



DESCRIPTION

The A6303F is available in SOT-25, SOT-23, SOT-25, DFN4 and SOT89-3 packages.

ORDERING INFORMATION

Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	A6303FE3R-XXA
		A6303FE3VR-XXA
		A6303FE3R-XXB
		A6303FE3VR-XXB
SOT-25 SPQ: 3,000pcs/Reel	E5	A6303FE5R-XX
		A6303FE5VR-XX
DFN4 (1x1) SPQ: 10,000pcs/Reel	J4	A6303J4R-XX
		A6303J4VR-XX
SOT89-3 SPQ: 1,000pcs/Reel	K3	A6303FK3R-XXA
		A6303FK3VR-XXA
		A6303FK3R-XXC
		A6303FK3VR-XXC

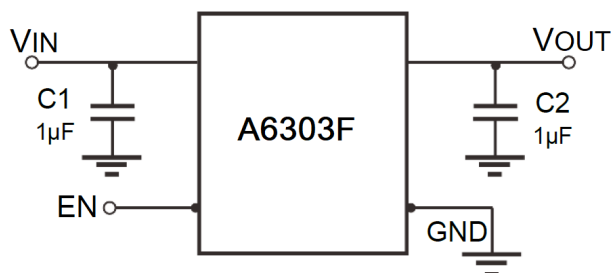
FEATURES

- $\pm 2\%$ output voltage tolerance over temperature
- Input voltage up to 5.5V
- Ultra-low quiescent current 0.5uA
- 500mV @ 300mA
- Built-in Thermal Protection
- Built-in Overcurrent Protection

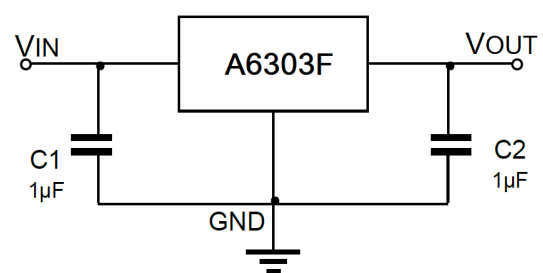
APPLICATION

- Portable battery powered devices
- IoT: wearable watches, body fat scales, etc.
- Cameras, Dash Cams
- POS, Power banks
- Electricity & Gas on Smart meters
- Sensors & Security devices.

TYPICAL APPLICATION



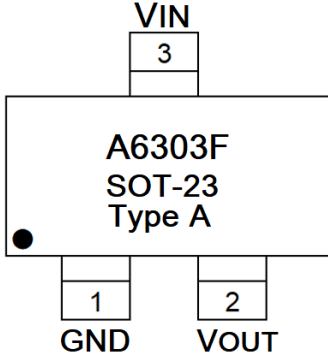
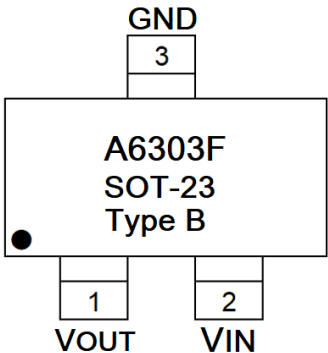
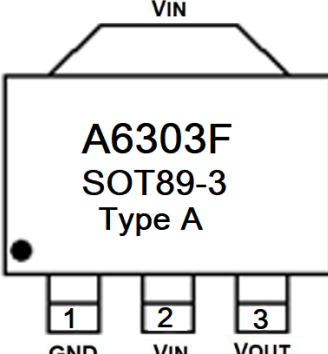
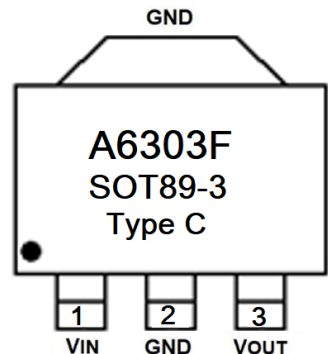
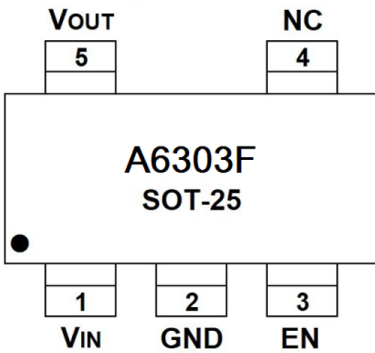
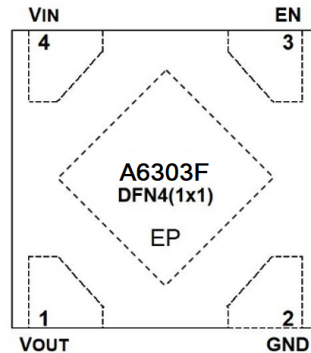
SOT-25 & DFN4



