

Features

- Wide Supply Voltage Range From 1.65V To 5.5V.
- Up to 5.5V inputs accept voltages
- $\pm 24\text{mA}$ Output Drive at 3.3 V
- Low power consumption, $I_{CC} = 10 \mu\text{A}$ (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)

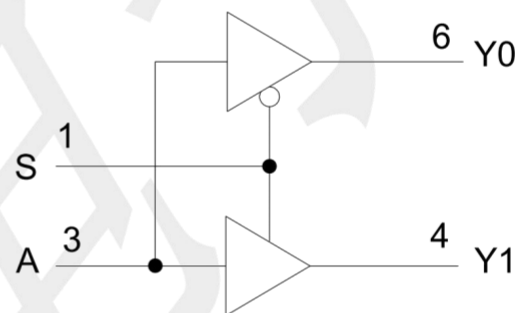
General Description

The TP74LVC1G18 is a 1-of-2 non-inverting demultiplexer with 3-state output. When the select input S is low data passes from A (input) to Y0 (output) and Y1 (output) is in the high-impedance state. When the select input S is high data passes from A (input) to Y1 (output) and Y0 (output) is in the high-impedance state.

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

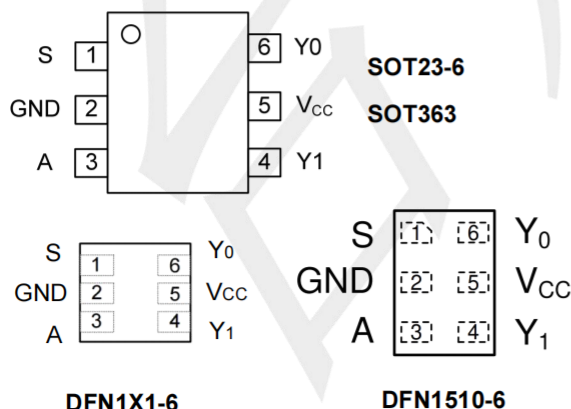
Logic Diagram



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
TP74LVC1G18S6	SOT23-6	Tape and Reel,3000
TP74LVC1G18C6	SOT363	Tape and Reel,3000
TP74LVC1G18D6	DFN1X1-6	Tape and Reel,5000
TP74LVC1G18N6	DFN1510-6	Tape and Reel,5000

Pin Configuratio



Function Table

INPUTS		OUTPUT	
S	A	Y ₀	Y ₁
L	L	L	Z
L	H	H	Z
H	L	Z	L
H	H	Z	H

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	Power-Down Mode	-0.5 ~ +6.5	V
		Low state	-0.5 ~ VCC+0.5	V
VCC or GND Current	ICC		±100	mA
Continuous Output Current	IOUT		±50	mA
Input Clamp Current	IIK		-50	mA
Output Clamp Current	IOK		-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: 1. 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.

2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

SWITCHING CHARACTERISTICS(unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input A to output Y	$t_{PLH} \ t_{PHL}$ (t_{pd})	VCC=1.8±0.15V, CL=15pF, RL=1MΩ	2.3	--	8.4	ns
		VCC=2.5±0.20V, CL=15pF, RL=1MΩ	1.1	--	4.2	ns
		VCC=3.3±0.30V, CL=15pF, RL=1MΩ	1.1	--	3.4	ns
		VCC=5.0±0.50V, CL=15pF, RL=1MΩ	0.8	--	2.7	ns
Propagation delay from input A to output Y	$t_{PLH} \ t_{PHL}$ (t_{pd})	VCC=1.8±0.15V, CL=30pF, RL=1KΩ	3.5	--	9.3	ns
		VCC=2.5±0.20V, CL=30pF, RL=500Ω	1.7	--	5	ns
		VCC=3.3±0.30V, CL=50pF, RL=500Ω	1.5	--	4.2	ns
		VCC=5.0±0.50V, CL=50pF, RL=500Ω	0.7	--	3.2	ns
Propagation delay from input S to output Y	$t_{PZL} \ t_{PZH}$ (t_{en})	VCC=1.8±0.15V, CL=30pF, RL=1KΩ	3.6	--	10.2	ns
		VCC=2.5±0.20V, CL=30pF, RL=500Ω	1.7	--	5.6	ns
		VCC=3.3±0.30V, CL=50pF, RL=500Ω	1.5	--	4.6	ns
		VCC=5.0±0.50V, CL=50pF, RL=500Ω	0.9	--	3.4	ns
Propagation delay from input S to output Y	$t_{PLZ} \ t_{PHZ}$ (t_{dis})	VCC=1.8±0.15V, CL=30pF, RL=1KΩ	1.9	--	12.7	ns
		VCC=2.5±0.20V, CL=30pF, RL=500Ω	--	1	5.3	ns
		VCC=3.3±0.30V, CL=50pF, RL=500Ω	1.1	--	4.9	ns
		VCC=5.0±0.50V, CL=50pF, RL=500Ω	0.5	--	3.3	ns

