27V,500mA,1.5uA, Higt PSRR Voltage Reaulator

Features

- 1.5μA Ground Current at no Load
- ±2% Output Accuracy
- 500mA Output Current
- Wide Operating Input Voltage Range: 2V to 28V
- Dropout Voltage: 0.35V at 100mA (V_{OUT}=5V)
- Support Fixed Output Voltage 1.8V, 3.3V, 5V,
- Stable with Ceramic or Tantalum Capacitor
- Current Limit Protection
- Over-Temperature Protection
- SOT-23-5 SOT89-3 SOT23-3L Package Available

Applications

- Portable, Battery Powered Equipment
- Low Power Microcontrollers
- Laptop, Palmtops and PDAs
- Wireless Communication Equipment
- Audio/Video Equipment
- Car Navigation Systems
- Industrial Controls
- Weighting Scales
- Meters
- Home Automation

General Descrition

The FC282C is a low-dropout (LDO) voltage regulators with enable function offering the benefits of high input voltage, low-dropout voltage, low-power consumption, and miniaturized packaging.

The features of low quiescent current as low as 1.5 μA and zero disable current is ideal for powering the battery equipment to a longer service life. The FC282C is stable with the ceramic output capacitor over its wide input range from 2V to 28V and the entire range of output load current.

Ordering Information

FC282CXXXX

PACKAGE TYPE
- S3L: SOT-23-3L
- S5: SOT23-5
- GT3 : SOT-89-3
- VT3: SOT-89-3
- UT3: SOT-89-3

OUTPUT VOLTAGE
- 12: 1.2V
- 15: 1.5V
- 18 1.8V
- 30: 3.0V
- 33: 3.3V
- 50: 5.0V

Example: FC282C33S5
→ 3.3V Version, in SOT23-5 Package & Tape & Reel Packing Type

FC282C33S3L
→ 3.3V Version, in SOT23-3L Package & Tape & Reel Packing Type

FC282C33GT3
→ 3.3V Version, in Green SOT-89-3 Package & Reel Packing Type

FC282C33VT3
→ 3.3V Version, in Green SOT-89-3 Package & Reel Packing Type

FC282C33UT3
→ 3.3V Version, in Green SOT-89-3 Package & Reel Packing Type

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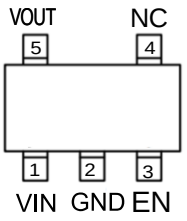
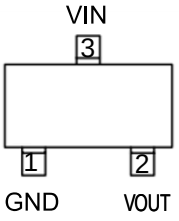
PIN CONFIGURATION



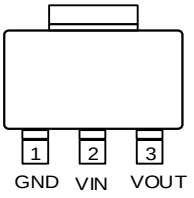
SOT23- 5

Pin No	Pin Name	Pin Function
1	VIN	Input of Supply Voltage.
2	GND	Ground
3	EN	Enable Control Input.
4	NC	No Internal Connection.
5	VOUT	Output of the Regulator



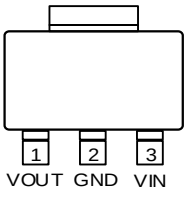
SOT23- 3L

Pin No	Pin Name	Pin Function
1	GND	Ground
2	VOUT	Output of the Regulator
3	VIN	Input of Supply Voltage.



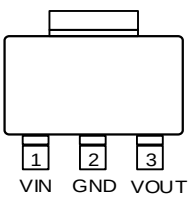
SOT-89 (GT3)

Pin No	Pin Name	Pin Function
1	GND	Ground
2	VIN	Input of Supply Voltage.
5	VOUT	Output of the Regulator



SOT-89 (UT3)

Pin No	Pin Name	Pin Function
1	VOUT	Output of the Regulator
2	GND	Ground
5	VIN	Input of Supply Voltage.



