

300mA、8V、 Low Power LDO

SSP6216

General Description

SSP6216 series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage .

The SSP6216 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.5V to 3.6V. SSP6216 series are available in SOT-23,SOT23-3 and SOT89 packages.



Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 5μA @ 6V
- Output voltage accuracy: tolerance ±2%

Applications

- Battery-powered equipment
- Reference voltage sources
- Cameras,video cameras
- Portable AV systems
- Mobile phones
- Portable games

Order information

Device	Package	Packaging style	SPQ
SSP6216-XXNX	SOT23	Reel	3000
SSP6216-XXMX	SOT23-3	Reel	3000
SSP6216-XXPX	SOT89	Reel	1000

Order Information

SSP6216-①②③④

Designator	Symbol	Description
①②	Integer	Output Voltage(1.5V~3.6V)
③	N	Package:SOT23
	M	Package:SOT23-3
	P	Package:SOT89
④	R	RoHS / Pb Free
	G	Halogen Free

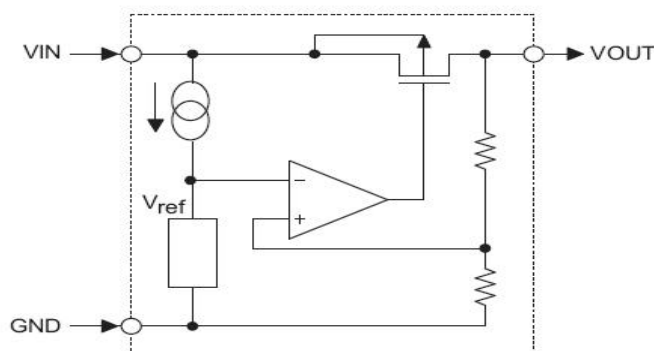
Note: "①②" stands for output voltages. Other voltages can be specially customized.

Marking Rule

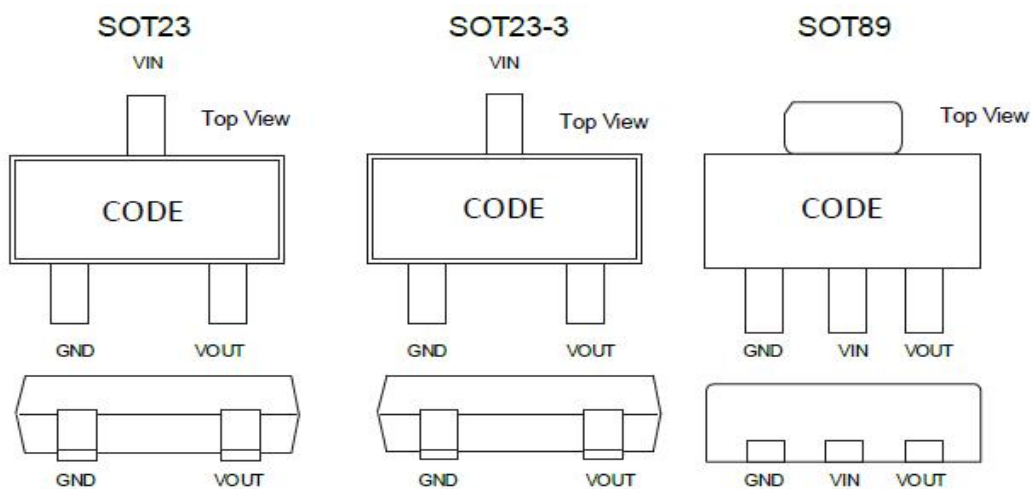
Part No	Marking			
	(1)	(2)	(3)	(4)
SSP6216-15YR	6	5	E	9
SSP6216-18YR	6	5	K	5
SSP6216-25YR	6	5	T	5
SSP6216-28YR	5	4	F	K
SSP6216-30YR	6	5	Z	5
SSP6216-33YR	6	6	2	K
SSP6216-36YR	6	6	5	K

