High Input Voltage LDO Regulators ME6203 Series

General Description

The ME6203 series are highly accurate, low noise, LDO Voltage Regulators that are manufactured using CMOS technology and the input voltage of ME6203 series is in Excess of 30 V. This series contains three fixed output voltages of 3.0V, 3.3V and 5.0V that have no minimum load requirement to maintain regulation. On chip trimming adjusts the output voltage to within ±2.5% accuracy. ME6203 consists of a output current limiting, a driver transistor, a precision reference voltage and an error amplifier. Output voltage is selectable in 100mV steps between 1.5V ~ 6.0V. The Devices are available in SOT-89(500mW).

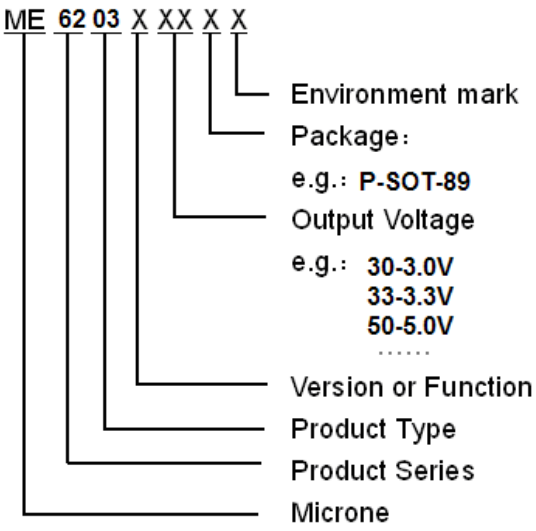
Features

- Output Current in Excess of 100mA
- Operating Voltage Range:7V～30V
- Highly Accuracy: ±2.5％
- Small Standby Current: 13μA（TPY.）
- Ripple Rejection: 40dB@1KHz（ME6203A33）
- Line Regulation: 0.5％（TYP.）
- Temperature Stability：0.5%（TYP.）
- Operational Temperature Range: 0℃～100℃
- Small Packages:SOT-89

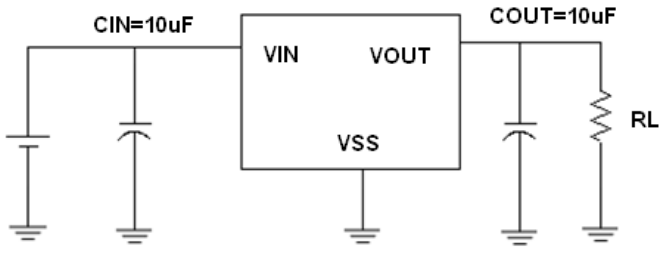
Typical Application

- Consumer and Industrial Equipment Point of Regulation
- Portable AV equipment
- Battery powered equipment
- Cameras, video recorders
- Reference voltage

