General Description

SE85XX series is designed for power-sensitive applications. It includes a precision and high voltage input stage, an ultra-low-power bias current branch, and results in a ultra-low-power and low-dropout linear regulator.

The SE85XX operates from an input voltage of V_{OUT}+1V to 35V, consumes only 2.6 μA of quiescent current, and offers 1% initial accuracy and low dropout voltage, 300mV typical at 100mA.

SE85XX has 1.8V，2.5V，3.0V，3.3V，3.6V，4.0V，4.2V，5.0V fixed voltage versions.

Other features include short-circuit protection and thermal shutdown.

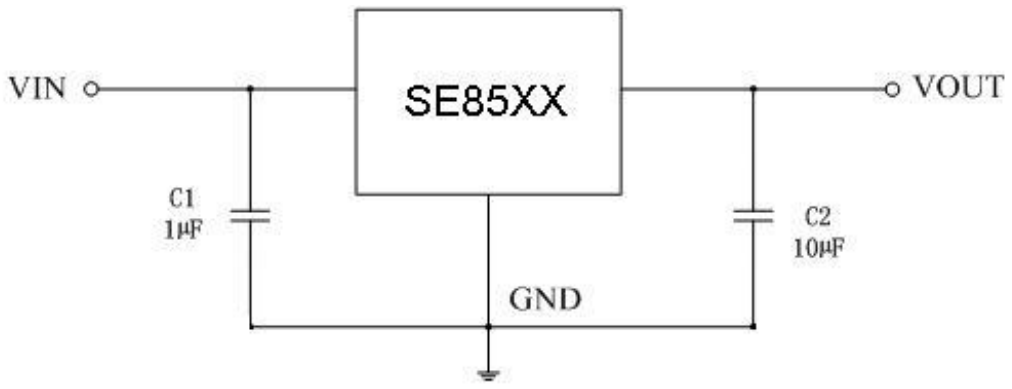
Features

- Ultra Low Quiescent Current: 2.6 μA(Typ.)
- Wide Operating Voltage: V_{OUT}+1V to 35V
- High output current: ≥200mA
- System startup with no overshoot
- Short circuit protection is designed with no overshoot
- UVLO 1.8V
- Low Dropout Voltage
- High Accuracy Output Voltage: ±1%
- Excellent power / load transient response
- Low temperature coefficient: ±100ppm/℃
- Thermal and Short-Circuit Protection
- SOT-89 and SOT-23 package
- Customer Pin Assignments are available

Applications

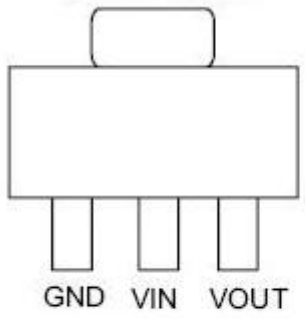
- Battery-powered Smoke sensor
- Smoke sensor
- Microcontrollers
- Household appliances and instruments

Application Diagram

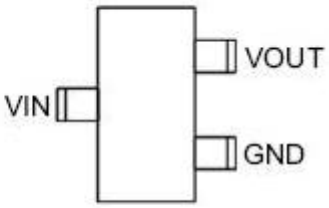


Pin Configuration

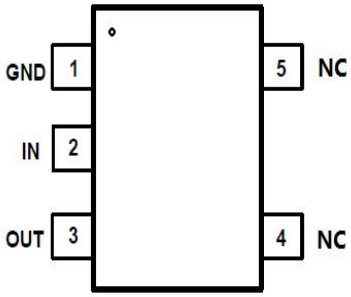
(Customer pin assignments are available)



SOT89



SOT23-3



SOT-23-5

Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{IN}	Input Supply Voltage	40	V
V_{OUT}	Output Voltage	6	
T_A	Operating Temperature	-40----105	°C
T_{STG}	Storage Temperature	-40---150	
T_J	Maximum Junction Temperature	150	
T_{LEAD}	Lead Temperature (Soldering) 10 seconds	260	
θ_{JA}	Thermal Resistance, Junction-to-Ambient	165(SOT89)	°C/W
		230(SOT23)	
P_D	Power Consumption	750 (SOT89)	mW
		250 (SOT23)	

Ordering Information

SE85XX X X-XX

Output Voltage
- 18：1.8V
- 25：2.5V
- 30：3.0V
- 33：3.3V
- 36：3.6V
- 40：4.0V
- 42：4.2V
- 50：5.0V