Note: Y: Representative product packaging

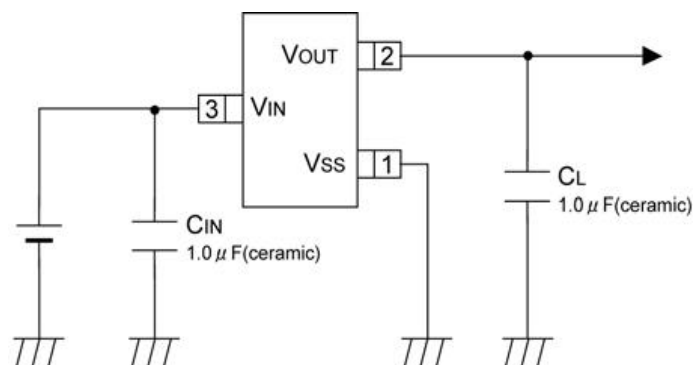
Block Diagram



Pin Assignment



Typical Application



Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V _{IN}	8	V
Output Current		I _{OUT}	300*	mA
Output Voltage		V _{OUT}	V _{SS} -0.3~V _{IN} +0.3	V
Power Dissipation	SOT-23	P _d	0.20	W
	SOT23-3		0.25	W
	SOT89		0.50	W
Operating Temperature Range		T _{opr}	-40~+85	°C
Storage Temperature Range		T _{stg}	-55~+125	°C

* I_{OUT}=P_d/(V_{IN}-V_{OUT})

Electrical Characteristics

SSP6216 for any output voltage

(Ta=25°C)

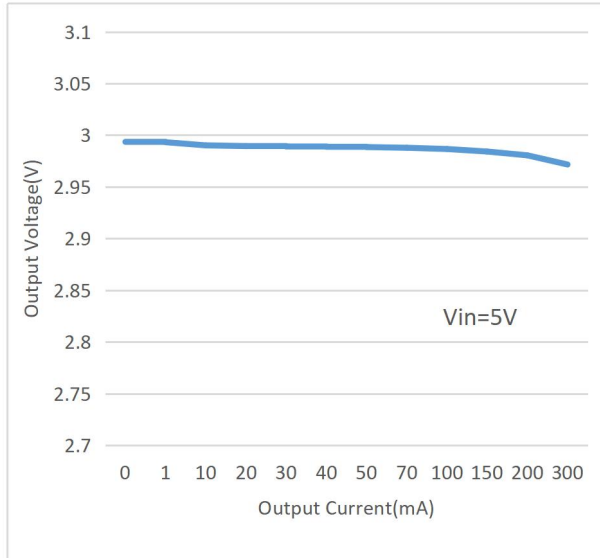
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
Output Current	Iout	Vin-Vout=1V	--	300	--	mA
Low dropout	Vdrop	Refer to the next table				
Line Regulation	$\Delta V_{out}/\Delta V_{in} \cdot V_{out}$	1.6V≤Vin≤8V Iout=40mA	--	0.1	0.2	%/V
Load Regulation	$\Delta V_{out}/\Delta I_{out}$	Vin= Vout+1V 1.0mA≤Iout≤80mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\Delta V_{out}/(Ta \cdot V_{out})$	Iout=30mA 0°C≤Ta≤70°C	--	±100	--	ppm/°C
Supply Current	Issl	--	--	5	10	μA
Input Voltage	Vin	--	--	6	8	V
PSRR	PSRR	F=1KHz Vin=Vout+1V	--	50	--	dB

Electrical Characteristics by Output Voltage:

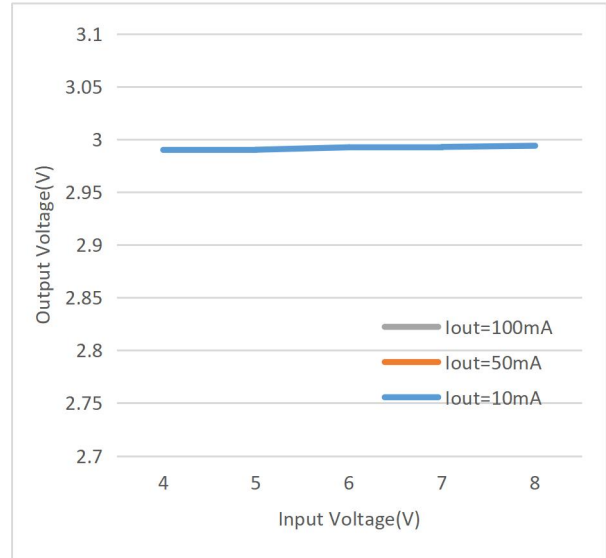
Output Voltage Vout(V)	Dropout Voltage Vdif (V)		
	Conditions	Typ.	Max.
Vout≤1.5V	Iout=100 mA	0.5	0.68
1.8 ≤ Vout ≤ 2		0.39	0.53
2.8 ≤ Vout ≤ 5.0		0.23	0.39