Recommended Operating Conditions(unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage		V _{CC}	Operating	1.65	--	5.5	V
			Data retention only	1.5	--	--	V
Input Voltage	High	V _{IH}	V _{CC} =1.65V~1.95V	0.65×V _{CC}	--	--	V
			V _{CC} =2.3V~2.7V	1.7	--	--	V
			V _{CC} =3V~3.6V	2	--	--	V
			V _{CC} =4.5V~5.5V	0.7×V _{CC}	--	--	V
	Low	V _{IL}	V _{CC} =1.65V~1.95V	--	--	0.35×V _{CC}	V
			V _{CC} =2.3V~2.7V	--	--	0.7	V
			V _{CC} =3V~3.6V	--	--	0.8	V
			V _{CC} =4.5V~5.5V	--	--	0.3×V _{CC}	V
Input Voltage		V _{IN}		0	--	5.5	V
Output Voltage		V _{OUT}	High or low state	0	--	V _{CC}	V
Output Current	High	I _{OH}	V _{CC} =1.65V	--	--	-4	mA
			V _{CC} =2.3V	--	--	-8	mA
			V _{CC} =3V	--	--	-16	mA
				--	--	-24	mA
			V _{CC} =4.5V	--	--	-32	mA
	Low	I _{OL}	V _{CC} =1.65V	--	--	4	mA
			V _{CC} =2.3V	--	--	8	mA
			V _{CC} =3V	--	--	16	mA
				--	--	24	mA
			V _{CC} =4.5V	--	--	32	mA
Input Transition Rise or Fall Rate		t/ v	V _{CC} =1.8±0.15V, 2.5±0.2V	--	--	20	ns/V
			V _{CC} =3.3±0.3V	--	--	10	ns/V
			V _{CC} =5.0±0.5V	--	--	5	ns/V
Operating Temperature		T _A		-40		+125	°C

