DESCRIPTION

The JX75XX low quiescent current regulator features low dropout voltage and low current in the standby mode. With less than 5.0uA quiescent current at no load, the JX75XX is ideally suited for standby micro-control-unit systems, especially for always-on applications like E-meters, fire alarms, smoke detectors and other battery operated systems. The JX75XX retains all of the features that are common to low dropout regulators including a low dropout PMOS pass device, short circuit protection, and thermal shutdown.

The JX75XX has a 30V maximum operating voltage limit, a -40°C to 125°C operating temperature range, and ±2% output voltage tolerance over the entire output current, input voltage, and temperature range. The JX75XX is available in a SOT89-3 through-hole and SOT23-5, SOT23-3 surface mount packages.

FEATURES

- ✧ V_{IN} Range up to 30V
- ✧ Output Voltage Tolerances of ±2% Over the Temperature Range
- ✧ Output Current of 150mA
- ✧ Low Quiescent Current ： 3.3μA @ 3.3V Output
- ✧ Low Dropout Voltage ： 550mV @ 3.3V / 100 mA
- ✧ Internal Thermal Overload Protection
- ✧ Internal Short-Circuit Current Limit
- ✧ Over temperature protection
- ✧ Ceramic Capacitor Stable

APPLICATIONS

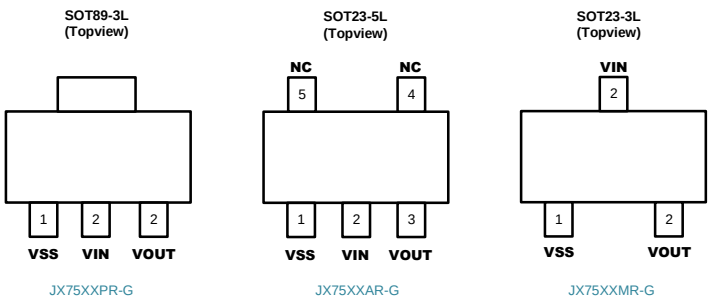
- ✧ E-meters, Water Meters and Gas Meters
- ✧ Fire Alarm, Smoke Detector
- ✧ Appliances and White Goods
- ✧ Battery-powered equipment
- ✧ Audio/Video equipment

ORDER INFORMATION

JX75①②③④-⑤

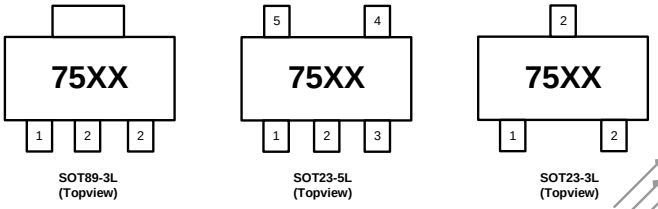
DESIGNATOR	ITEM	SYMBOL	DESCRIPTION
①②	Output Voltage	18~60	e.g. V_{OUT}: 3.0V→①=3, ②=0
③	Packages	P	SOT89-3L(1,000/Reel)
		A	SOT23-5L(3,000/Reel)
		M	SOT23-3L(3,000/Reel)
④	Embossed Tape	R	standard Feed
		L	reverse Feed
⑤	Environmental Standard	G	RoHs/Pb Free

PIN CONFIGURATION/ DESCRIPTION



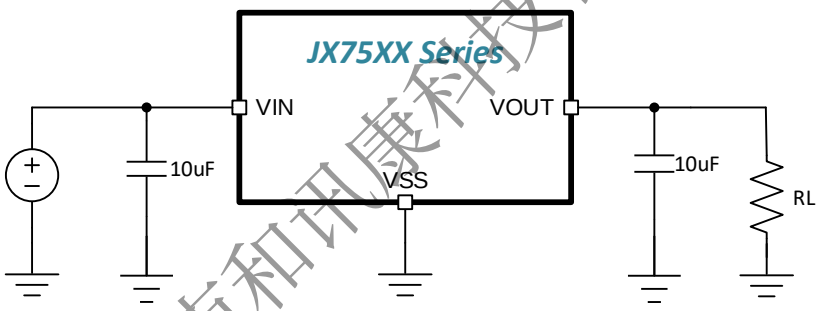
PIN NUMBER			PIN NAME	FUNCTIONS
SOT89-3L	SOT23-5L	SOT23-3L		
1	1	1	VSS	Ground
2	2	3	VIN	Power Input
3	3	2	VOUT	Output
—	4、5	—	NC	No Connection

