

## Low power consumption, Low ESR Cap. Compatible ME6206 Series

### General Description

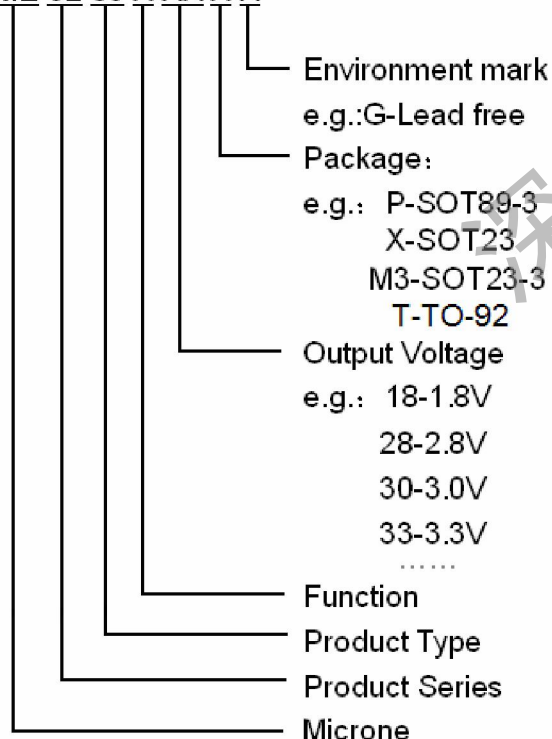
ME6206 series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The series is compatible with low ESR ceramic capacitors. The current 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 : 8uA(TYP.)
- | Large output current :300mA ( $V_{IN} = 4.3V, V_{OUT} = 3.3V$ )
- | 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

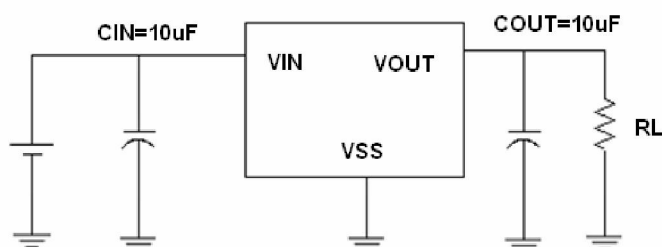
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### Typical Application

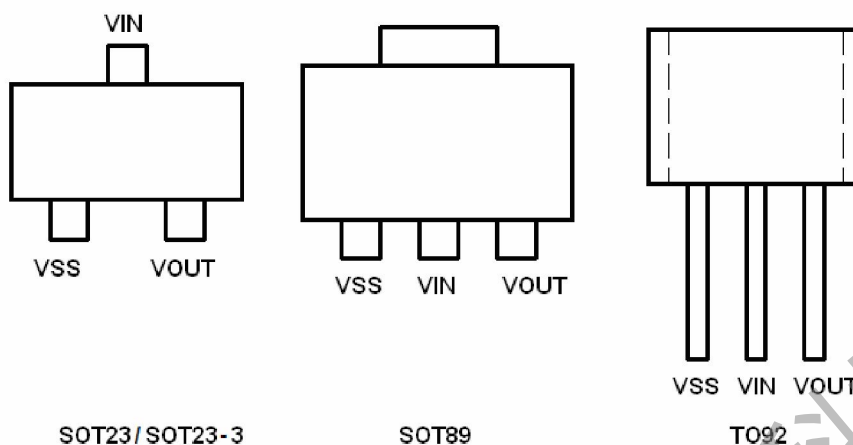
- | Battery powered equipment
- | Communication tools
- | Mobile phones
- | Portable games
- | Portable AV systems
- | Cameras, Video systems
- | Reference voltage sources