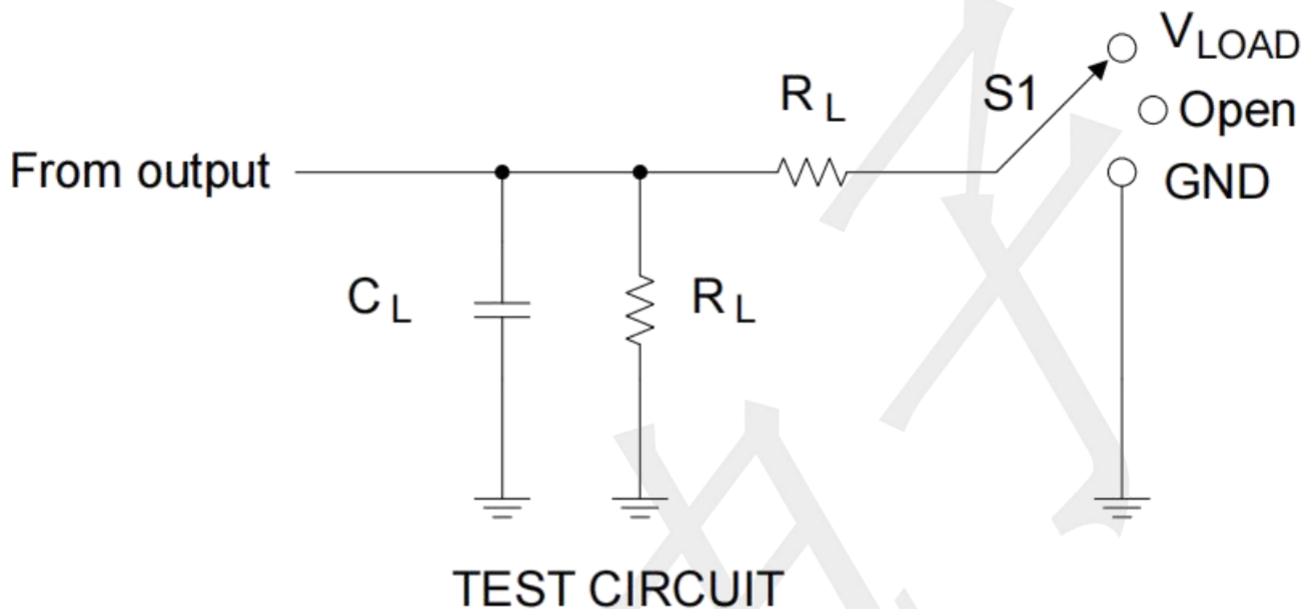
Electrical Characteristics (unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	High	V _{OH}	V _{CC} =1.65V ~ 5.5V, I _{OH} =-100μA	V _{CC} -0.1	--	--	V
			V _{CC} =1.65V, I _{OH} =-4mA	1.2	--	--	V
			V _{CC} =2.3V, I _{OH} =-8mA	1.9	--	--	V
			V _{CC} =3V, I _{OH} =-16mA	2.4	--	--	V
			V _{CC} =3V, I _{OH} =-24mA	2.3	--	--	V
			V _{CC} =4.5V, I _{OH} =-32mA	3.8	--	--	V
	Low	V _{OL}	V _{CC} =1.65V ~ 5.5V, I _{OL} =100μA	--	--	0.1	V
			V _{CC} =1.65V, I _{OL} =4mA	--	--	0.45	V
			V _{CC} =2.3V, I _{OL} =8mA	--	--	0.3	V
			V _{CC} =3V, I _{OL} =16mA	--	--	0.4	V
			V _{CC} =3V, I _{OL} =24mA	--	--	0.55	V
			V _{CC} =4.5V, I _{OL} =32mA	--	--	0.55	V
Input Leakage Current (A or S inputs)		I _{I(LEAK)}	V _{IN} = 5.5V or GND, V _{CC} = 0 ~ 5.5V	--	--	±5	μA
OFF-state Current		I _{OFF}	V _{IN} or V _O = 5.5V, V _{CC} = 0V	--	--	±10	μA
High-impedance state Current		I _{OZ}	V _O = 0 to 5.5V, V _{CC} = 3.6V	--	--	10	μA
Quiescent Supply Current		I _{CC}	V _{IN} = 5.5V or GND, I _{OUT} = 0, V _{CC} = 1.65V to 5.5V	--	--	10	μA
Additional quiescent Supply Current		Δ I _{CC}	One input at V _{CC} – 0.6V; other inputs at V _{CC} or GND; V _{CC} =3V ~ 5.5V	--	--	500	μA
Input Capacitance		C _{IN}	V _{IN} = V _{CC} or GND, V _{CC} =3.3V	--	4		pF
Output Capacitance		C _{OUT}	V _{OUT} = V _{CC} or GND, V _{CC} =3.3V	--	6		pF

