

Low power consumption, Low ESR Cap. Compatible ME6206 Series

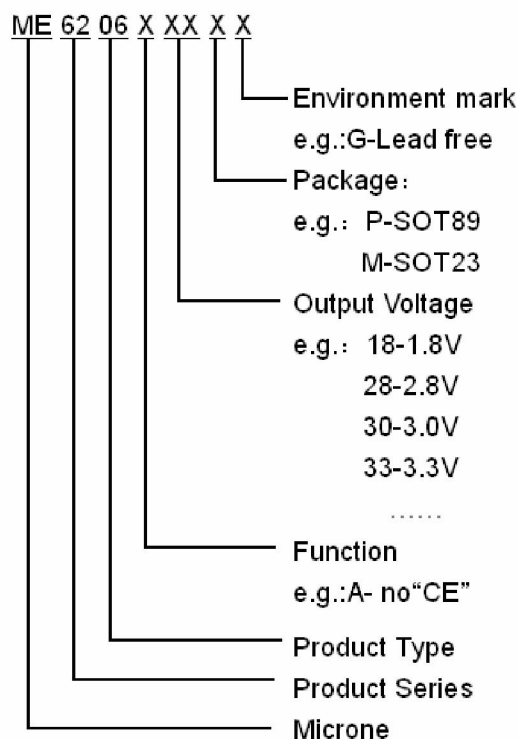
General Description

ME6206 series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin.

Features

- | Highly Accurate : $\pm 2\%$
- | Output voltage range : 1.5V~5.0V (selectable in 0.1V steps)
- | Low power consumption : 8 μ A(TYP.)
- | Large output current : 300mA
- | Input voltage: up to 6 V
- | Dropout voltage : 0.2V at 100mA and 0.40V at 200mA
- | Excellent Input Stability
- | Be available to regulator and reference voltage
- | Packages: SOT23-3 , SOT89-3 , SOT23 , TO-92

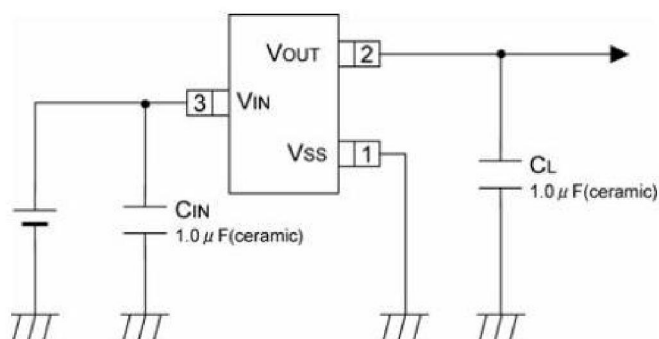
Selection Guide



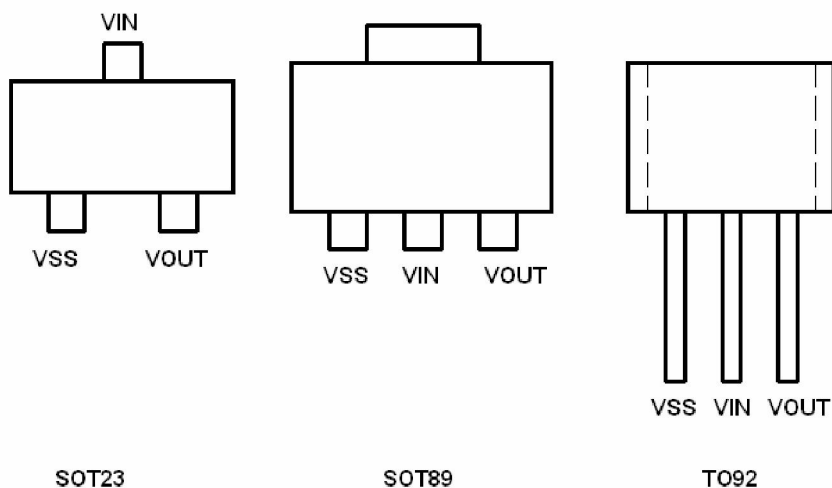
Typical Application

- | Battery powered equipment
- | Communication tools
- | Mobile phones
- | Portable games
- | Portable AV systems
- | Cameras, Video systems
- | Reference voltage sources

