

Features

- Wide Supply Voltage Range From 1.65V To 5.5V.
- Inputs Can Be Driven From Either 3.3V or 5V Devices.
- ± 24 -mA Output Drive at 3.3 V
- Low Power Dissipation: $P_{tot} = 300\text{mW}(\text{Max})$
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)

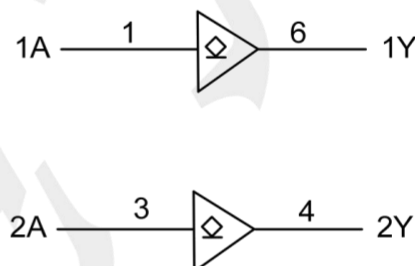
General Description

The TP74LVC2G07 provides two non-inverting buffers with open-drain output and can be connected to other open-drain outputs to implement active-LOW wired-OR or active-HIGH wired-AND functions. This device has power-down protective circuit to preventing device from destruction when it is powered down.

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

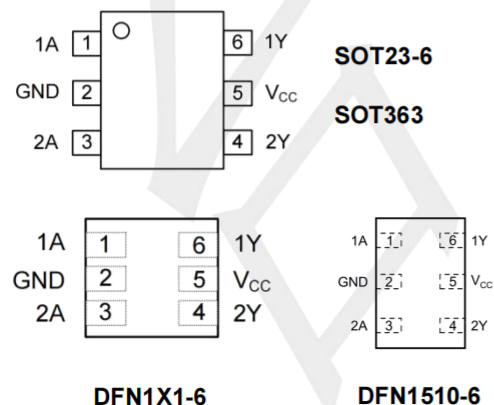
Logic Diagram



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	Marking
TP74LVC2G07S6	SOT23-6	Tape and Reel,3000	S207
TP74LVC2G07C6	SOT363	Tape and Reel,3000	C207
TP74LVC2G07D6	DFN1X1-6	Tape and Reel,5000	CV
TP74LVC2G07N6	DFN1510-6	Tape and Reel,5000	CV

Pin Configuratio



Function Table

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

Note:H: HIGH voltage level;L: LOW voltage level.

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	Active Mode	-0.5 ~ +6.5	V
		Power-Down Mode	-0.5 ~ +6.5	V
VCC or GND Current	ICC		±100	mA
Continuous Output Current	IOUT		±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}	SOT-23-6	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
Input Voltage	VIN		0	--	5.5	V
Output Voltage	VOUT	Active Mode	0	--	5.5	V
		VCC=0V; Power-Down Mode	0	--	5.5	V
Input Transition Rise or Fall rate	$\Delta t/\Delta v$	VCC=1.65V~2.7V	--	--	20	ns/V
		VCC=2.7V~5.5V	--	--	10	ns/V
Operating Temperature	TA		-40	--	+125	°C

Electrical Characteristics (unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	VCC=1.65V ~ 1.95V	$0.65 \times V_{CC}$	--	--	V
		VCC=2.3V ~ 2.7V	1.7	--	--	V
		VCC=3V ~ 3.6V	2	--	--	V
		VCC=4.5V ~ 5.5V	$0.7 \times V_{CC}$	--	--	V
Low-Level Input Voltage	V_{IL}	VCC=1.65V ~ 1.95V	--	--	$0.35 \times V_{CC}$	V
		VCC=2.3V ~ 2.7V	--	--	0.7	V
		VCC=3.0V ~ 3.6V	--	--	0.8	V
		VCC=4.5V ~ 5.5V	--	--	$0.35 \times V_{CC}$	V
Low-Level Output Voltage	V_{OL}	VCC=1.65 ~ 5.5V, IOL=100 μ A	--	--	0.1	V
		VCC=1.65V, IOL=4mA	--	--	0.45	V
		VCC=2.3V, IOL=8mA	--	--	0.3	V
		VCC=2.7V, IOH=12mA	--	--	0.4	V
		VCC=3.0V, IOH=24mA	--	--	0.55	V
		VCC=4.5V, IOH=32mA	--	--	0.55	V
Input Leakage Current	$I_{I(LEAK)}$	VCC=1.65V ~ 5.5V, VIN=5.5V or GND	--	± 0.1	± 5	μ A
Power OFF Leakage Current	I_{OFF}	VCC=0V, VIN or VOUT=5.5V	--	± 0.1	± 10	μ A
Quiescent Supply Current	I_Q	VCC=1.65 ~ 5.5V, VIN=VCC or GND, IOUT=0A	--	0.1	10	μ A
Additional Quiescent Supply Current Per Input Pin	ΔI_Q	VCC=2.3 ~ 5.5V, VIN=VCC-0.6V, IO=0A	--	5	500	μ A
OFF-state output current	I_{OZ}	VCC=5.5V, VIN=VIH or VIL, VOUT=VCC or GND	--	± 0.1	± 10	μ A