OPERATING CHARACTERISTICS (f=10MHz, $T_A=25^\circ C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{pd}	$V_{CC} = 1.8V, f=10MHz$	--	17	--	pF
		$V_{CC} = 2.5V, f=10MHz$	--	17	--	pF
		$V_{CC} = 3.3V, f=10MHz$	--	18	--	pF
		$V_{CC} = 5.0V, f=10MHz$	--	21	--	pF

TEST CIRCUIT AND WAVEFORMS

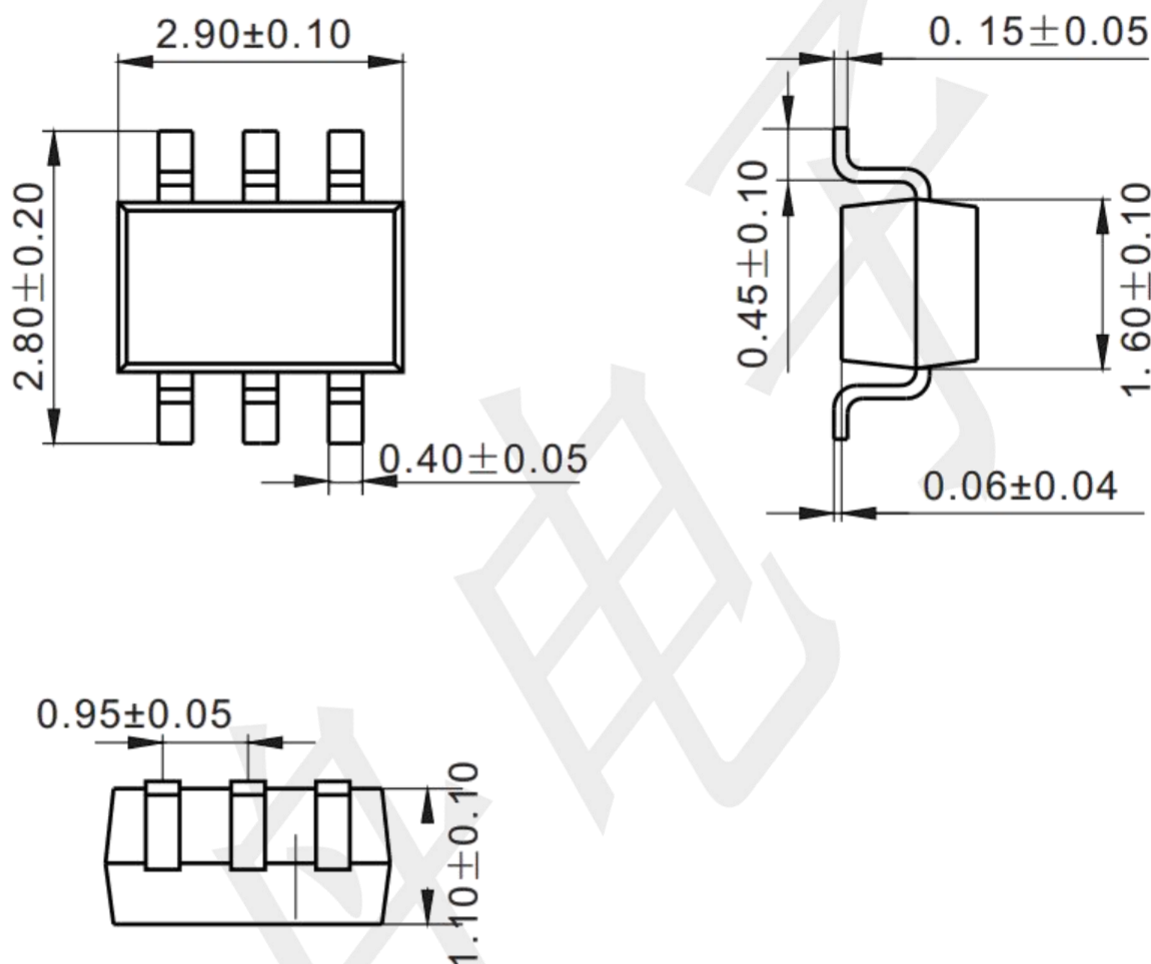


TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	V_{LOAD}
t_{PHZ}/t_{PZH}	GND