Typical Application Circuit



Pin Configuration



Pin Assignment

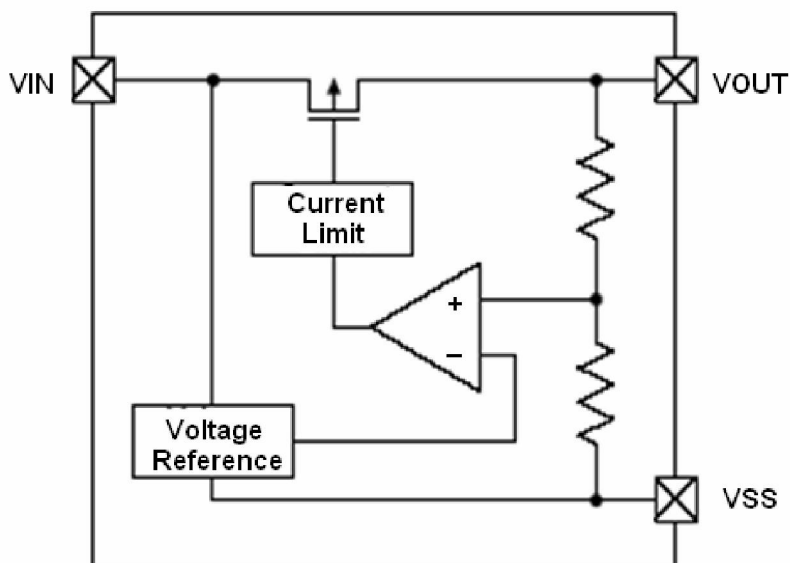
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Pin					Name	Function
M3	P	P1	X	T		
SOT23-3	SOT89-3	SOT89-3	SOT23	TO-92		
1	1	2	1	1	Vss	Ground
2	3	1	2	3	Vout	Output
3	2	3	3	2	Vin	input

Absolute Maximum Ratings

Parameter	Symbol	Description	Units
Input Voltage	V_{IN}	6.5	V
Output Current	I_{out}	500	mA
Output Voltage	V_{out}	$V_{ss}-0.3 \sim V_{out}+0.3$	V
Power Dissipation	SOT23-3	P_d	300 mW
	SOT89-3	P_d	500 mW
	SOT23	P_d	300 mW
	TO-92	P_d	500 mW
Operating Ambient Temperature	T_{Opr}	-25 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +125	

Block Diagram



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($V_{IN}=V_{out}+1V, C_{in}=C_{out}=1\mu, T_a=25^\circ C$ Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=10mA,$ $V_{IN}=V_{out}+1V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Input Voltage	V_{IN}				6	V
Maximum Output Voltage	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		100		mA
Load Regulation	V_{OUT}	$V_{IN}=V_{out}+1V,$ $1mA I_{OUT} 80mA$		10		mV
Dropout Voltage (Note 3)	V_{dif1}	$I_{OUT} =20mA$		180		mV
	V_{dif2}	$I_{OUT} =50mA$		360		mV
Supply Current	I_{SS}	$V_{IN}=V_{out}+1V$		7		μA
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =10mA$ $V_{out}+1V V_{IN} 5V$		0.1		%/V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V$ $+1Vp-pAC$ $I_{OUT} =10mA, f=1kHz$		45		dB
Short Circuit Current	I_{short}	$V_{in}=V_{out(T)}+1.5V$ $V_{out}=V_{ss}$		20		mA
Over Current Protection	I_{limit}			300		mA

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(VIN=Vout+1V,Cin=Cout=1u,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V _{OUT} (E) (Note 2)	I _{OUT} =10mA, V _{IN} =Vout+1V	X 0.98	V _{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V _{IN}				6	V
Maximum Output Voltage	I _{OUT} (max)	V _{IN} =Vout+1V		120		mA
Load Regulation	V _{OUT}	V _{IN} =Vout+1V, 1mA I _{OUT} 80mA		12		mV
Dropout Voltage (Note 3)	V _{dif1}	I _{OUT} =20mA		180		mV
	V _{dif2}	I _{OUT} =50mA		360		mV
Supply Current	I _{SS}	V _{IN} =Vout+1V		7		μA
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	I _{OUT} =10mA Vout+1V V _{IN} 5V		0.1		%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I _{OUT} =10mA,f=1kHz		45		dB
Short Circuit Current	I _{short}	Vin=Vout(T)+1.5V Vout=Vss		25		mA
Over Current Protection	I _{limit}			400		mA