SOT89 & SOT-23



PIN DESCRIPTION

 A6303F SOT-23 Type A SOT-23, Type A, E3-A	 A6303F SOT-23 Type B SOT-23, Type B, E3-B
 A6303F SOT89-3 Type A SOT89-3, K3-A	 A6303F SOT89-3 Type C SOT89-3, K3-C
 A6303F SOT-25 SOT-25, E5	 A6303F DFN4(1x1) EP DFN4(1x1), J4

SOT-23		SOT-25	DFN4 (1x1)	SOT89-3		Symbol	Function
A	B			A	C		
3	2	1	4	2	1	V _{IN}	Input Voltage
1	3	2	2	1	2	GND	Ground
		3	3			EN	Enable Pin
		4				NC	No Connected
2	1	5	1	3	3	V _{OUT}	Output Voltage



ABSOLUTE MAXIMUM RATINGS

V_{IN} , Input Voltage	-0.3~+6.5V
Lead Temperature (Soldering, 10 sec.)	300°C
T_{stg} , Storage Temperature	-65~+150°C
T_j , Junction Temperature	125°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Recommended Operating Conditions

V_{IN} , Input Voltage	2.5~5.5V
T_j , Junction Temperature	-40~+125°C

ELECTRICAL CHARACTERISTICS

$V_{IN} = V_{OUT} + 1V$, $I_{OUT} = 1mA$, $C_{IN} = C_{OUT} = 1\mu F$, $T_J = 25^\circ C$, unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy	V_{OUT}	-	-2%	-	2%	V
Line Regulation	ΔV_{LINE}	$V_{IN} = V_{OUT} + 1V \sim 5.5V$	-	20	50	mV
Load Regulation	ΔV_{LOAD}	$I_{OUT} = 1mA \sim 300mA$	-	1.5	-	%
Dropout Voltage	V_{DROP}	$I_{OUT} = 100mA$, $V_{OUT} = 3.3V$	-	150	-	mV
		$I_{OUT} = 300mA$, $V_{OUT} = 3.3V$	-	500	-	
		$I_{OUT} = 100mA$, $V_{OUT} = 1.8V$	-	180	-	
		$I_{OUT} = 300mA$, $V_{OUT} = 1.8V$	-	600	-	
Quiescent Current	I_Q	-	-	0.5	1	μA
Current Limit	I_{CL}	-	360	560	-	mA
Enable high level	V_{ENHI}	-	0.6	-	-	V
Enable low level	V_{ENLO}	-	-	-	0.2	V
Power-supply rejection ratio	PSRR	$f = 1KHz$	-	45	-	dB
Thermal Shutdown	T_{SD}	-	-	150	-	$^\circ C$
Thermal Shutdown Hy	T_{SDHY}	-	-	20	-	$^\circ C$



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. I_Q vs V_{IN} ($I_{OUT} = 0mA$)

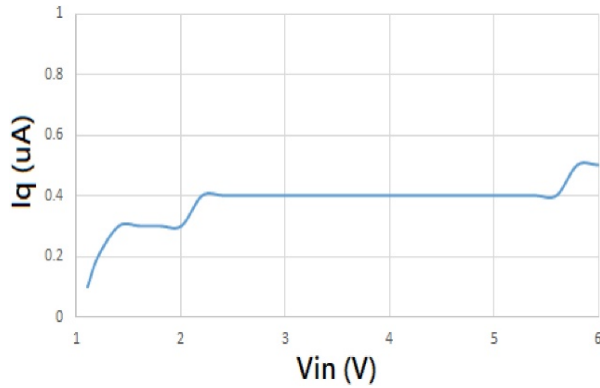


Fig 2. V_{OUT} vs V_{IN} ($I_{OUT} = 1mA$)