Typical Performance Characteristics

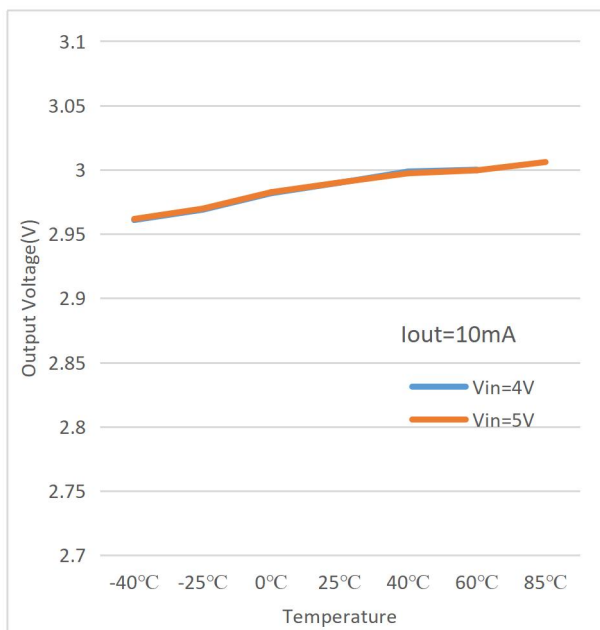
Test Conditions: SSP621630NR $C_{IN}=1\mu F$, $C_{OUT}=1\mu F$, $T_a=25^\circ C$, unless otherwise indicated.