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(VIN=Vout+1V,Cin=Cout=1u,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V _{OUT} (E) (Note 2)	I _{OUT} =10mA, V _{IN} =Vout+1V	X 0.98	V _{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V _{IN}				6	V
Maximum Output Voltage	I _{OUT} (max)	V _{IN} =Vout+1V		300		mA
Load Regulation	V _{OUT}	V _{IN} =Vout+1V 1mA I _{OUT} 100mA		14		mV
Dropout Voltage (Note 3)	V _{dif1}	I _{OUT} =80mA		180		mV
	V _{dif2}	I _{OUT} =200mA		380		mV
Supply Current	I _{SS}	V _{IN} =Vout+1V		8		μA
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	I _{OUT} =40mA Vout+1V V _{IN} 6V		0.03		%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I _{OUT} =10mA,f=1kHz		50		dB

Short Circuit Current	I_{short}	$V_{in}=V_{out}(T)+1.5V$ $V_{out}=V_{ss}$		30		mA
Over Current Protection	I_{limit}			500		mA

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($V_{IN}=V_{out}+1V, C_{in}=C_{out}=1\mu, T_a=25^\circ C$ Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	$V_{OUT}(E)$ (Note 2)	$I_{OUT}=10mA,$ $V_{IN}=V_{out}+1V$	X 0.98	$V_{OUT}(T)$ (Note 1)	X 1.02	V
Input Voltage	V_{IN}				6	V
Maximum Output Voltage	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		300		mA
Load Regulation	V_{OUT}	$V_{IN}=V_{out}+1V$ $1mA I_{OUT} 100mA$		14		mV
Dropout Voltage (Note 3)	V_{dif1}	$I_{OUT} =80mA$		180		mV
	V_{dif2}	$I_{OUT} =200mA$		380		mV
Supply Current	I_{SS}	$V_{IN}=V_{out}+1V$		8		μA
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =40mA$ $V_{out}+1V V_{IN} 6V$		0.03		%/V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V$ $+1Vp-pAC$ $I_{OUT} =10mA, f=1kHz$		50		dB
Short Circuit Current	I_{short}	$V_{in}=V_{out}(T)+1.5V$ $V_{out}=V_{ss}$		30		mA
Over Current Protection	I_{limit}			500		mA

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($V_{IN}=V_{out}+1V, C_{in}=C_{out}=1\mu, T_a=25^\circ C$ Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	$V_{OUT}(E)$ (Note 2)	$I_{OUT}=10mA,$ $V_{IN}=V_{out}+1V$	X 0.98	$V_{OUT}(T)$ (Note 1)	X 1.02	V
Input Voltage	V_{IN}				6	V
Maximum Output Voltage	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		300		mA
Load Regulation	V_{OUT}	$V_{IN}=V_{out}+1V$ $1mA I_{OUT} 100mA$		14		mV
Dropout Voltage (Note 3)	V_{dif1}	$I_{OUT} =80mA$		180		mV
	V_{dif2}	$I_{OUT} =200mA$		380		mV
Supply Current	I_{SS}	$V_{IN}=V_{out}+1V$		9		μA
Line Regulations	V_{OUT}	$I_{OUT} =40mA$		0.03		%/V

	$V_{IN} \bullet V_{OUT}$	Vout+1V V_{IN} 6V				
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC $I_{OUT} = 10mA, f=1kHz$		50		dB
Short Circuit Current	I_{short}	Vin=Vout(T)+1.5V Vout=Vss		30		mA
Over Current Protection	I_{limit}			500		mA