LF：LeadFree
HF：HalogenFree

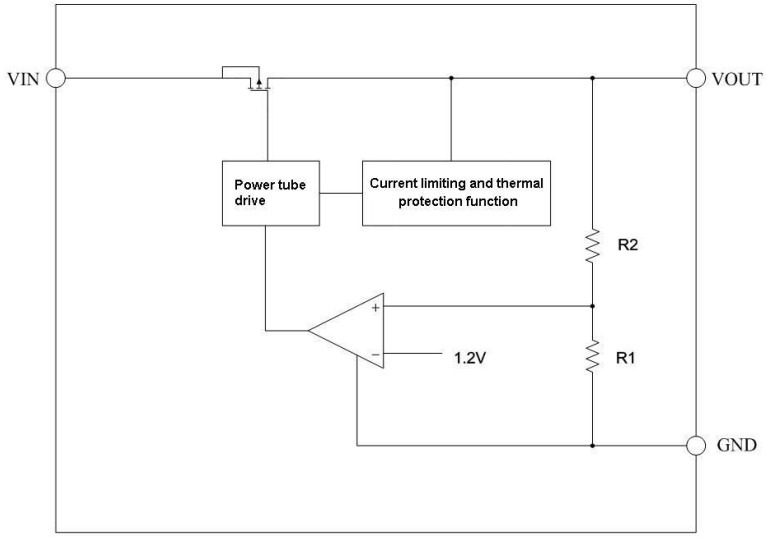
Accuracy
- 1：±1%
- 2：±2%

Package
- X：SOT23-3
- K：SOT89-3
- L：SOT23-5

Operating Rating

Parameter	Value	Units
Operating Temperature	-20℃～85	℃
Storage Temperature	-40℃～125	℃
Lead Temperature (Soldering) 10 seconds	260±5	℃

Block Diagram



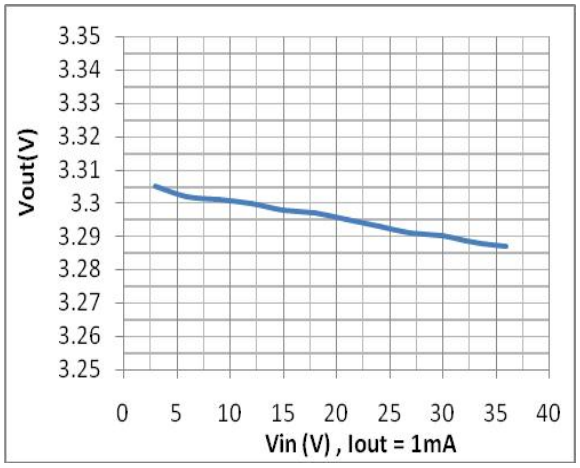
Electrical Characteristics

（V_{IN}=V_{OUT}+ 1V ； Tj=25℃ unless otherwise noted.）

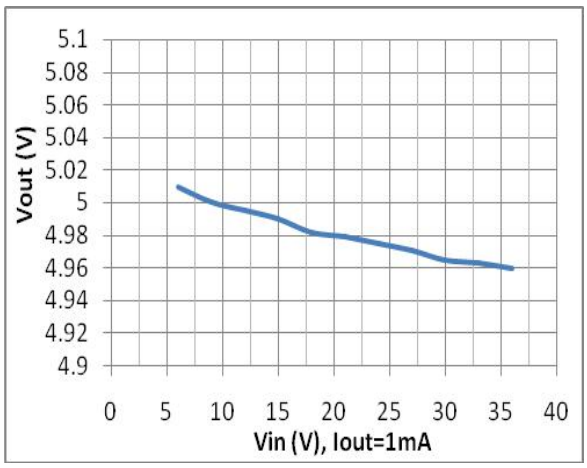
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IN}	Input Supply Voltage		1.8		36	V
V_{OUT}	Output Voltage Accuracy	I_{OUT}=10mA	-1%		1%	V
			-2%		2%	V
I_Q	Quiescent Current			2.6	6.0	μA
I_{OUT}	Output Current		200	250		mA
V_{DROP}	Dropout Voltage	I_{OUT}=10mA ΔV_{OUT}= - V_{OUT} *2%		30		mV
		I_{OUT}=100mA ΔV_{OUT}= - V_{OUT} *2%		300		mV
		I_{OUT}=200mA ΔV_{OUT}= - V_{OUT} *2%		600		mV
V_{LR}	Load Regulation	1mA ≤ I_{OUT}≤ 100mA		40		mV
V_{SR}	Line Regulation	I_{OUT}=1mA, V_{IN}=(V_{OUT} +1V) to 30V		0.2		%/V