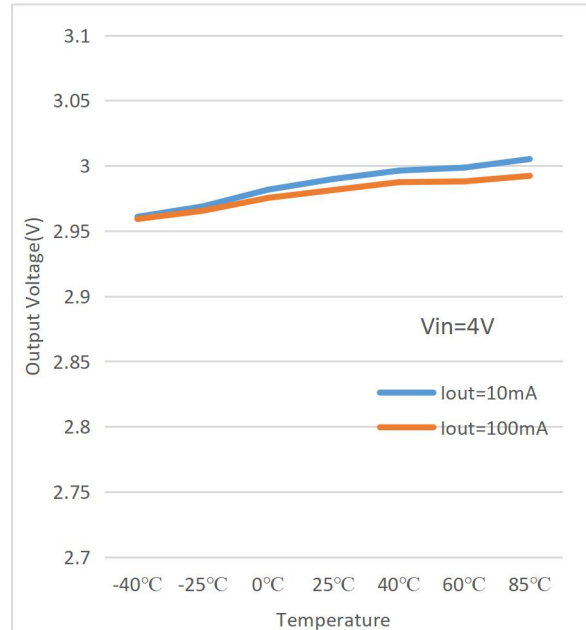
V_{OUT} Vs Output Current
SSP6216-30NR



V_{OUT} Vs Input Voltage
SSP6216-30NR



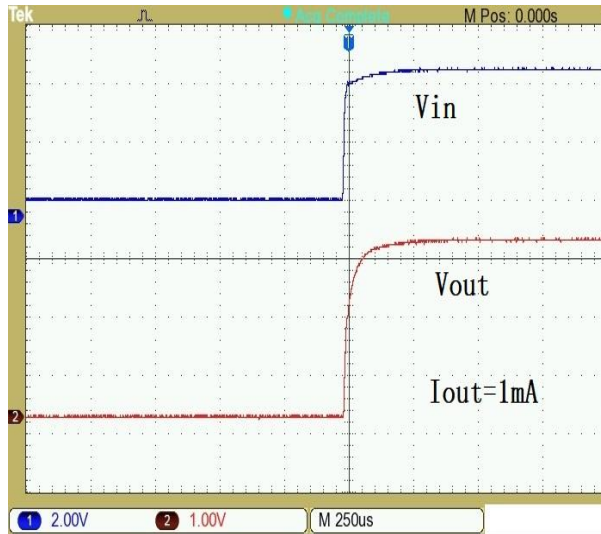
V_{OUT} vs Temperature
SSP6216-30NR



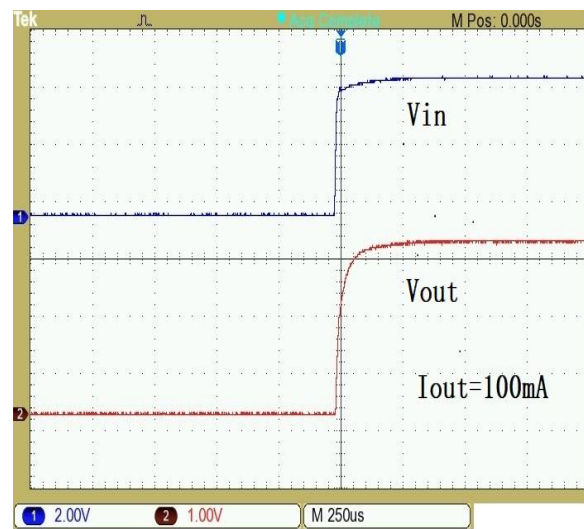
V_{OUT} vs Temperature
SSP6216-30NR

Typical Performance Characteristics

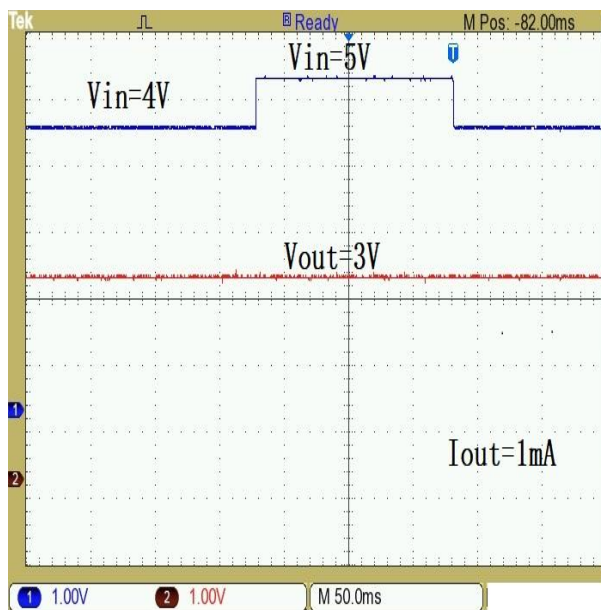
Test Conditions: SSP621630NR $V_{in}=V_{out}+2V$, $C_{IN}=1\mu F$, $C_{OUT}=1\mu F$, $T_a=25^{\circ}C$, unless otherwise indicated.



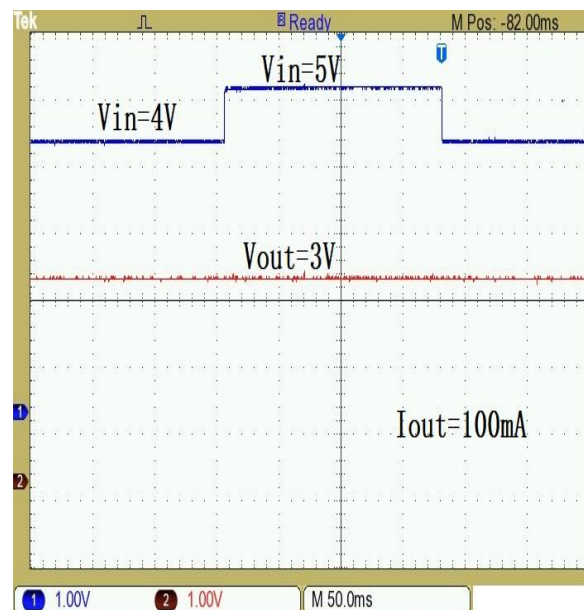
Power-Up at $V_{OUT}=3.0V$ Time(250 μs /div)
($V_{in}=5V$, $I_{OUT}=1mA$)



Power-Up at $V_{OUT}=3.0V$ Time(250 μs /div)
($V_{in}=5V$, $I_{OUT}=100mA$)