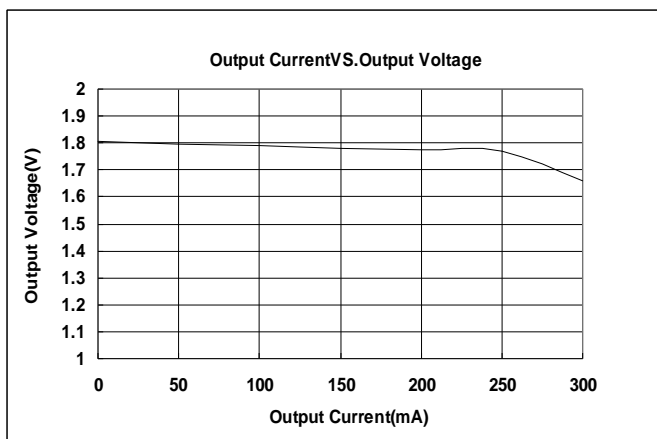
Note :

1. $V_{OUT}(T)$: Specified Output Voltage
2. $V_{OUT}(E)$: Effective Output Voltage (i.e. The output voltage when " $V_{OUT}(T)+1.0V$ " is provided at the Vin pin while maintaining a certain Iout value.)
3. 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 { $V_{OUT}(T)+1.0V$ } is input.

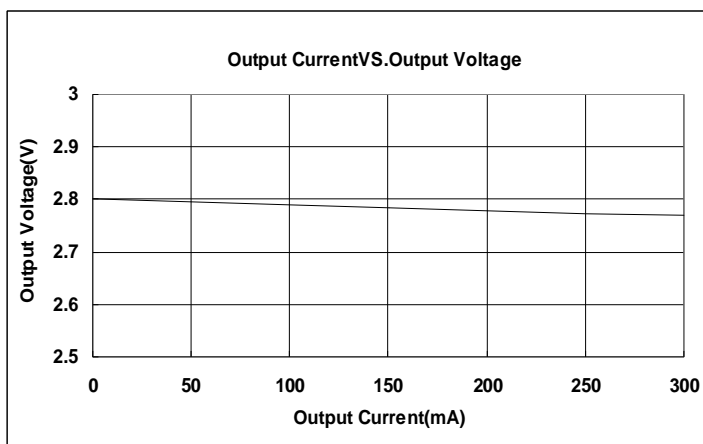
Type Characteristics

(1) Output Current VS. Output Voltage ($V_{IN}=V_{out}+1$, $T_a = 25^\circ C$)

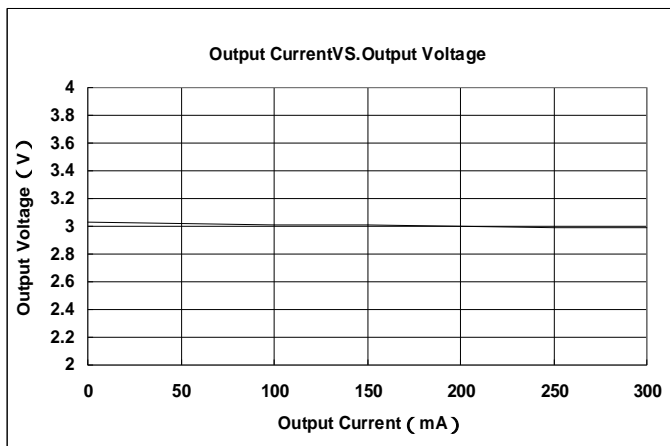
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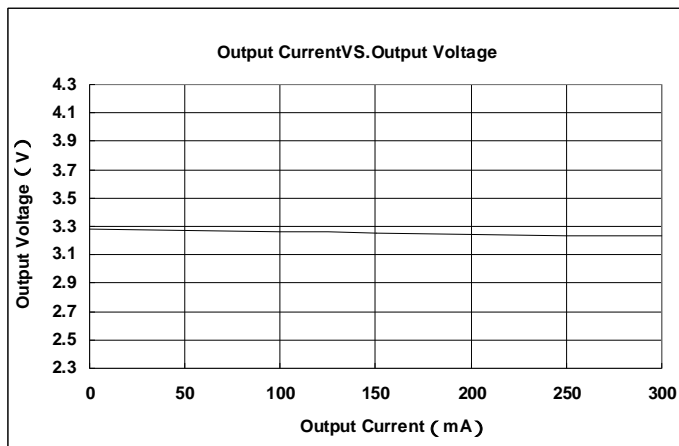
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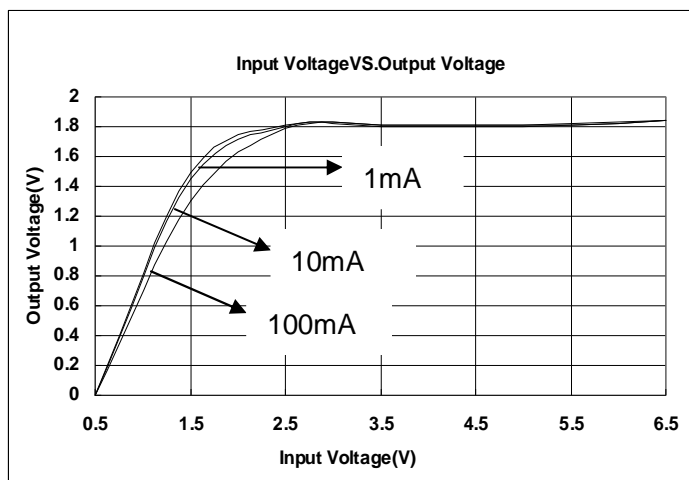


