BCT2203
150mA，High Voltage Regulators

GENERAL DESCRIPTION

The BCT2203 series low-power, high voltage, low-dropout, CMOS linear voltage regulators operate from a 2.7V to 36.0V input voltage with 2.5uA low power. They are the perfect choice for high input voltage, low power applications. A low ground current makes this part attractive for battery operated power systems. The BCT2203 series also offer low dropout voltage to prolong battery life in portable electronics. Output current minimum limit is 150mA.

The output voltage is preset to voltages in the range of 1.5V to 12V. Other features include fold-back current limit protection.

The BCT2203 is available in Green SOT23-3, SOT23-5, and SOT89-3 packages. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- Low Power Consumption
- 150mA Nominal Output Current
- Low Dropout Voltage
- High Input Voltage(up to 36V)
- Output Voltage Accuracy:±2%
- Fixed Outputs Voltage Versions:
  1.5V,1.8V,3.0V,3.3V,4.2V
  4.5V,5.0V,8.0V,9.0V,10V and 12V
- -40°C to 85°C Operating Temperature Range
- Available in Green SOT23-3, SOT23-5, and SOT89-3 Packages.

APPLICATIONS

Battery-Powered Equipment
Communication Equipment
Audio/Video Equipment

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ORDERING INFORMATION

Order Number	V_{OUT}(V)	Package Type	Temperature Range	Marking	QTY/Reel
BCT2203EUK15-TR	1.5	SOT23-5	-40°C to +85°C	S5XX	3000
BCT2203EUK18-TR	1.8	SOT23-5	-40°C to +85°C	S8XX	3000
BCT2203EUK30-TR	3.0	SOT23-5	-40°C to +85°C	S0XX	3000
BCT2203EUK33-TR	3.3	SOT23-5	-40°C to +85°C	S3XX	3000
BCT2203EUK42-TR	4.2	SOT23-5	-40°C to +85°C	S2XX	3000
BCT2203EUK45-TR	4.5	SOT23-5	-40°C to +85°C	S5XX	3000
BCT2203EUK50-TR	5.0	SOT23-5	-40°C to +85°C	S0XX	3000
BCT2203EUK80-TR	8.0	SOT23-5	-40°C to +85°C	SEXX	3000
BCT2203EUK90-TR	9.0	SOT23-5	-40°C to +85°C	SNXX	3000
BCT2203EUKX0-TR	10.0	SOT23-5	-40°C to +85°C	STXX	3000
BCT2203EUKX2-TR	12.0	SOT23-5	-40°C to +85°C	STXX	3000
BCT2203EUR15-TR	1.5	SOT23-3	-40°C to +85°C	S5XX	3000
BCT2203EUR18-TR	1.8	SOT23-3	-40°C to +85°C	S8XX	3000
BCT2203EUR30-TR	3.0	SOT23-3	-40°C to +85°C	S0XX	3000
BCT2203EUR33-TR	3.3	SOT23-3	-40°C to +85°C	S3XX	3000
BCT2203EUR42-TR	4.2	SOT23-3	-40°C to +85°C	S2XX	3000
BCT2203EUR45-TR	4.5	SOT23-3	-40°C to +85°C	S5XX	3000
BCT2203EUR50-TR	5.0	SOT23-3	-40°C to +85°C	S0XX	3000
BCT2203EUR80-TR	8.0	SOT23-3	-40°C to +85°C	SEXX	3000
BCT2203EUR90-TR	9.0	SOT23-3	-40°C to +85°C	SNXX	3000
BCT2203EURX0-TR	10.0	SOT23-3	-40°C to +85°C	STXX	3000
BCT2203EURX2-TR	12.0	SOT23-3	-40°C to +85°C	STXX	3000