SOT-89 (VT3)

Pin No	Pin Name	Pin Function
1	VIN	Input of Supply Voltage.
2	GND	Ground
5	VOUT	Output of the Regulator

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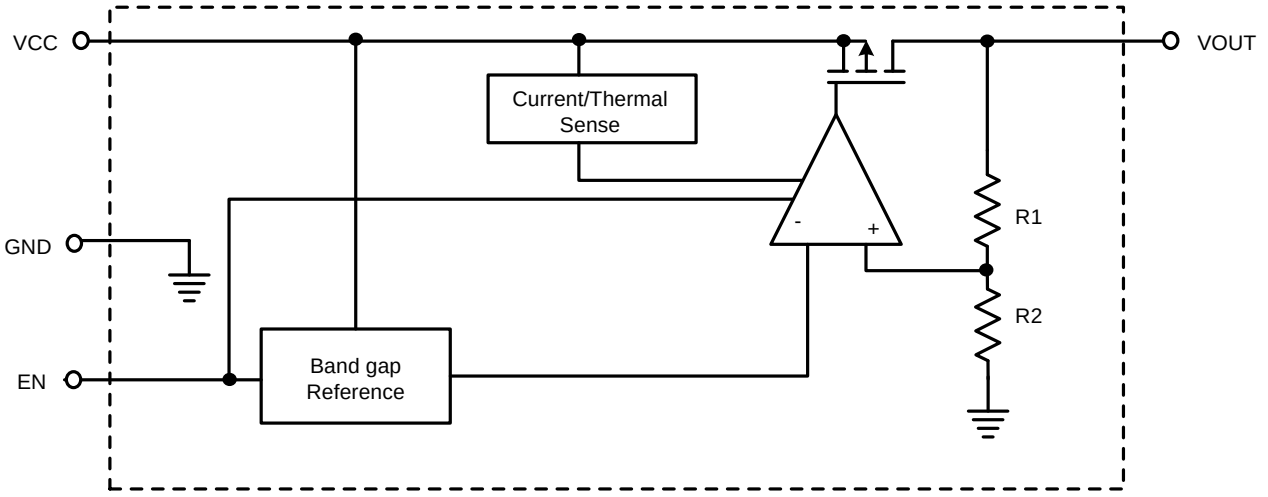
BLOCK DIAGRAM



Absolute Maximum Ratings

VIN Pin to GND Pin Voltage ..... -0.3V to 29V

VOUT Pin to GND Pin Voltage ..... -0.3V to 6.0V

VOUT Pin to VIN Pin Voltage ..... -29V to 0.3V

Package Thermal Resistance (Note 2)

