

## High accurate,Low noise,Ultra small package ME6219 Series

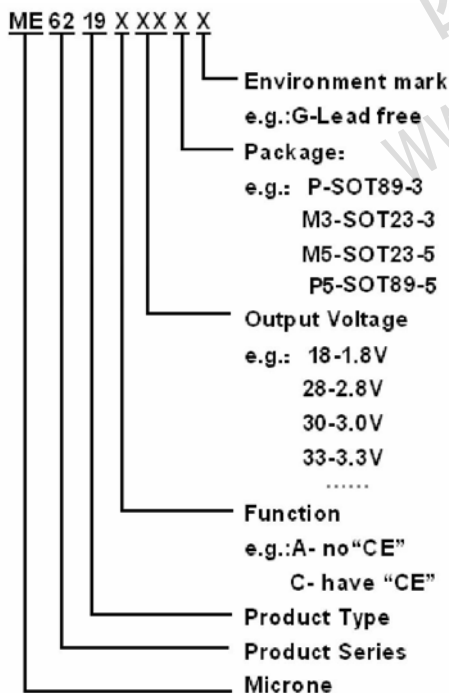
### General Description

ME6219 series are highly accurate, low noise, CMOS LDO voltage regulators. Offering low output noise, high ripple rejection ratio, low dropout, the ME6219 series is ideal for today's cutting edge mobile phone. The ME6219 series is also fully compatible with low ESR ceramic capacitors, reducing cost and improving output stability. This high level of output stability is maintained even during frequent load fluctuations, due to the excellent transient response performance and high PSRR achieved across a broad range of frequencies. The CE function allows the output of regulator to be turned off, resulting in greatly reduced power consumption.

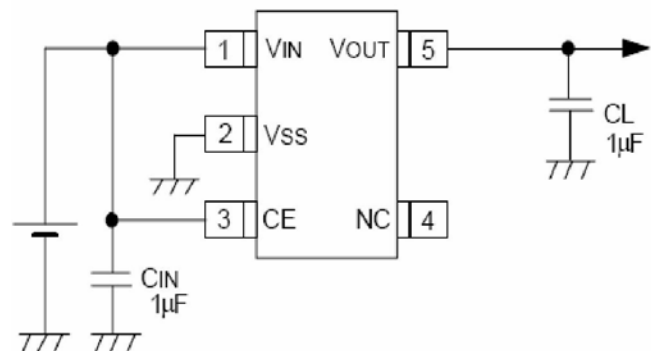
- | Highly accurate:±2%
- | Operating voltage range:1.2V~5.0V (selectable in 0.1V steps)
- | Power consumption:65uA (TYP.)
- | Large output current:300mA (  $V_{IN} = 4.3V, V_{OUT} = 3.3V$  )
- | Input stability:0.05%/V(TYP.)
- | Packages : SOT23-3,SOT89-3,SOT23-5,SOT89-5

- | Mobile phones
- | Cordless phones, radio communication equipment
- | Portable games
- | Cameras, Video cameras
- | Reference voltage sources
- | Battery powered equipment