### Typical Application Circuit



Product	Supply Current
ME6206A	8 uA
ME6206K	180 uA

## Pin Configuration



## Pin Assignment

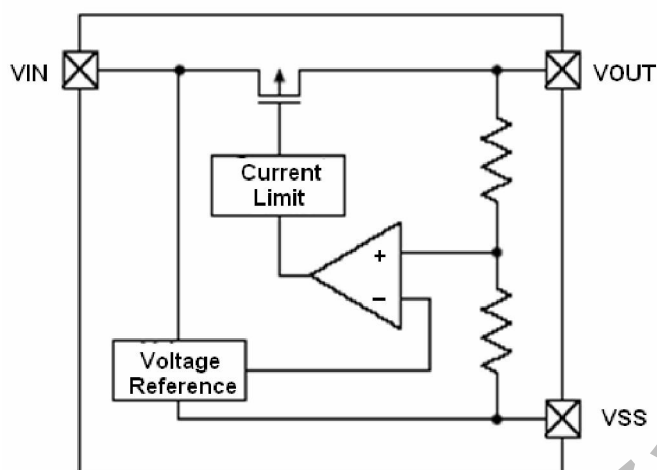
### ME6206Axx/ ME6206Kxx

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



### ME6206A15

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

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

## ME6206A18

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

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

## ME6206A28

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

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

## ME6206A30

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

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

## ME6206A33

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

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT (max)</sub>	V <sub>IN</sub> =Vout+1V		300		mA
Load Regulation	V <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V 1mA I <sub>OUT</sub> 100mA		14		mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =80mA		180		mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =200mA		380		mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		9		μA
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =40mA Vout+1V V <sub>IN</sub> 6V		0.03		%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		50		dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		30		mA
Over Current Protection	I <sub>limit</sub>			500		mA

## ME6206K33

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

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

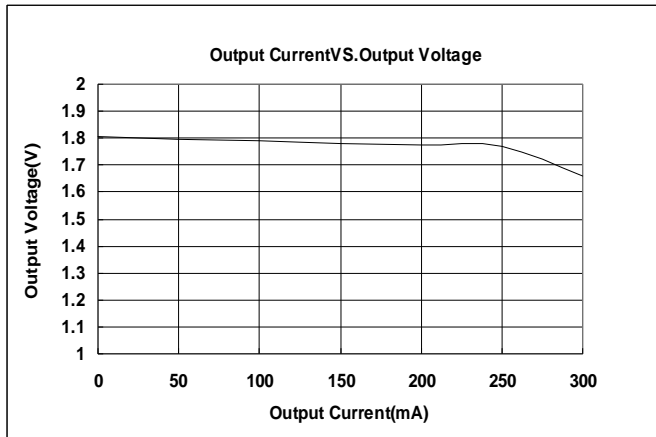
### Note :

- V<sub>OUT</sub> (T) : Specified Output Voltage
- V<sub>OUT</sub> (E) : Effective Output Voltage ( i.e. The output voltage when “V<sub>OUT</sub> (T)+1.0V” is provided at the Vin pin while maintaining a certain I<sub>OUT</sub> value.)
- V<sub>dif</sub> : V<sub>IN1</sub> - V<sub>OUT</sub> (E)'  
 V<sub>IN1</sub> : The input voltage when V<sub>OUT</sub>(E)' appears as input voltage is gradually decreased.  
 V<sub>OUT</sub> (E)'=A voltage equal to 98% of the output voltage whenever an amply stabilized I<sub>OUT</sub> {V<sub>OUT</sub> (T)+1.0V} is input.