SOT-23-5, SOT-23-3, θ_{JA} ---------- 200℃ /W

SOT-89-3, θ_{JA} ---------- 120℃ /W

Lead Temperature (Soldering, 10 sec.) ---------- 260℃

Junction Temperature ---------- 150℃

Storage Temperature Range ---------- -40℃ to 150℃

ESD Susceptibility

HBM ---------- 2KV

MM ---------- 200V

Recommended Operating Conditions

Supply Input Voltage ---------- 2.0V to 28V

Junction Temperature Range ---------- -40℃ to 125℃

Ambient Temperature Range---------- -40℃ to 85℃

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Electrical Characteristics

(V_{IN}=15V, V_{EN}=5V, T_A=25℃, unless otherwise specified) (Note 1)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{IN}		2	--	28	V
DC Output Voltage Accuracy		I_{LOAD} =0.1mA	-2		2	%
Dropout Voltage (I_{LOAD} =100mA)	V_{DROP}	V_{OUT} ≥ 5V	--	0.35		V
	$V_{DROP\_3.3V}$	V_{OUT} = 3.3V		0.42		
	$V_{DROP\_1.8V}$	V_{OUT} = 1.8V		0.5		
Ground Current (I_{LOAD} = 0mA)	I_Q	V_{OUT} ≤ 5V		1.5		μA
Shutdown Ground Current	I_{SD}	V_{EN} = 0V, V_{OUT} = 0V		0.01	0.5	μA
V_{OUT} Shutdown Leakage Current	I_{LEAK}			0.01	0.5	μA
Enable Threshold Voltage	V_{IH}	EN Rising	1.1			V
	V_{IL}	EN Falling			0.4	
EN Input Current	I_{EN}	V_{EN} = 27V		10	100	nA
Line Regulation	ΔLINE	I_{LOAD} =1mA, 10 ≤V_{IN} ≤ 20V	--	0.3		%
Load Regulation	ΔLOAD	10mA≤ I_{LOAD} ≤ 0.2A		0.3		%
Output Current Limit	I_{LIM}	V_{OUT} =0	500	700		mA
Power Supply Rejection Ratio	PSRR	V_{OUT} =5V, I_{LOAD} =30mA, V_{IN} = 12V, f = 1kHz		70		dB
Thermal Shutdown Temperature	T_{SD}	I_{LOAD} =10mA	--	160	--	°C
Thermal Shutdown Hysteresis	ΔT_{SD}			15		°C

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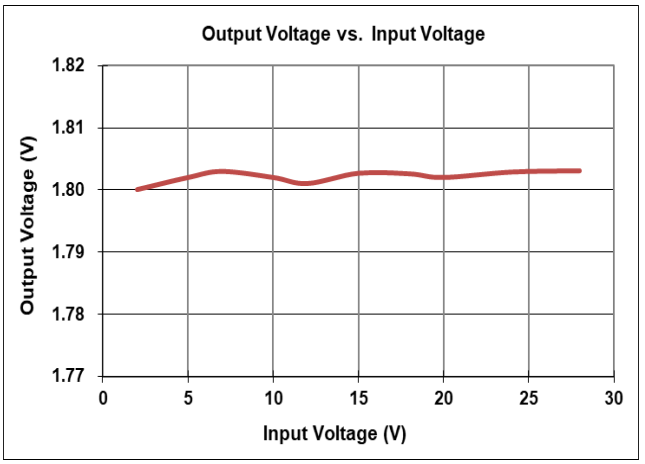
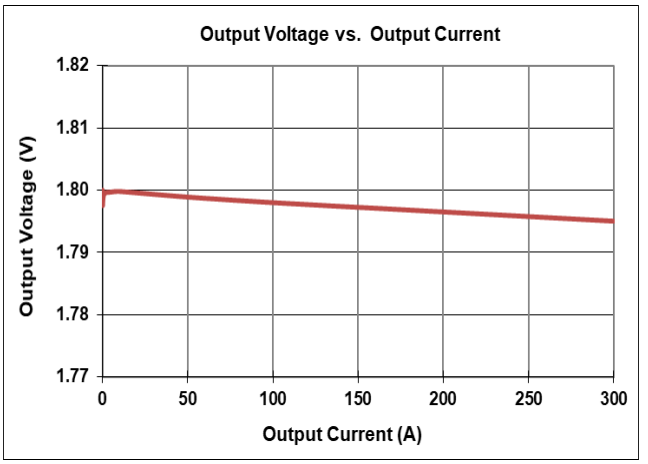
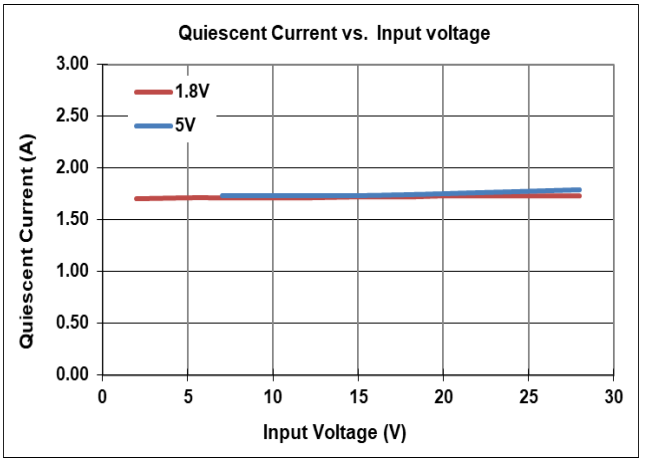
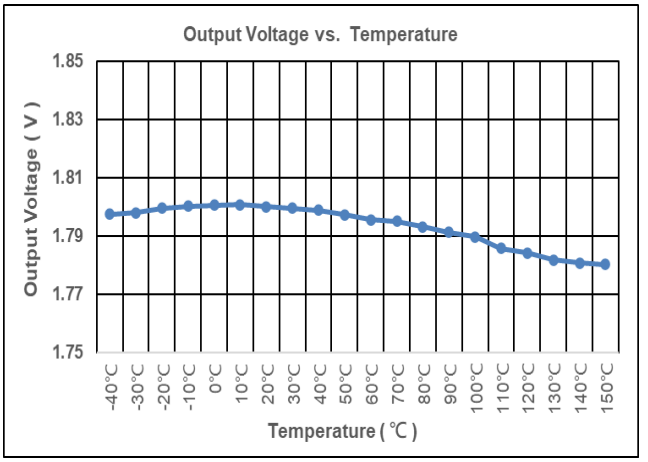
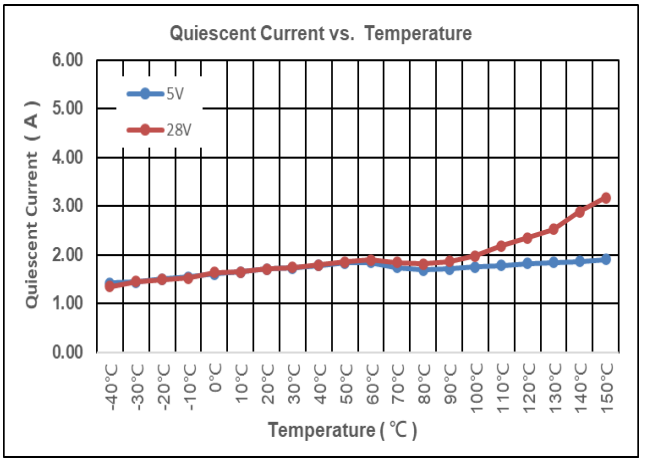
Typical Operating Characteristics