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

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Input Capacitance	C_I		--	2.5	--	pF
Power Dissipation Capacitance	C_{PD}	VCC=3.3V (Notes 1, 2)	--	6.5	--	pF

Notes: 1. C_{PD} is used to determine the dynamic power dissipation (P_D in μ W).

$P_D = C_{PD} \times V_{CC2} \times f_i \times N + \sum (C_L \times V_{CC2} \times f_o)$ where:

f_i = Input Frequency in MHz; f_o = Output Frequency in MHz; C_L = Output Load Capacitance in pF;

V_{CC} = Supply Voltage in Volts; N= Total Load Switching Outputs. $\sum (C_L \times V_{CC2} \times f_o)$ = Sum of Outputs.

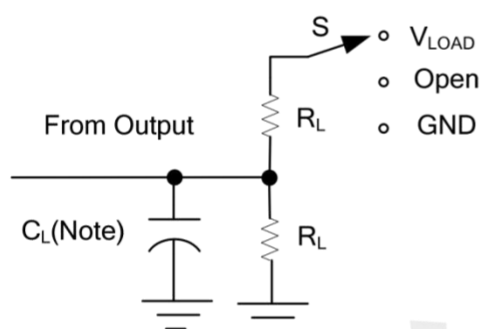
2. The Condition is $V_{IN} = GND$ to V_{CC} .

SWITCHING CHARACTERISTICS (T_{OPR}=−40°C to +85°C (Note))

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Propagation delay from input (nA) to output(nY)	t _{PLZ} / t _{PZL}	V _{CC} = 1.65V ~ 1.95V	1.0	3.5	6.7	nS
		V _{CC} = 2.3V ~ 2.7V	0.5	2.4	4.3	nS
		V _{CC} = 2.7V	1.0	2.3	4.3	nS
		V _{CC} = 3.0V ~ 3.6V	0.5	2.6	3.7	nS
		V _{CC} = 4.5V ~ 5.5V	0.5	1.5	2.9	nS

Note: All typical values are measured at T_{OPR} = 25°C and at V_{CC} = 1.8V, 2.5V, 2.7V, 3.3V and 5.0V respectively.

