High Input Voltage,Low Dropout,Low Supply Current ME6201 Series

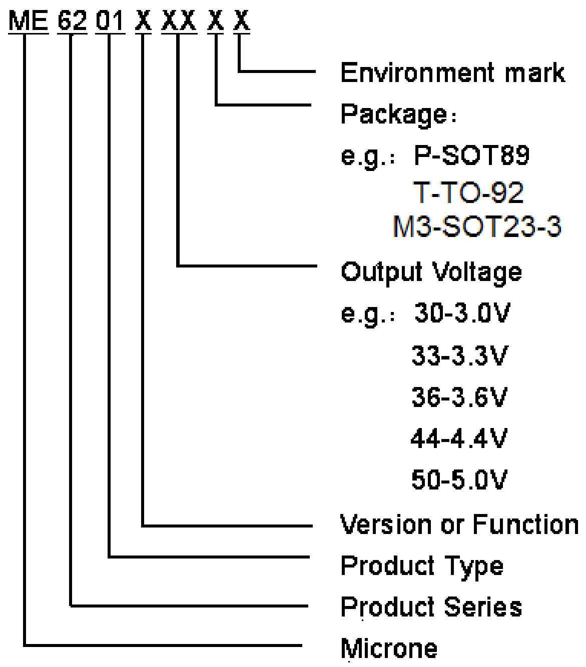
General Description

ME6201 series are low-dropout linear voltage regulators with a built-in voltage reference module, error correction module and phase compensation module. ME6201 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 3V to 5V. The output accuracy is ± 2.5%.

Features

- High output accuracy: ± 2.5%
- Input voltage: up to 16V
- Output voltage: 3.0 V ~ 5.0V
- Ultra-low Supply current (Typ. = 4 μ A)
- Iout = 100mA （When Vin = 5.3V and Vout = 3.3V）
- Importation good stability: Typ. 0.1% / V
- Low temperature coefficient
- Ceramic capacitor can be used
- Package: SOT-89, TO-92，SOT23-3

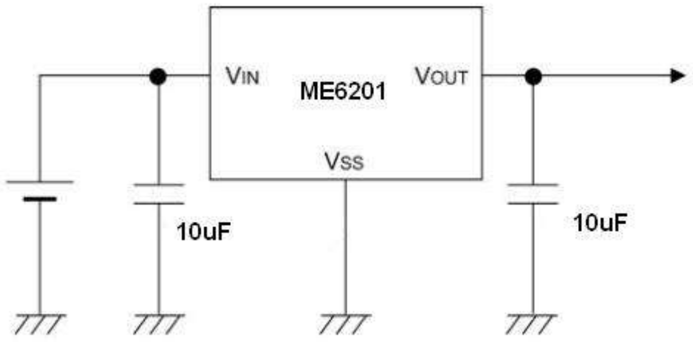
Selection Guide



Typical Application

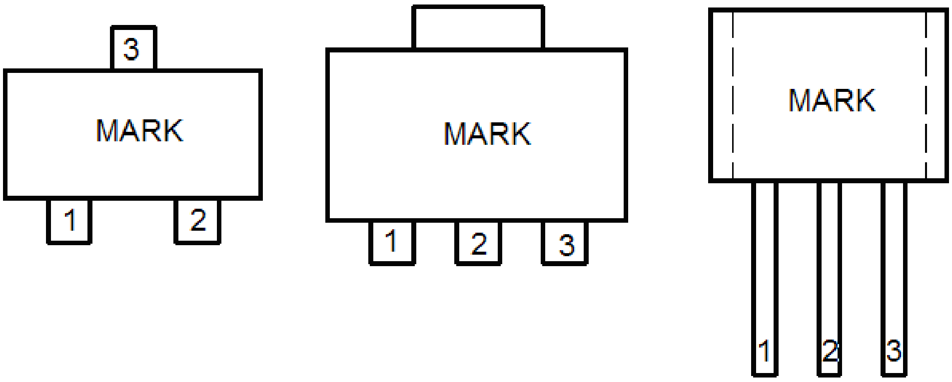
- Electronic weighbridge
- SCM
- Phones, cordless phones
- Security Products
- Water meters, power meters

Typical Application Circuit



Caution: The above connection diagram and constant will not guarantee successful operation. Perform thorough evaluation using the actual application to set the constant.
Input capacitor (CIN): 10.0 μF or more；Output capacitor (CL): 10 μF or more (tantalum capacitor)