MARKING RULE

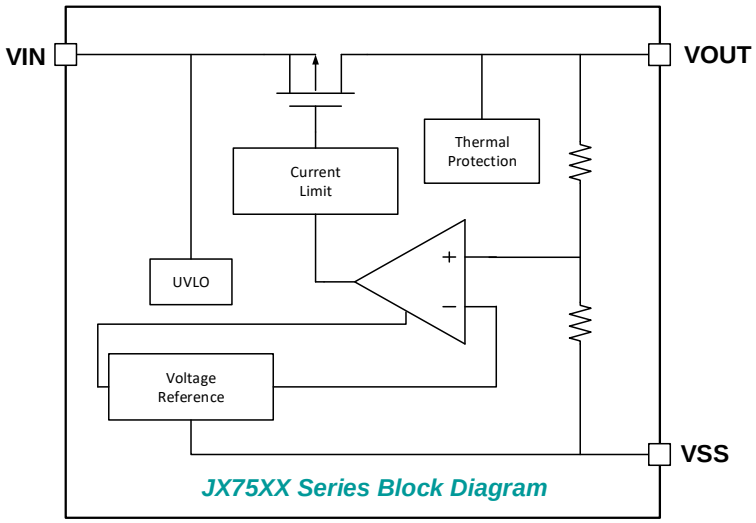


Note: "xx" stands for output voltages， 33=3.3V Output Voltage

TYPICAL APPLICATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periodsmay affect device reliability.)

PARAMETER		SYMBOL	MAXIMUM RATING	UNIT
Input Voltage to VSS		V_{IN}	33	V
Output Current to VSS		I_{OUT}	150	mA
Power Dissipation	SOT-89-3L	P_d	700	mW
	SOT23-5L		500	
	SOT23-3L		350	
Operating Temperature Range		T_{opr}	-40~+85	℃
Storage Temperature Range		T_{stg}	-55~+125	℃
ESD Susceptibility		HBM	2K	V
		MM	200	V

ELECTRICAL CHARACTERISTICS

(V_{IN} =7V, C_{IN}=C_{OUT}=10μF, T_A=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Voltage Operation Range	V_{IN}		3		30	V
Output Voltage Range	V_{OUT}		1.8		5	V
Output Voltage Accuracy	$\triangle V_{OUT}$	VIN=VOUT+1V	-2		2	%
Dropout Voltage	V_{DROP}	V_{OUT} =3.3V，I_{OUT} = 100mA		550		mV
		V_{OUT} =3.3V，I_{OUT} = 150mA		820		
Quiescent Current	I_Q	T_J = 25℃		3.3	5.0	μA
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN} = V_{OUT} + 2V to 30V I_{OUT} = 10mA			0.2	%/V
Load Regulation	$\triangle V_{LOAD}$	I_{OUT} = 0mA to 150mA V_{IN}=V_{OUT} +2V			33	mV
Current Limit	I_{CL}	VIN=VOUT+4V		150		mA
Short current	I_{SH}	VIN=VOUT+4V		75		mA
Power-supply rejection ratio	PSRR	f = 1kHz		42		dB
		f = 100kHz		35		dB
Over temp protect	T_{OCP}			150		℃
	THD			30		℃

TYPICAL CHARACTERISTICS

(V_{IN} =V_{OUT}+2V , I_{OUT}=1mA , V_{OUT}=3.3V , C_{IN}=C_{OUT}=2.2μF, T_A=25℃ unless otherwise specified)