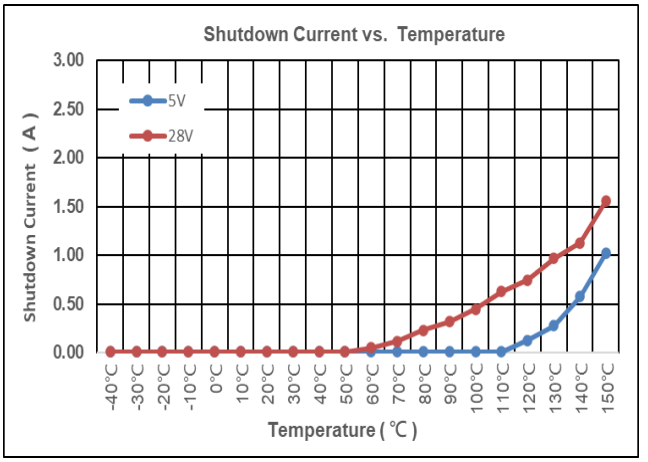












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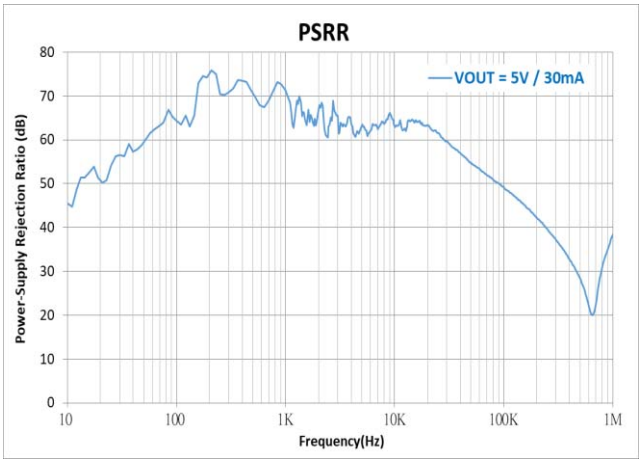