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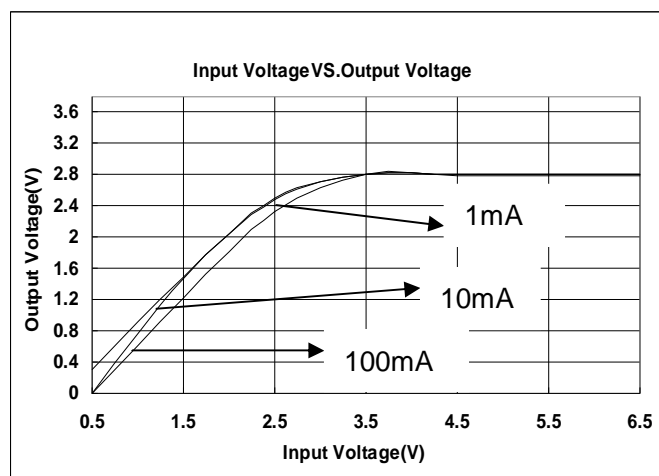


(2) Input Voltage VS. Output Voltage ($T_a = 25^\circ\text{C}$)

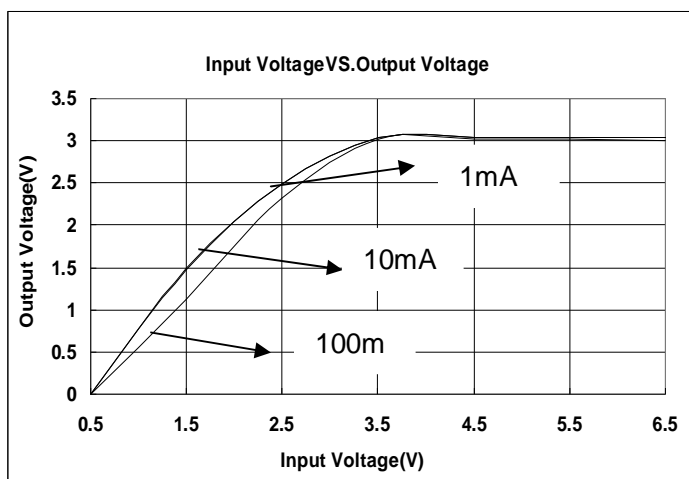
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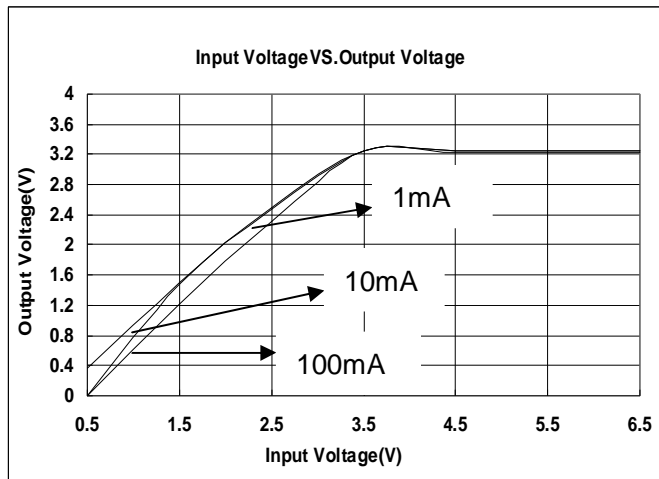
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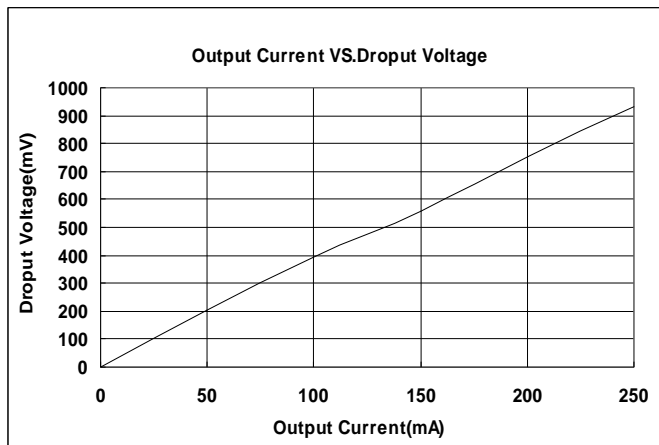


