q	V _{CC} =1.65 ~ 5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A	--	--	10	--	--	±10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI _Q	V _{CC} =3 ~ 5.5V, One input at V _{CC} -0.6V, Other inputs at V _{CC} or GND	--	--	500	--	--	500	μA

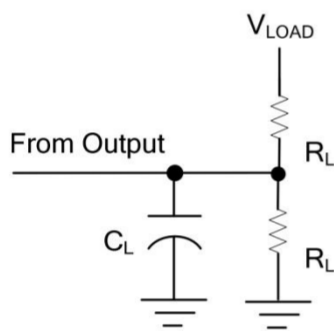
OPERATING CHARACTERISTICS (f=10MHz, TA =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	V _{CC} =1.8V	--	3	--	pF
		V _{CC} =2.5V	--	3	--	pF
		V _{CC} =3.3V	--	4	--	pF
		V _{CC} =5.0V	--	6	--	pF
Input Capacitance	C _I	V _{CC} =3.3V, V _{IN} =V _{CC} or GND	--	4	--	pF
Output Capacitance	C _O	V _{CC} =3.3V, V _{OUT} =V _{CC} or GND	--	5	--	pF

SWITCHING CHARACTERISTICS (unless otherwise specified)

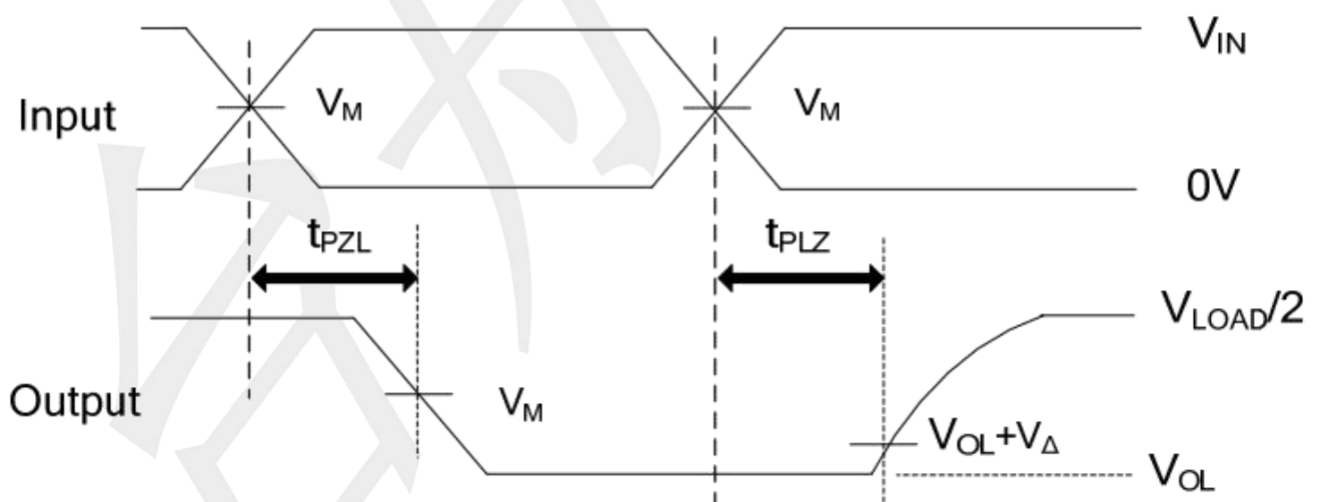
PARAMETER	SYMBOL	TEST Conditions	TA=25°C			TA=-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation delay from input (A or B) to output(Y)	t _{PLH} / t _{PHL}	CL=30pF V _{CC} =1.8±0.15V, R _L =1KΩ	2.2	--	6.5	1.0	--	8.5	nS
			1.1	--	3.9	0.5	--	6.0	nS
		CL=50pF R _L =500Ω	1.2	--	3.6	0.5	--	7.0	nS
			1	--	2.9	1.0	--	5.5	nS

TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

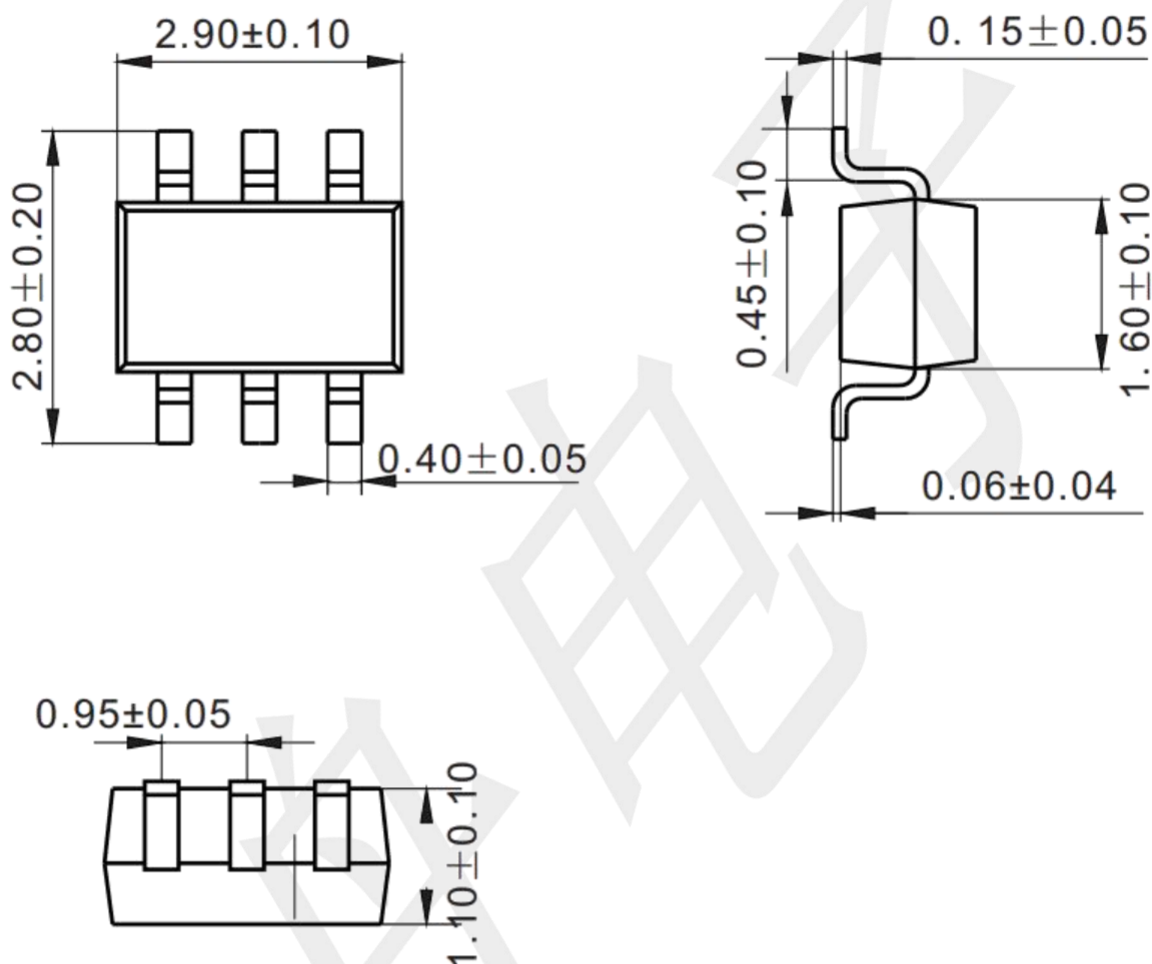
V _{CC}	Inputs		V _M	V _{LOAD}	V _Δ	C _L	R _L
	V _{IN}	t _R , t _F					
1.8V±0.15V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	1KΩ
2.5V±0.2V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	500Ω
2.7V	2.7V	≤2.5ns	1.5V	6V	0.3V	50pF	500Ω
3.3V±0.3V	2.7V	≤2.5ns	1.5V	6V	0.3V	50pF	500Ω
5V±0.5V	V _{CC}	≤2.5ns	V _{CC} /2	2 x V _{CC}	0.3V	50pF	500Ω