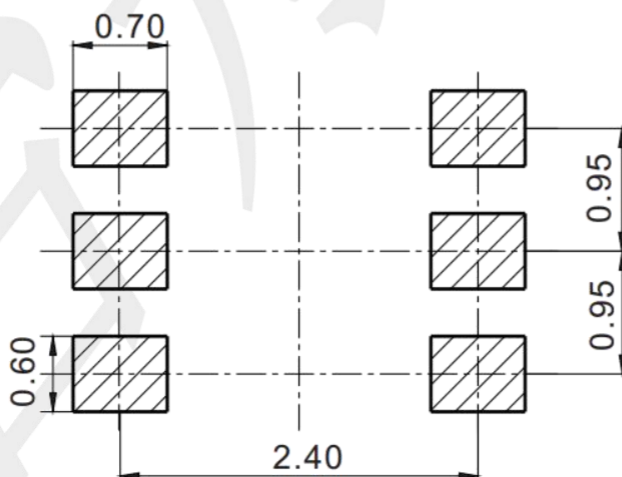
V_{CC}	Inputs		V_M	V_{LOAD}	C_L	R_L	V_{Δ}
	V_{IN}	t_r, t_f					
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	$2 \times V_{CC}$	15pF	1MΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	$2 \times V_{CC}$	15pF	1MΩ	0.15V
3.3V±0.3V	3V	≤2.5ns	1.5V	6V	15pF	1MΩ	0.3V
5V±0.5V	V_{CC}	≤2.5ns	$V_{CC}/2$	$2 \times V_{CC}$	15pF	1MΩ	0.3V
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	$2 \times V_{CC}$	30pF	1KΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	$2 \times V_{CC}$	30pF	500Ω	0.15V
3.3V±0.3V	3V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
5V±0.5V	V_{CC}	≤2.5ns	$V_{CC}/2$	$2 \times V_{CC}$	50pF	500Ω	0.3V

Package information

SOT23-6 (Unit: mm)