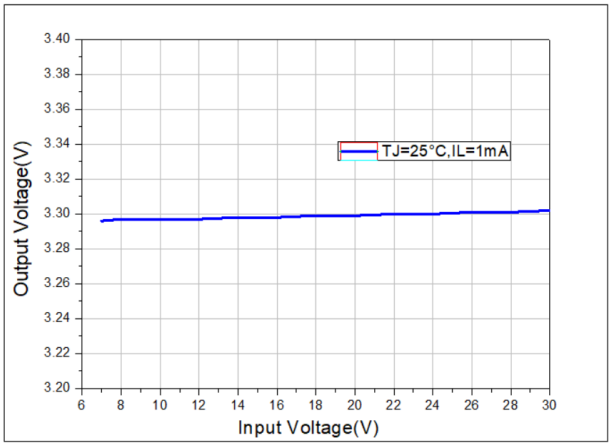


Fig 1 V_{OUT} VS V_{IN}

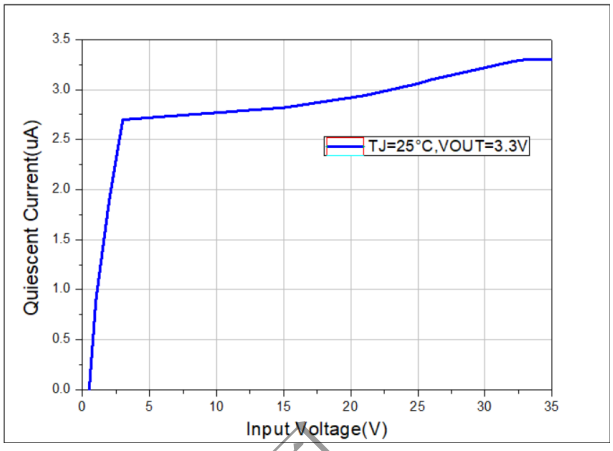


Fig 2 I_Q VS V_{IN}

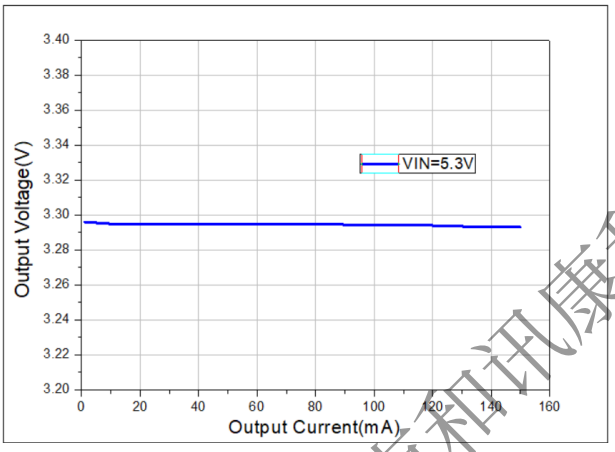


Fig 3 V_{OUT} VS I_{OUT}

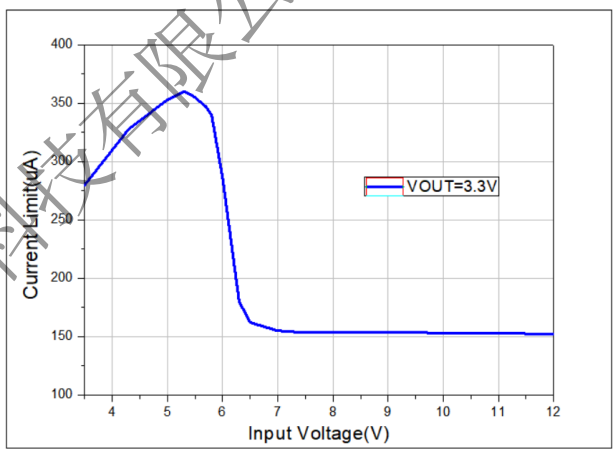


Fig 4 I_{limit} VS V_{IN}