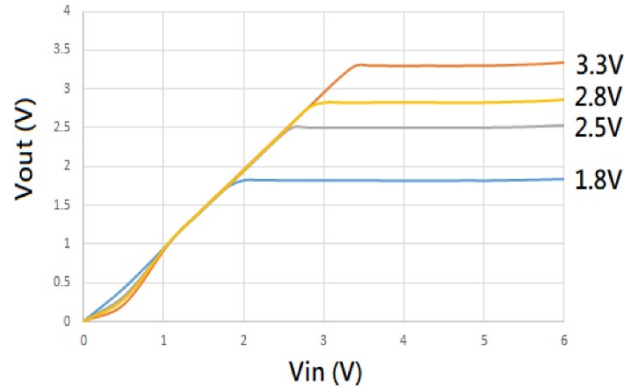


Fig 3. V_{OUT} vs Temperature ($I_{OUT} = 1mA$)

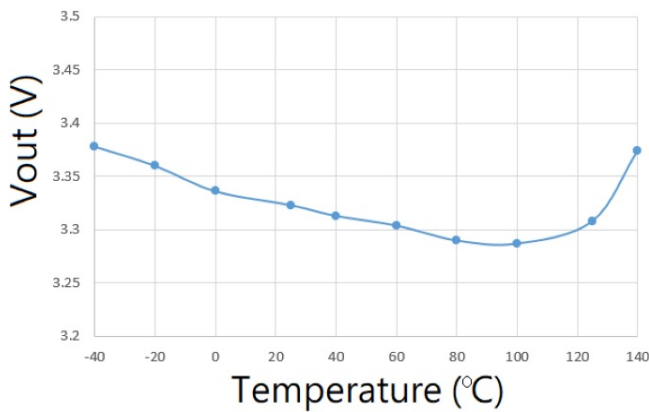


Fig 4. PSRR vs Frequency ($V_{IN}=3.8V$, $V_{OUT}=1.8V$, $I_{OUT}=100mA$)

