

Descriptions

EC85XX 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 EC85XX operates from an input voltage of $V_{OUT}+1V$ to 35V, consumes only 2.6μA of quiescent current, and offers 2% initial accuracy and low dropout voltage, 300mV typical at 100mA.

EC85XX 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.

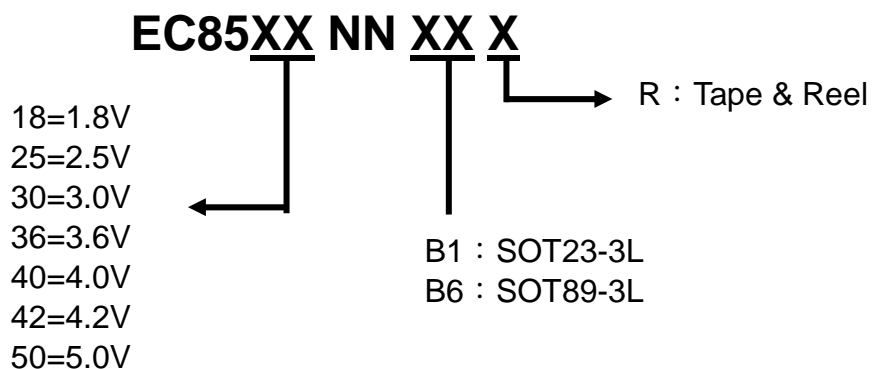
Feature

- Ultra Low Quiescent Current: 2.6μA(Typ.)
- Wide Operating Voltage: $V_{OUT}+1V$ to 35V
- High output current: $\geq 200mA$
- System startup with no overshoot
- Short circuit protection is designed with no overshoot
- Low Dropout Voltage
- High Accuracy Output Voltage: $\pm 2\%$
- Excellent power / load transient response
- Low temperature coefficient: $\pm 100ppm/^{\circ}C$
- Thermal and Short-Circuit Protection
- SOT-89 and SOT-23 package
- Customer Pin Assignments are available

Application

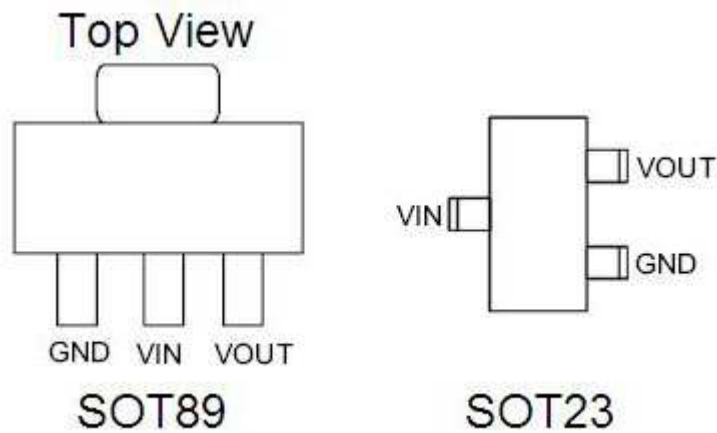
- Battery-powered Smoke sensor
- Smoke sensor
- Microcontrollers
- Household appliances and instruments