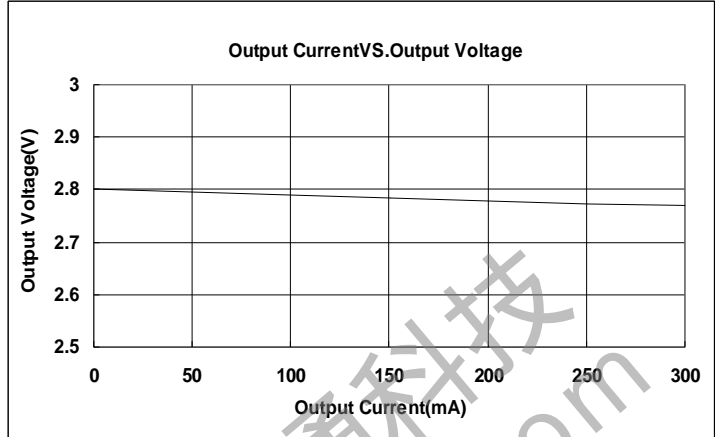
Type Characteristics

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

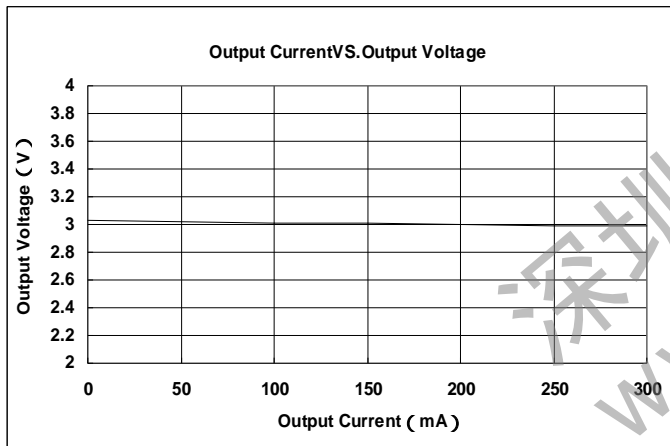
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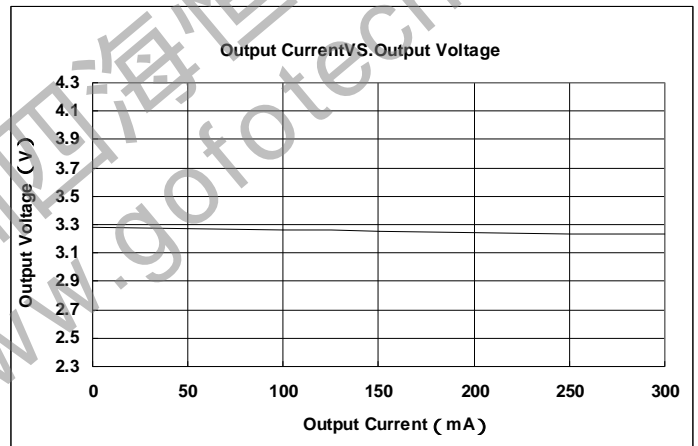
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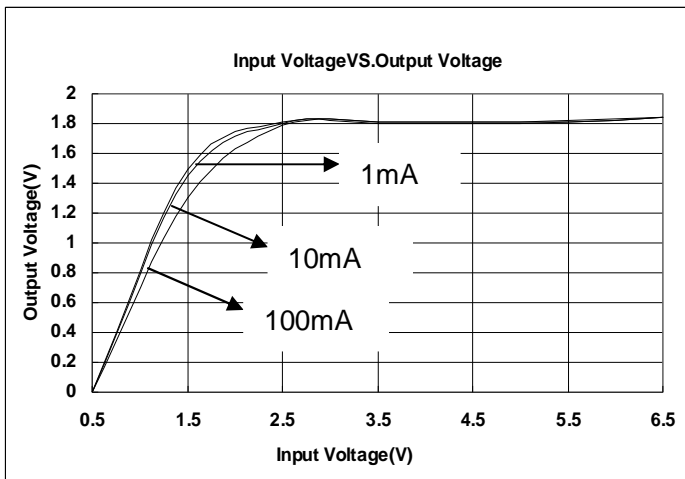


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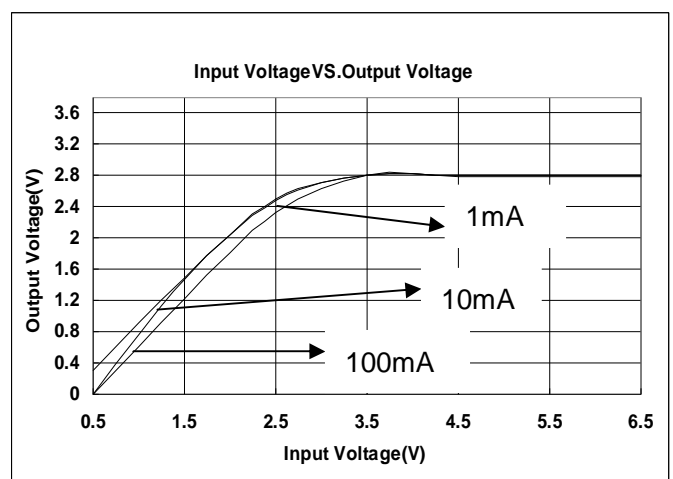


(2) Input Voltage VS. Output Voltage (  $T_a = 25^\circ C$  )