Pin Configuration



SOT23-3 SOT89 TO92

Pin Assignment

ME6201AXX

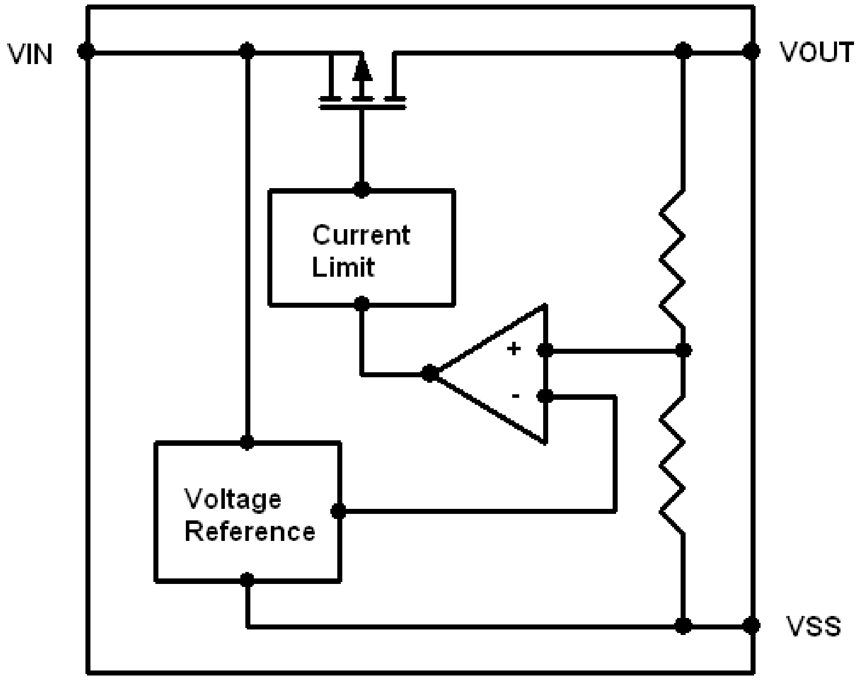
PIN Number			PIN NAME	FUNCTION
SOT23-3	SOT89-3	TO-92		
1	1	1	VSS	Ground
3	2	2	VIN	Input
2	3	3	VOUT	Output

Absolute Maximum Ratings

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	18	V
Output Current		I_{out}	200	mA
Output Voltage		V_{out}	Vss-0.3 ~ Vout+0.3	V
Power Dissipation	SOT-89	Pd	500	mW
	TO-92	Pd	500	mW
Operating Ambient Temperature		T_{OPR}	-25 ~ +85	℃
Storage Temperature		T_{STG}	-40 ~ +125	℃
Soldering Temperature And Time		T_{SOLDER}	260℃, 10s	

Caution: The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

Block Diagram



Electrical Characteristics

ME6201A30 (VIN=VOUT+2V,CIN=COUT=10uF,Ta=25^{O}C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, V_{IN}=Vout+2V	X 0.975	V_{OUT} (T)	X 1.025	V
Input Voltage	V_{IN}		3.0		16	V
Maximum Output Current	I_{OUT} (max)	V_{IN}=Vout+2V		100(Note4)		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+2V, 1mA≤I_{OUT}≤80mA		40		mV
Dropout Voltage (Note 3)	V_{DIF1}	I_{OUT} =10mA		170		mV
	V_{DIF2}	I_{OUT} =50mA		800		mV
Supply Current	I_{SS}	V_{IN}=Vout+2V		4	8	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =30mA Vout+2V ≤V_{IN}≤16V		0.1		%/V

ME6201A33 (VIN=VOUT+2V,CIN=COUT=10uF,Ta=25^{O}C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, V_{IN}=Vout+2V	X 0.975	V_{OUT} (T)	X 1.025	V
Input Voltage	V_{IN}		3.3		16	V
Maximum Output Current	I_{OUT} (max)	V_{IN}=Vout+2V		100(Note4)		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+2V, 1mA≤I_{OUT}≤80mA		40		mV
Dropout Voltage (Note 3)	V_{dif1}	I_{OUT} =10mA		150		mV
	V_{dif2}	I_{OUT} =50mA		700		mV
Supply Current	I_{SS}	V_{IN}=Vout+2V		4	8	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =30mA Vout+2V ≤V_{IN}≤16V		0.1		%/V

ME6201A36 (VIN=VOUT+2V,CIN=COUT=10uF,Ta=25^{O}C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, V_{IN}=Vout+2V	X 0.975	V_{OUT} (T)	X 1.025	V
Input Voltage	V_{IN}		3.6		16	V
Maximum Output Current	I_{OUT} (max)	V_{IN}=Vout+2V		100(Note4)		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+2V, 1mA≤I_{OUT}≤80mA		40		mV
Dropout Voltage (Note 3)	V_{dif1}	I_{OUT} =10mA		150		mV
	V_{dif2}	I_{OUT} =50mA		700		mV
Supply Current	I_{SS}	V_{IN}=Vout+2V		4	8	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I_{OUT} =30mA Vout+2V ≤V_{IN}≤16V		0.1		%/V

ME6201A44 (VIN=VOUT+2V,CIN=COUT=10uF,Ta=25^{O}C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, V_{IN}=Vout+2V	X 0.975	V_{OUT} (T)	X 1.025	V
Input Voltage	V_{IN}		4.4		16	V
Maximum Output Current	I_{OUT} (max)	V_{IN}=Vout+2V		100(Note4)		mA