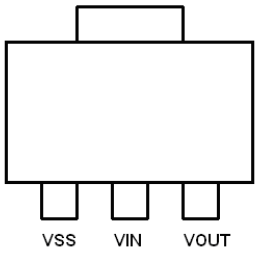
Selection Guide



Typical Application Circuit



Pin Configuration



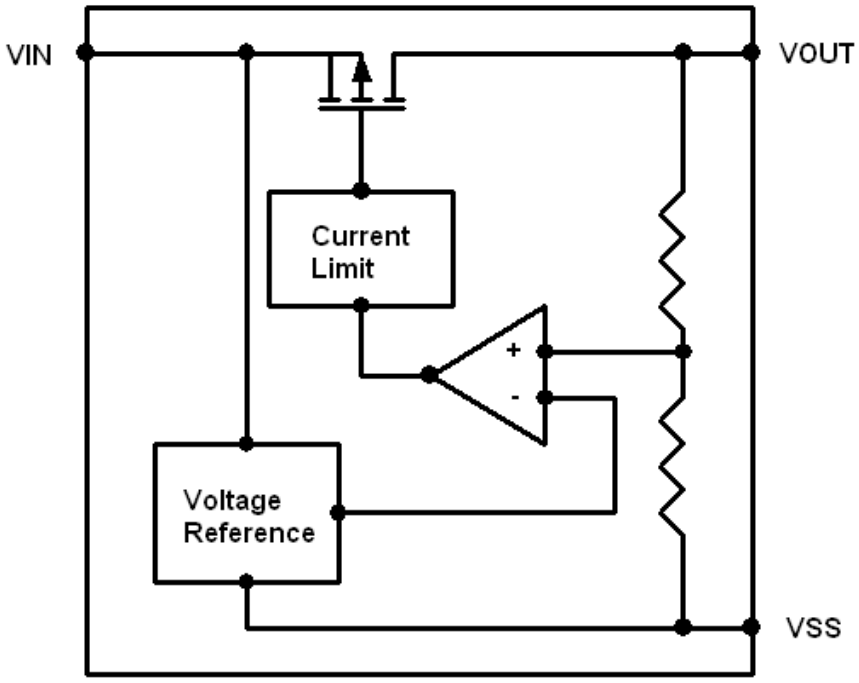
SOT-89-3

Pin Assignment

ME6203AXX

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

Block Diagram



Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	36	V
Output Voltage		V_{OUT}	Vss-0.3～V_{IN} +0.3	V
Power Dissipation	SOT-89	P_D	500	mW
Operating Temperature Range		T_{OPR}	0～＋100	℃
Storage Temperature Range		T_{STG}	－40～＋150	℃
Lead Temperature	SOT-89		260℃，10sec	

Electrical Characteristics

ME6203A30

(V_{IN}= 7V，$C_{IN=}C_L$=10uF，Ta=25^{O}C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, 7V ≤V_{IN}≤30V	X 0.975	V_{OUT} (T) (Note 1)	X 1.025	V
Input Voltage	V_{IN}		7		30	V
Maximum Output Current	I_{OUTMAX}	V_{IN}= 7V		100		mA
		V_{IN}= 24V		20		
		V_{IN}= 30V		15		
Load Regulation	ΔV_{OUT}	V_{IN}= 7V , 0mA≤I_{OUT}≤100mA		10	30	mV
Line Regulation	ΔV_{OUT}	I_{OUT} =10mA，7V ≤V_{IN}≤30V		10	35	mV
Temperature Stability	ΔV_{OUT}	V_{IN}= 7V, I_{OUT} =10mA,0~100℃		0.5	1.5	%
Quiescent Current	I_s			13	18	μA
short-circuit current	I_{short}	V_{IN}= 7V		13	30	mA
Ripple Rejection Rate	PSRR	V_{IN} = 12V +1Vp-pAC I_{OUT}=5mA,1kHZ		40		dB

ME6203A33

(V_{IN}= 7V，C_{IN}=C_L=10uF，Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, 7V ≤V_{IN}≤30V	X 0.975	V_{OUT} (T) (Note 1)	X 1.025	V
Input Voltage	V_{IN}		7		30	V
Maximum Output Current	I_{OUTMAX}	V_{IN}= 7V		100		mA
		V_{IN}= 24V		20		
		V_{IN}= 30V		15		
Load Regulation	ΔV_{OUT}	V_{IN}= 7V , 0mA≤I_{OUT}≤100mA		10	30	mV
Line Regulation	ΔV_{OUT}	I_{OUT} =10mA，7V ≤V_{IN}≤30V		10	35	mV
Temperature Stability	ΔV_{OUT}	V_{IN}= 7V, I_{OUT} =10mA,0~100℃		0.5	1.5	%
Quiescent Current	I_s			13	18	μA
short-circuit current	I_{short}	V_{IN}= 7V		13	30	mA
Ripple Rejection Rate	PSRR	V_{IN} = 12V +1Vp-pAC I_{OUT}=5mA,1kHZ		40		dB

ME6203A50

(V_{IN}= 7V，C_{IN}=C_L=10uF，Ta=25°C, unless otherwise noted)