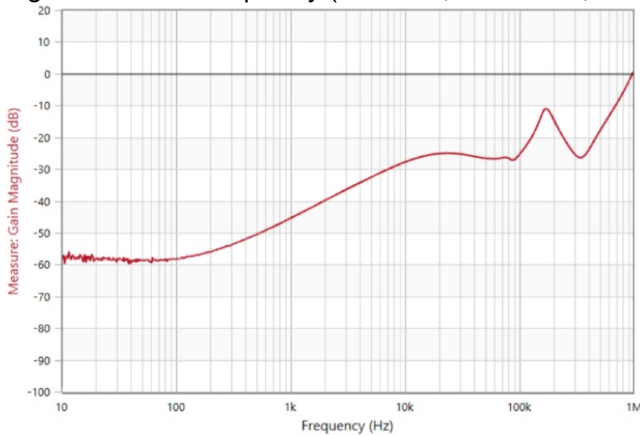




Fig 5. V_{DROP} vs Load

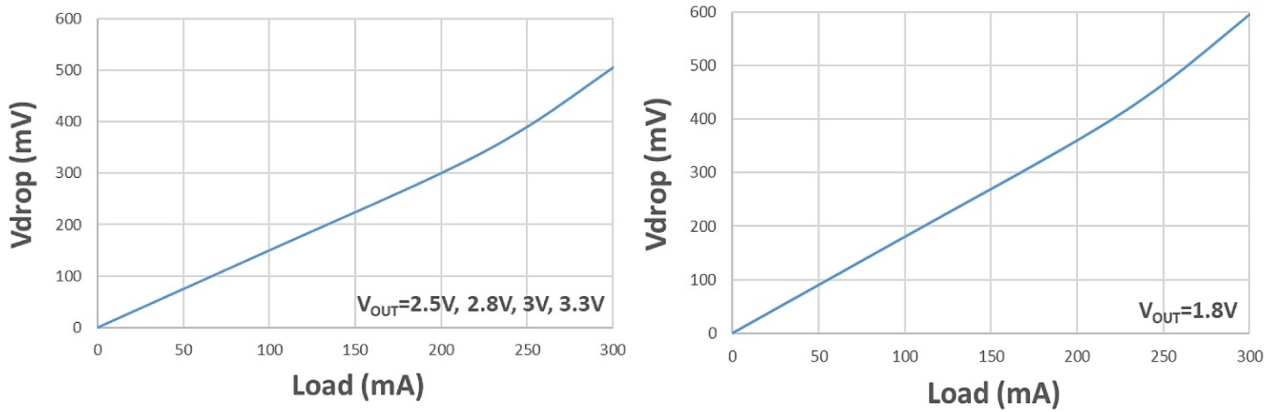
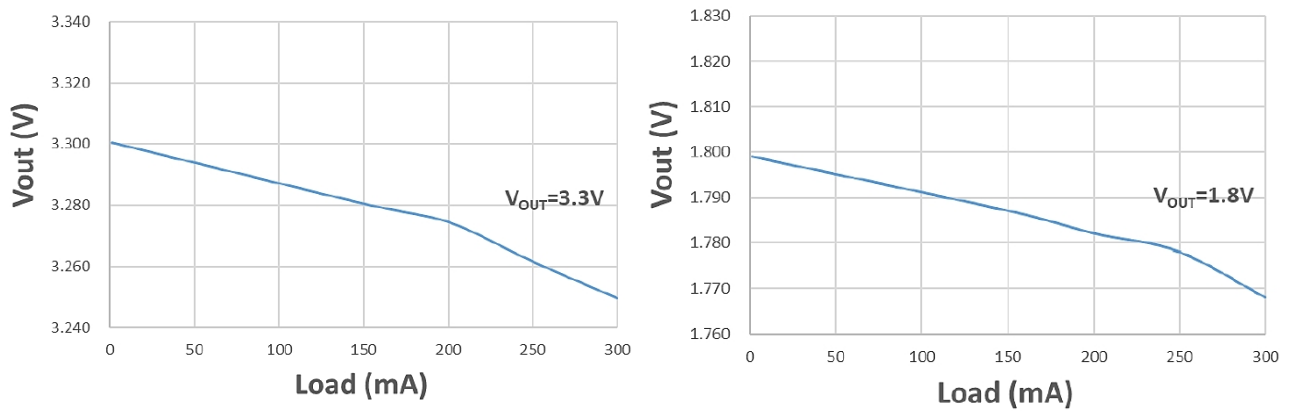
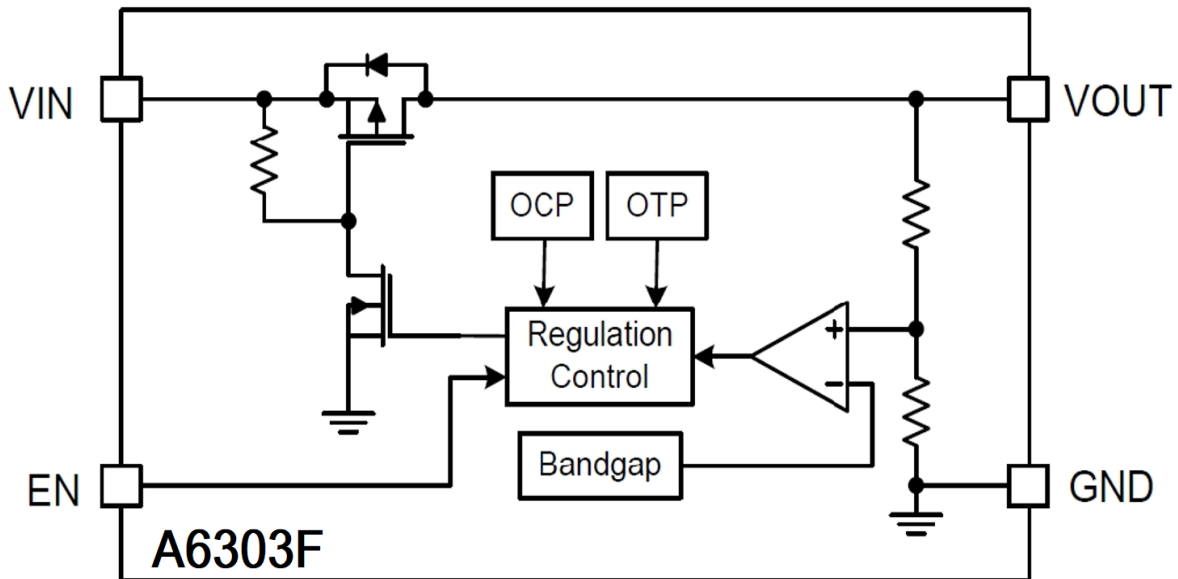