I_{LIMIT}	Current Limit	V_{IN}=(V_{OUT} +1V) to 30V R_{LOAD}=V_{OUT} /1A		450		mA
T_{SHDN}	Thermal Protection			125		℃
TC_{VOUT}	Output Voltage Temperature Coefficient	I_{OUT}=10mA -40℃≤T_{AMB}≤100℃		±100		ppm/℃

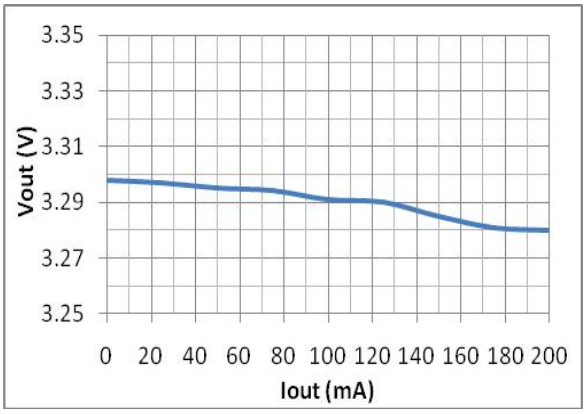
Typical Performance Characteristics



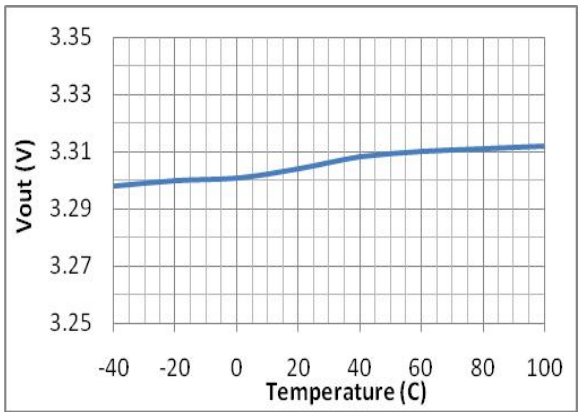
V_{OUT}：3.3V



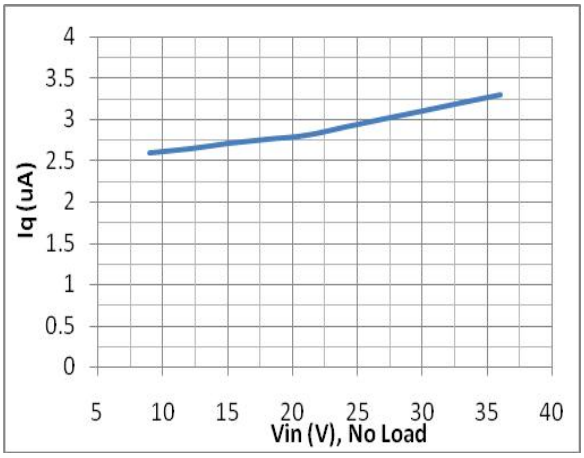
V_{OUT}：5.0V



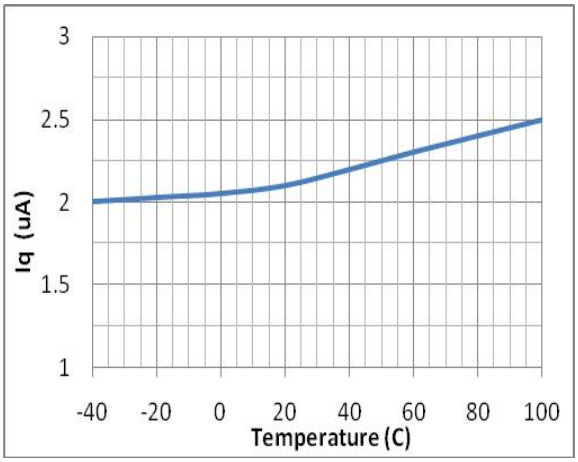
V_{OUT}：3.3V



V_{OUT}：3.3V

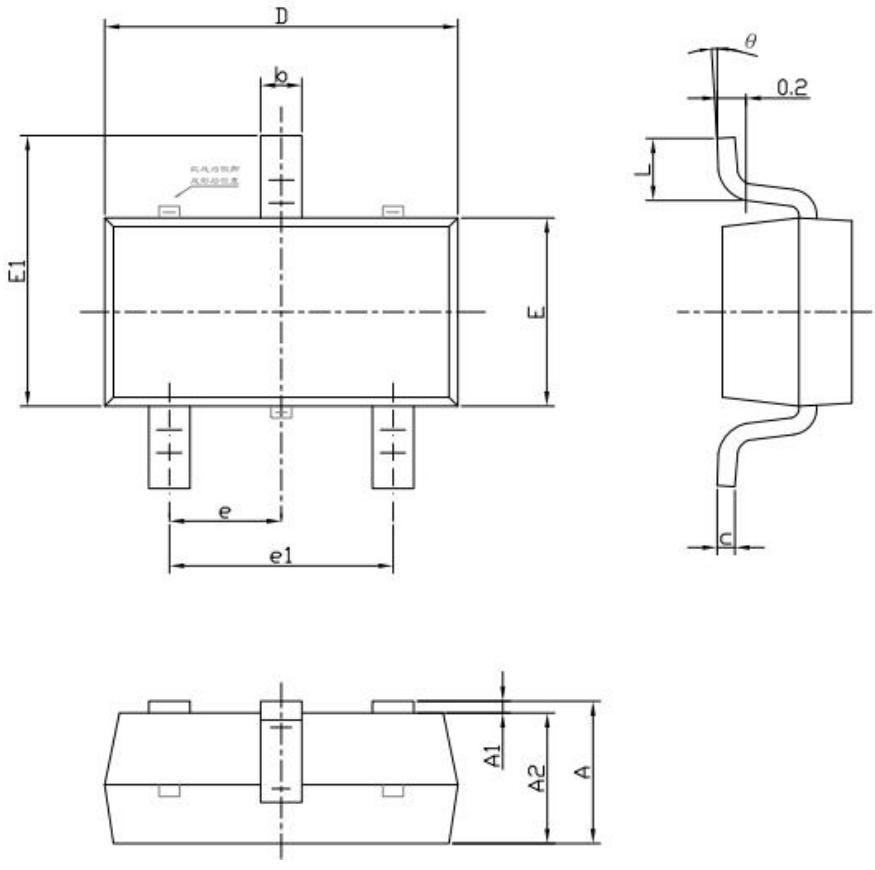


V_{OUT}：3.3V



V_{OUT}：5.0V

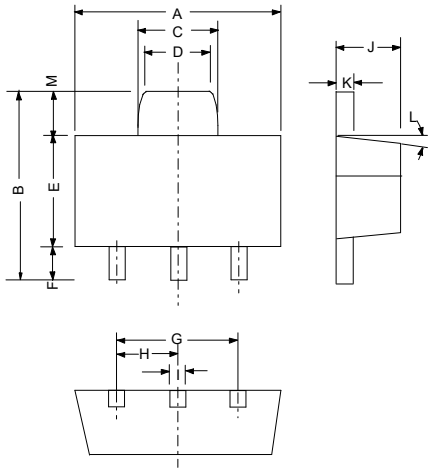
Outline Drawing for SOT-23-3



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°

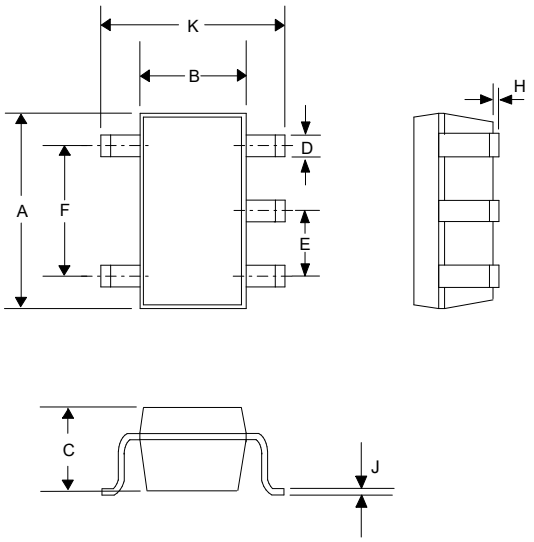
Outline Drawing for SOT-89

SOT-89



DIMENSIONS				
DIM N	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.173	0.181	4.400	4.600
B	0.159	0.167	4.050	4.250
C	0.067	0.075	1.700	1.900
D	0.051	0.059	1.300	1.500
E	0.094	0.102	2.400	2.600
F	0.035	0.047	0.890	1.200
G	0.118REF		3.00REF	
H	0.059REF		1.50REF	
I	0.016	0.020	0.400	0.520
J	0.055	0.063	1.400	1.600
K	0.014	0.016	0.350	0.410
L	10°TYP		10°TYP	
M	0.028REF		0.70REF	

Outline Drawing for SOT-23-5



DIMENSIONS				
DIM N	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.05
B	0.059	0.070	1.50	1.75
C	0.036	0.051	0.90	1.30
D	0.014	0.020	0.35	0.50
E	-	0.037	-	0.95
F	-	0.075	-	1.90
H	-	0.006	-	0.15
J	0.0035	0.008	0.090	0.20
K	0.102	0.118	2.60	3.00

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