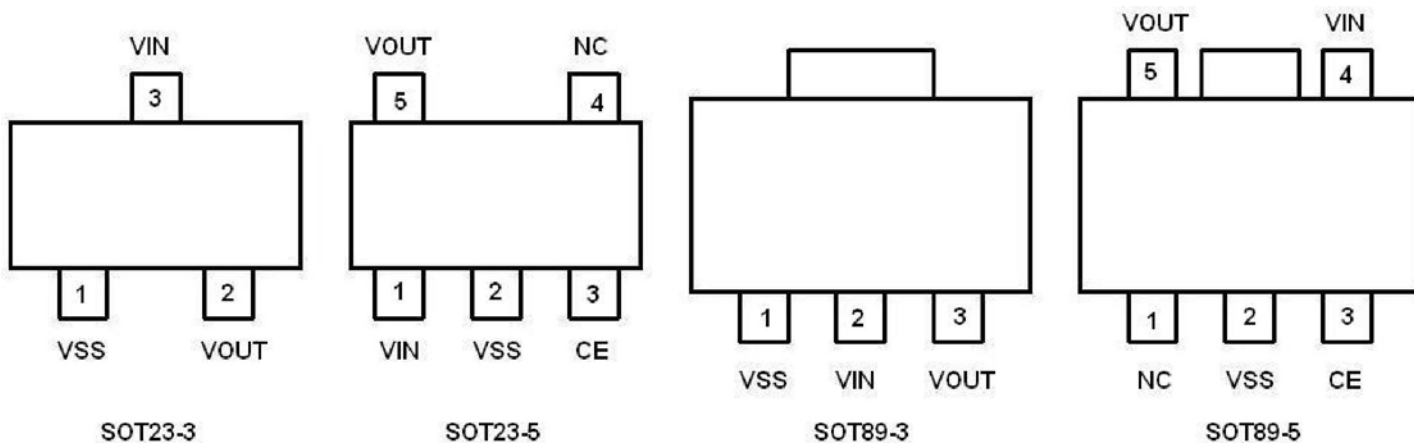
### Selection Guide



### Typical Application Circuit



## Pin Configuration



## Pin Assignment

### ME6219Axx

Pin Number			Pin Name	Functions
SOT23-3	SOT23-3*	SOT89-3		
1	2	1	V <sub>SS</sub>	Ground
2	1	3	V <sub>OUT</sub>	Output
3	3	2	V <sub>IN</sub>	Input

### ME6219Cxx

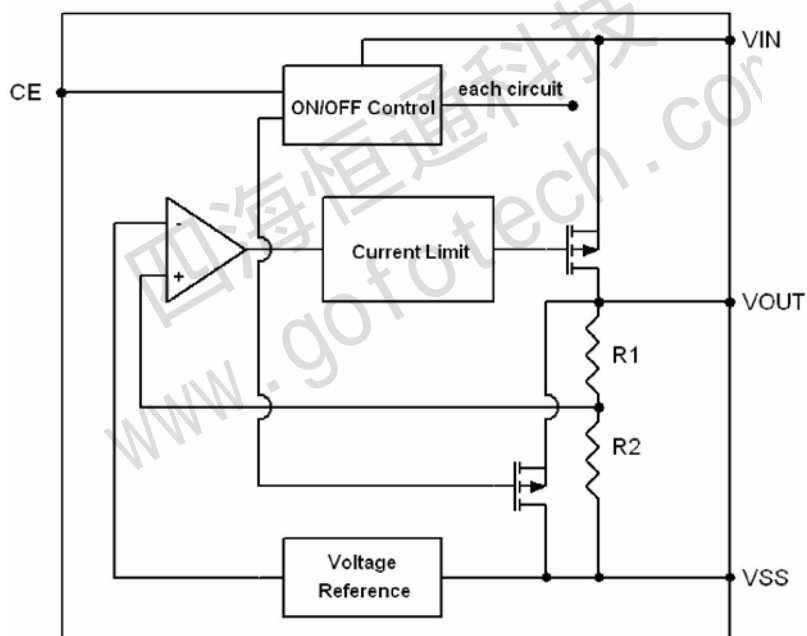
Pin Number			Pin Name	Functions
SOT23-5	SOT23-5*	SOT89-5		
1	5	4	V <sub>IN</sub>	Input
2	2	2	V <sub>SS</sub>	Ground
3	1	3	CE	ON/OFF Switch
4	3	1	NC	No Connection
5	4	5	V <sub>OUT</sub>	Output

\*:Special pin array

## Absolute Maximum Ratings

Parameter		Symbol	Ratings	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
CE pin Voltage		$V_{CE}$	$V_{SS}-0.3 \sim V_{out}+0.3$	V
Power Dissipation	SOT23	$P_D$	250	mW
	SOT89	$P_D$	500	mW
Operating Ambient Temperature		T	-25 ~ +85	
Storage Temperature		$T_{STG}$	-40 ~ +125	
Soldering Temperature And Time		$T_{SOLDER}$	260 , 10s	

## Block Diagram



## Electrical Characteristics

### ME6219C12

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

Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
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
Maximum Output Current	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		130		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{out}+1V, 1mA I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =50mA$		750		mV
	$V_{dif2}$	$I_{OUT} =100mA$		800		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{out}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \bullet V_{OUT}}$	$I_{OUT} =40mA$ $V_{out}+1V V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-p}AC$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

### ME6219C18

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

Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
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
Maximum Output Current	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		200		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{out}+1V, 1mA I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =100mA$		210		mV
	$V_{dif2}$	$I_{OUT} =200mA$		420		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{out}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \bullet V_{OUT}}$	$I_{OUT} =40mA$ $V_{out}+1V V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-p}AC$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