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ORDERING INFORMATION

Order Number	V_{OUT}(V)	Package Type	Temperature Range	Marking	QTY/Reel
BCT2203EJR15-TR	1.5	SOT89-3	-40°C to +85°C	2203 15XXX	3000
BCT2203EJR18-TR	1.8	SOT89-3	-40°C to +85°C	2203 18XXX	3000
BCT2203EJR30-TR	3.0	SOT89-3	-40°C to +85°C	2203 30XXX	3000
BCT2203EJR33-TR	3.3	SOT89-3	-40°C to +85°C	2203 33XXX	3000
BCT2203EJR42-TR	4.2	SOT89-3	-40°C to +85°C	2203 42XXX	3000
BCT2203EJR45-TR	4.5	SOT89-3	-40°C to +85°C	2203 45XXX	3000
BCT2203EJR50-TR	5.0	SOT89-3	-40°C to +85°C	2203 50XXX	3000
BCT2203EJR80-TR	8.0	SOT89-3	-40°C to +85°C	2203 80XXX	3000
BCT2203EJR90-TR	9.0	SOT89-3	-40°C to +85°C	2203 90XXX	3000
BCT2203EJRX0-TR	10.0	SOT89-3	-40°C to +85°C	2203 X0XXX	3000
BCT2203EJRX2-TR	12.0	SOT89-3	-40°C to +85°C	2203 X2XXX	3000

Note:

"XX" and "XXX" in Marking will be appeared as the batch code.

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ABSOLUTE MAXIMUM RATINGS

VIN to GND.....-0.3V to 44V
VOUT to GND V_{OUT} ≤5.0V …. . -0.3V to Min(V_{IN} + 0.3V, 6V)
VOUT to GND, V_{OUT} > 5.0V .....-0.3V to Min(V_{IN} + 0.3V,15V)
Power Dissipation, P_D@T_A=25℃
SOT23-3.....0.42W
SOT23-5.....0.48W
SOT89-3…….....1.25W
Package Thermal Resistance
SOT23-3, θ_{JA}.....300℃/W
SOT23-5, θ_{JA}.....260℃/W
SOT89-3, θ_{JA}.....100℃/W
Junction Temperature.....150℃
Storage Temperature Range.....-65℃ to 150℃
Lead Temperature (Soldering, 10 sec).....260℃

RECOMMENDED OPERATING CONDITIONS

Input Voltage Range .....2.7V to 36V
Operating Temperature Range ..... -40℃ to +85℃

NOTE:
Stresses beyond those listed under “Absolute Maximum Ratings” 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 operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

CAUTION

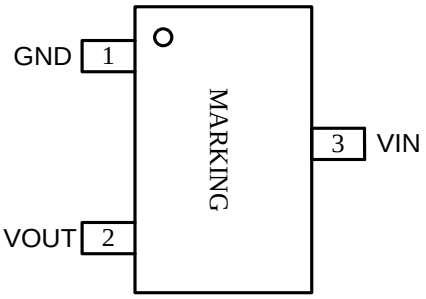
This integrated circuit can be damaged by ESD if you don’t pay attention to ESD protection. Broadchip recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

Broadchip reserves the right to make any change in circuit design, specification or other related things if necessary without notice at any time. Please contact Broadchip sales office to get the latest datasheet.

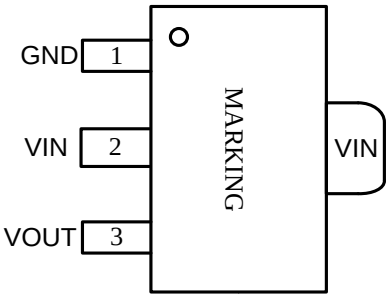
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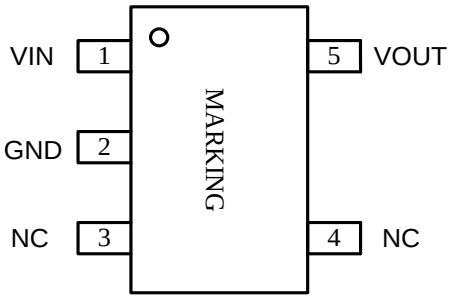
PIN CONFIGURATION (TOP VIEW)



SOT23-3



SOT89-3



SOT23-5

PIN DESCRIPTION

PIN			NAME	FUNCTION
SOT23-3	SOT23-5	SOT89-3		
1	2	1	GND	Ground.
2	5	3	VOUT	Regulated Output. It is recommended to use output capacitor with effective capacitance in the range of 1μF to 10μF.
3	1	2	VIN	Regulator Input. Up to 36V input voltage. At least 1μF supply bypass capacitor is recommended.
–	3, 4	–	NC	No Connect

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ELECTRICAL CHARACTERISTICS

(V_{IN} = V_{OUT} + 2V or 4V, whichever is greater, C_{IN} = C_{OUT} = 1μF, Full = -40℃ to +85℃, typical values are at T_A =+25℃, unless otherwise noted.)