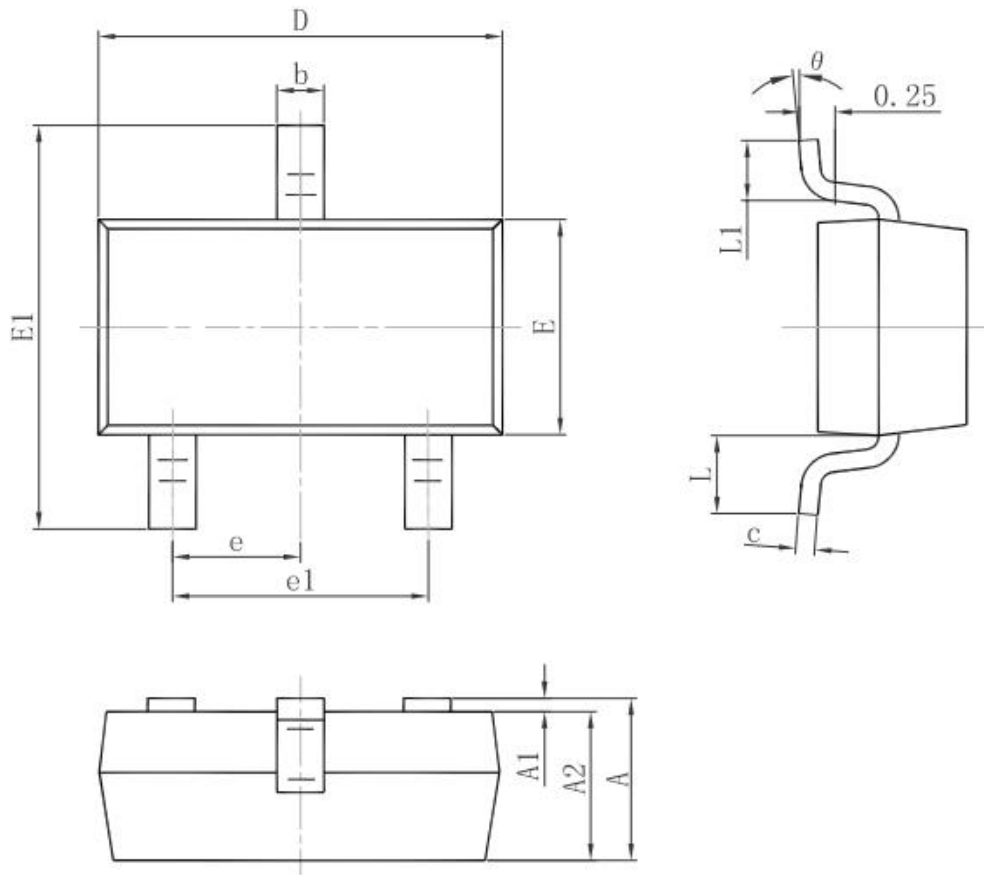
Input Voltage transient response
($V_{out}=3.0V$, $I_{out}=1mA$)



Input Voltage transient response
($V_{out}=3.0V$, $I_{out}=100mA$)