Fig 6. V_{OUT} vs Load





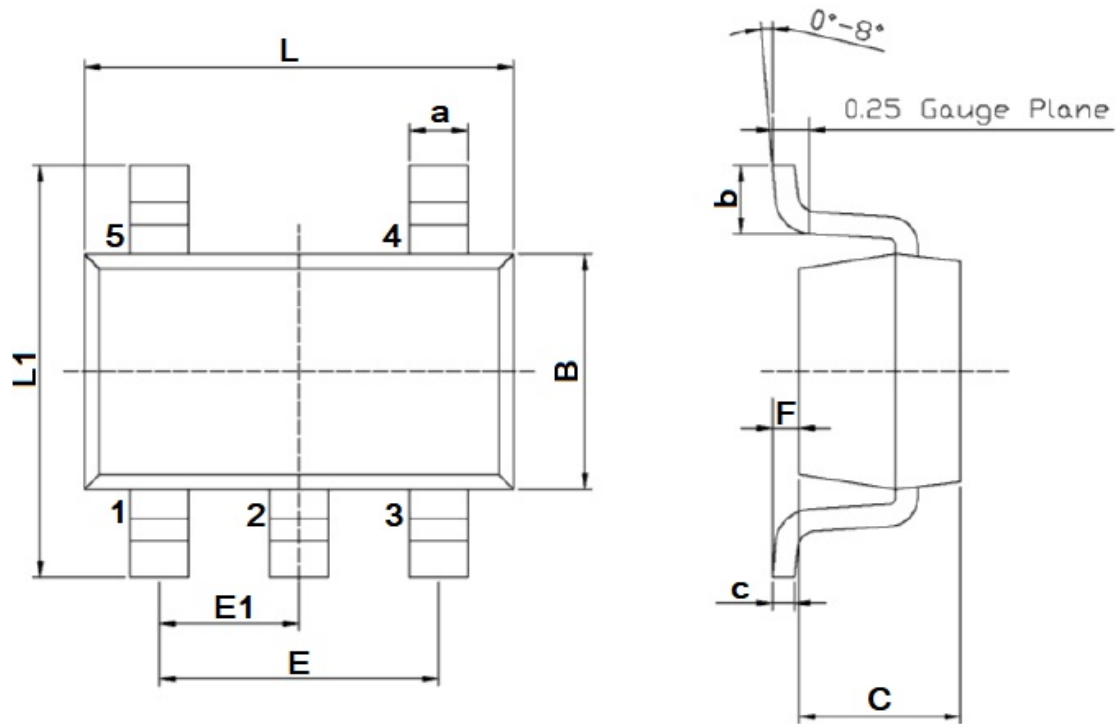
BLOCK DIAGRAM





PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm)



Symbol	Min.	Max.
A	2.820	3.020
B	1.50	1.700
B	0.350	0.550
C	0.900	1.300
C	0.100	0.200
E	1.800	2.000
E1	0.850	1.050
F	0.000	0.15
L	2.820	3.020
L1	2.600	3.000