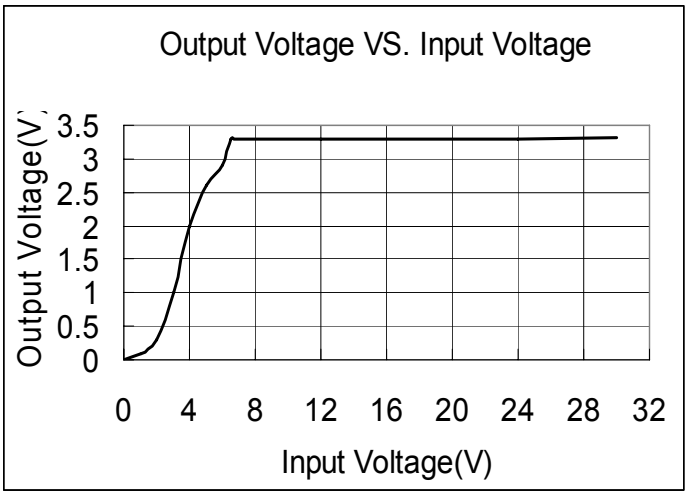
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=10mA, 7V ≤V_{IN}≤30V	X 0.975	V_{OUT} (T) (Note 1)	X 1.025	V
Input Voltage	V_{IN}		7		30	V
Maximum Output Current	I_{OUTMAX}	V_{IN}= 7V		100		mA
		V_{IN}= 24V		20		
		V_{IN}= 30V		15		
Load Regulation	ΔV_{OUT}	V_{IN}= 7V , 0mA≤I_{OUT}≤100mA		10	40	mV
Line Regulation	ΔV_{OUT}	I_{OUT} =10mA，7V ≤V_{IN}≤30V		10	45	mV
Temperature Stability	ΔV_{OUT}	V_{IN}= 7V, I_{OUT} =10mA,0~100℃		0.5	1.5	%
Quiescent Current	I_s			15	18	μA
short-circuit current	I_{short}	V_{IN}= 7V		15	30	mA
Ripple Rejection Rate	PSRR	V_{IN} = 12V +1Vp-pAC I_{OUT}=5mA,1kHZ		40		dB

Note ：

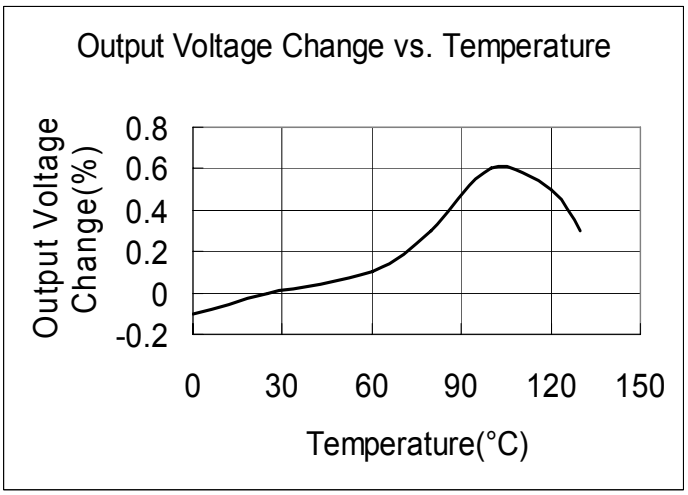
1. V_{OUT} (T) ： Specified Output Voltage
2. V_{OUT} (E) ： Effective Output Voltage