## ME6219C25

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

Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
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
Maximum Output Current	$I_{OUT} (max)$	$V_{IN}=V_{OUT}+1V$		250		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, 1mA$ $I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =100mA$		170		mV
	$V_{dif2}$	$I_{OUT} =200mA$		350		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =40mA$ $V_{OUT}+1V$ $V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-p}AC$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

## ME6219C28

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

Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
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
Maximum Output Current	$I_{OUT} (max)$	$V_{IN}=V_{OUT}+1V$		300		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, 1mA$ $I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =100mA$		180		mV
	$V_{dif2}$	$I_{OUT} =200mA$		320		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =40mA$ $V_{OUT}+1V$ $V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-p}AC$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

## ME6219C30

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

Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
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
Maximum Output Current	$I_{OUT (max)}$	$V_{IN}=V_{OUT}+1V$		300		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, 1mA I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =100mA$		160		mV
	$V_{dif2}$	$I_{OUT} =200mA$		330		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =40mA$ $V_{OUT}+1V V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-pAC}$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

## ME6219C33

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

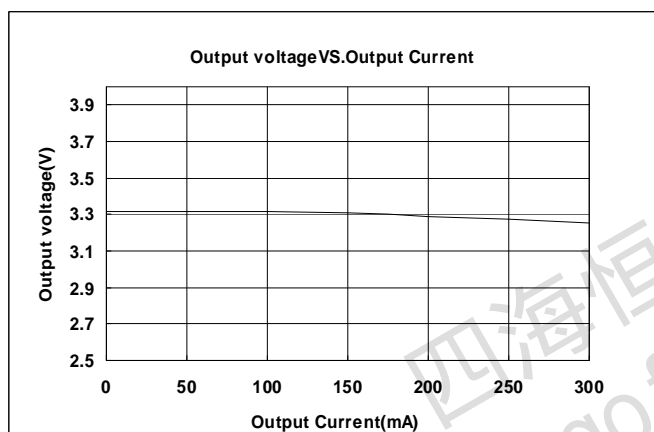
Parameter	Symbol	Conditions	Min	TYP.	MAX	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=10mA,$ $V_{IN}=V_{OUT}+1V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Maximum Output Current	$I_{OUT (max)}$	$V_{IN}=V_{OUT}+1V$		300		mA
Load Regulation	$V_{OUT}$	$V_{IN}=V_{OUT}+1V, 1mA I_{OUT} 100mA$		30		mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} =100mA$		180		mV
	$V_{dif2}$	$I_{OUT} =200mA$		310		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		65		$\mu A$
Stand-by Current	$I_{CEL}$	$V_{ce} = 0V$		0.1	1	$\mu A$
Line Regulations	$\frac{V_{OUT}}{V_{IN} \cdot V_{OUT}}$	$I_{OUT} =40mA$ $V_{OUT}+1V V_{IN} 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	0.6			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V +1V_{p-pAC}$ $I_{OUT} =50mA, f=1kHz$		62		dB
Output noises	en	$I_{OUT} =40mA, 300Hz\sim 50kHz$		50		$\mu V_{rms}$

- Note :
- $V_{OUT}(T)$  : Specified Output Voltage
  - $V_{OUT}(E)$  : Effective Output Voltage ( i.e. The output voltage when " $V_{OUT}(T)+1.0V$ " is provided at the  $V_{IN}$  pin while maintaining a certain  $I_{OUT}$  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  $I_{OUT} \{V_{OUT}(T)+1.0V\}$  is input.