27V,500mA,1.5uA, Higt PSRR Voltage Reaulator

Typical Application Circuit

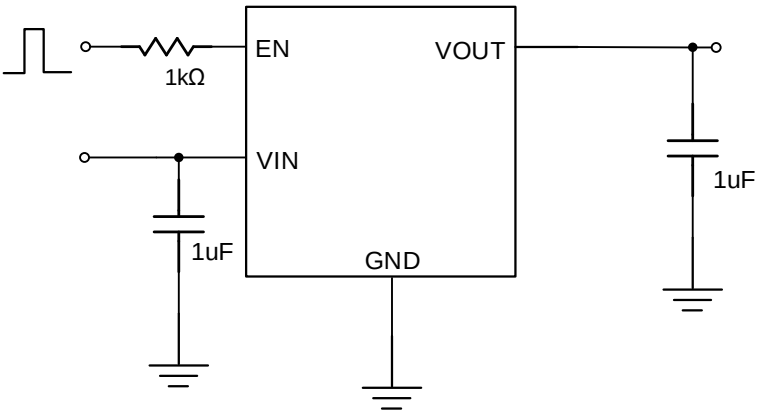

Figure 1: Application circuit of Fixed VOUT LDO with enable function

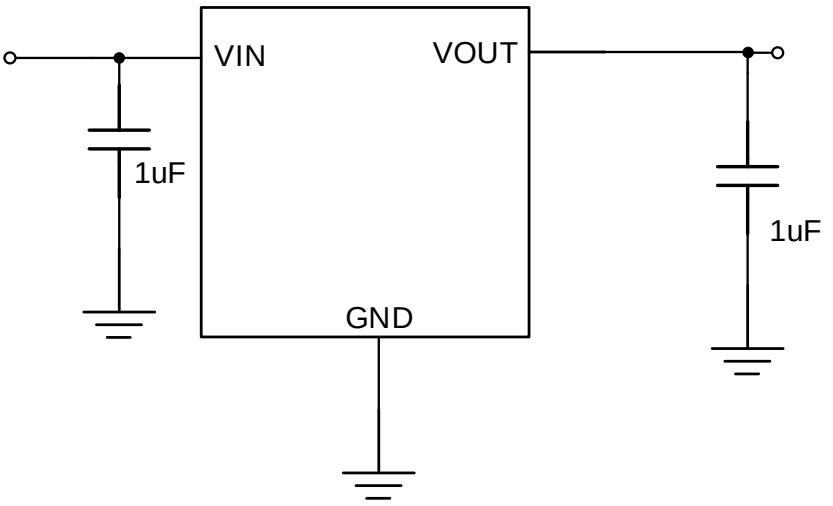

Figure 2: Application circuit of Fixed V_{OUT} LDO