TEST CIRCUIT AND WAVEFORMS

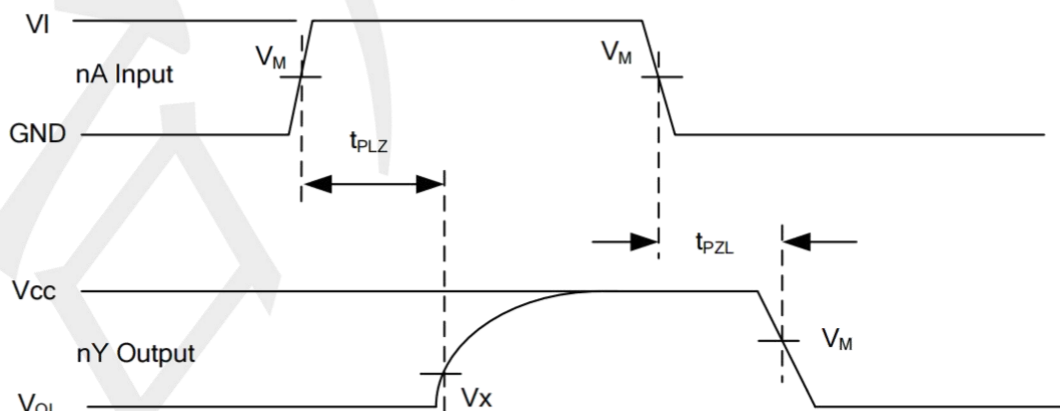


TEST	S
t _{PLH} /t _{PHL}	Open
t _{PHZ} /t _{PZH}	GND
t _{PLZ} /t _{PZL}	V _{LOAD}

Note: C_L includes probe and jig capacitance.

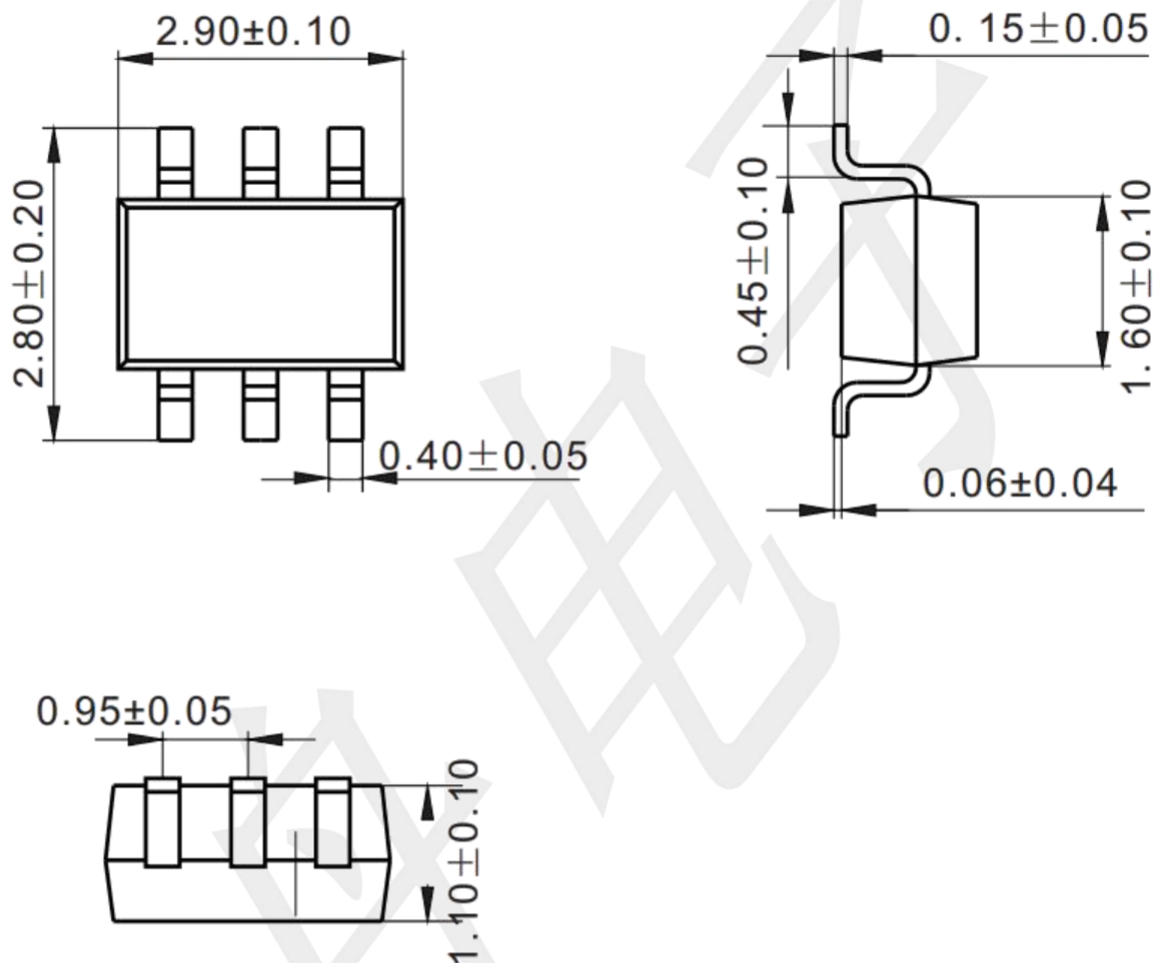
V _{CC}	V _{IN}	t _R / t _F	V _M	V _{LOAD}	C _L	R _L	V _X
1.8V±0.15V	V _{CC}	≤2ns	V _{CC} /2	2×V _{CC}	30pF	1KΩ	V _{OL} + 0.15V
2.5V±0.2V	V _{CC}	≤2ns	V _{CC} /2	2×V _{CC}	30pF	500Ω	V _{OL} + 0.15V
2.7V	2.7V	≤2.5ns	1.5V	6V	50pF	500Ω	V _{OL} + 0.3V
3.3V±0.3V	3 V	≤2.5ns	1.5V	6V	50pF	500Ω	V _{OL} + 0.3V
5V±0.5V	V _{CC}	≤2.5ns	V _{CC} /2	2×V _{CC}	50pF	500Ω	V _{OL} + 0.3V