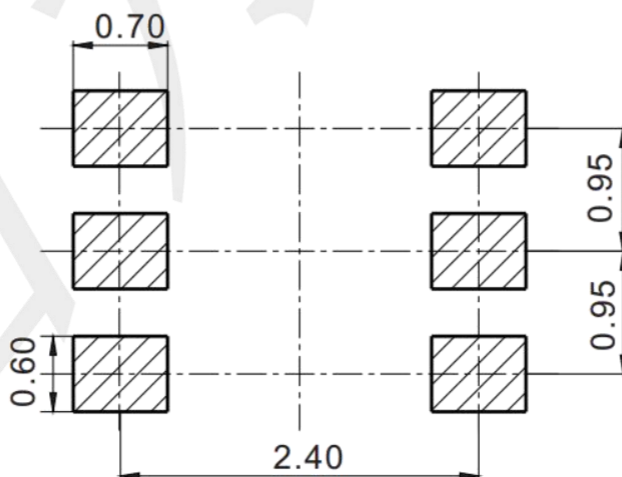
PROPAGATION DELAY TIMES

Package information

SOT23-6 (Unit: mm)

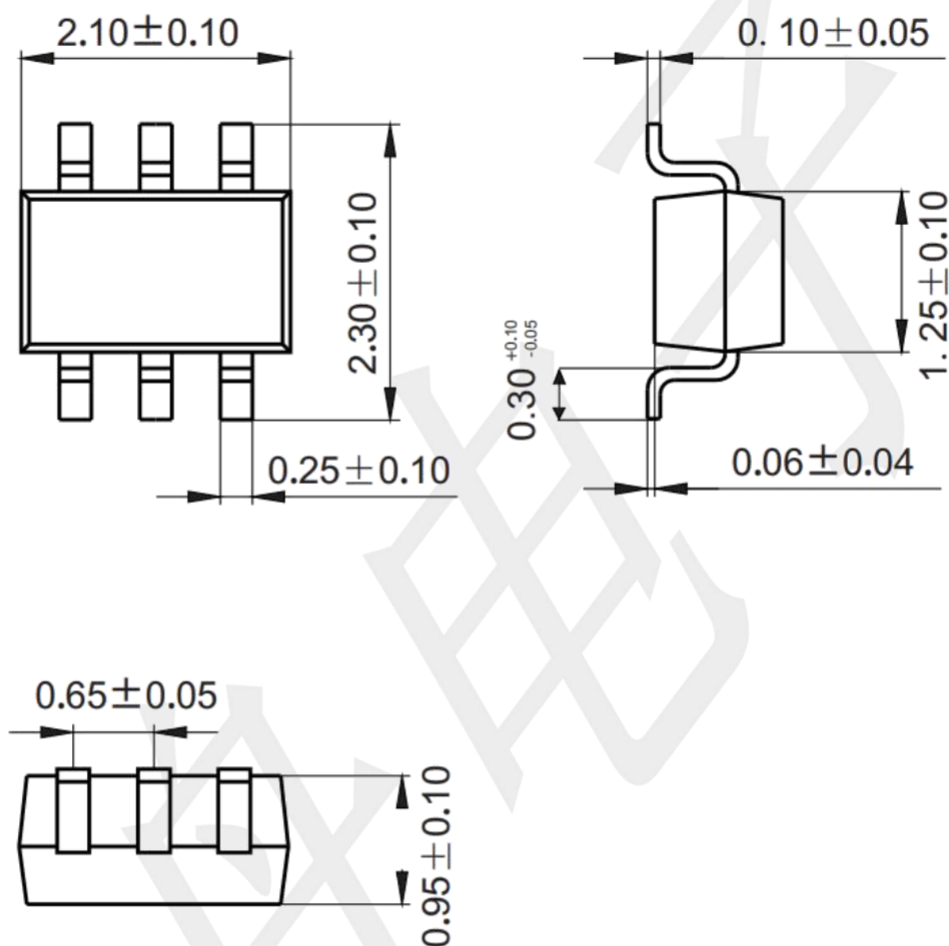


Mounting Pad Layout (unit: mm)

