

150 mA, high input voltage LDO Linear Regulators

General Description

SL85XX series are low-dropout linear voltage regulators with a built-in voltage reference module, error correction module and phase compensation module. SL85XX series are based on the CMOS process and allow high voltage input with low quiescent current. This series has the function of internal feedback resistor setting from 3.0V to 5.0V. The output accuracy is $\pm 2\%$.

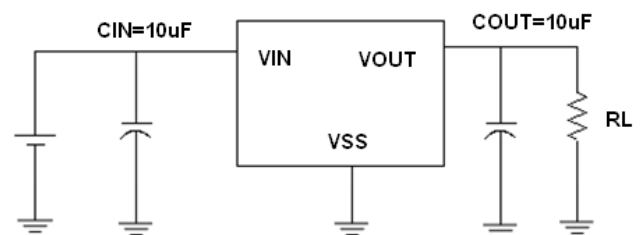
Features

- High output accuracy: $\pm 2\%$
- Input voltage: up to 18 V
- Output voltage: 3.0 V ~ 5.0V
- Ultra-low quiescent current (Typ. = 3 μ A)
- Output Current: $I_{out} = 200\text{mA}$
(When $V_{in} = 7\text{V}$ and $V_{out} = 5\text{V}$)
- Importation good stability: Typ. 0.05% / V
- Low temperature coefficient
- Ceramic capacitor can be used
- Package: SOT89-3, SOT23-3

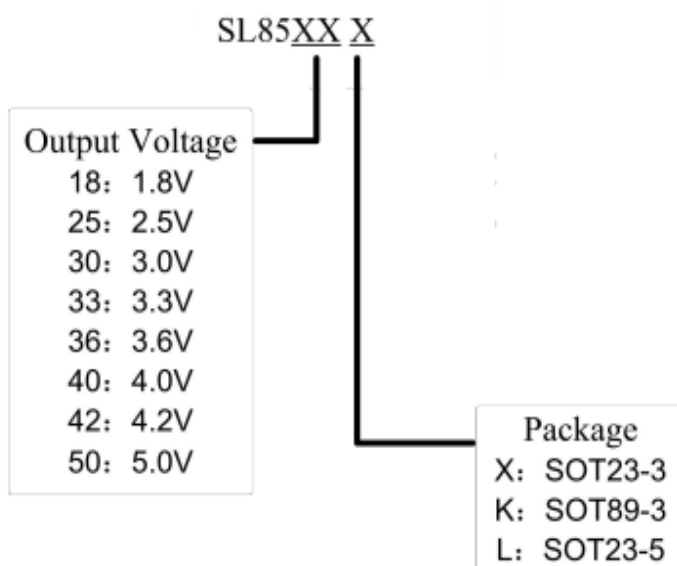
Typical Application

- Electronic weighbridge
- SCM
- Phones, cordless phones
- Security Products
- Water meters, power meters

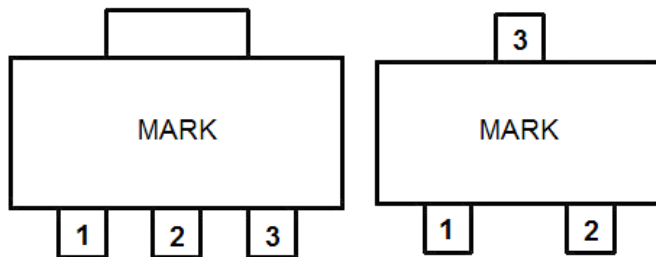
Typical Application Circuit



Selection Guide



Pin Configuration



SOT89-3

SOT23-3

Pin Assignment

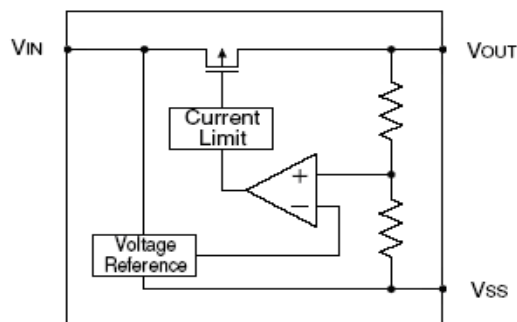
SL85XX

Pin Number		Pin Name	Functions
SOT89-3	SOT23-3		
1	1	V_{SS}	Ground
2	3	V_{IN}	Power Input
3	2	V_{OUT}	Output