Type Characteristics

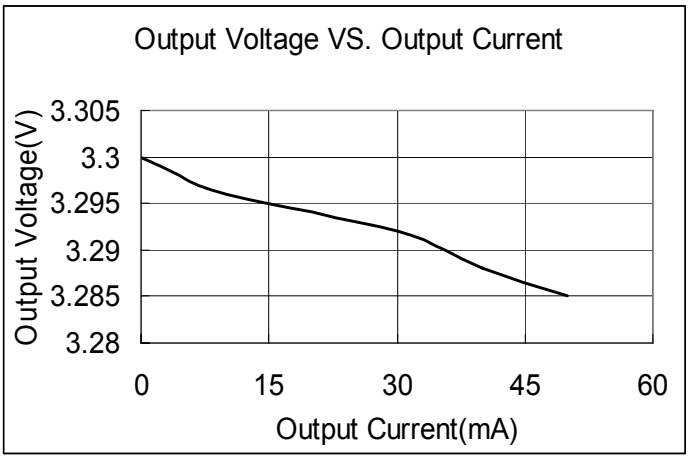
（1） Output Voltage VS. Input Voltage
（I_{OUT}=10mA, Ta = 25 °C）



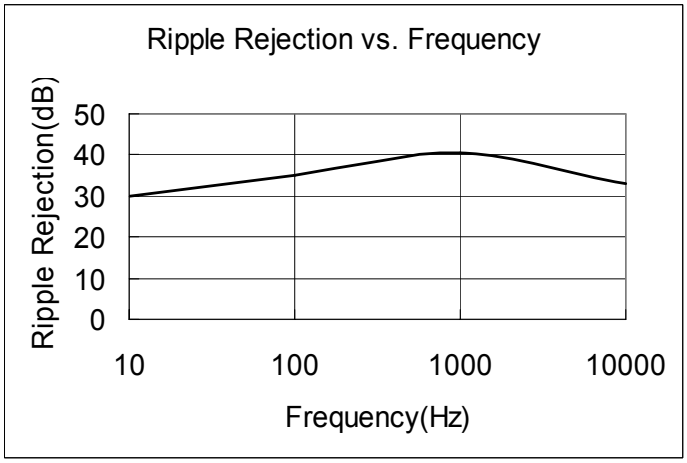
（2） Output Voltage Change vs. Temperature
（V_{IN}=7V , I_{OUT}=10mA）



（3）Output Voltage VS. Output Current
（V_{IN}=7V，Ta = 25 °C）



（4）Ripple Rejection vs. Frequency
（V_{IN} = 12V +1Vp-pAC，I_{OUT}=5mA, Ta = 25 °C）