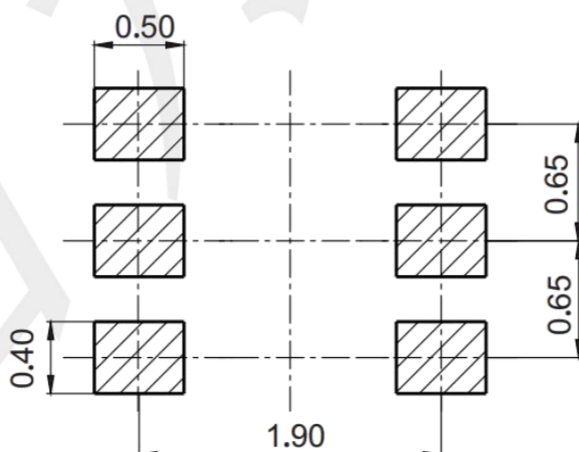


Package informantion

SOT363 (Unit: mm)

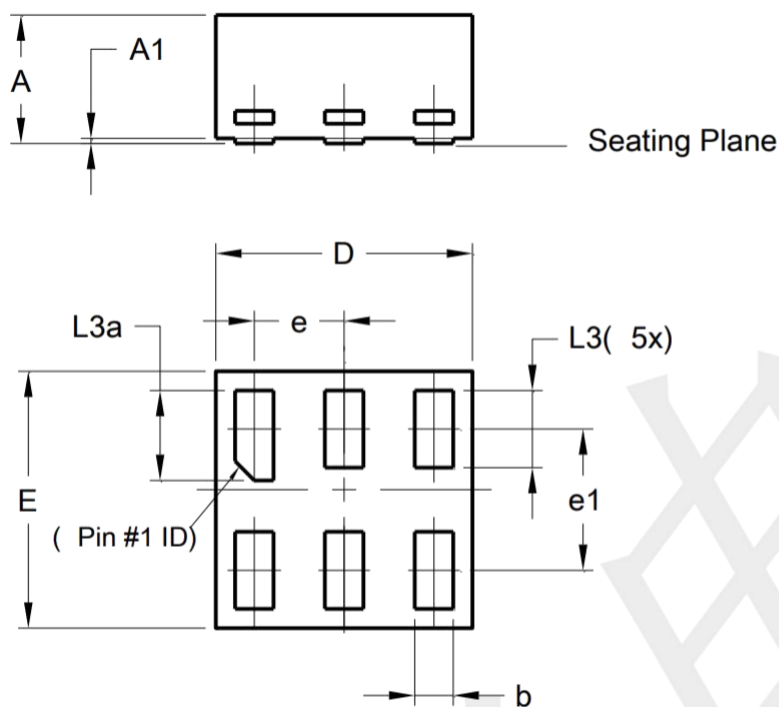


Mounting Pad Layout (unit: mm)



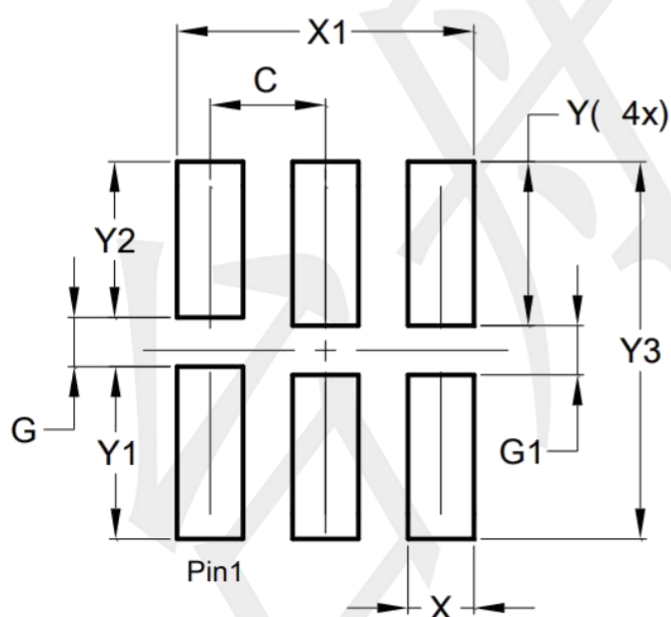
Package information

DFN1X1-6 (unit: mm)