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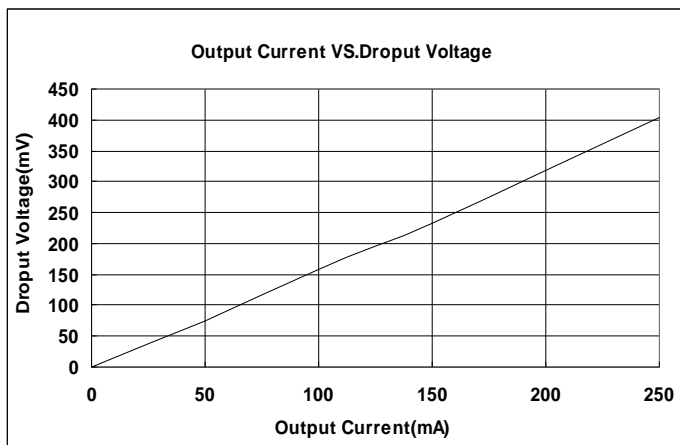


(3) Output Current VS. Dropout Voltage ($V_{IN}=V_{out}+1V, T_a = 25^\circ C$)

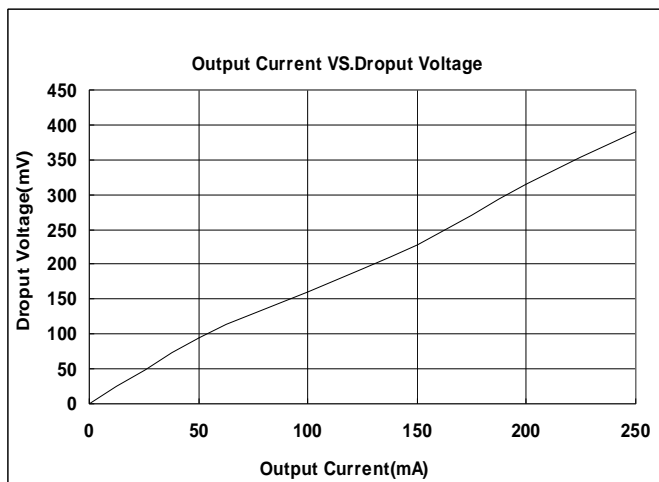
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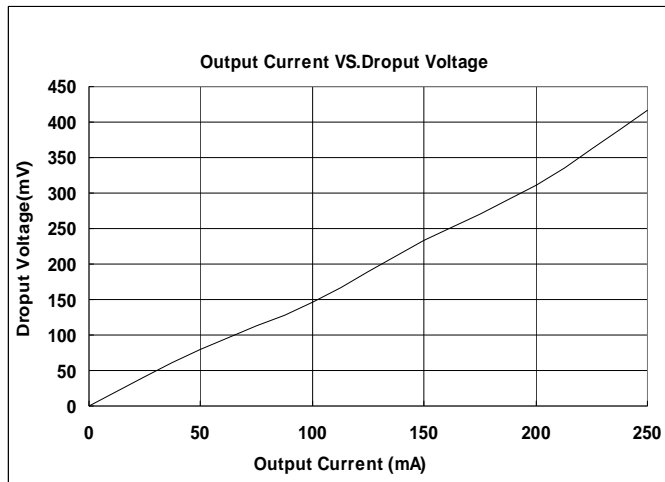
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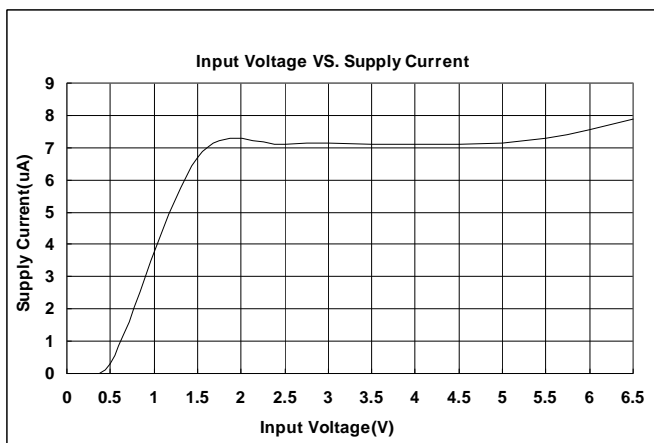