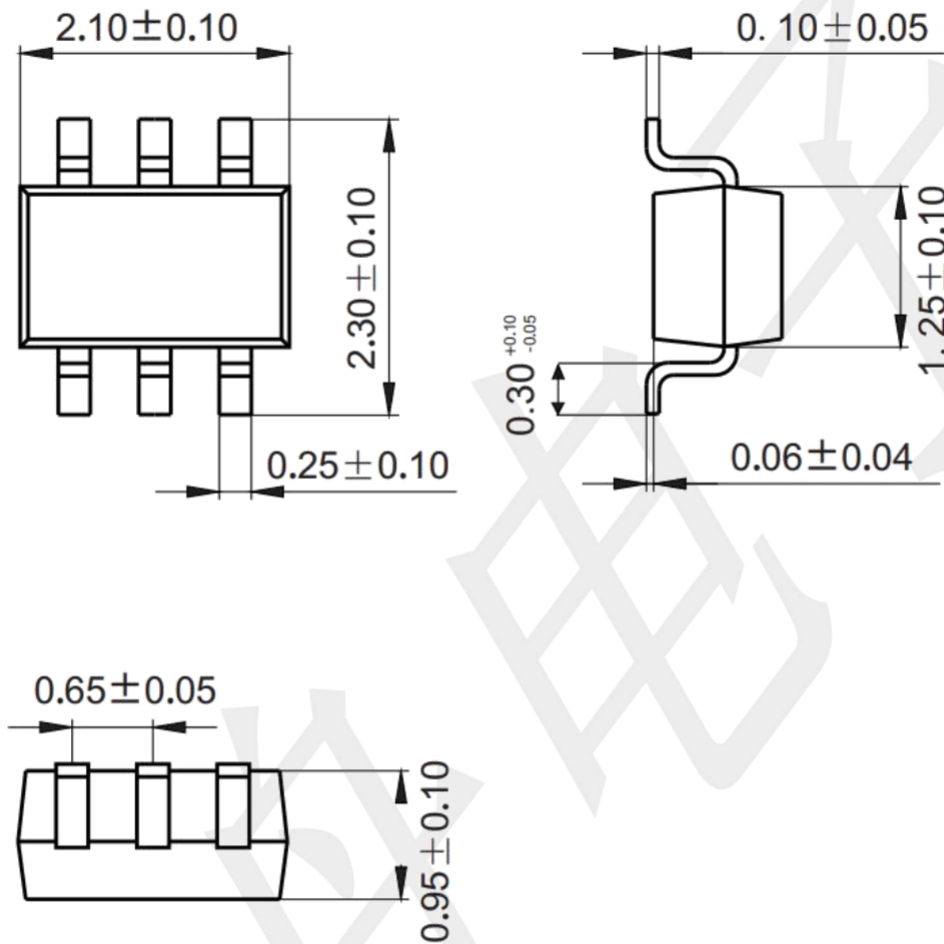


Mounting Pad Layout (unit: mm)

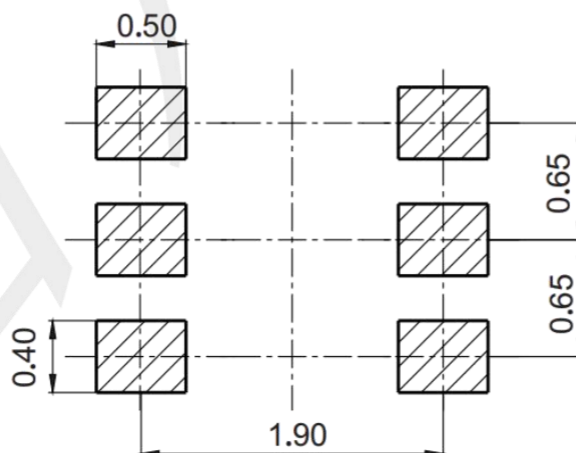


Package information

SOT363 (Unit: mm)

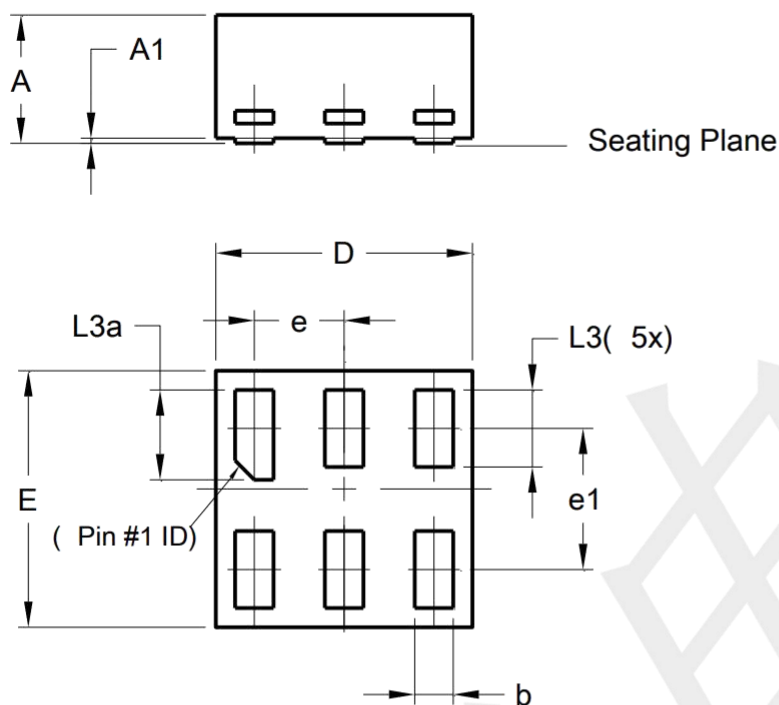


Mounting Pad Layout (unit: mm)



