Features

- Low voltage drop: 0.06V@100mA
- High input voltage: 8.5V
- Low temperature coefficient

- Low Quiescent Current: 10uA at 5.0V
- Output voltage accuracy: tolerance ±2%

Applications

- Battery-powered equipment
- Hand-Hold Equipment

- GRS Receivers
- Wireless LAN

General Description

The MB6251C series is a group of positive voltage output, three-pin regulators that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The MB6251C consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to a load variations have improved in comparison to the existing series.
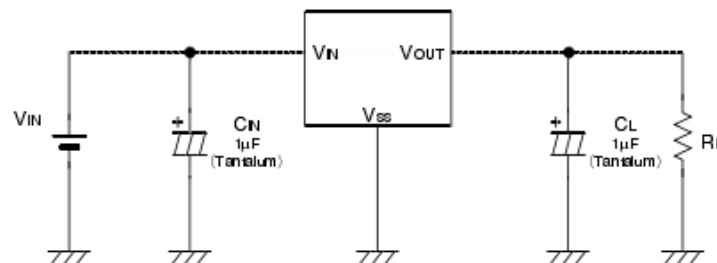
SOT89-3 and SOT23-5 packages are available.

Order Information

MB6251C①②③④

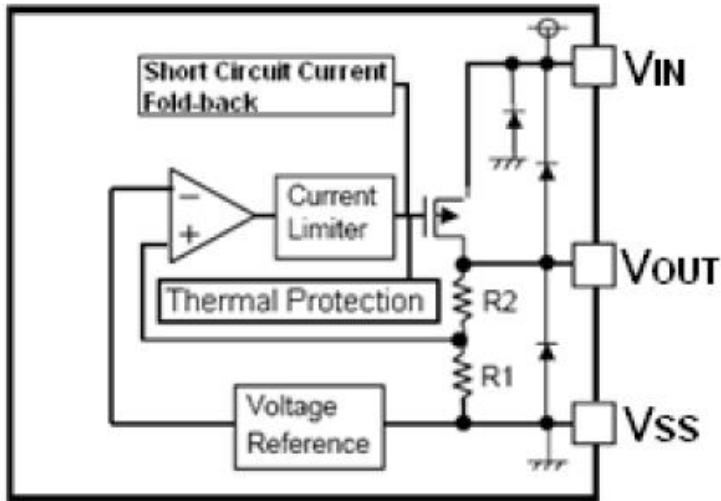| Designator	Symbol	Description
①	P	Package:SOT89A
	PB	Package:SOT89B
	M5	Package:SOT23-5
	M	Package:SOT23-3
②③	Integer	Output Voltage(1.2~5.0V)
④	R	RoHS / Pb Free
	G	Halogen Free

Typical Application

Note1: Input capacitor CIN=1uF.

Note2:Ouput capacitor COUT=1uF/6.8uF(1uFTantalum capacitor or 6.8uF ceramic capacitor is recommended).
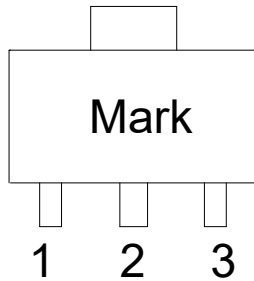
Block Diagram

Pin Assignment

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

Table2   MB6251C series (SOT89B PKG)

PIN NO.	PIN NAME	FUNCTION
1	VIN	Input voltage pin
2	GND	GND pin
3	VOUT	Output voltage pin

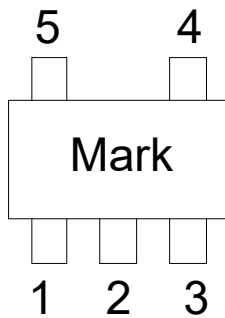Table3   MB6251C series (SOT23-5 PKG)

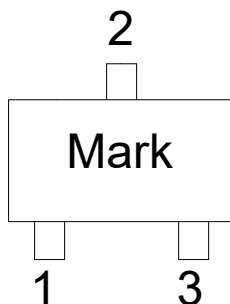| PIN NO.	PIN NAME	FUNCTION
1	VIN	Input voltage pin
2	GND	GND pin
3	EN	Enable pin "H": Normal operation "L": Step-up stopped
4	NC	(N.C.)
5	VOUT	Output voltage pin

Table4   MB6251C series (SOT23-3 PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

Absolute Maximum Ratings

Supply Voltage ....-0.3V to 8.5V

Output Current…………………………..1.1A

Operating Temperature ....-40℃ to 85℃

Storage Temperature ....-40℃ to 125℃

Thermal Information

Symbol	Parameter	Package	Max.	Unit
θ JA	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	SOT23	500	℃/W
		SOT89	200	℃/W
P_D	Power Dissipation	SOT23	0.25	W
		SOT89	0.50	W