Load Regulation	ΔV_{OUT}	V_{IN}=Vout+2V, 1mA≤I_{OUT}≤80mA		40		mV
Dropout Voltage (Note 3)	V_{dif1}	I_{OUT} =10mA		120		mV
	V_{dif2}	I_{OUT} =50mA		600		mV
Supply Current	I_{SS}	V_{IN}=Vout+2V		4	8	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT} =30mA Vout+2V ≤V_{IN}≤16V		0.1		%/V

ME6201A50 (VIN=VOUT+2V,CIN=COUT=10uF,Ta=25^{O}C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, V_{IN}=Vout+2V	X 0.975	V_{OUT} (T)	X 1.025	V
Input Voltage	V_{IN}		5		16	V
Maximum Output Current	I_{OUT} (max)	V_{IN}=Vout+2V		100(Note4)		mA
Load Regulation	ΔV_{OUT}	V_{IN}=Vout+2V, 1mA≤I_{OUT}≤80mA		60		mV
Dropout Voltage (Note 3)	V_{dif1}	I_{OUT} =10mA		100		mV
	V_{dif2}	I_{OUT} =50mA		550		mV
Supply Current	I_{SS}	V_{IN}=Vout+2V		5	8	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT} =30mA Vout+2V ≤V_{IN}≤16V		0.1		%/V

Note：

1、V_{OUT} (T) ： Specified Output Voltage

2、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.)

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)+2.0V} is input.

4、The output current can be at least this value. Due to restrictions on the package power dissipation, this value may not be satisfied. Attention should be paid to the power dissipation of the package when the output current is large. This specification is guaranteed by design.

Application Conditions

Precautions：Wiring patterns for the VIN, VOUT and GND pins should be designed so that the impedance is low. When mounting an output capacitor between the VOUT and VSS pins (CL) and a capacitor for stabilizing the input between VIN and VSS pins (CIN), the distance from the capacitors to these pins should be as short as possible(less than 0.5cm).

Type Characteristics

（1）Output Current VS. Output Voltage（ **Ta = 25 °C**）

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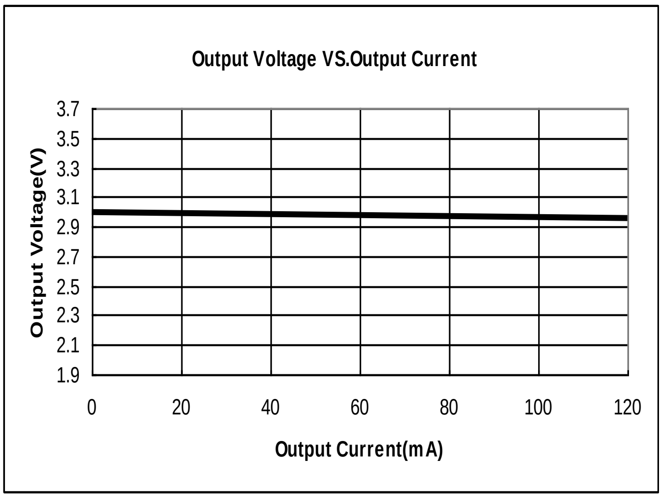

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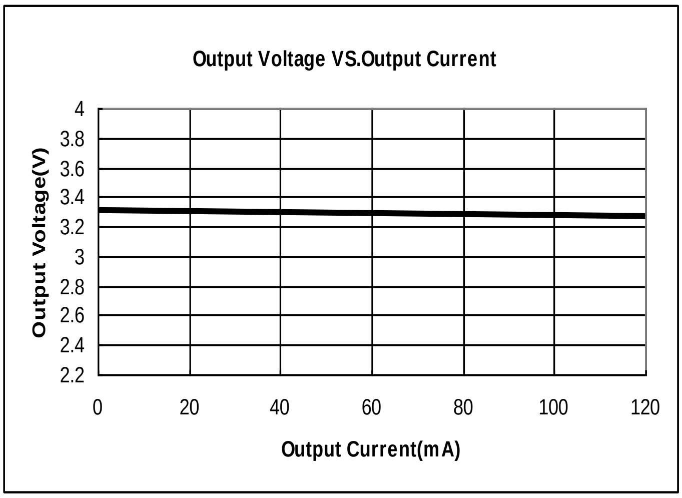

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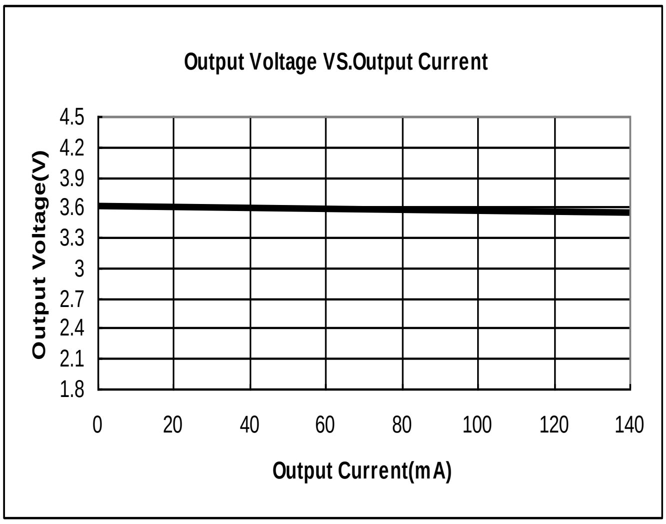