Note: V_Δ = V_X - V_{OL}

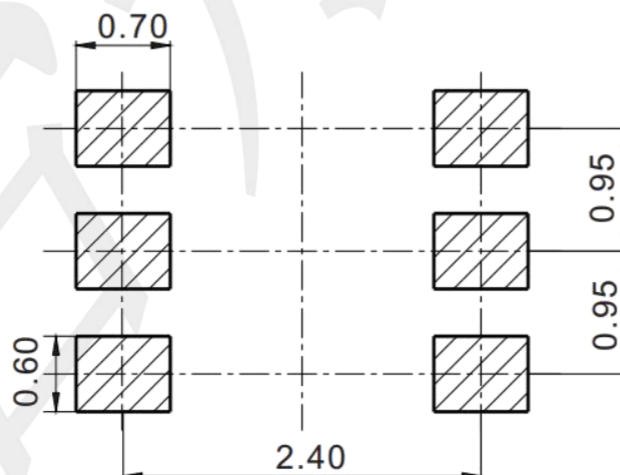


Package information

SOT23-6 (Unit: mm)

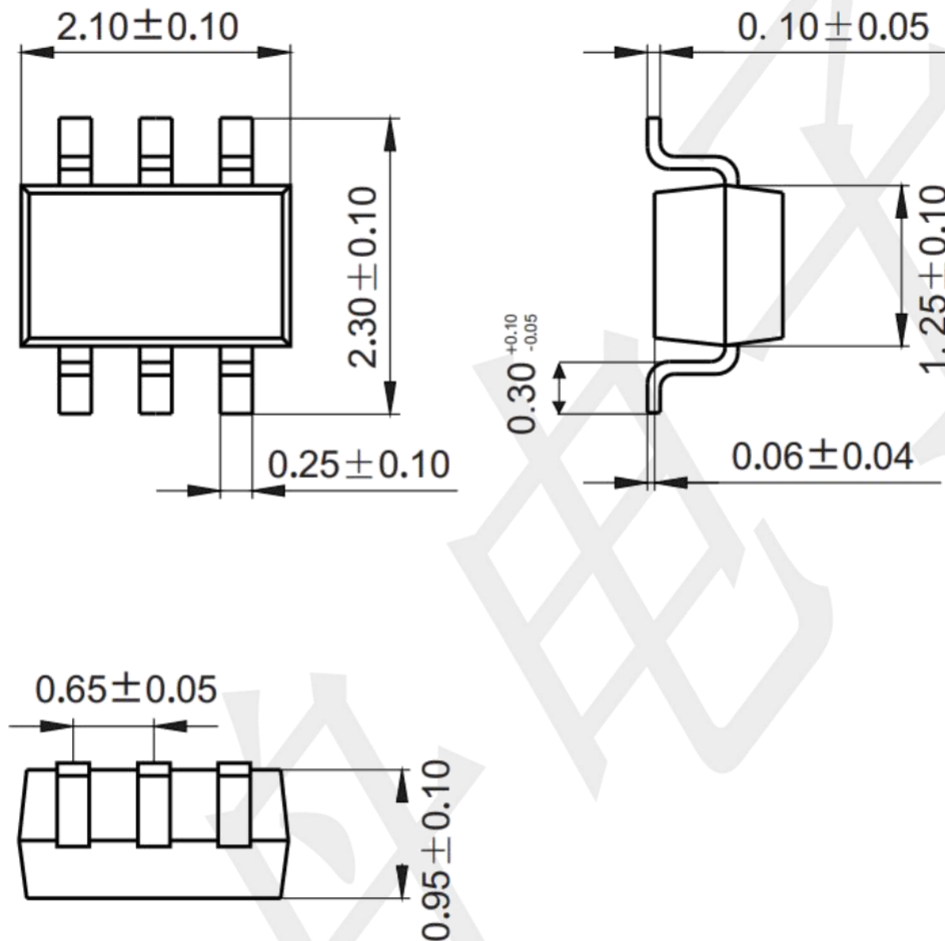


Mounting Pad Layout (unit: mm)