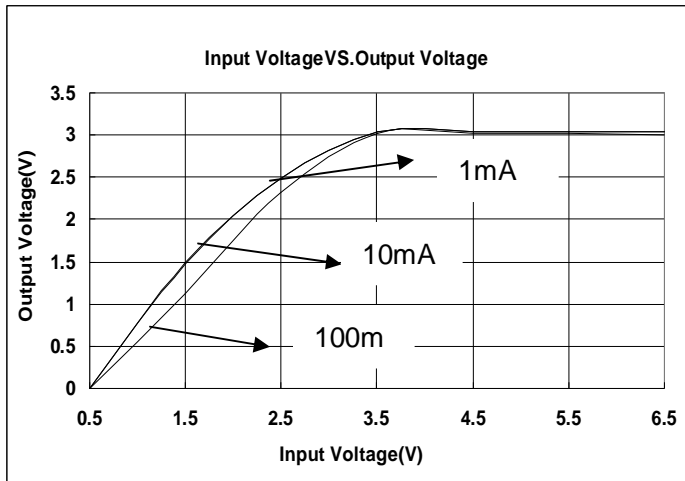
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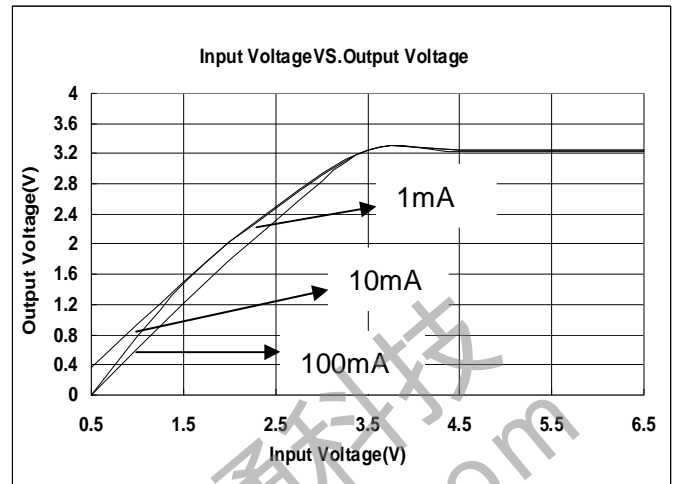
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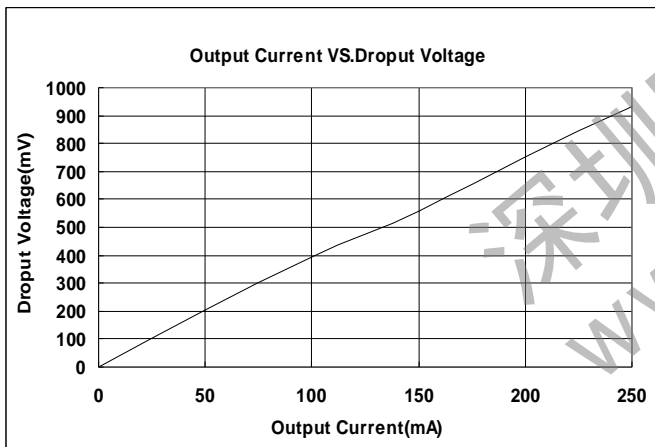


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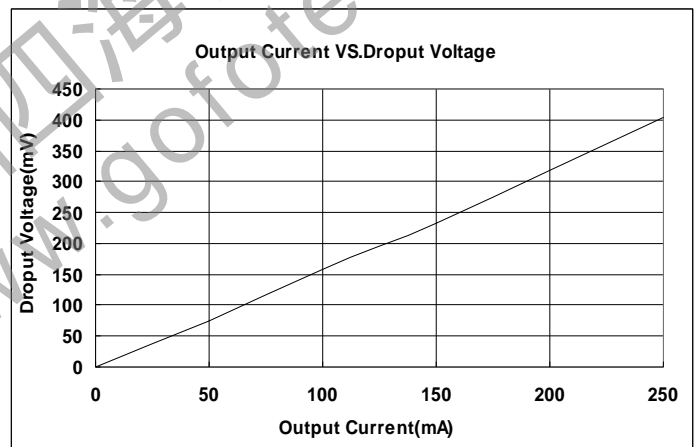


(3) Output Current VS. Dropout Voltage (  $V_{IN}=V_{out}+1V, T_a = 25^\circ C$  )