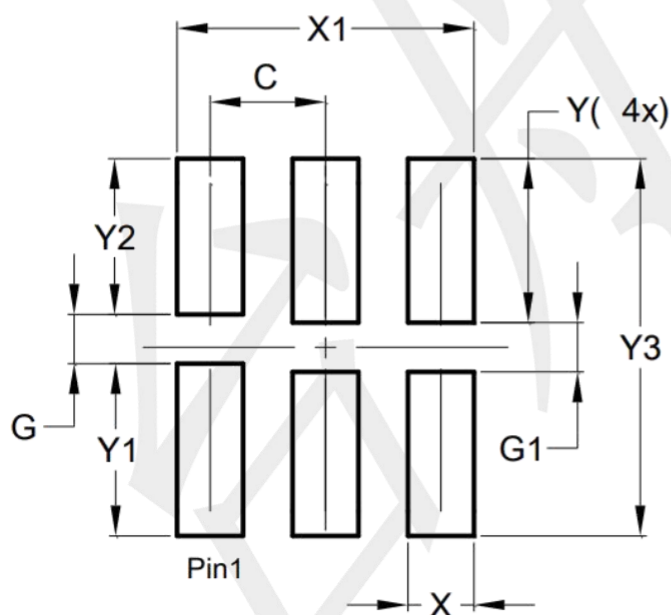
Package information

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			

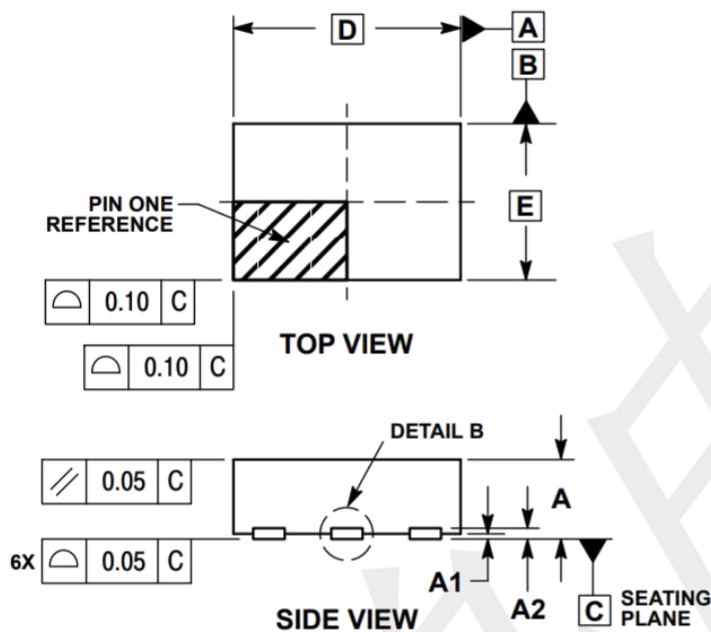
Mounting Pad Layout (unit: mm)



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

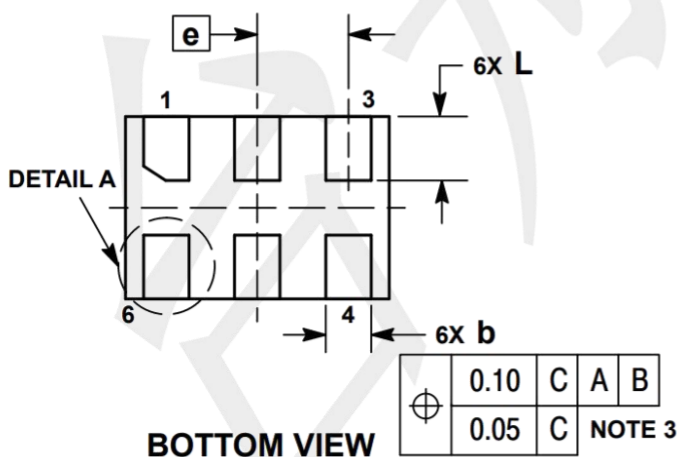
Package information

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