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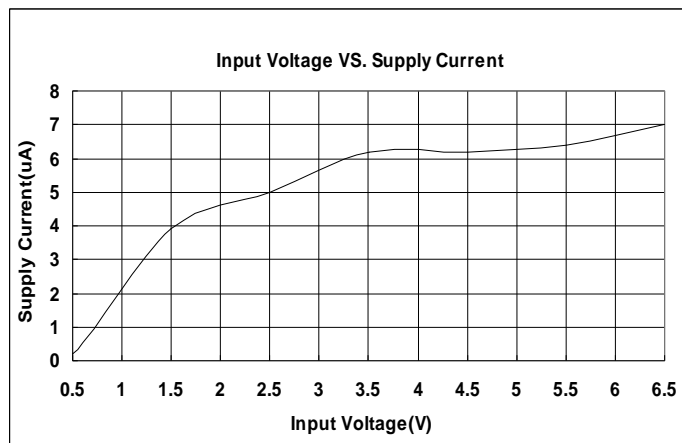


(4) Input Voltage VS. Supply Current (Ta = 25 °C)

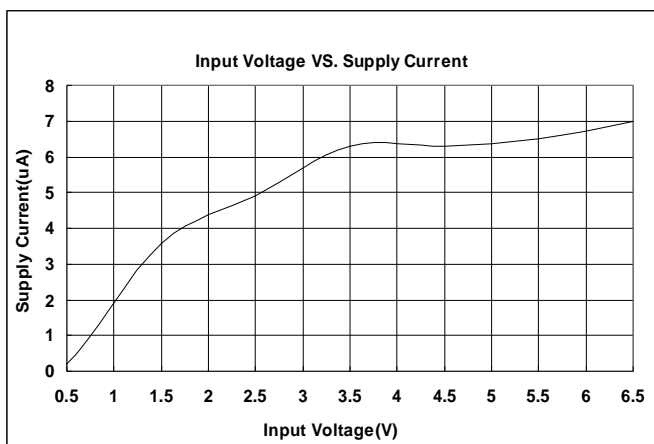
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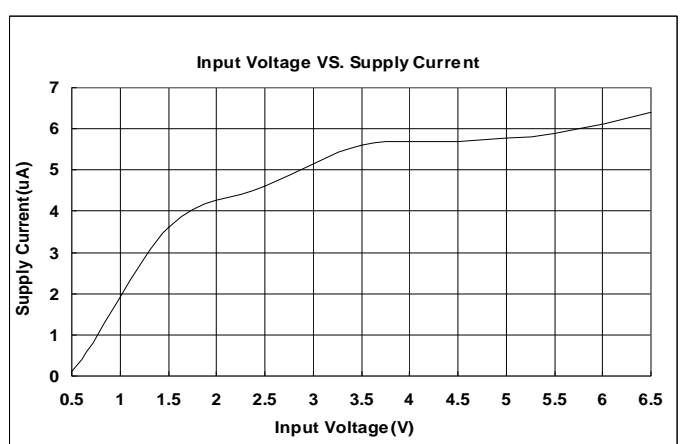