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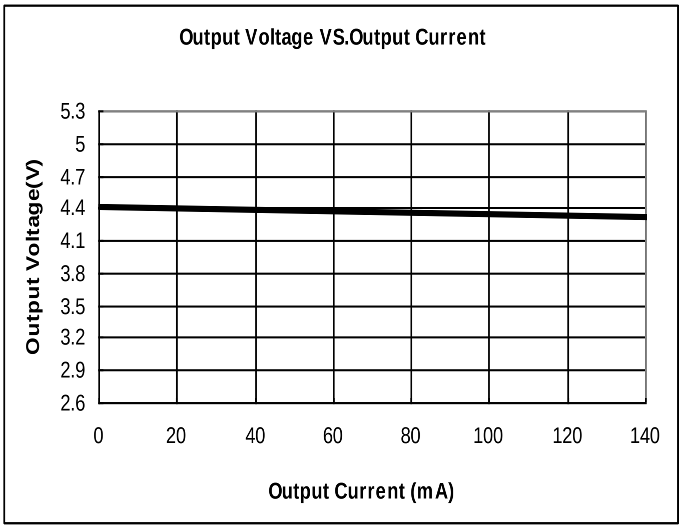

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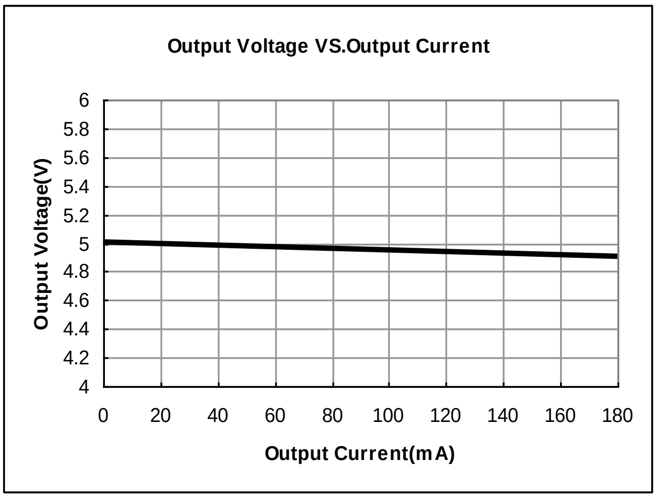

（2）Input Voltage VS. Output Voltage（**Ta = 25 °C**）

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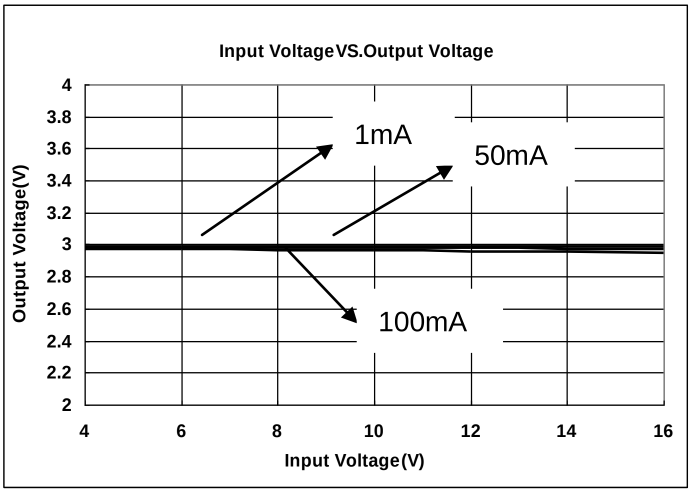

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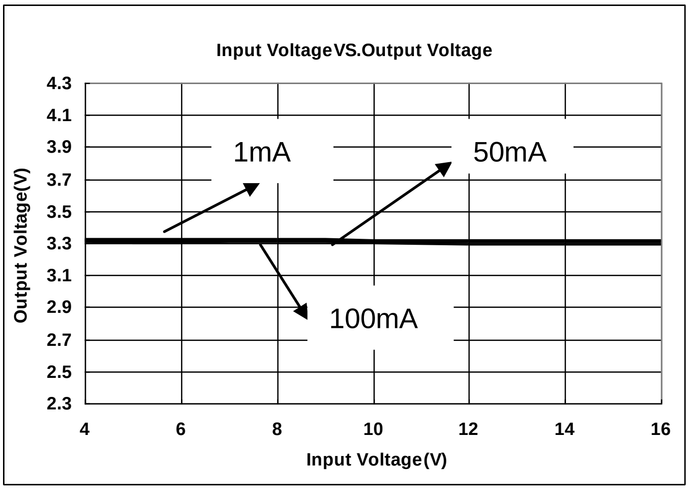