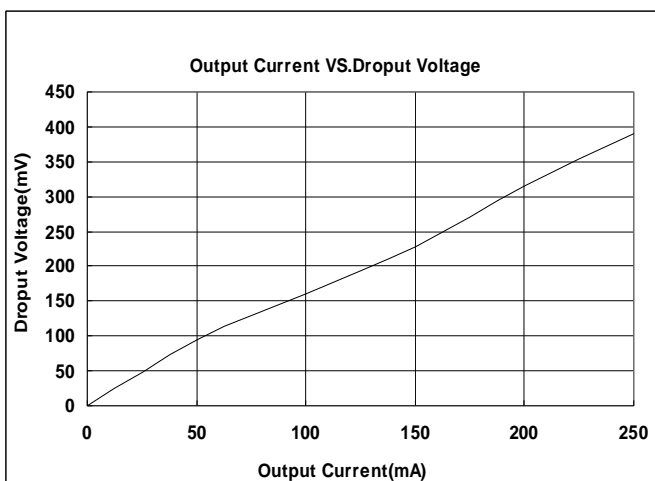
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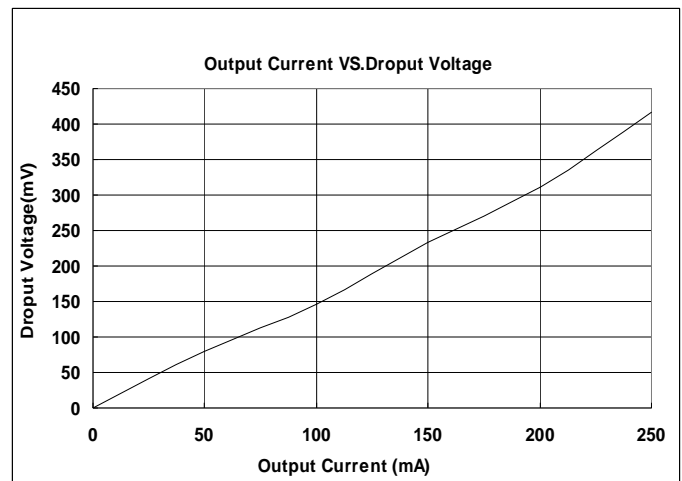
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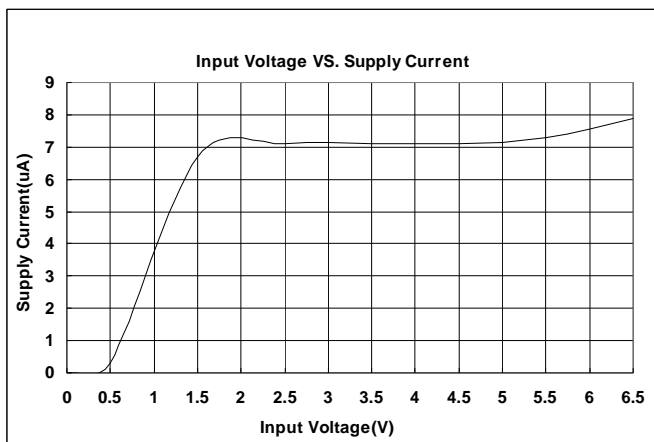
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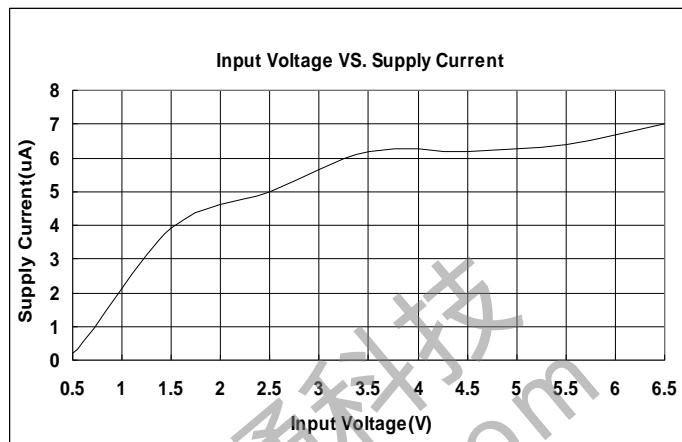


(4) Input Voltage VS. Supply Current (Ta = 25 °C)