Ordering Information

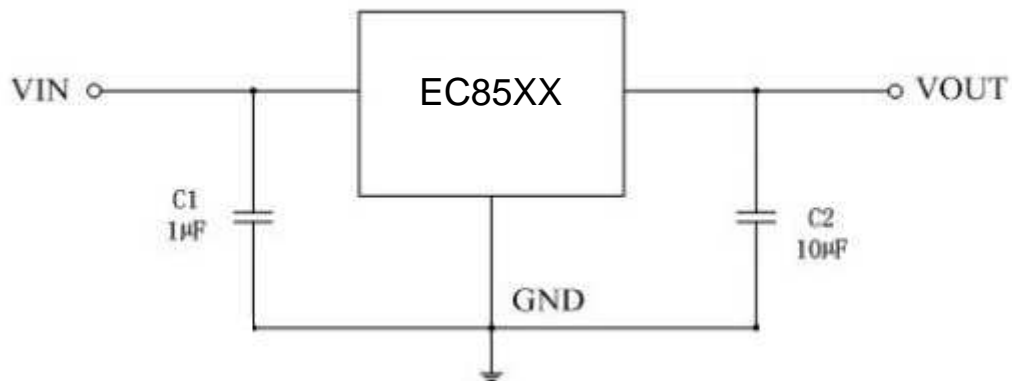


Part Number	Package	Marking	Marking Information
EC85xxNNB1R	SOT23	85VV YYWW	1. VV : Voltage version ; 18=1.8V 、 30=3.0V... 2. YY : Year code ; 14=2014 、 15=2015... 3. WW : Week code
EC85xxNNB6R	SOT89	EC85VV YWLLLL	1. VV : Voltage version ; 18=1.8V 、 30=3.0V... 2. Y : Year code ; E=2014,F=2015... 3. W : Week code ; 1~26→A~Z 27~52→a~z 4. LLLL : Last five numbers of Lot No.

Pin Configuration



Application Diagram



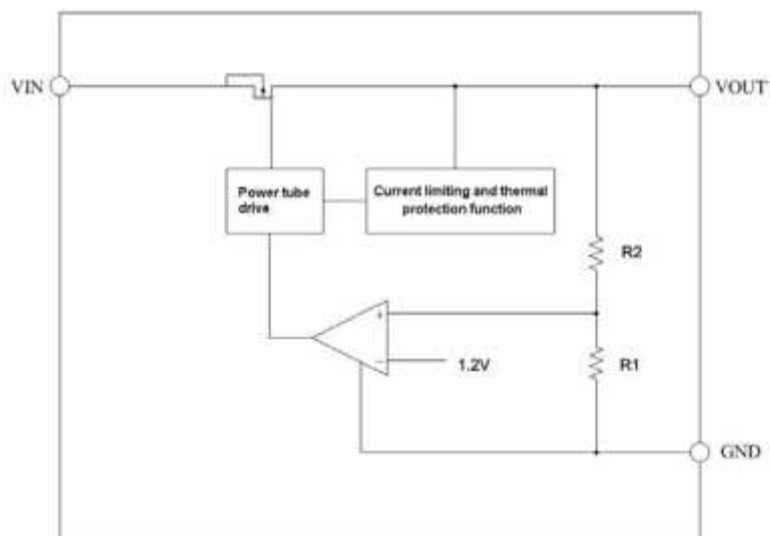
Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V _{IN}	Input Supply Voltage	38	V
V _{OUT}	Output Voltage	6	V
T _A	Operating Temperature	-40 ~ 85	°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)	
PD	Power Consumption	750 (SOT89)	mW
		250 (SOT23)	

Operating Rating

Parameter	Value	Symbol	Units
Operating Temperature	-20°C ~ 85	V _{IN}	°C
Storage Temperature	-40°C ~ 125	V _{OUT}	°C
Lead Temperature (Soldering) 10 seconds	260±5	T _A	°C