LOW DROPOUT VOLTAGE REGULATOR

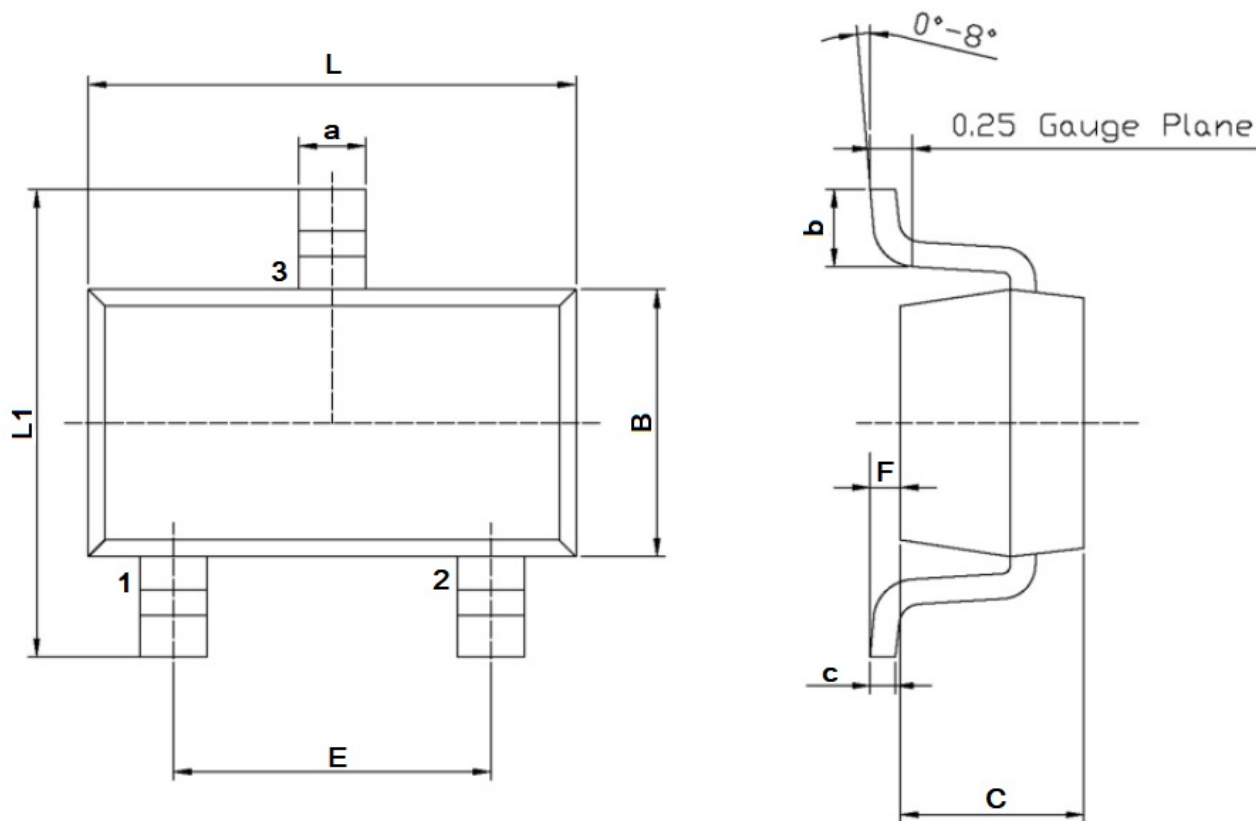
5.5V 300mA CMOS LDO

The technical drawing consists of two views of a mechanical part. The front view (left) shows a rectangular block with a trapezoidal feature on top. Dimensions include overall width A , top feature width a , block height B , total height L , and a base offset b . Below the block are three vertical supports labeled 1, 2, and 3. Horizontal dimensions E and $E1$ are shown for the base, and $a1$ and $a2$ are shown for the support positions. The side view (right) shows the profile of the top feature with a height C and a base offset $C1$. A force P is indicated acting on the side of the top feature.