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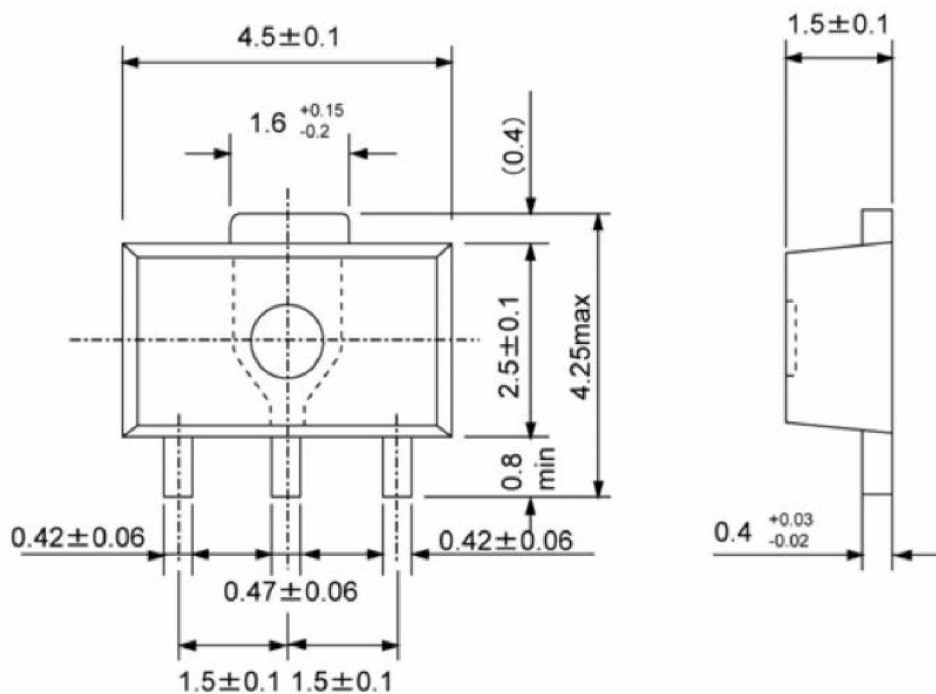


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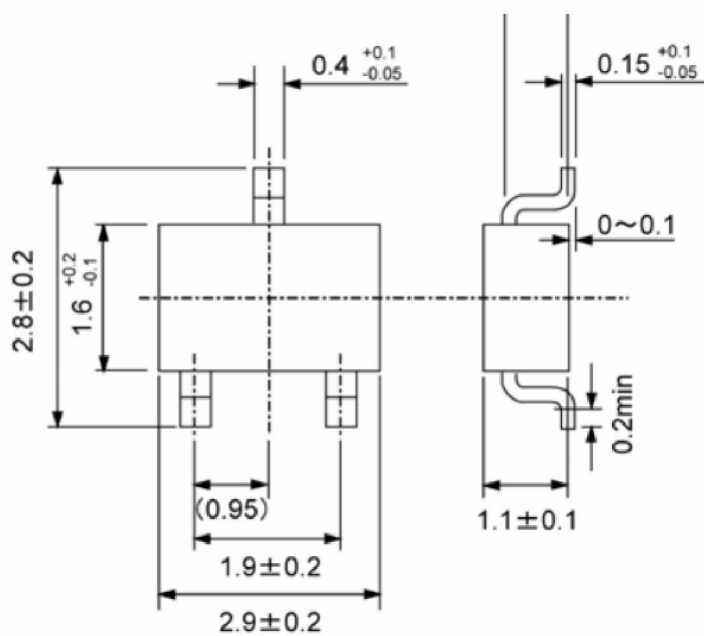


Packaging Information:

SOT89-3



SOT23-3



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