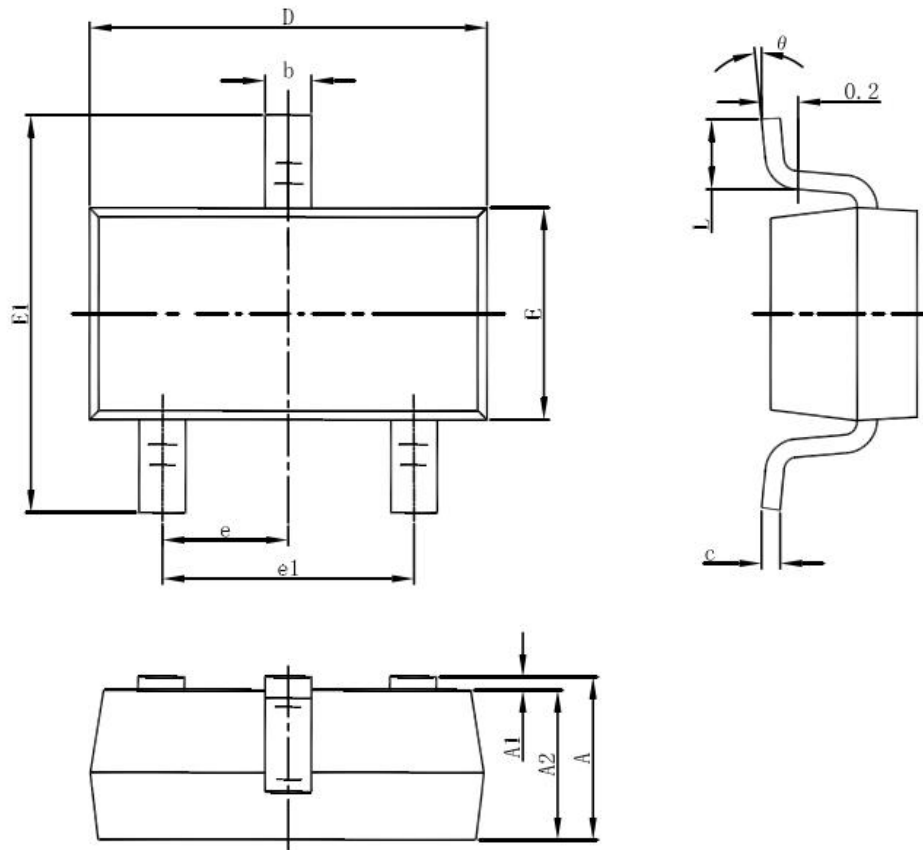
Package Information

3-pin SOT23 Outline Dimensions



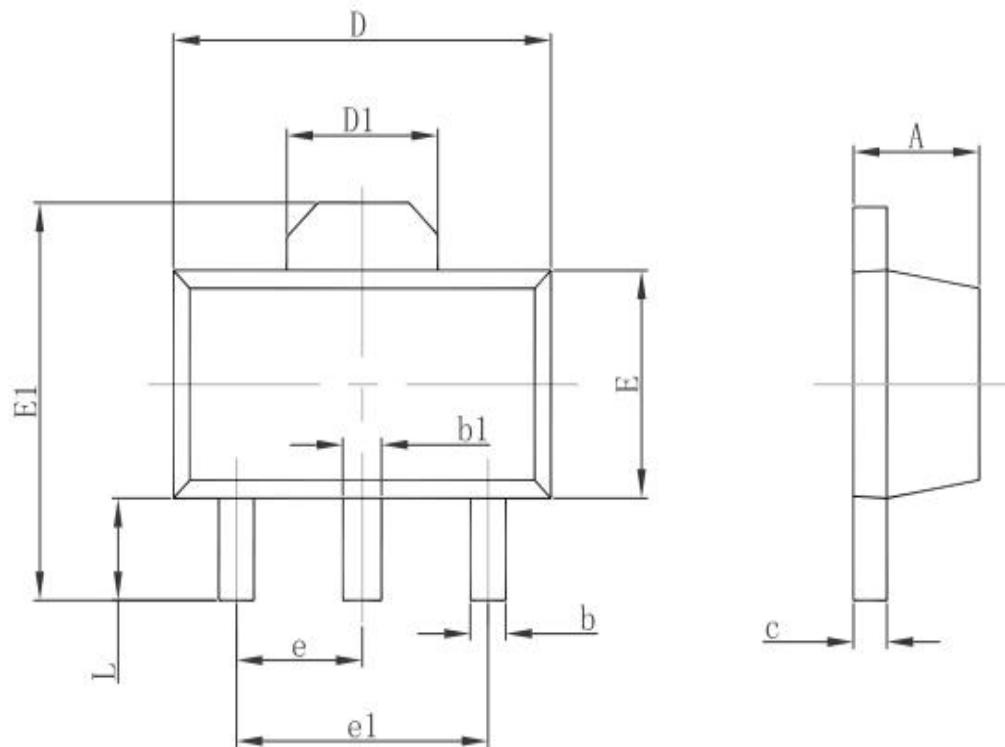
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

3-pin SOT23-3 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°

3-pin SOT89 Outline Dimensions



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

Special Version

The company reserves the right of final interpretation of this specification.

Version Change Description

Versions: V1.0	Writer: Xin CHun Li	Time: 2022.10.15
Amendant record:		

1. Original Version

Versions: V1.1	Writer: Yang	Time: 2024.10.23
Amendant record:		

1. Modifying Marking Rule

Statement

The information in the usage specification is correct at the time of publication, Shanghai Siproin Microelectronics Co.,Ltd. has the right to change and interpret the specification, and reserves the right to modify the product without prior notice. Users can obtain the latest version information from our official website or other effective channels before confirmation, and verify whether the relevant information is complete and up to date.

With any semiconductor product, there is a certain possibility of failure or failure under certain conditions. The buyer is responsible for complying with safety standards and taking safety measures when using the product for system design and complete machine manufacturing. The product is not authorized to be used as a critical component in life-saving or life-sustaining products or systems, in order to avoid potential failure risks that may cause personal injury or property loss.