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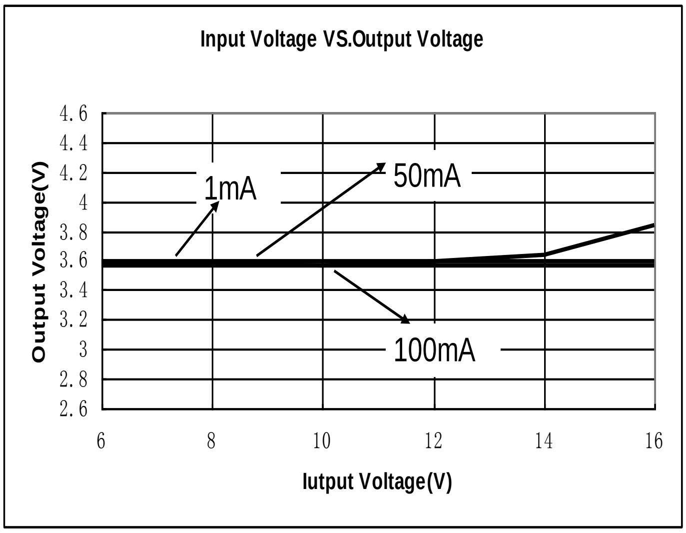

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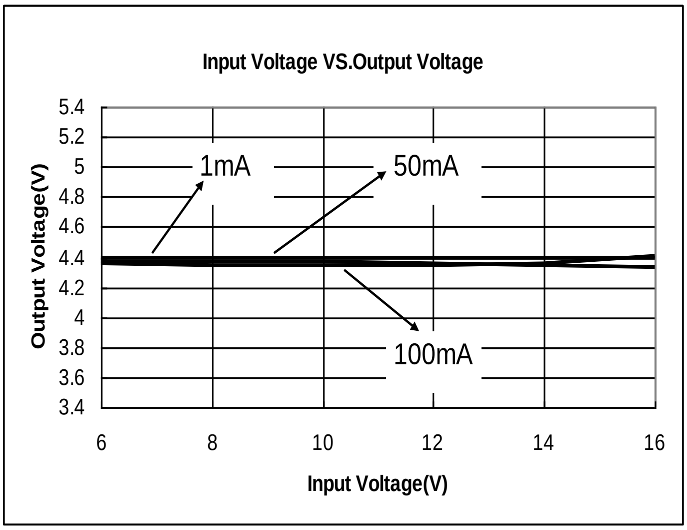

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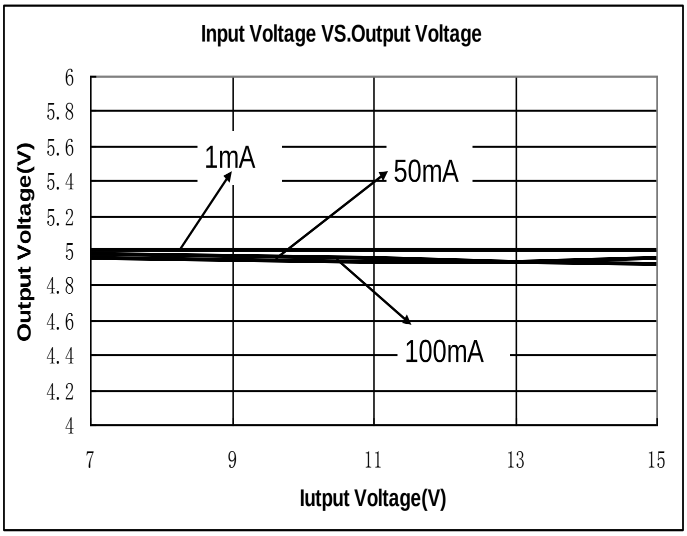

（3）Output Current VS. Dropout Voltage（ **Ta = 25 °C**）

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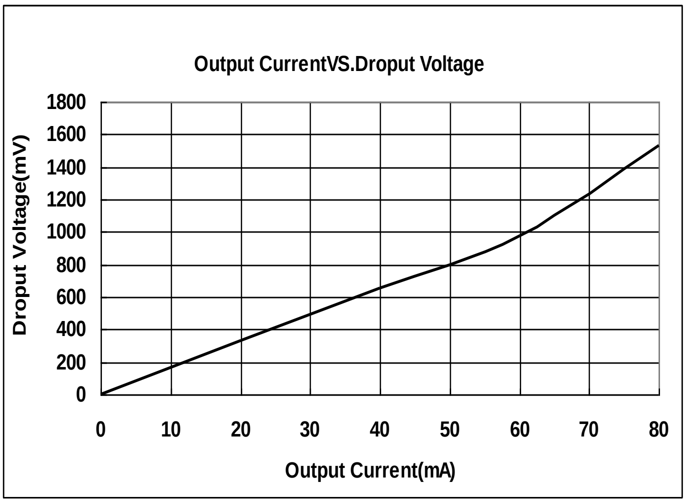