Symbol	Min.	Max.
A	4.400	4.700
a	1.450	1.650
a1	0.360	0.560
a2	0.300	0.500
B	2.350	2.650
b	0.800	1.200
C	1.400	1.700
c1	0.50	0.500
E	1.400	1.600
E1	2.800	3.200
L	3.878	4.478
P	6°	



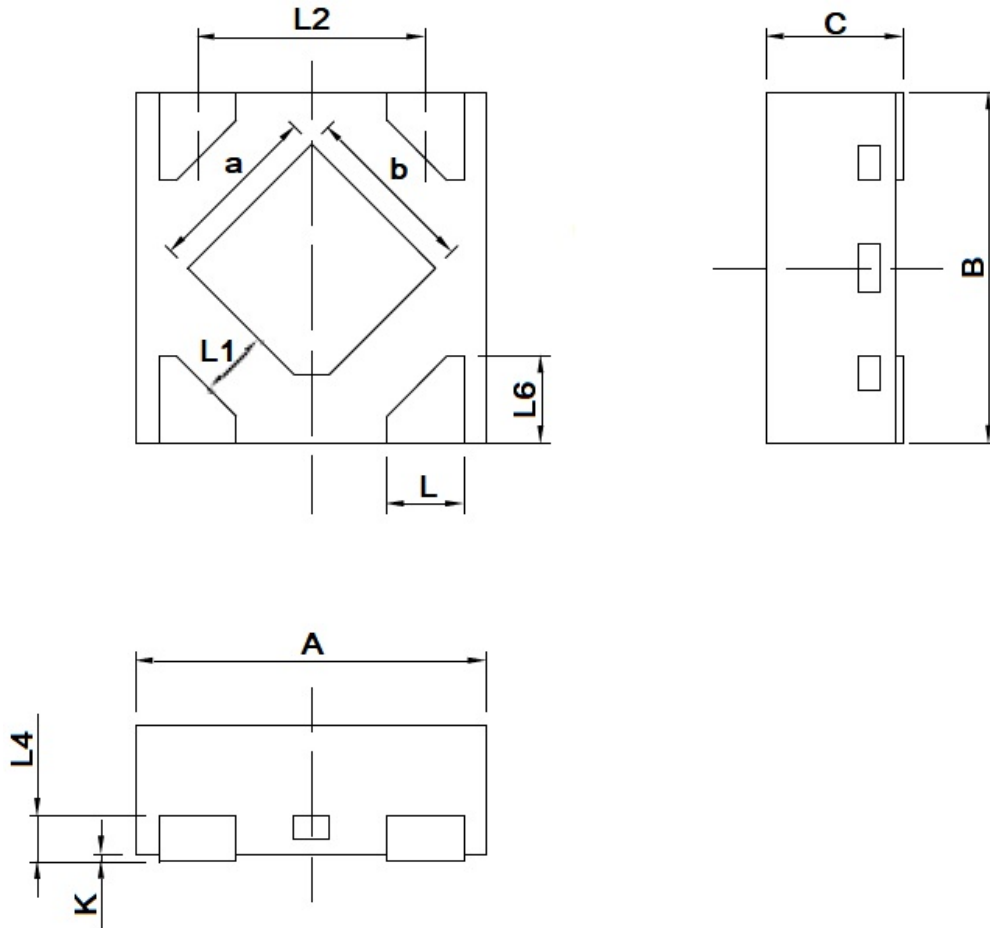
Dimension in SOT-23 (Unit: mm)



Symbol	Min.	Max.
a	0.350	0.500
B	1.500	1.700
b	0.350	0.550
C	0.900	1.300
c	0.100	0.200
E	1.800	2.000
F	0.000	0.150
L	2.820	3.020
L1	2.600	3.000



Dimension in DFN4 (Unit: mm)



Symbol	Min.	TYP	Max.
A	0.950	1.000	1.050
a	0.430	0.480	0.530
B	0.950	1.000	1.050
b	0.430	0.480	0.530
C	0.340	0.370	0.400
L	0.170	0.220	0.270
L1	0.150	-	-
L2	-	0.650	-
L4	-	0.100	-
L6	0.200	0.250	0.300
K	0.000	0.020	0.050



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