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Units	
Input Voltage	V_{IN}	18	V	
Output Current	I_{OUT}	250	mA	
Output Voltage	V_{OUT}	$V_{SS}-0.3 \sim V_{IN} + 0.3$	V	
Power Dissipation	SOT89-3	P_D	500	mW
	SOT23-3		300	mW
Operating Temperature Range	T_{OPR}	$-25 \sim +85$	$^{\circ}C$	
Storage Temperature Range	T_{STG}	$-40 \sim +125$	$^{\circ}C$	
Lead Temperature		$260^{\circ}C, 10sec$		

Block Diagram



Electrical Characteristics
SL85XX
 $(V_{IN} = V_{OUT} + 2.0V, C_{IN} = C_L = 10\mu F, T_a = 25^{\circ}C, \text{ unless otherwise noted})$

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 40mA,$ $V_{IN} = V_{OUT} + 2V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Input Voltage	V_{IN}				18	V
Maximum Output Current	I_{OUT_max}	$V_{IN} = V_{OUT} + 2V$	150			mA
Load Regulation	ΔV_{OUT}	$V_{IN} = V_{OUT} + 2V,$ $1mA \leq I_{OUT} \leq 100mA$		10		mV
Dropout Voltage (Note 3)	V_{dif1}	$I_{OUT} = 50mA$		250		mV
	V_{dif2}	$I_{OUT} = 100mA$		500		mV
	V_{dif3}	$I_{OUT} = 200mA$		1000		mV
Supply Current	I_{SS}	$V_{IN} = V_{OUT} + 2V$		3		μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$I_{OUT} = 40mA$ $V_{OUT} + 2V \leq V_{IN} \leq 18V$		0.05		%/V

Note :

- $V_{OUT(T)}$: Specified Output Voltage
- $V_{OUT(E)}$: Effective Output Voltage (ie. The output voltage when " $V_{OUT(T)} + 2.0V$ " is provided at the Vin pin while maintaining a certain Iout value.)
- V_{DIF} : $V_{IN1} - V_{OUT(E)}$
 V_{IN1} : The input voltage when $V_{OUT(E)}$ appears as input voltage is gradually decreased.
 $V_{OUT(E)}$ = A voltage equal to 98% of the output voltage whenever an amply stabilized Iout and $\{V_{OUT(T)} + 2.0V\}$ is input.

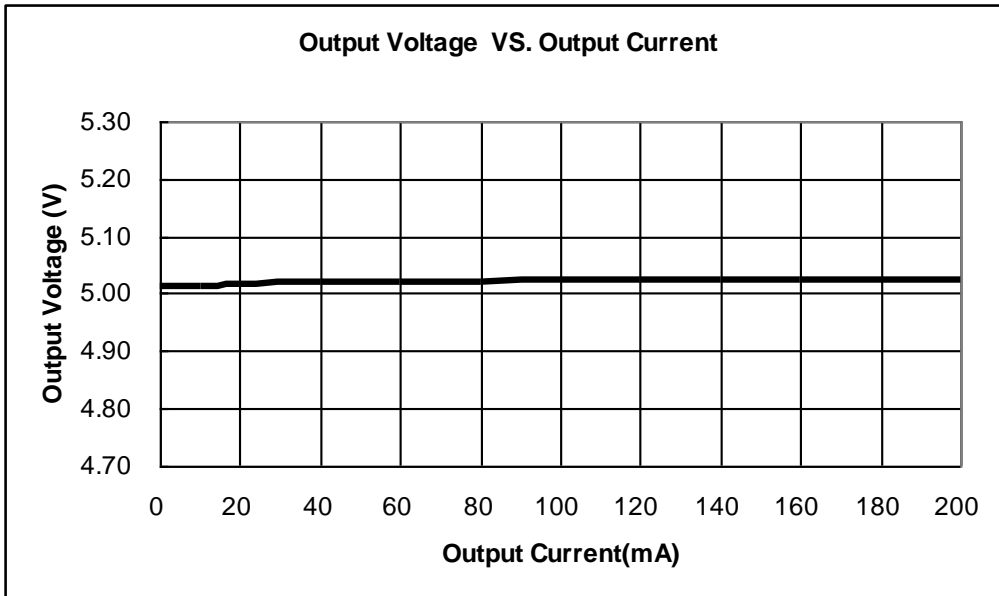
Precautions

- During the test, if AC/DC power supply and the ceramic chip capacitors collocation is used, there may be serious voltage spike phenomenon instantaneously. When the power supply access to 16V, the voltage is rushed to about 30V instantaneously. Because of exceeding the limit voltage of chip, the chip is damaged. If you string a small resistance of 1 ohm in the input end during the test, the peak phenomenon can be avoided.
- In the test, there is serious burr phenomenon only when the AC/DC power is used with ceramic chip capacitors. But electrolytic capacitors and tantalum capacitance won't appear above phenomenon. Please be sure to pay attention to this point when you use AC/DC power.
- In normal use, when any type of capacitor is used with battery or the supply of fire power, the above phenomenon doesn't occur.