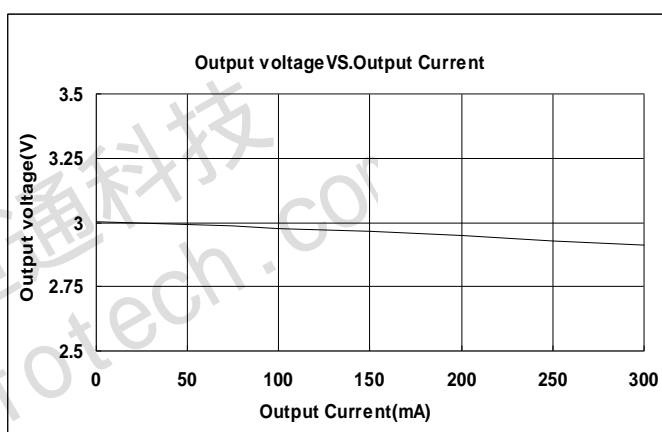
## Type Characteristics

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

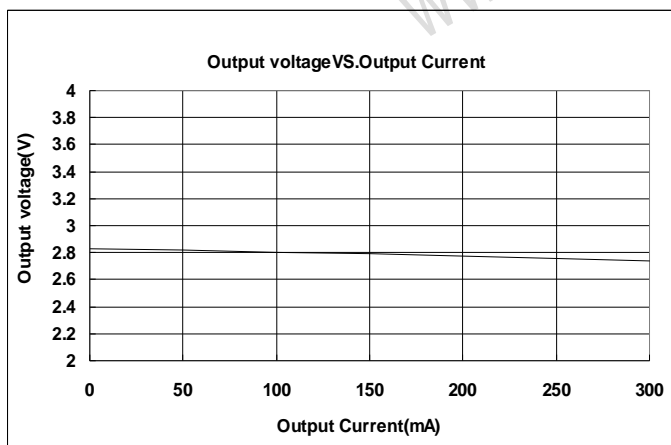
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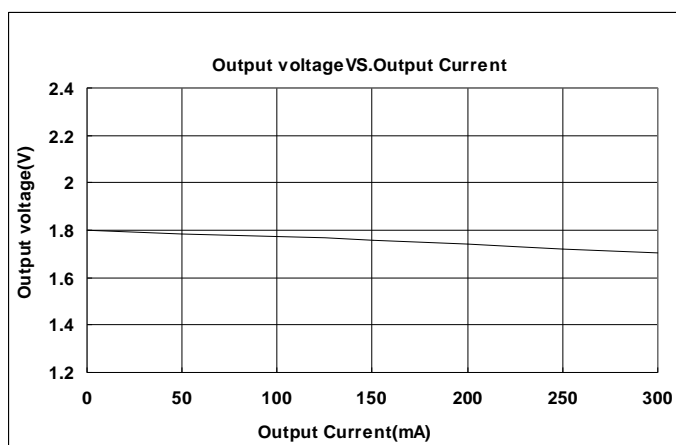
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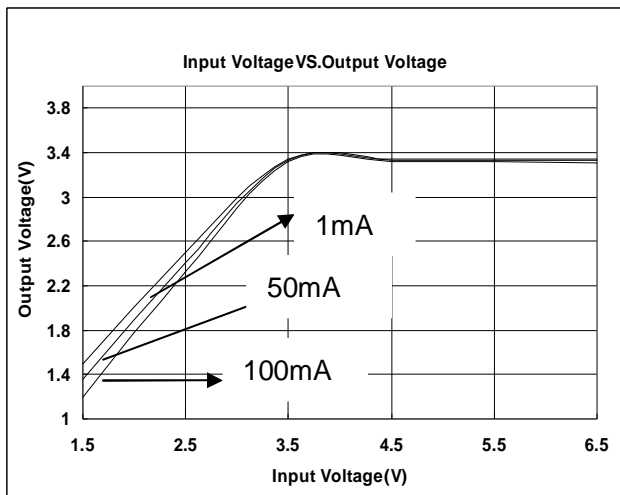


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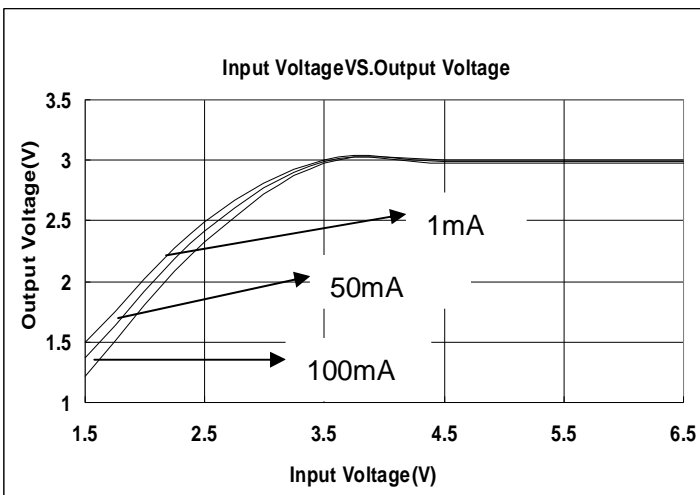


(2) Input Voltage VS. Output Voltage (  $T_a = 25^\circ\text{C}$  )