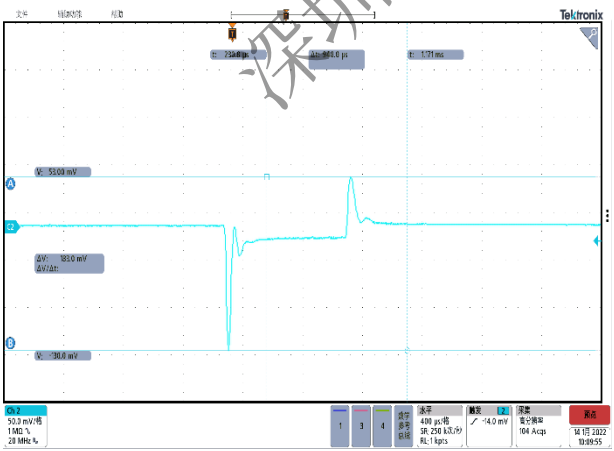


Fig 5 Load Transient

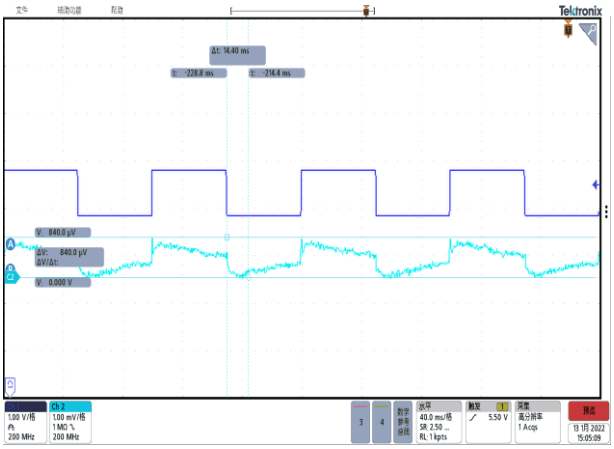


Fig 6 Input Transient

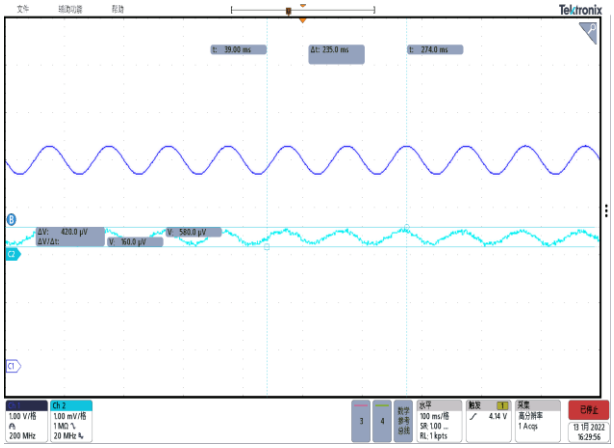


Fig 7 PSRR=61.5dB(f=10Hz)

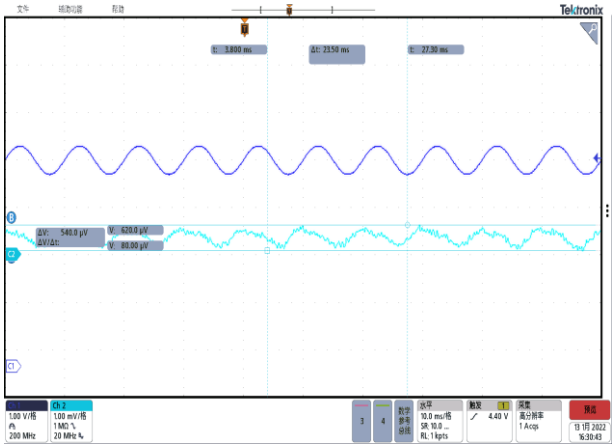


Fig 8 PSRR=59.3dB(f=100Hz)