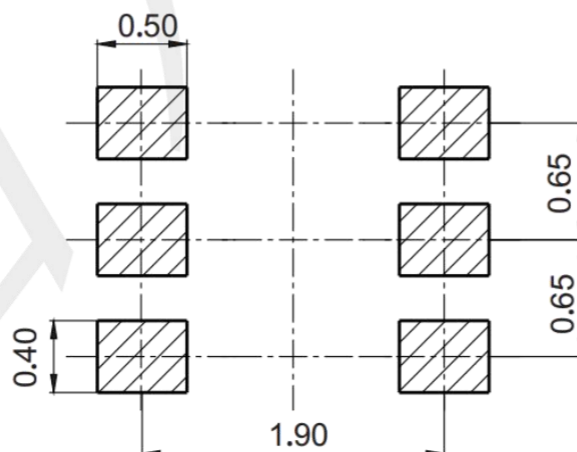


Package informantion

SOT363 (Unit: mm)

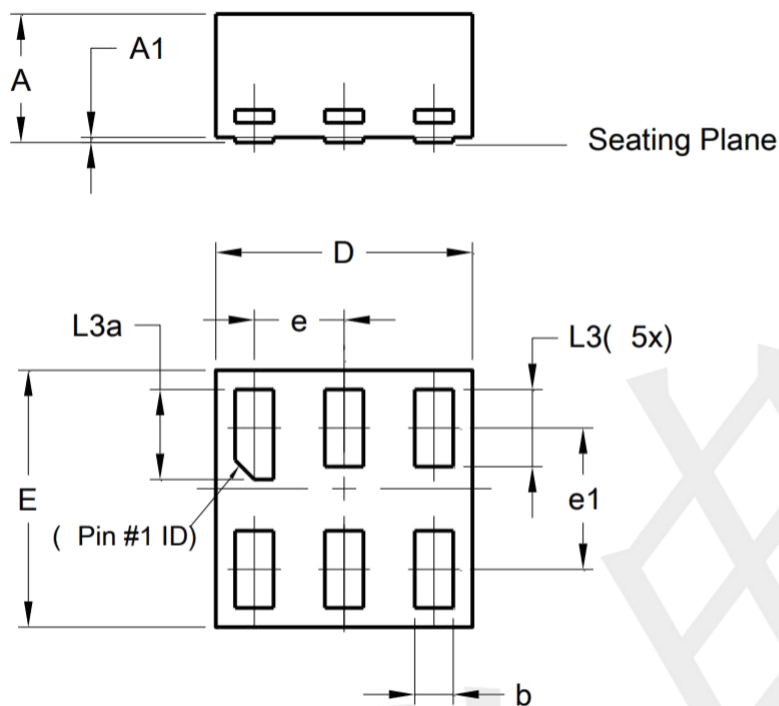


Mounting Pad Layout (unit: mm)