PARAMETER	SYM	CONDITIONS		MIN	TYP	MAX	UNITS
Input Voltage	V_{IN}			2.7		36	V
Output Voltage Accuracy		I_{OUT}=1mA		-2.0		2.0	%
Ground Pin Current	I_Q	No load			2.5		uA
		I_{OUT}=50mA			40		
Maximum Output Current				150			mA
Dropout Voltage(1)	V_{DROP}	I_{OUT}=150mA , V_{OUT} ≥ 2.5V			1300		mV
Line Regulation	ΔV_{LNR}	V_{IN} = V_{OUT} + 2V to 36V, I_{OUT} = 1mA			0.005	0.012	%/V
Load Regulation	ΔV_{LDR}	V_{IN} = V_{OUT} + 2V or 4V, I_{OUT} = 1mA to 150mA			25		mV
Power Supply Rejection Ratio	PSRR	V_{OUT} = 3.3V,	f = 217Hz		55		dB
		I_{OUT} = 10mA	f = 1kHz		40		

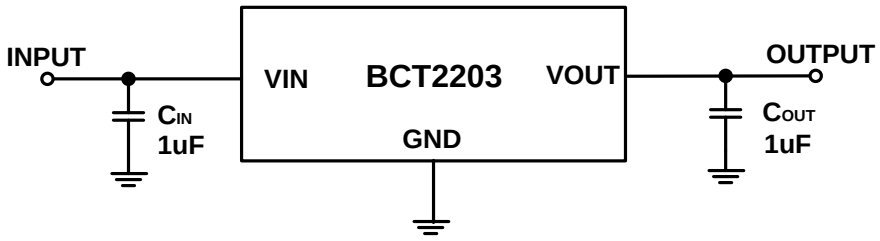
NOTES:

1. The dropout voltage is defined as V_{IN} - V_{OUT}, when V_{OUT} is 95% of the value of V_{OUT} for V_{IN} = V_{OUT} + 2V.

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TYPICAL APPLICATION CIRCUIT



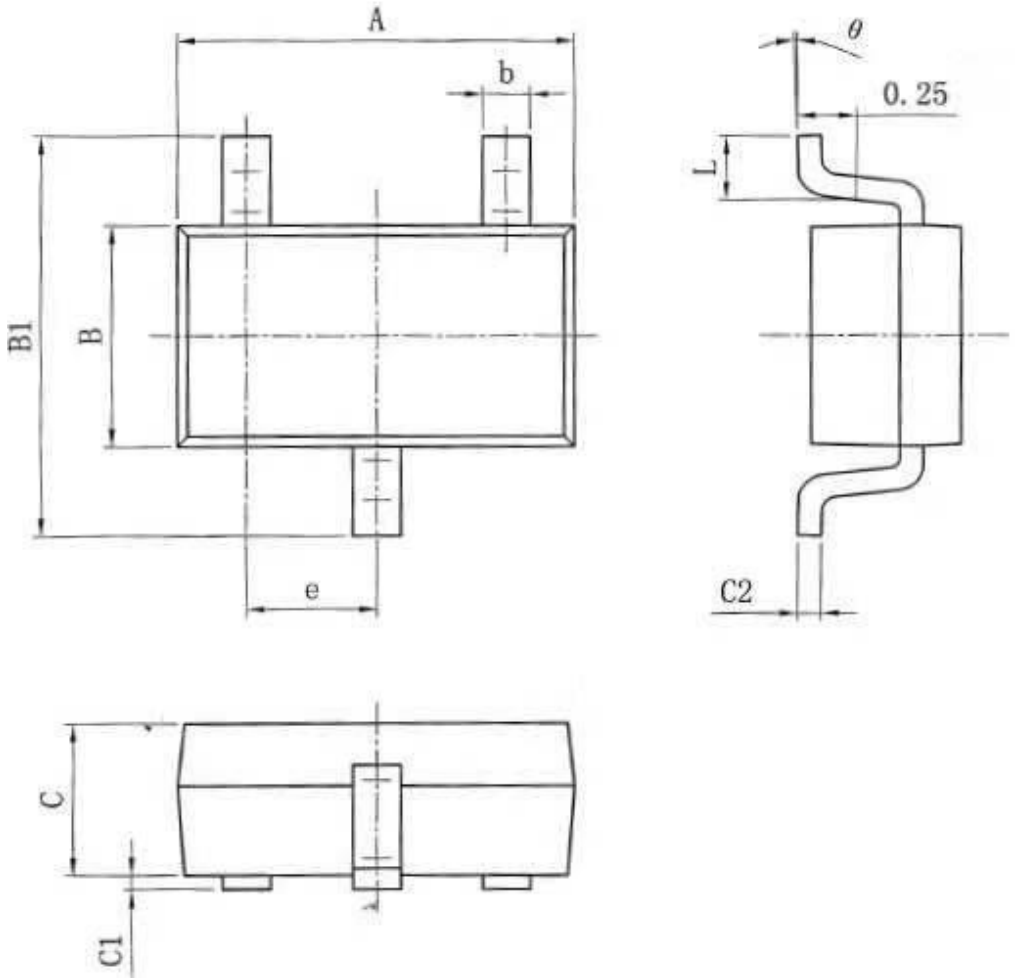
NOTES: If has a large Load Transient in the application, recommend using 4.7uF or more in Cout.