Type Characteristics

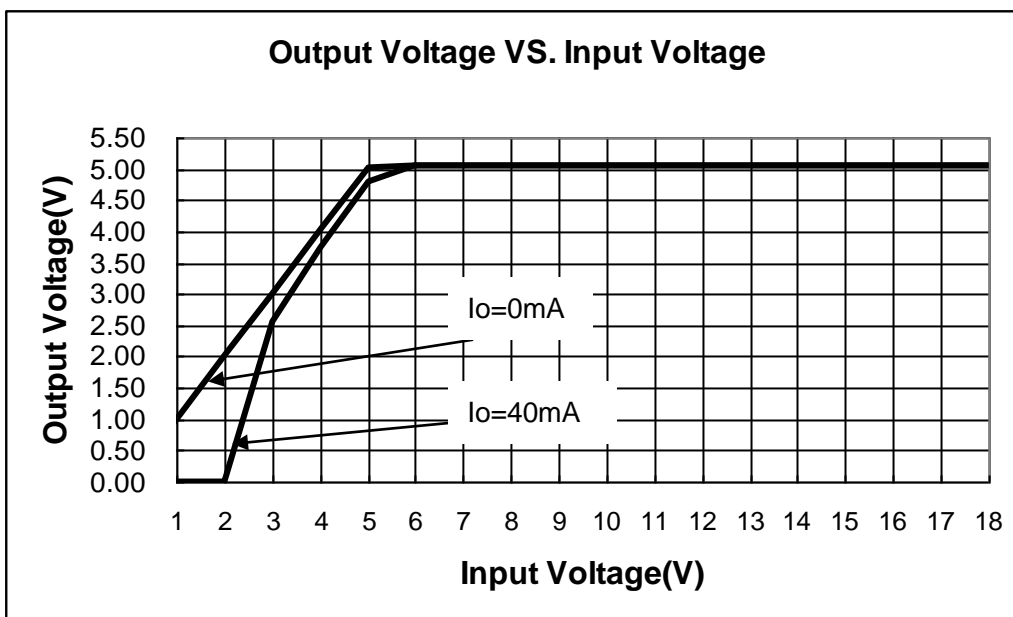
(1) Output Current VS. Output Voltage ($T_a = 25\text{ }^\circ\text{C}$)

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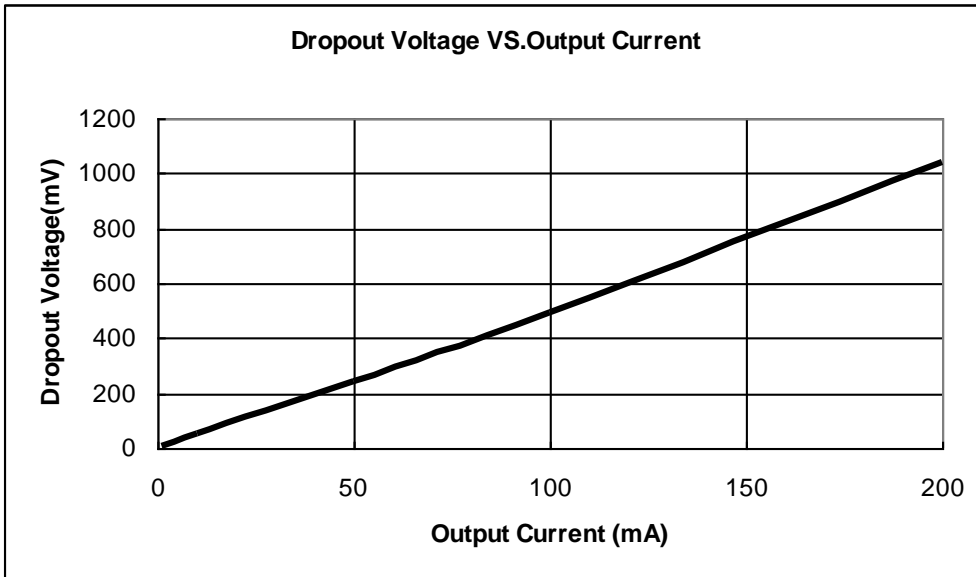
(2) Input Voltage VS. Output Voltage ($T_a = 25\text{ }^\circ\text{C}$)