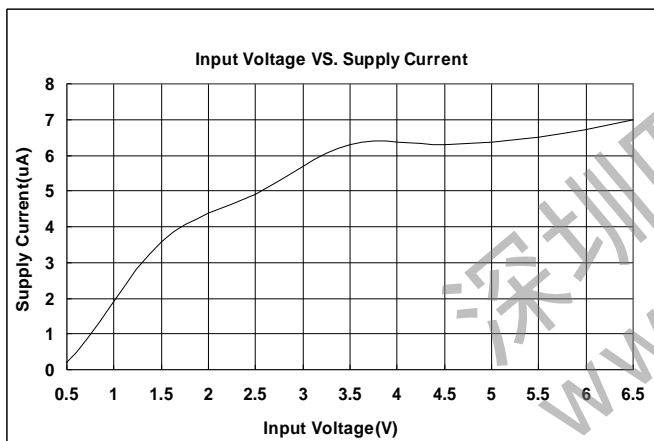
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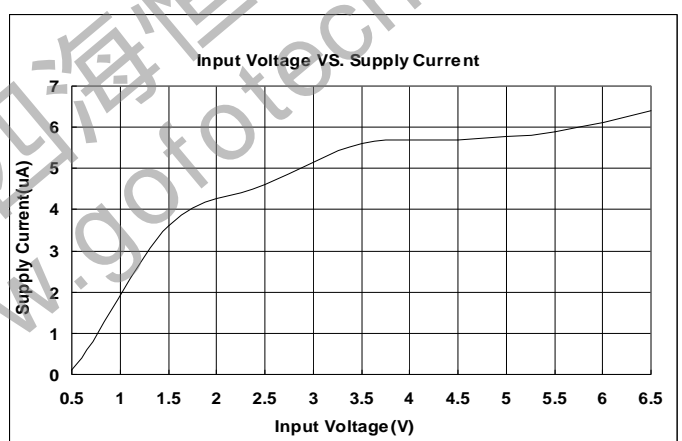
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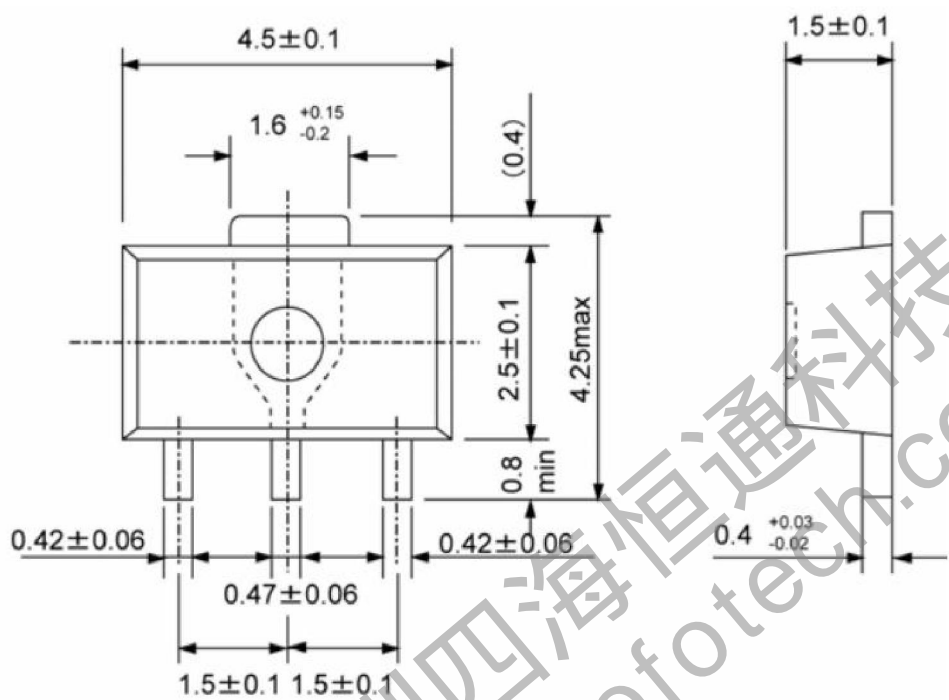