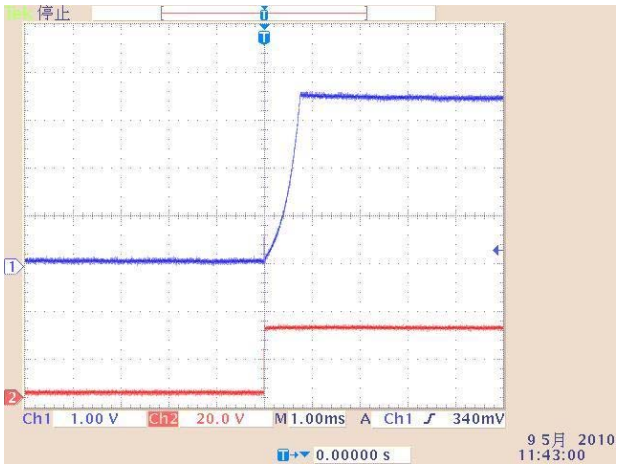


（5）Line Transient Response

ME6203A33

Ch1：Output Voltage　Ch2：Input Voltage

V_{IN}=30V,I_{OUT}=0mA,Ta = 25 °C

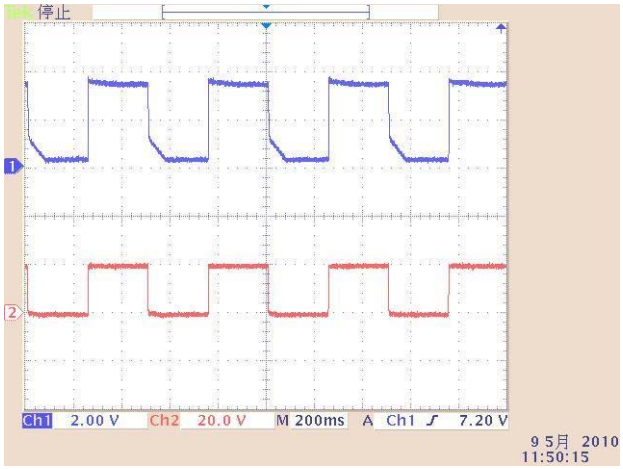


（6）rectangle wave Transient Response

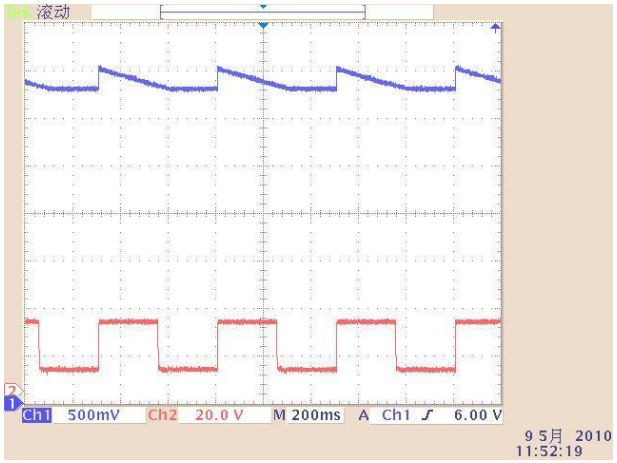
ME6203A33

Ch1：Output Voltage　Ch2：Input Voltage

V_{IN}:0V~20V,Ta = 25 °C

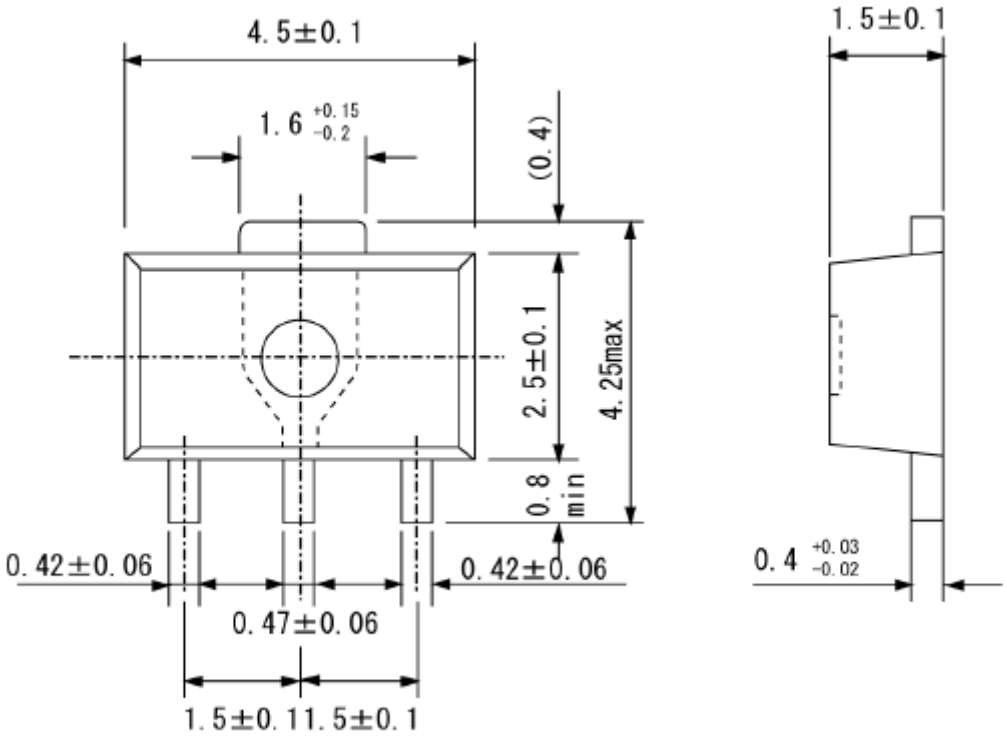


V_{IN}:10V~30V,Ta = 25 °C



Packaging Information:

SOT-89-3



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