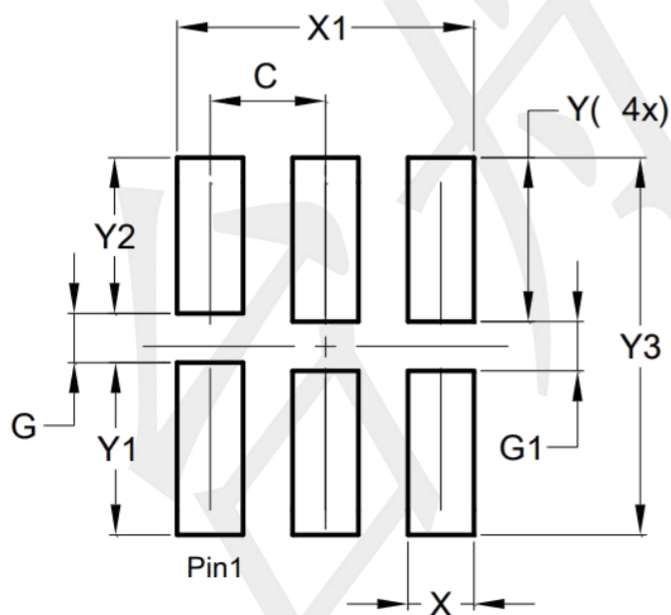
Package information

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			

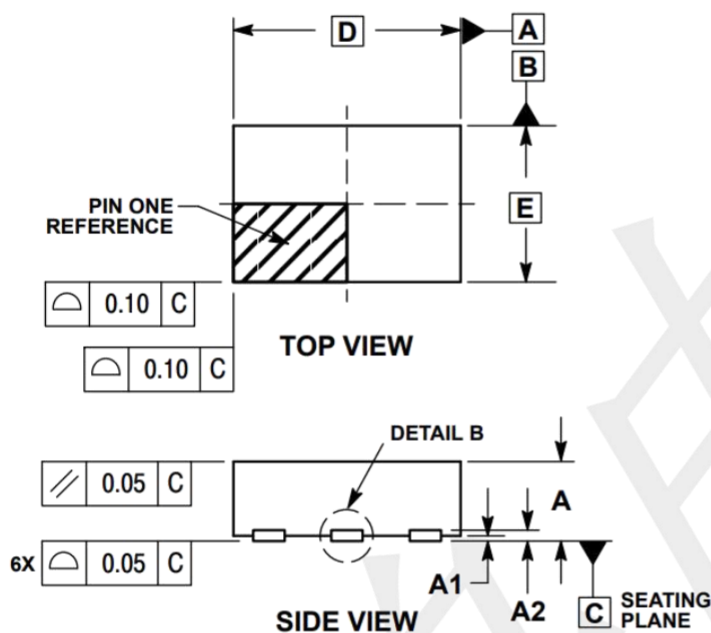
Mounting Pad Layout (unit: mm)



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

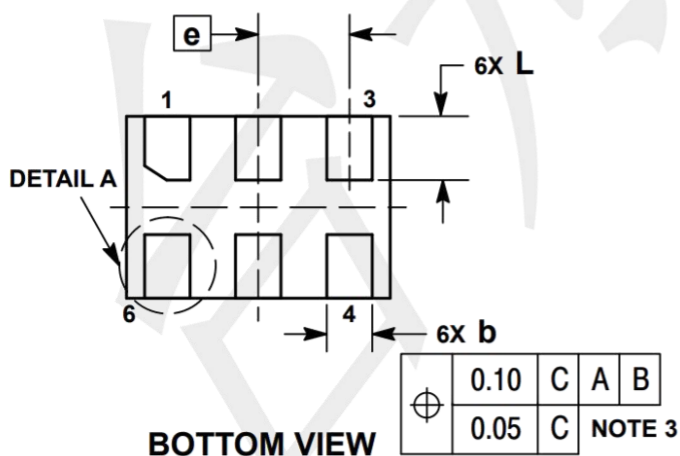
Package information

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