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PACKAGE OUTLINE DIMENSIONS

SOT23-3

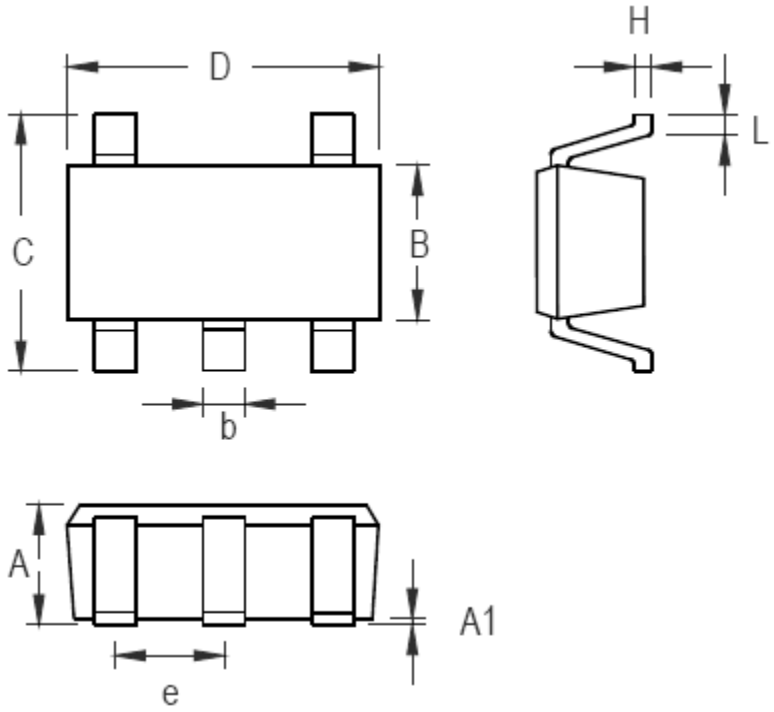


Symbol	Dimensions In Millimeters	
	Min	Max
A	2.82	3.02
e	0.95(BSC)	
b	0.28	0.45
B	1.50	1.70
B1	2.75	3.05
C	1.05	1.15
C1	0.03	0.15
C2	0.12	0.23
L	0.35	0.55
θ	0°	8°