Block Diagram

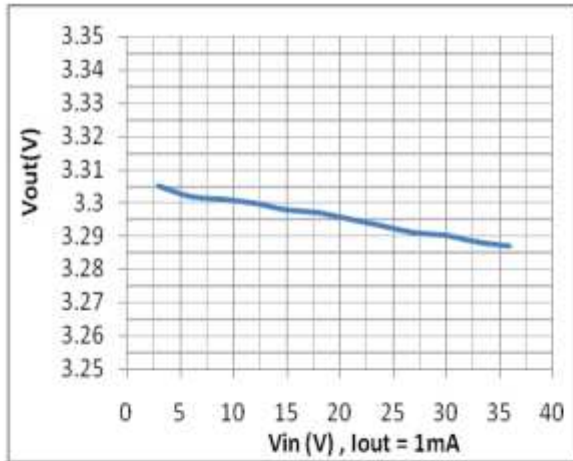


Electrical Characteristics

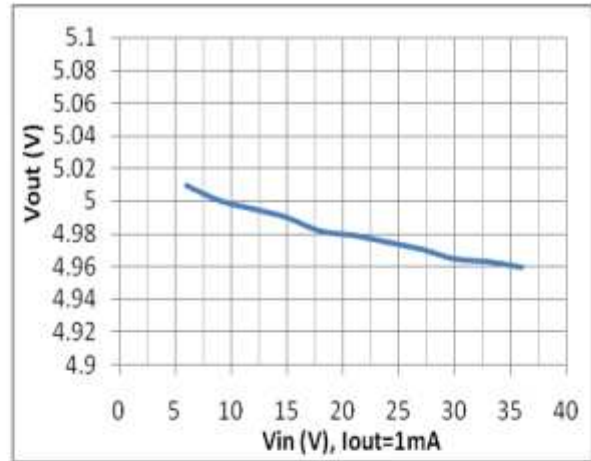
($V_{IN}=V_{OUT}+1V$; $T_j=25^{\circ}C$ unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IN}	Input Supply Voltage		3		36	V
V_{OUT}	Output Voltage Accuracy	$I_{OUT}=10mA$	-2%		2%	V
I_Q	Quiescent Current			2.6	6.0	μA
I_{OUT}	Output Current		200	250		mA
V_{DROP}	Dropout Voltage	$I_{OUT}=10mA$ $\Delta V_{OUT} = -V_{OUT} * 2\%$		30		mV
		$I_{OUT}=100mA$ $\Delta V_{OUT} = -V_{OUT} * 2\%$		300		mV
		$I_{OUT}=200mA$ $\Delta V_{OUT} = -V_{OUT} * 2\%$		600		mV
V_{LR}	Load Regulation	$1mA \leq I_{OUT} \leq 100mA$		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		$^{\circ}C$
TC_{VOUT}	Output Voltage Temperature Coefficient	$I_{OUT}=10mA$ $-40^{\circ}C \leq T_{AMB} \leq 100^{\circ}C$		± 100		ppm/ $^{\circ}C$