DFN1010-6 (Type B)			
Dim	Min	Max	Typ
A	-	0.50	0.39
A1	-	0.04	-
b	0.12	0.20	0.15
D	0.95	1.050	1.00
E	0.95	1.050	1.00
e	0.35 BSC		
e1	0.55 BSC		
L3	0.27	0.30	0.30
L3a	0.32	0.40	0.35
All Dimensions in mm			

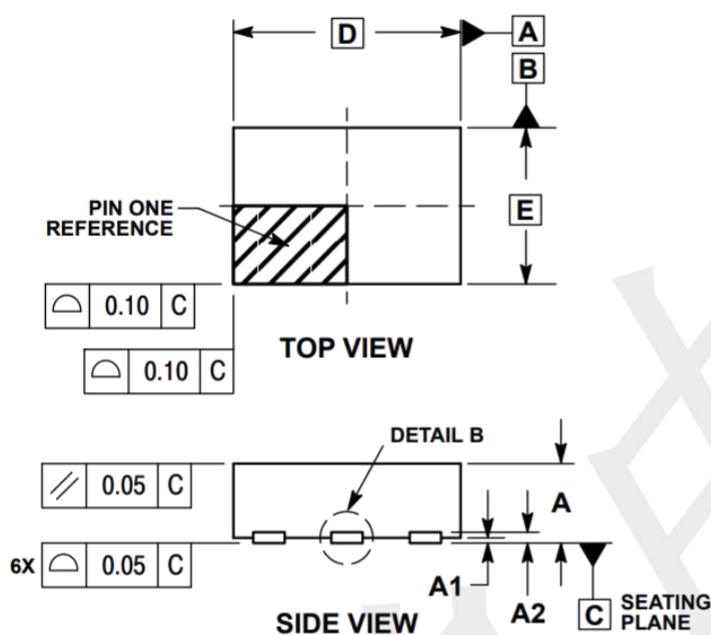
Mounting Pad Layout (unit: mm)



Dimensions	Value (in mm)
C	0.350
G	0.150
G1	0.150
X	0.200
X1	0.900
Y	0.500
Y1	0.525
Y2	0.475
Y3	1.150

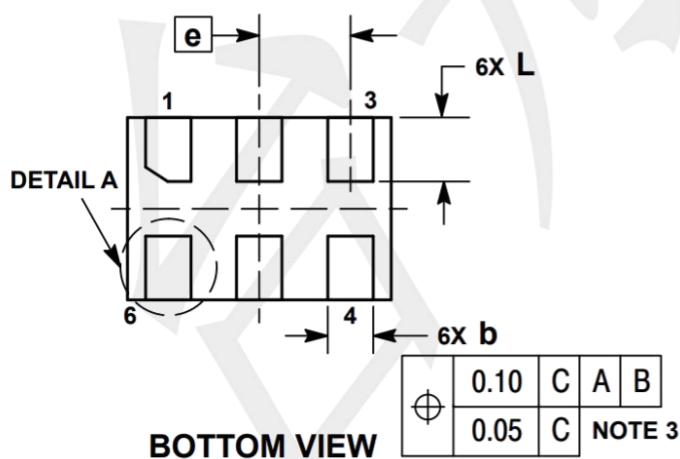
Package information

DFN1510-6 (unit: mm)



DIM	MILLIMETERS	
	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A2	0.07 REF	
b	0.20	0.30
D	1.45 BSC	
E	1.00 BSC	
e	0.50 BSC	
L	0.30	0.40
L1	---	0.15

Mounting Pad Layout (unit: mm)



MOUNTING FOOTPRINT