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SOT23-5



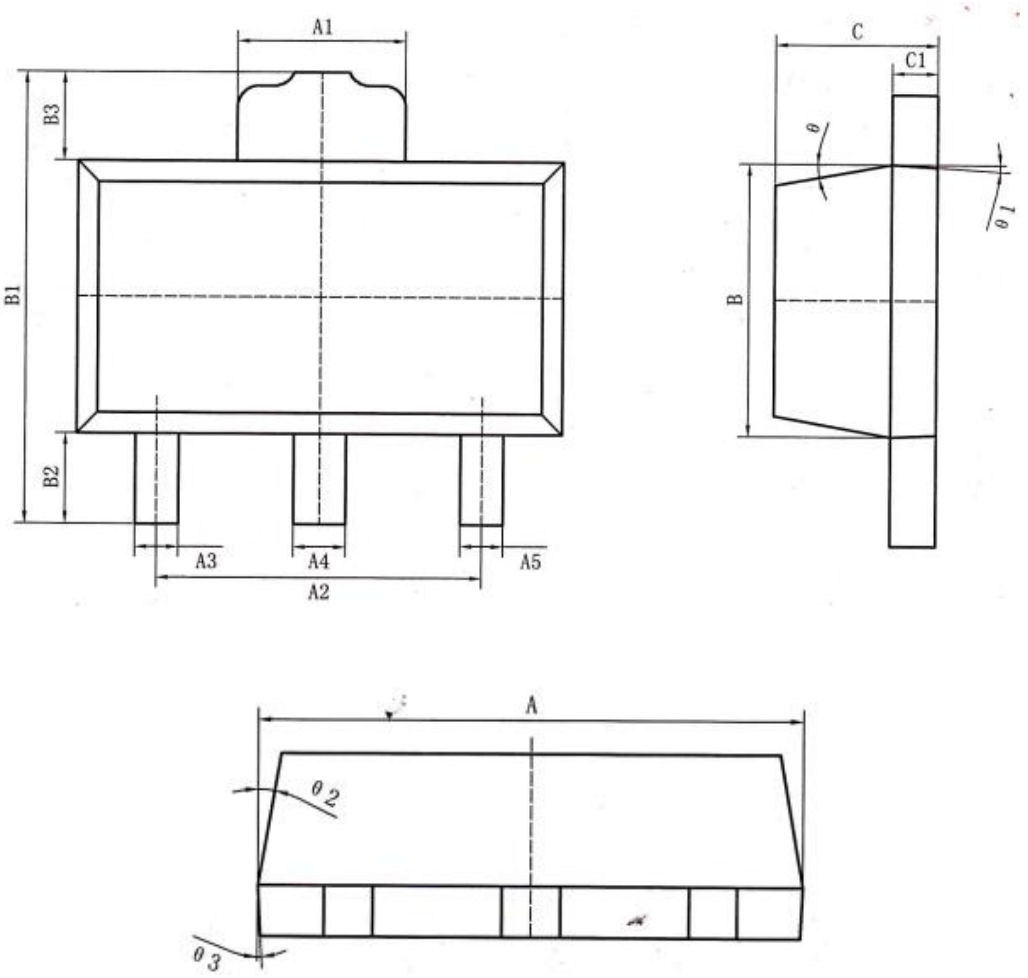
Symbol	Dimensions In Millimeters	
	Min	Max
A	1.05	1.15
A1	0.03	0.15
B	1.5	1.7
b	0.28	0.45
C	2.75	3.05
D	2.82	3.02
e	0.95(BSC)	
H	0.12	0.23
L	0.35	0.55

SOT23-5 Surface Mount Package

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SOT89-3



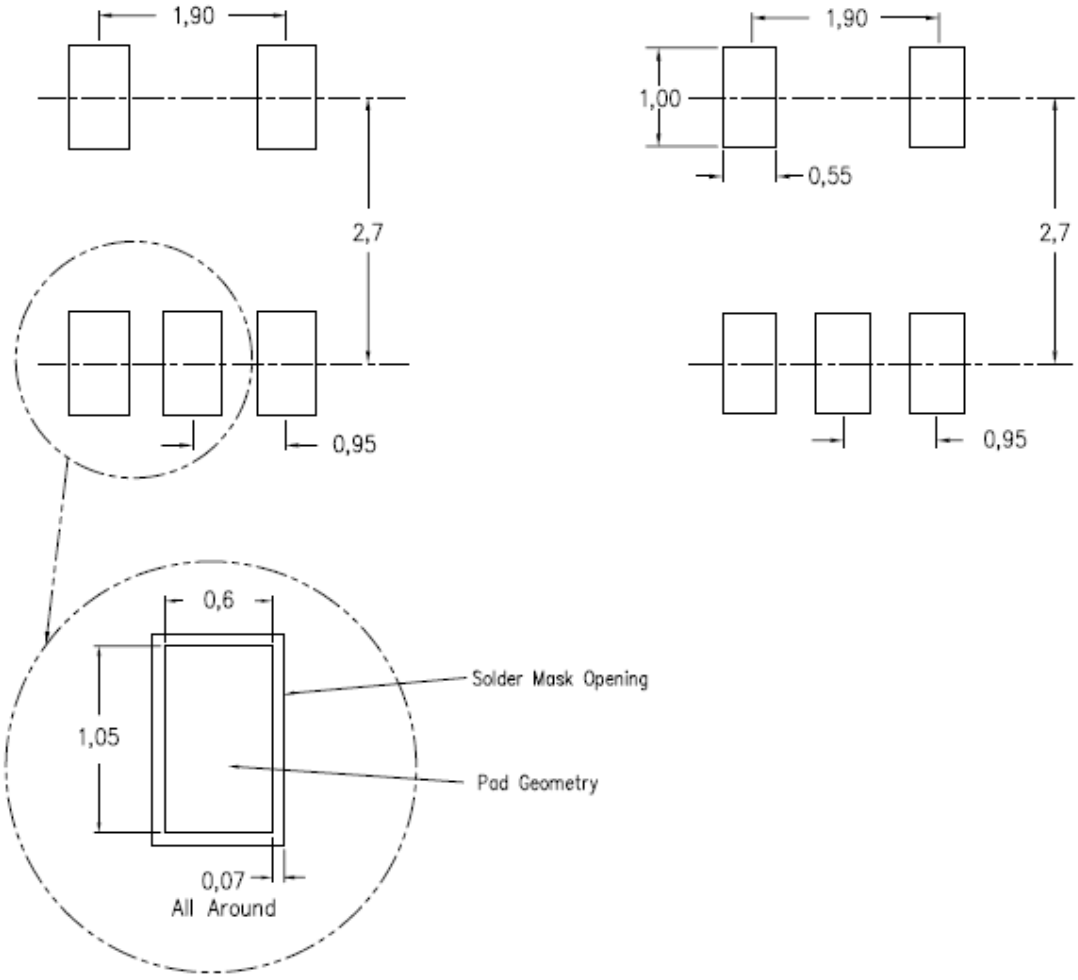
尺寸 / 标注	最小(mm)	最大(mm)	尺寸 / 标注	最小(mm)	最大(mm)
A	4.40	4.60	B3	0.82	0.83
A1	1.65	1.75	C	1.40	1.60
A2	2.95	3.05	C1	0.35	0.45
A3	0.35	0.45	θ	6° TYP4	
A4	0.43	0.53	θ1	3° TYP4	
A5	0.35	0.45	θ2	6° TYP4	
B	2.40	2.60	θ3	3° TYP4	
B1	4.05	4.25			
B2	0.82	0.83			