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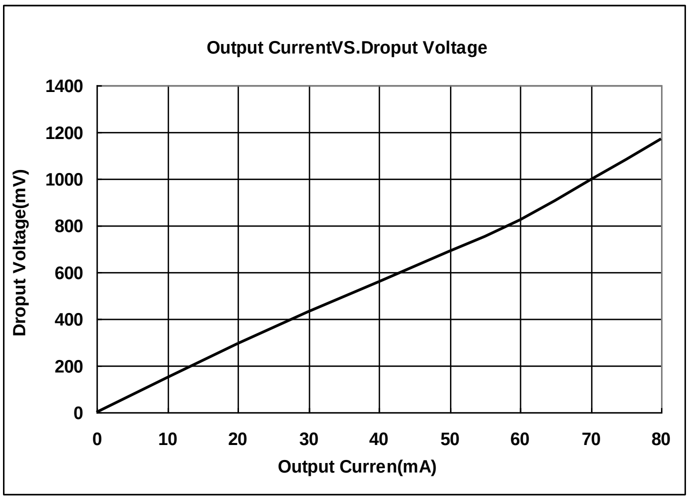

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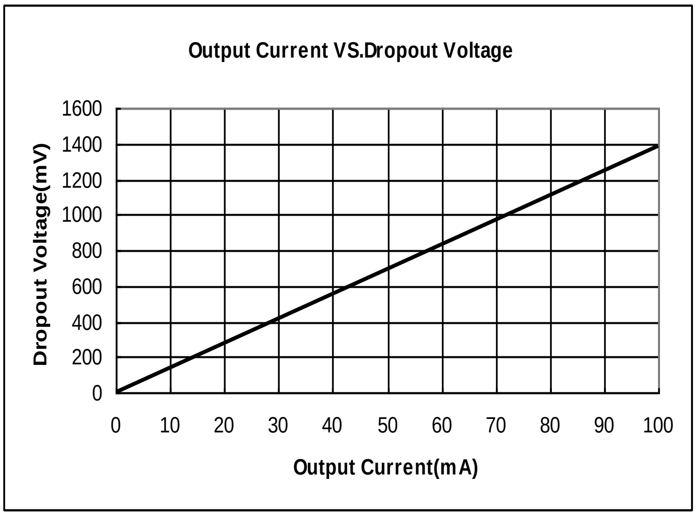

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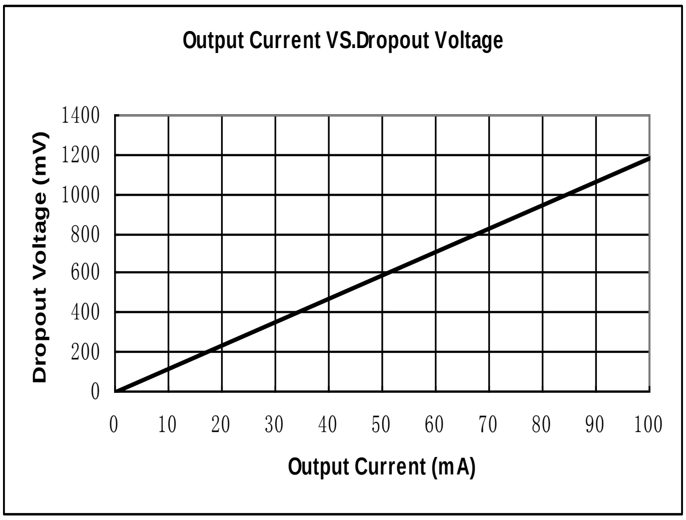

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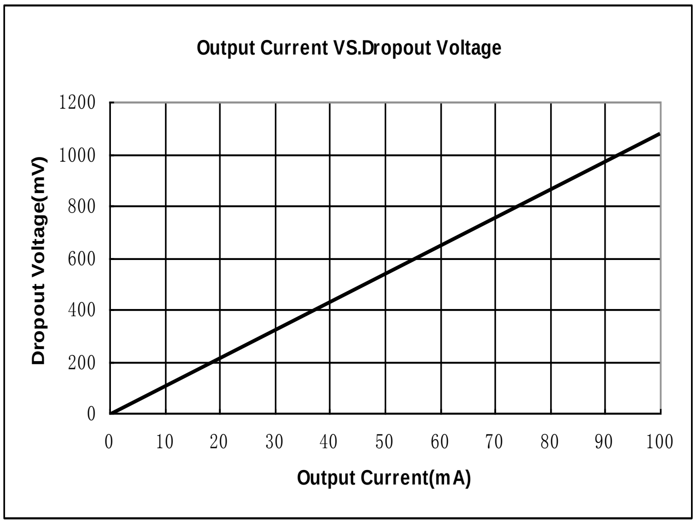