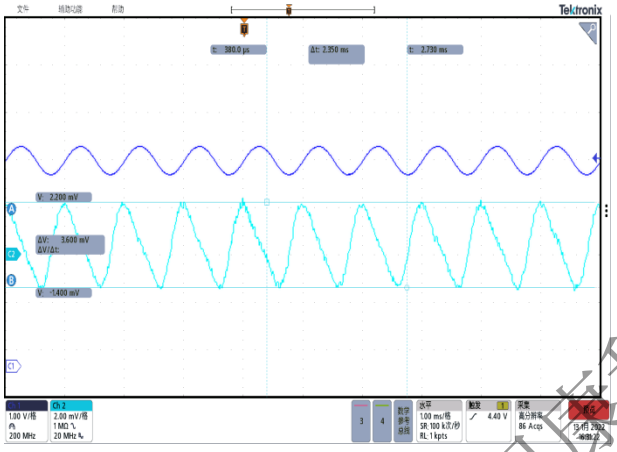


Fig 9 PSRR=42.8dB(f=1KHz)

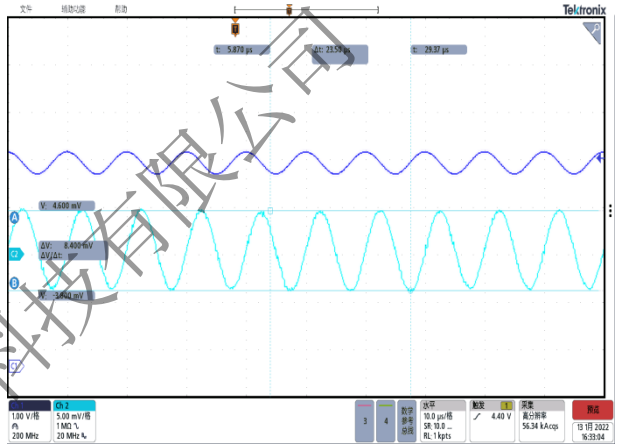


Fig 10 PSRR=35.5dB(f=100KHz)

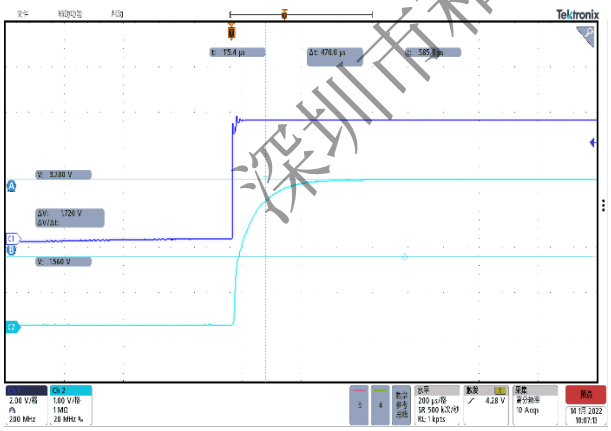
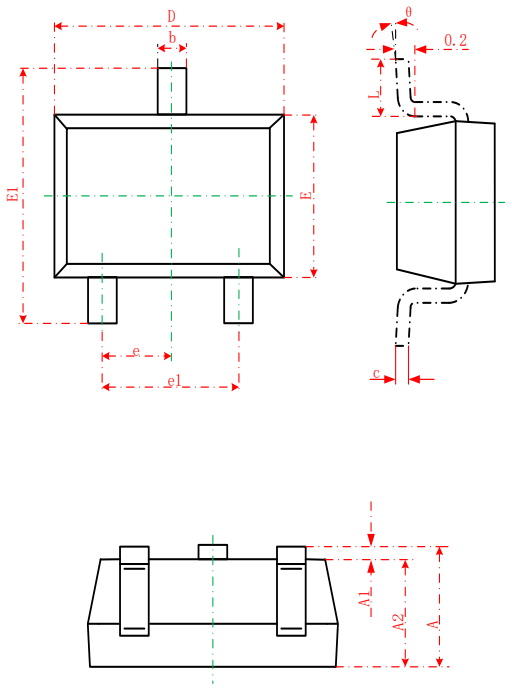