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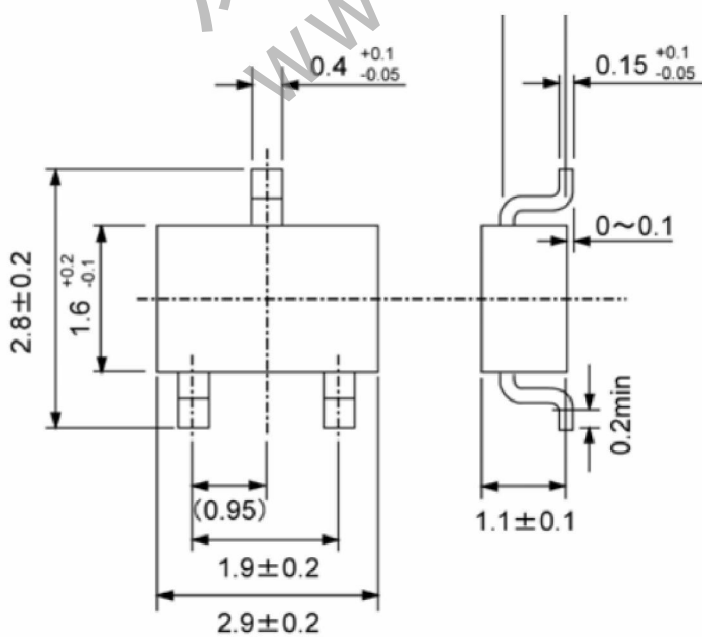


Packaging Information

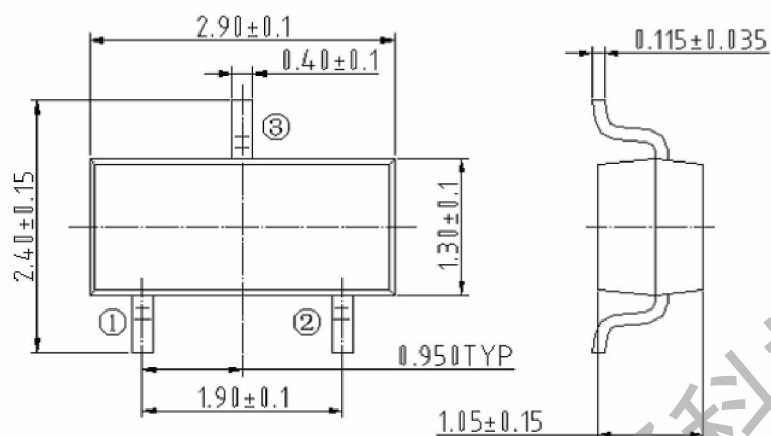
SOT89-3



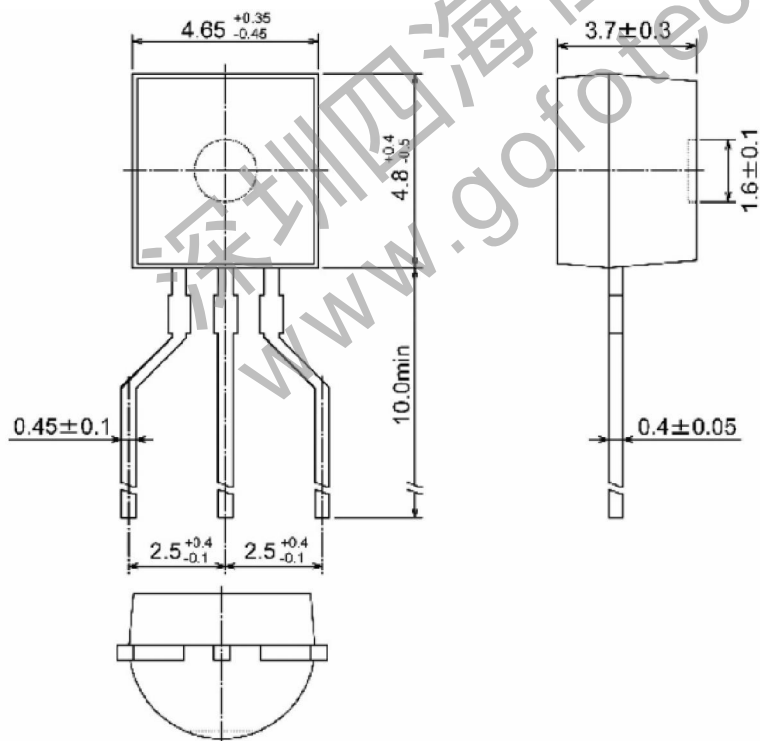
SOT23-3



SOT23



TO-92



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