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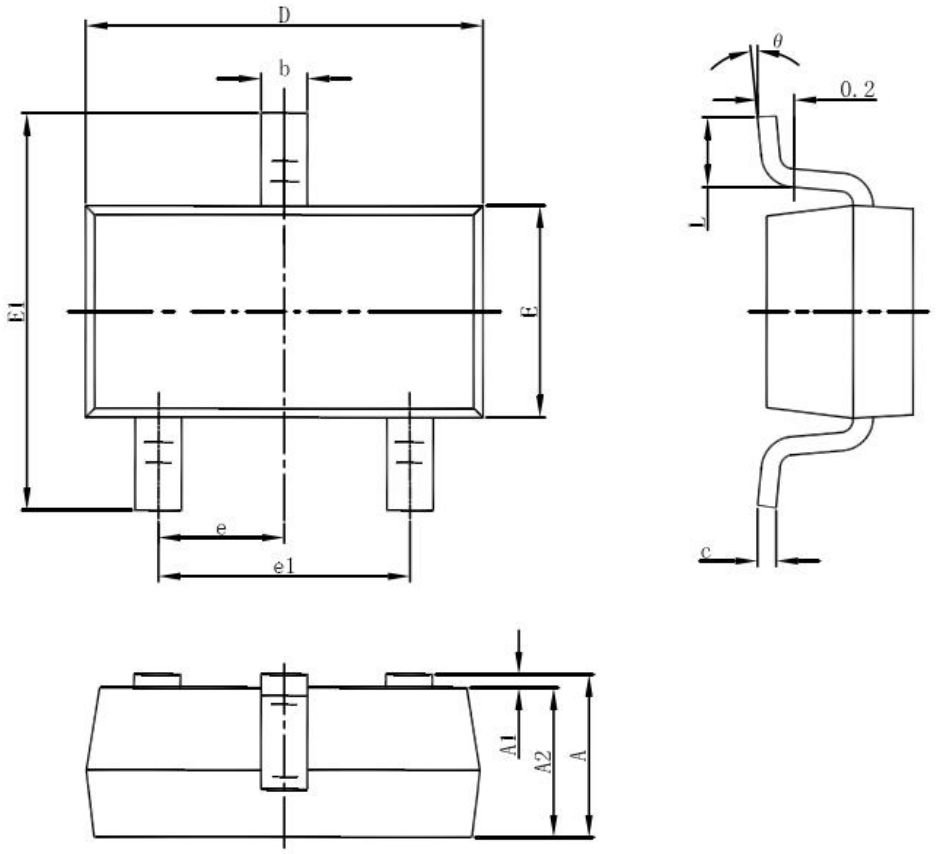
Package informantion

3-pin SOT23-3L Outline Dimensions



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°

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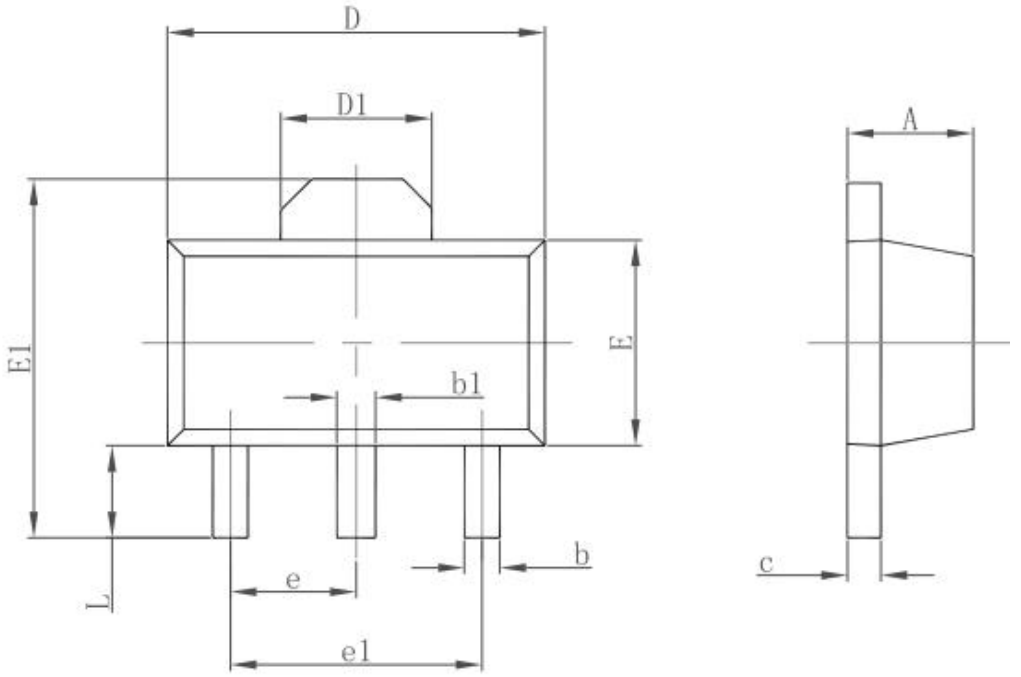
Package informantion