Fig 11 Output overshoot

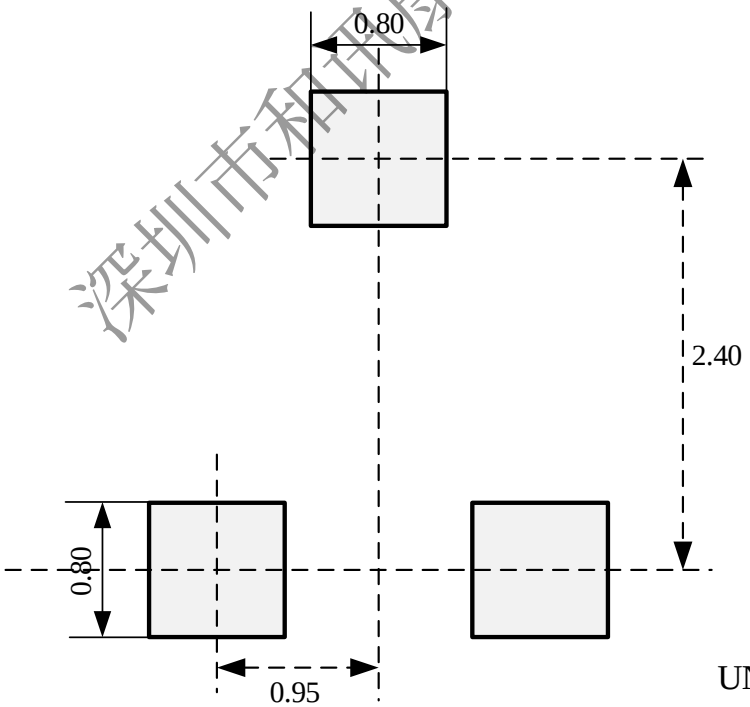
PACKAGE INFORMATION

- **SOT23-3L**



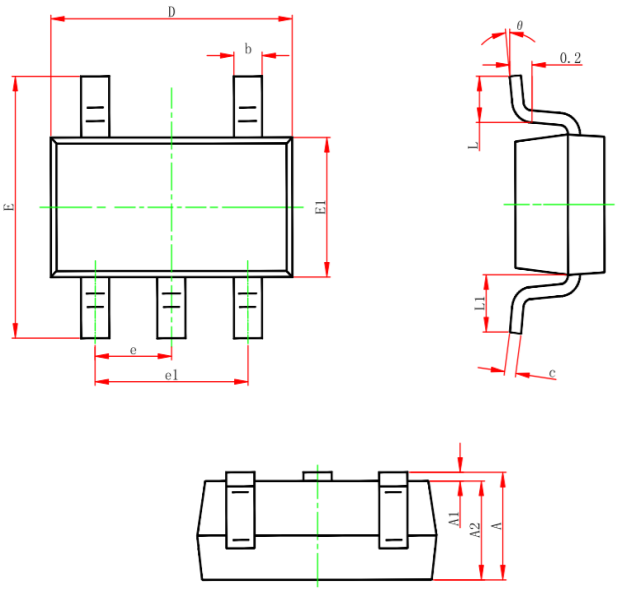
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