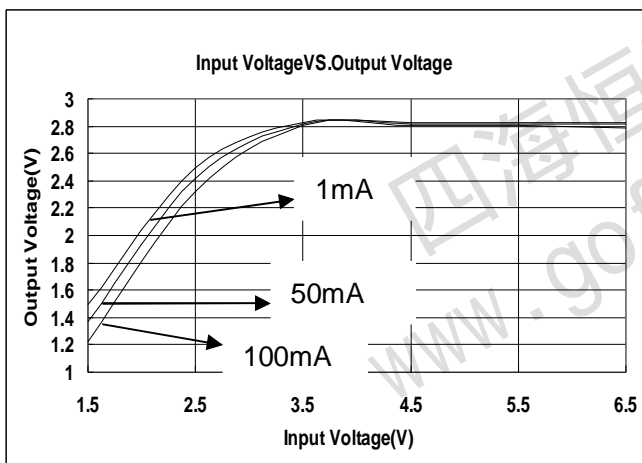
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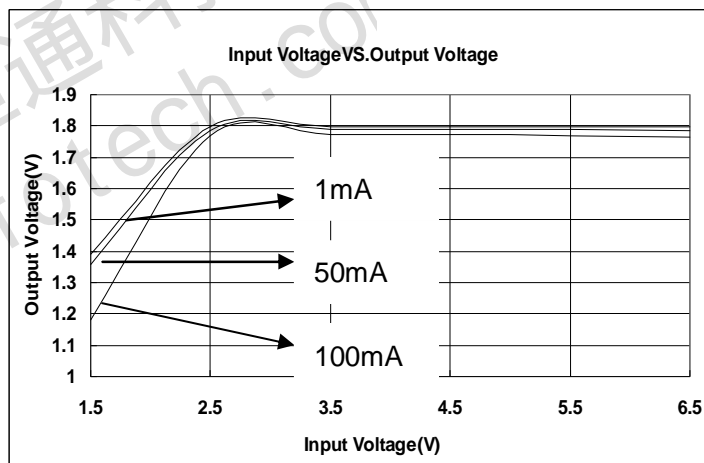
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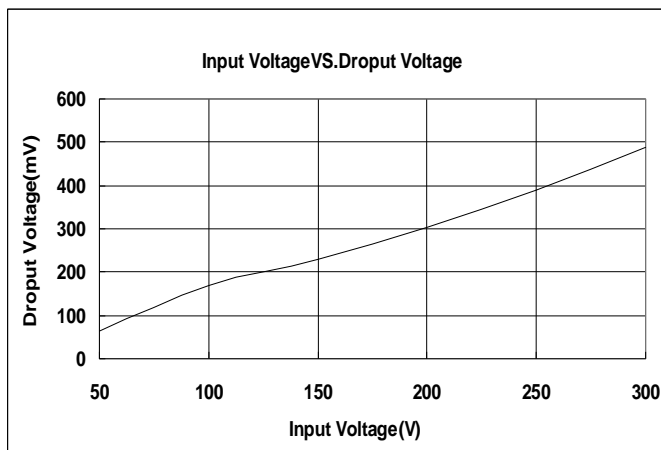
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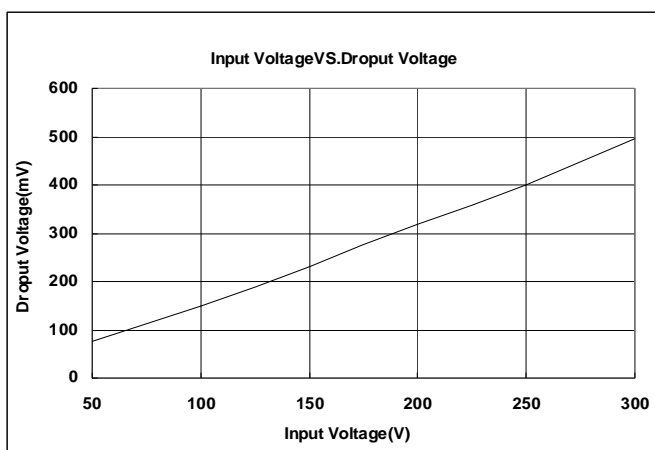


(3) Output Current VS. Dropout Voltage (  $V_{IN}=V_{out}+1V, T_a = 25^\circ C$  )