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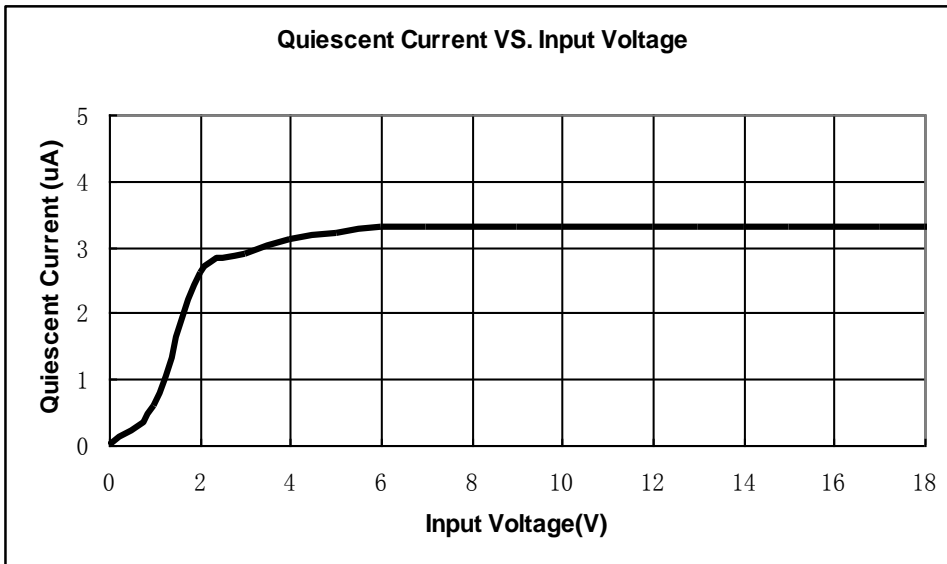
(3) Output Current VS. Dropout Voltage ($T_a = 25\text{ }^\circ\text{C}$)

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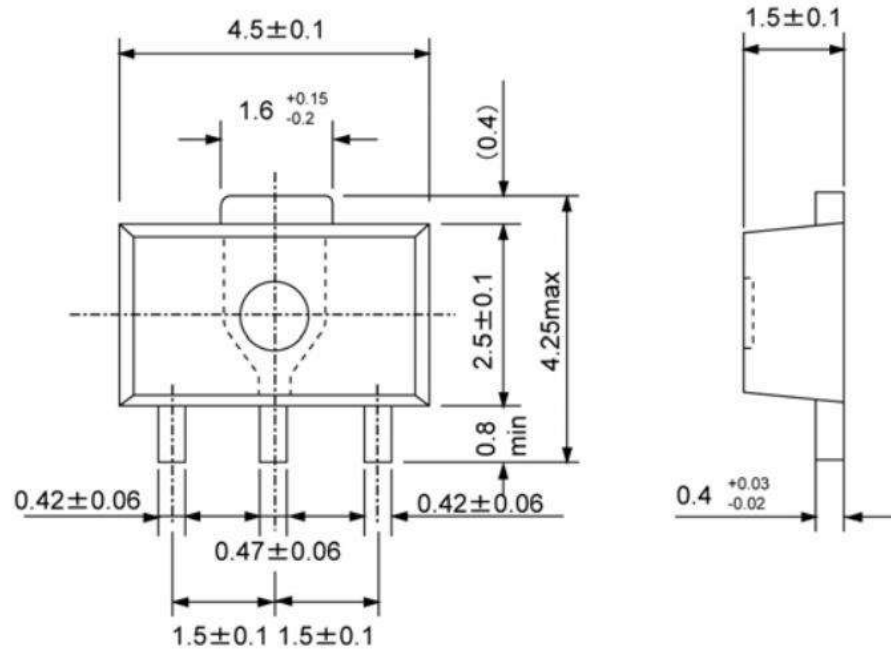
(4) Input Voltage VS. Supply Current ($T_a = 25\text{ }^\circ\text{C}$)

SL85XX



Packaging Information

- SOT89-3



- SOT23-3