Note: P_D is measured at Ta= 25℃

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

## Electrical Characteristics

MB6251C for any output voltage （Ta=25℃）

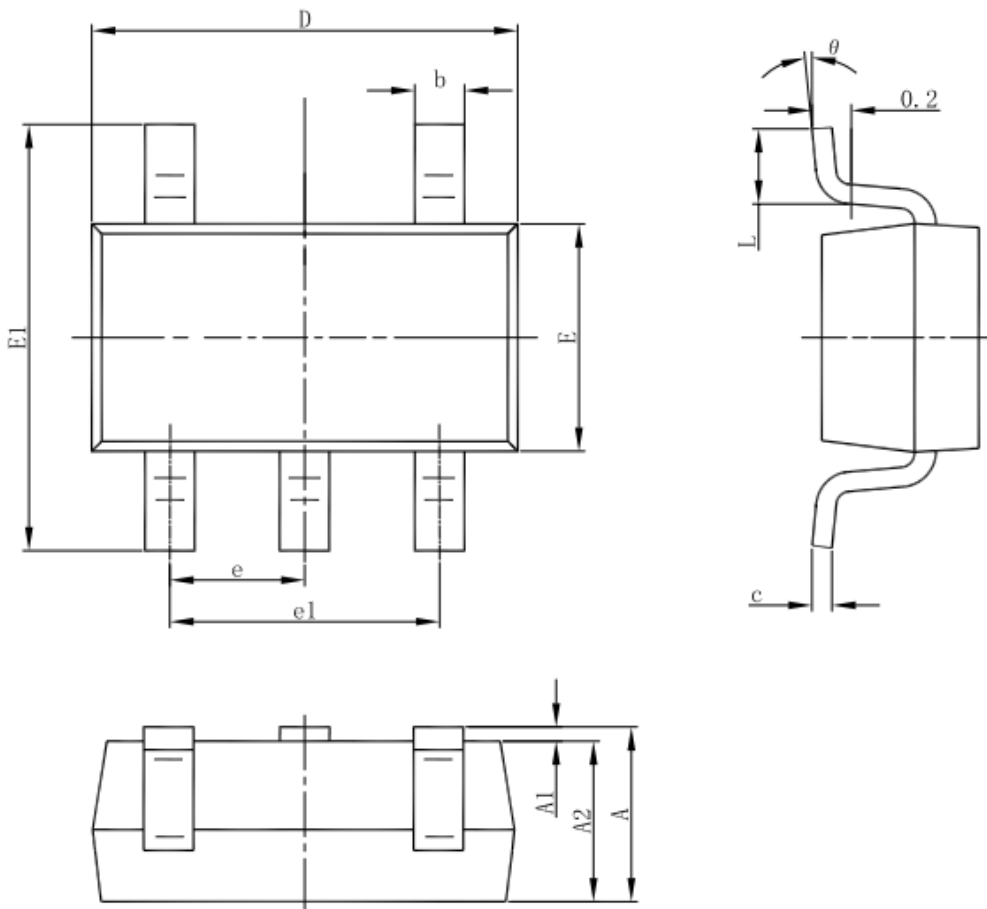| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_OUT	Output Voltage	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
I_OUT	Output Current*1	Vin-Vout=1V	--	1000	--	mA
V_DROP	Low dropout*2	Refer to the next table				
$\dfrac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	1.6V≤Vin≤8V Iout=100mA	--	0.05	0.2	%/V
$\Delta V_{OUT} \; \Delta I_{OUT}$	△Vout /△Iout	Vin= Vout+1V 1.0mA≤Iout≤100mA	--	12	30	mV
Output voltage Temperature Coefficiency	△Vout/(Ta·Vout)	Iout=30mA 0℃≤Ta≤70℃	--	±100	--	Ppm/℃
Supply Current	Iss	--	--	10	12	uA
Input Voltage	Vin	--	--	--	8.5	V

Electrical Characteristics by Output Voltage：

Output Voltage Vout(V)	Dropout Voltage Vdif（V）		
	Conditions	Typ.	Max.
Vout ≤ 2.0V	Iout=60 mA	0.05	0.08
2.0 < Vout ≤ 3.0	Iout=80 mA	0.05	0.08
3.0 < Vout ≤ 4.0	Iout=100 mA	0.06	0.08
4.0 < Vout ≤ 5.0		0.05	0.08
3.0 < Vout ≤ 4.0	Iout=200 mA	0.13	0.16
4.0 < Vout ≤ 5.0		0.12	0.16
3.0 < Vout ≤ 4.0	Iout=1000 mA	0.65	0.8
4.0 < Vout ≤ 5.0		0.6	0.8