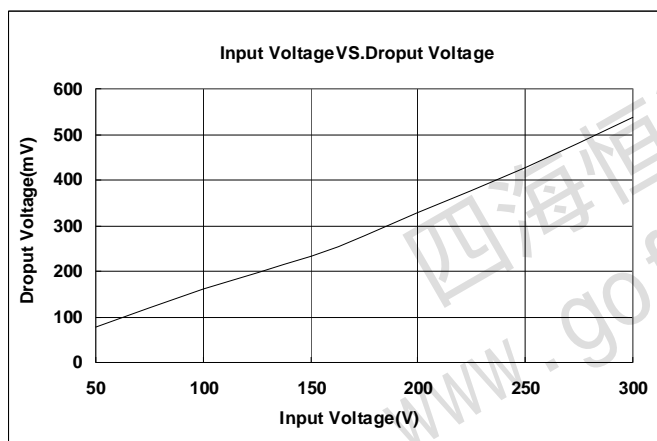
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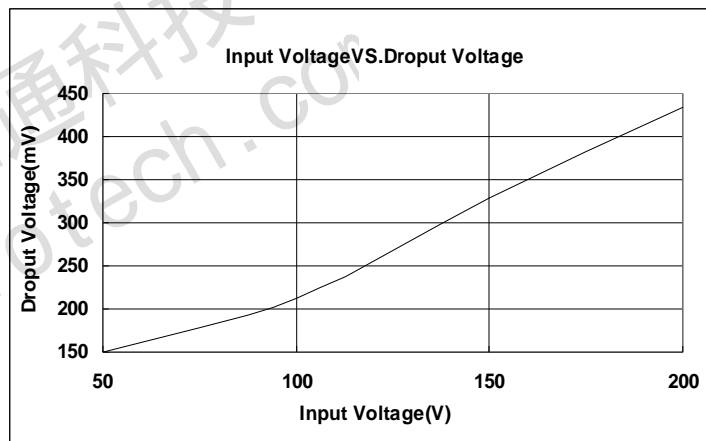
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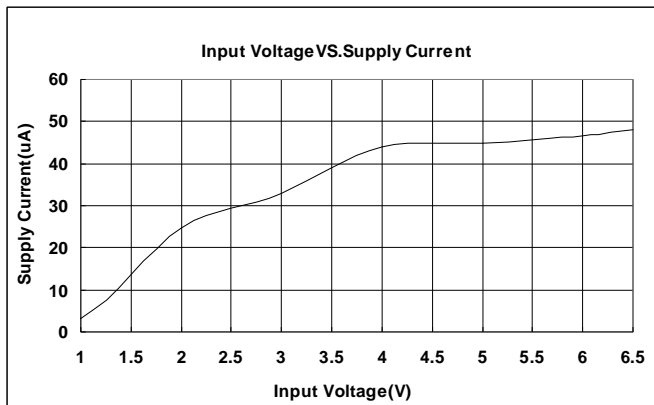


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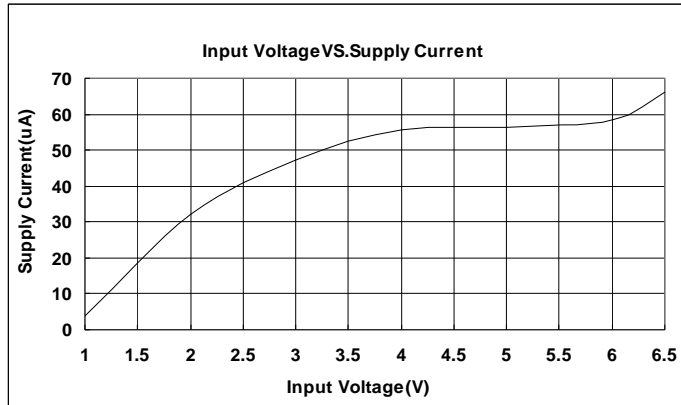


( 4 ) Input Voltage VS. Supply Current ( Ta = 25 °C )