RECOMMENDED MINIMUM PADS FOR SOT23-3L（Unit：mm）



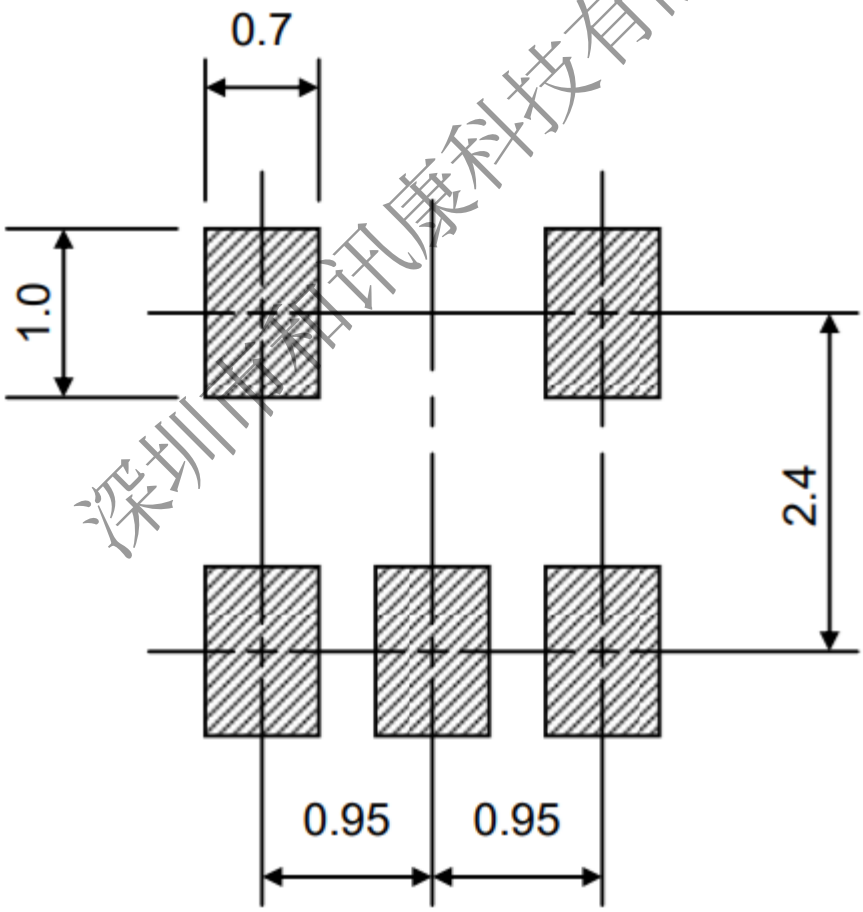
UNIT：mm

- **SOT23-5L**

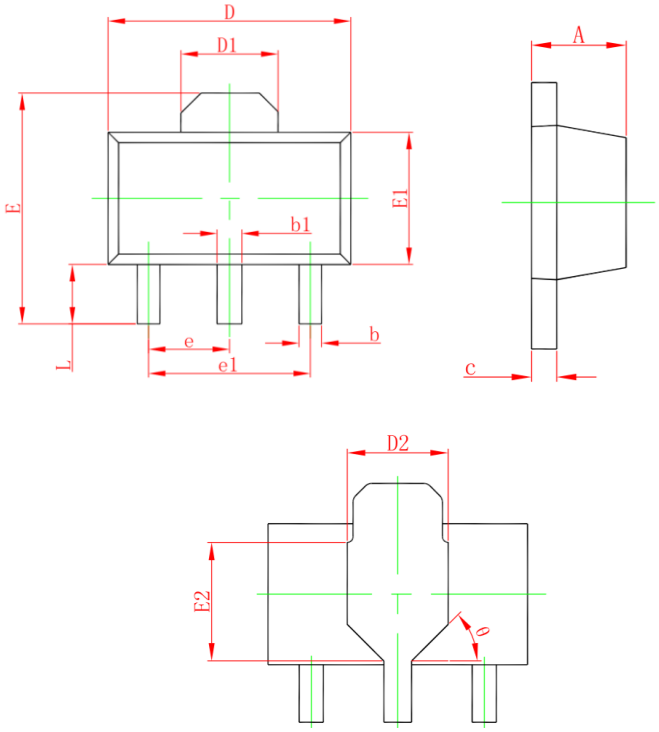


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF.		0.024REF.	
θ	0°	8°	0°	8°

RECOMMENDED MINIMUM PADS FOR SOT23-5L（Unit：mm）



- **SOT89-3L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061REF.	
D2	1.750REF.		0.069REF.	
E	3.940	4.250	0.155	0.167
E1	2.300	2.600	0.091	0.102
E2	1.900 REF.		0.075REF.	
e	1.500 TYP.		0.060 TYP.	
e1	3.000TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047
θ	45°		45°	

RECOMMENDED MINIMUM PADS FOR SOT89-3L（Unit：mm）