Package Information
3-pin SOT89 Outline Dimensions
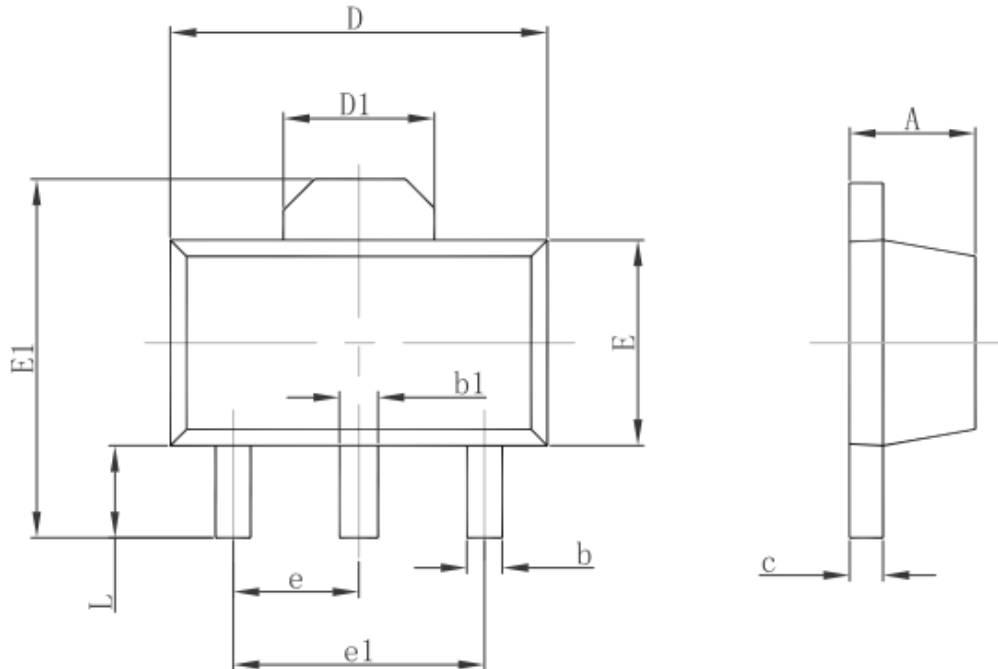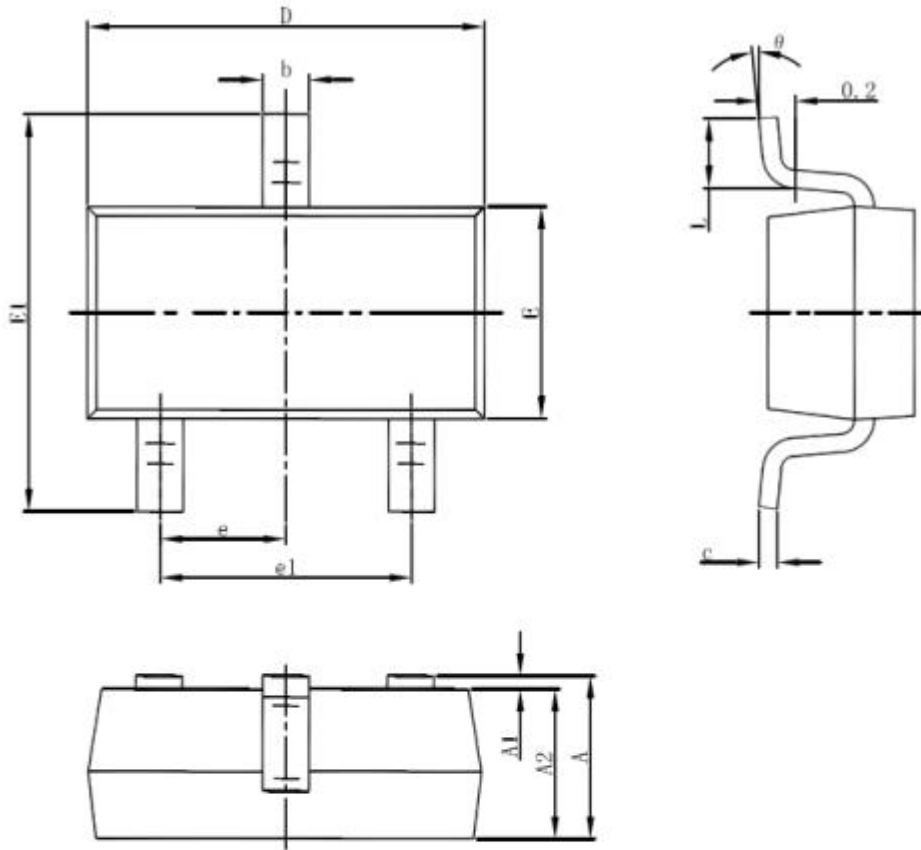

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

SOT23-5 Outline Dimensions

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

3-pin SOT23-3 Outline Dimensions

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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