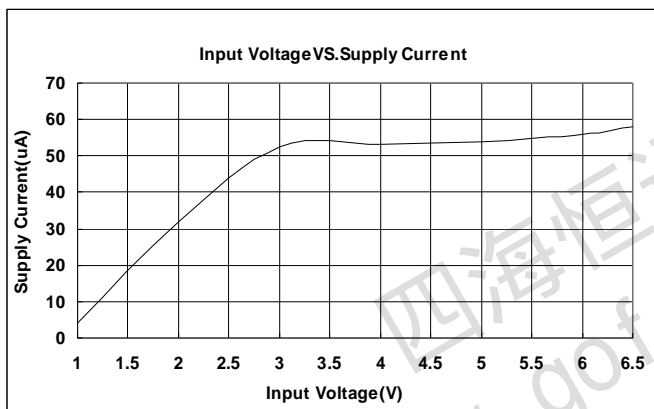
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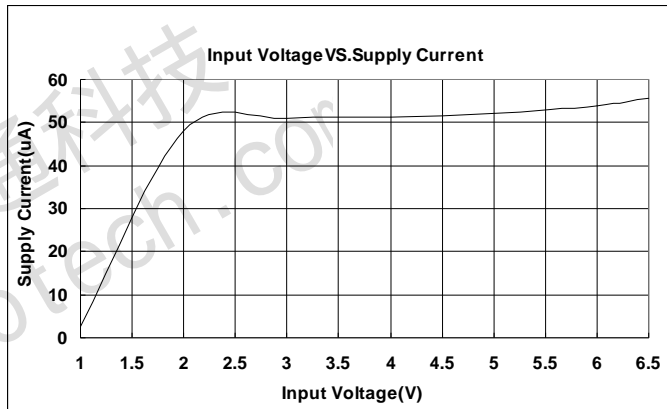
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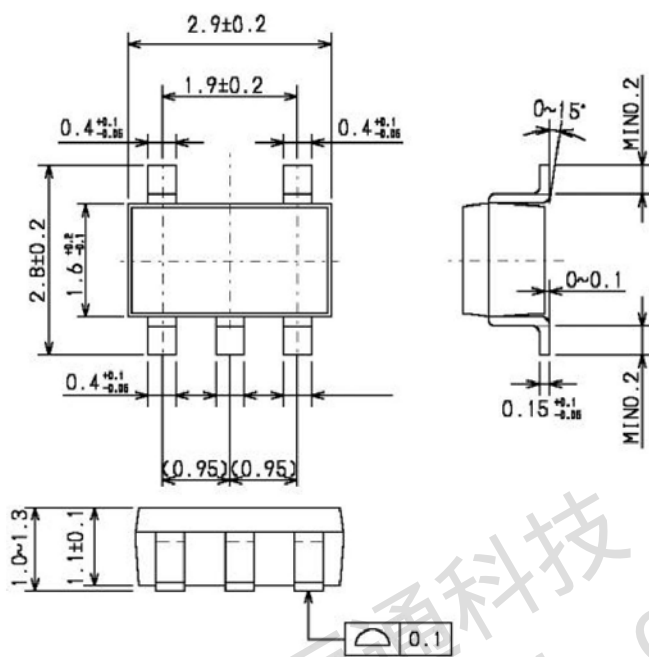


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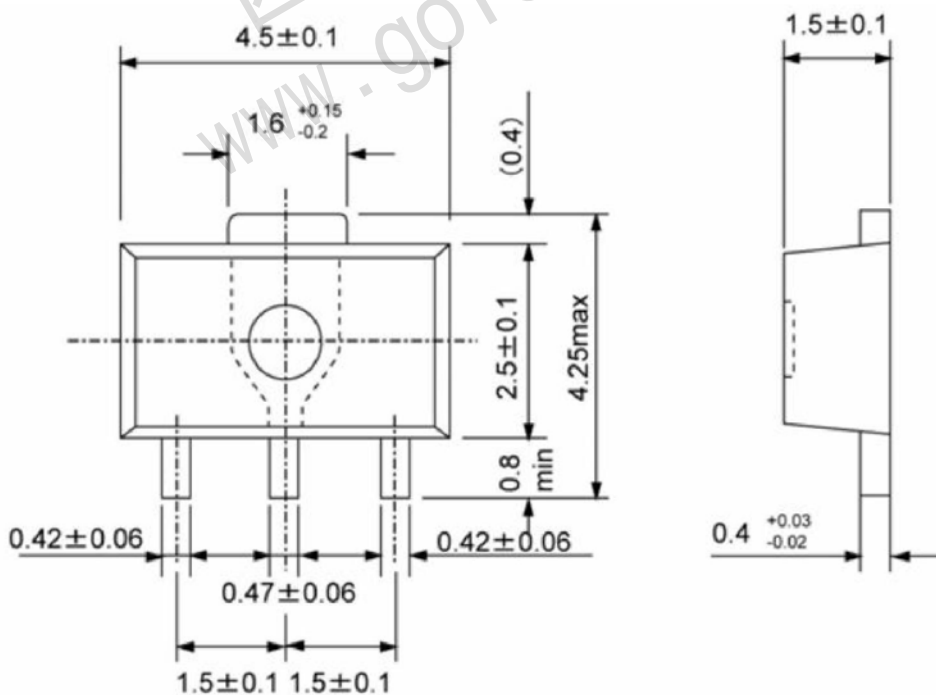