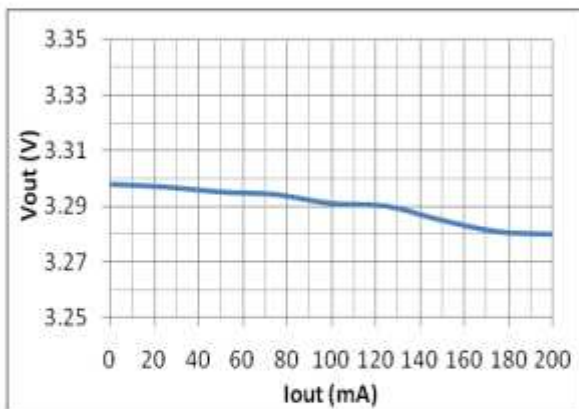
Typical Performance Characteristics



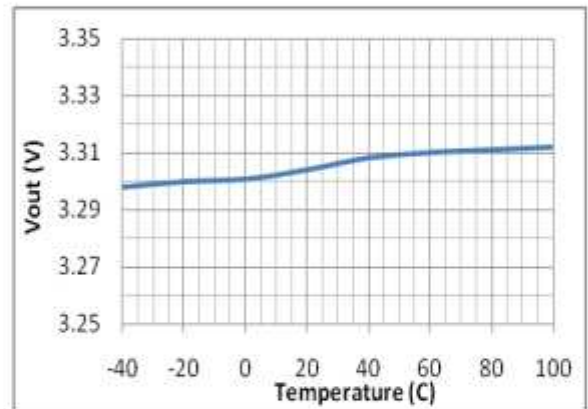
V_{OUT}: 3.3V



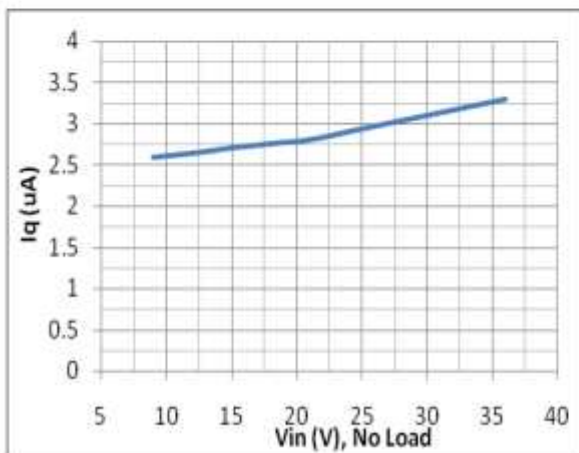
V_{OUT}: 5.0V



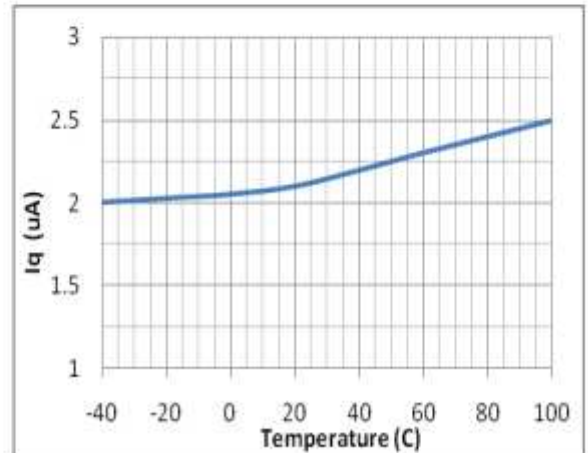
V_{OUT}: 3.3V



V_{OUT}: 3.3V

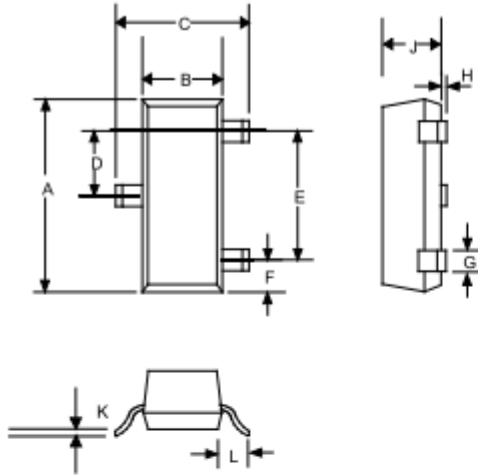


V_{OUT}: 3.3V

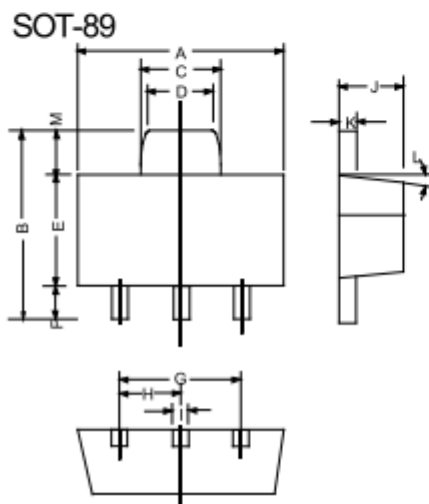


V_{OUT}: 5.0V

Outline Drawing

OUTLINE DRAWING SOT-23


DIMENSIONS				
DIM ^N	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.04
B	0.047	0.055	1.20	1.40
C	0.083	0.104	2.10	2.64
D	0.035	0.040	0.89	1.03
E	0.070	0.080	1.78	2.05
F	0.018	0.024	0.45	0.60
G	0.015	0.020	0.37	0.51
H	0.0005	0.004	0.013	0.10
J	0.034	0.040	0.887	1.02
K	0.003	0.007	0.085	0.18
L	-	0.027	-	0.69

Outline Drawing for 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	