（4）Input Voltage VS. Supply Current（**Ta = 25 °C**）

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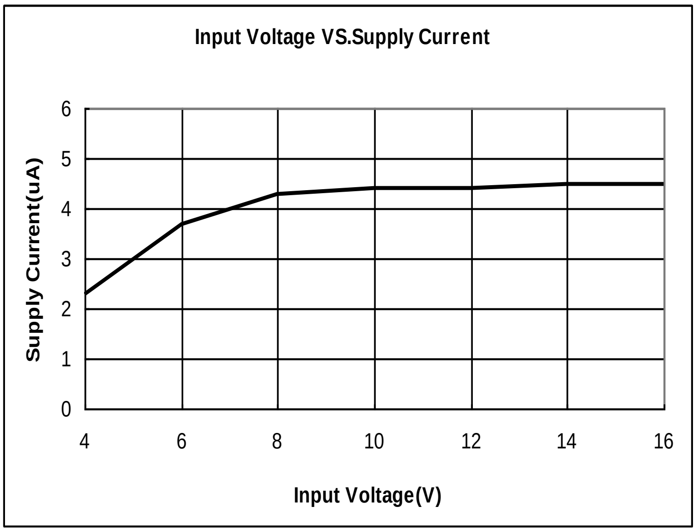

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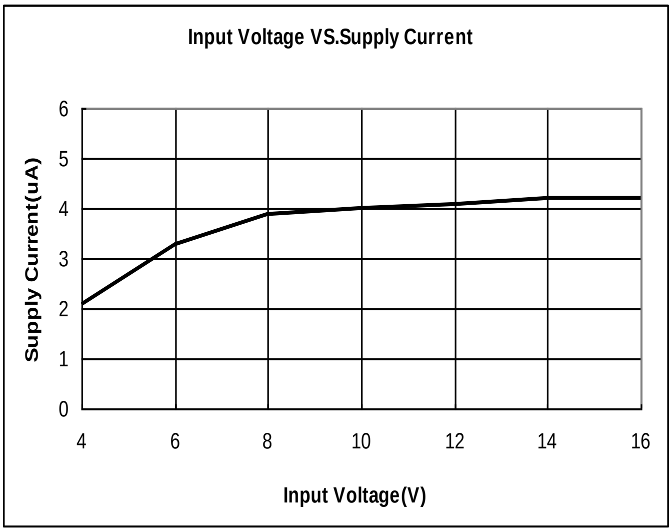

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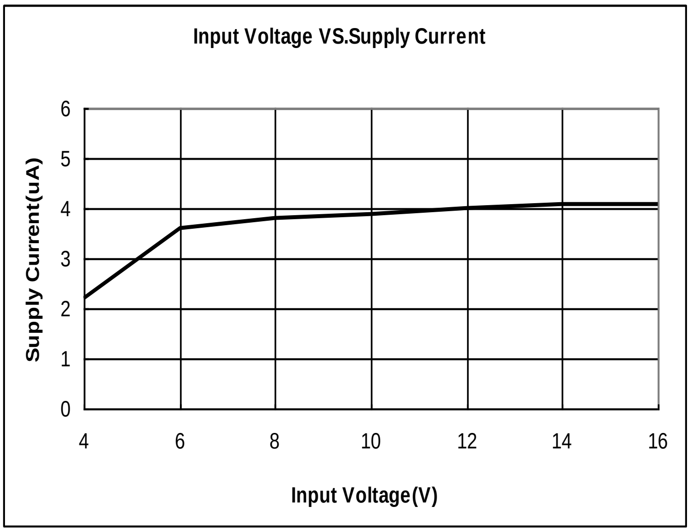

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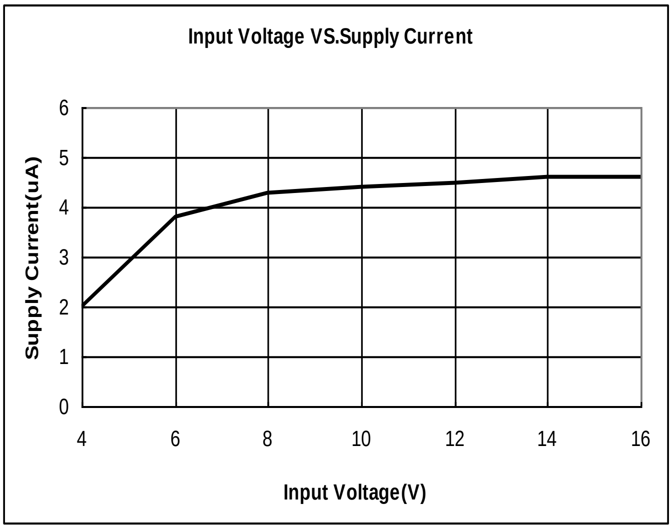