SOT89-3



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.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

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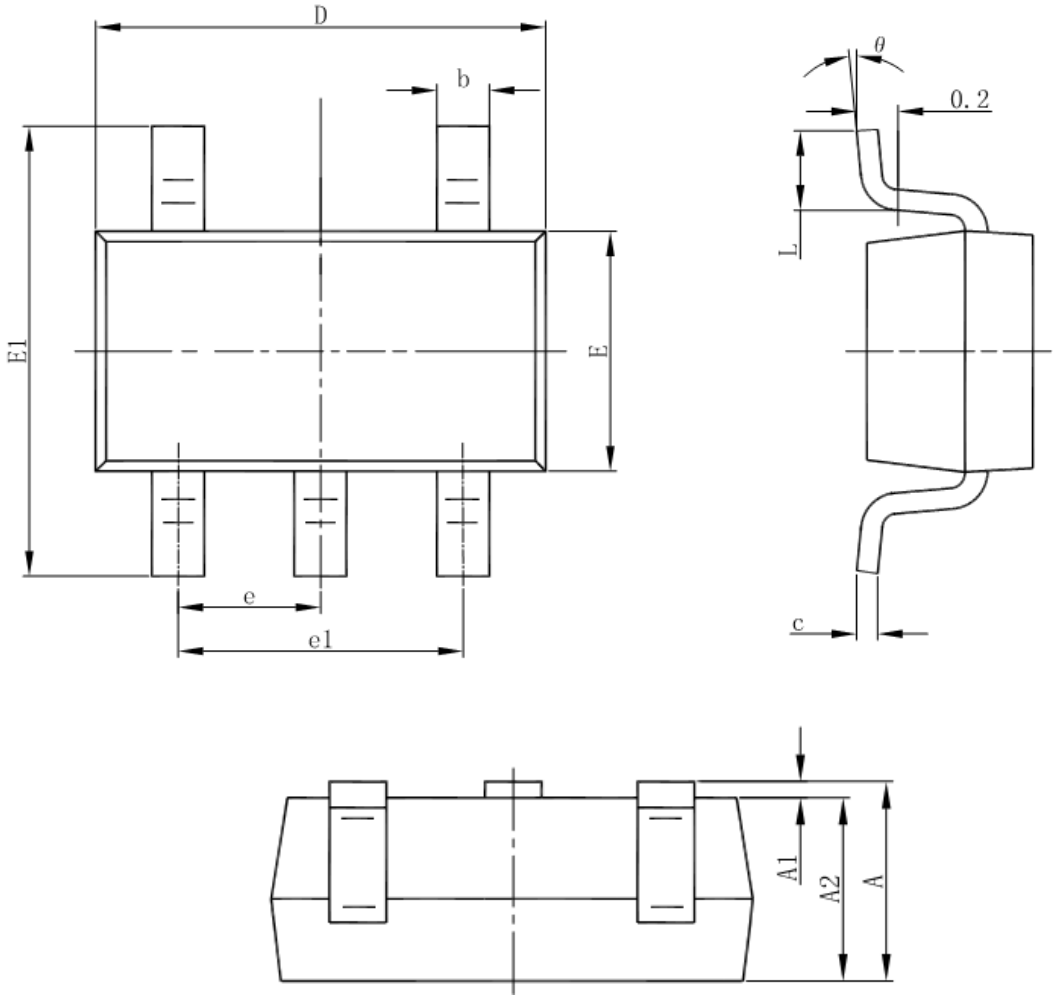
Package informantion

SOT23-5



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°