**Packaging Information**

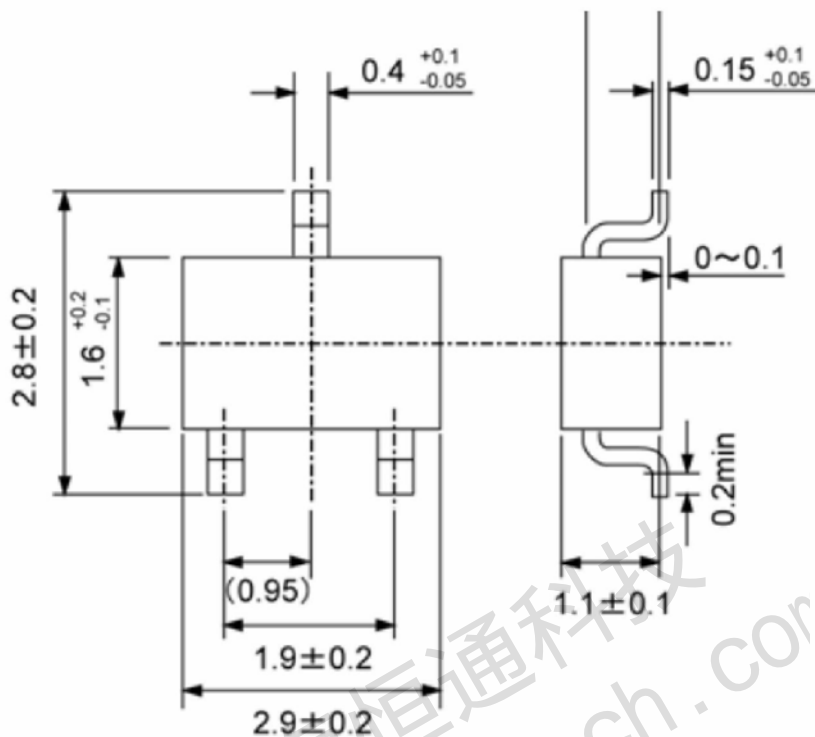
SOT23-5



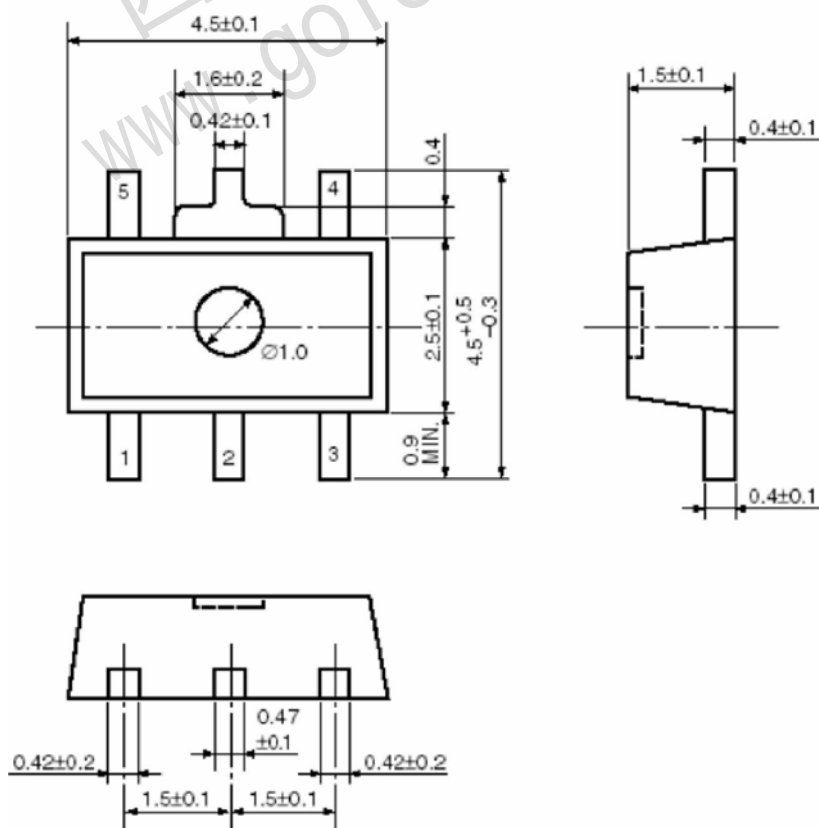
SOT89-3



SOT23-3



SOT89-5



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