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LAND PATTERN DATA

SOT23-5

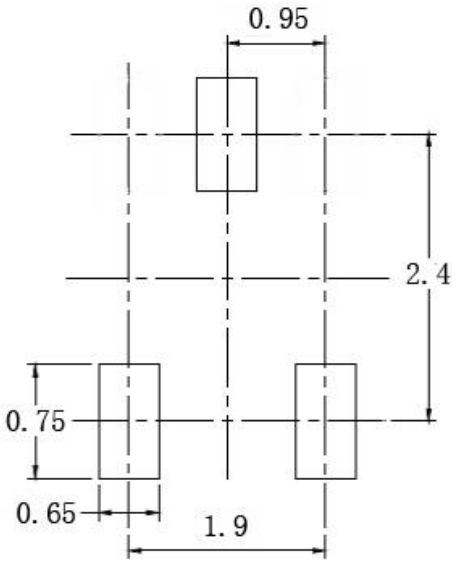


RECOMMENDED PCB LAYOUT PATTERN (Unit: mm)

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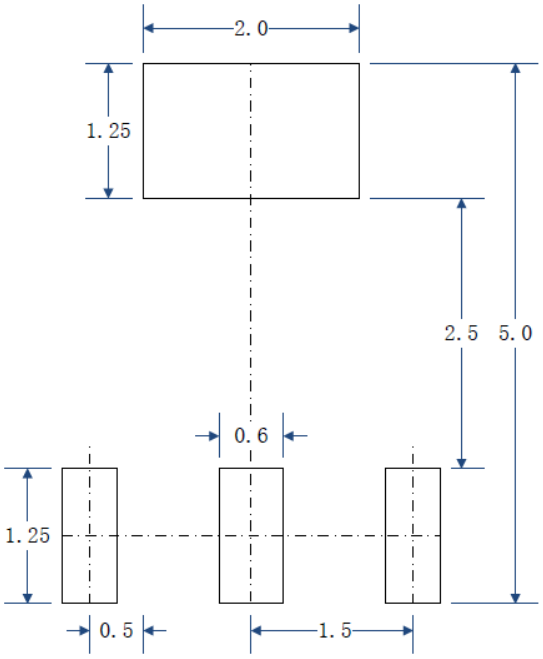
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SOT23-3



RECOMMENDED PCB LAYOUT PATTERN (Unit: mm)

SOT89-3



RECOMMENDED PCB LAYOUT PATTERN (Unit: mm)

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