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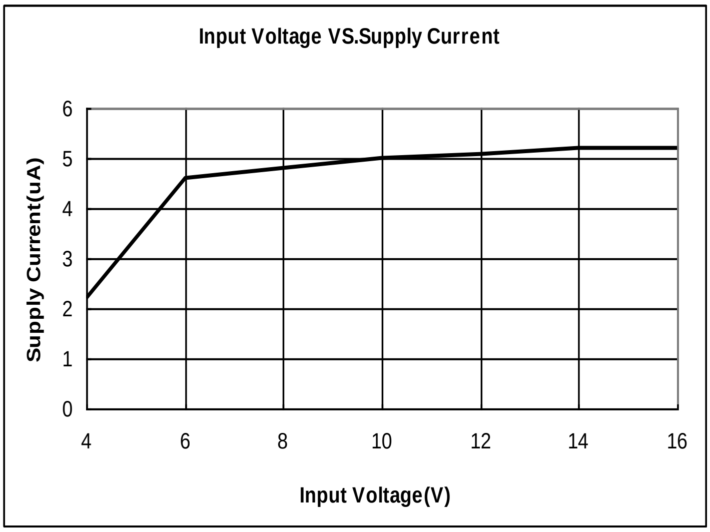
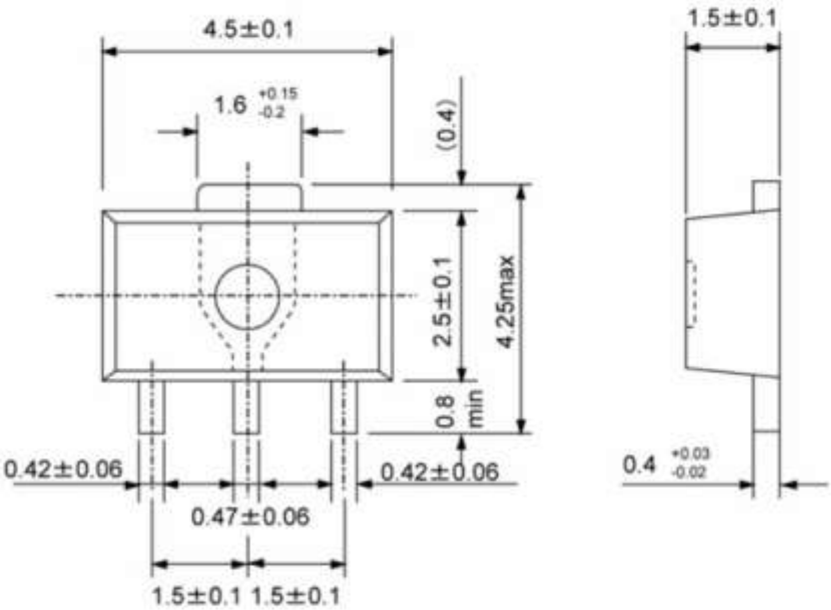
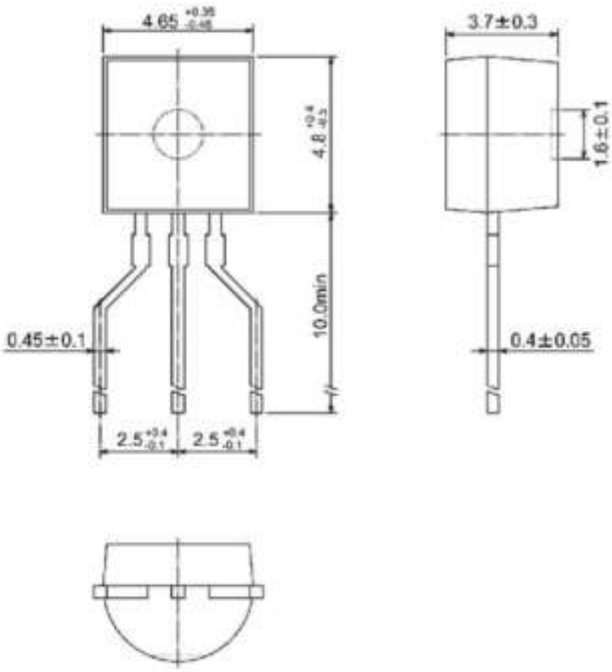


Packaging Information:

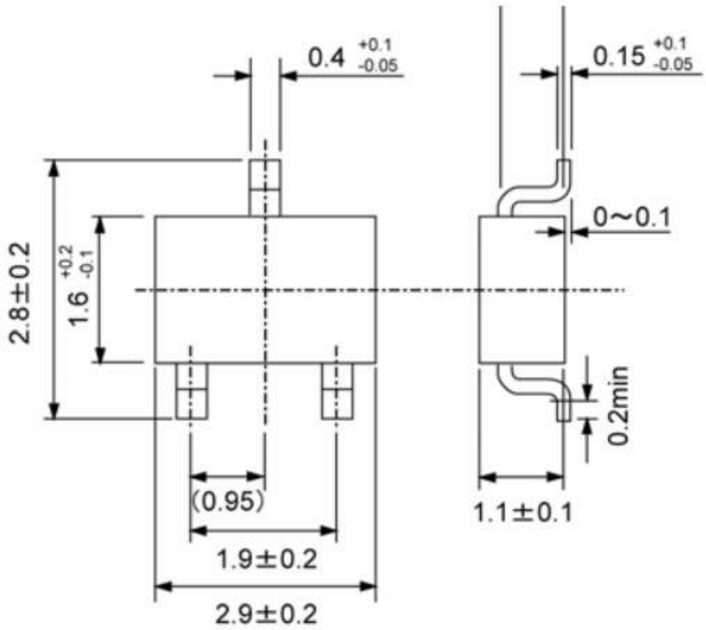
- SOT89-3



- TO-92



- SOT23-3



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