

### Description

The AMS6206 is ultra-low quiescent current CMOS low dropout (LDO) regulator designed for battery-powered equipments.

The fixed output voltage sare 1.5V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V and 3.6V.

The other features include 50μA low power consumption, low dropout voltage, high output accuracy, current limiting protection, and high ripple rejection ratio.

### Features

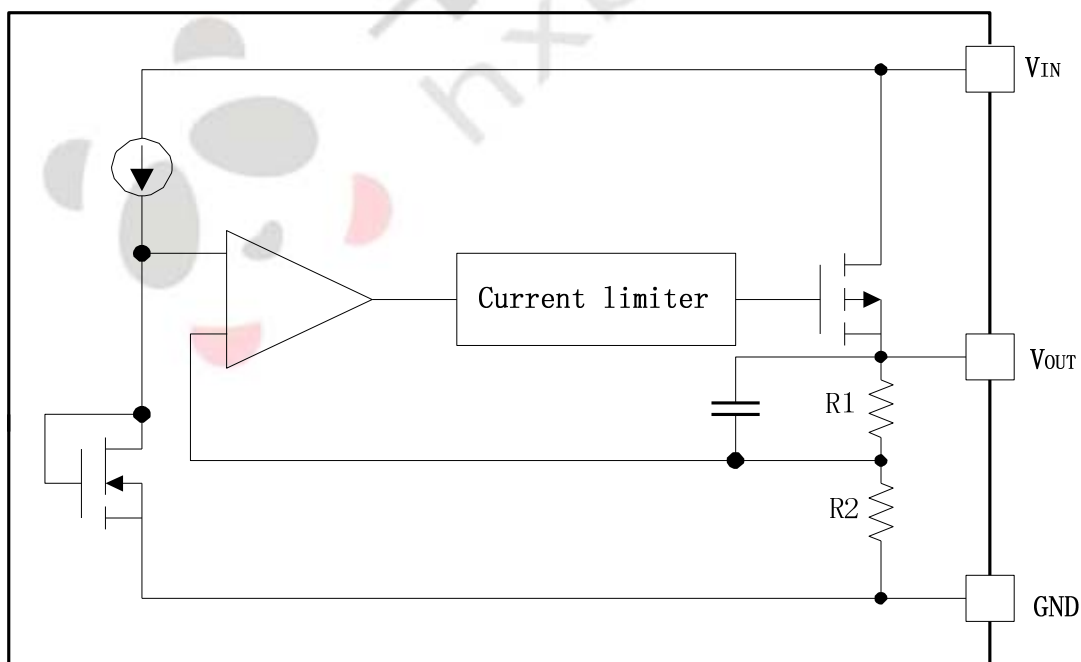
- ◆ Maximum output current: 200mA  
(SOT23 package)
- ◆ Maximum output current: 300mA  
(SOT23-3 package)

- ◆ Maximum output current: 350mA  
(SOT89-3 package)
- ◆ Dropout voltage: 200mV (I<sub>OUT</sub>=100mA)
- ◆ Maximum operating voltage: 7V
- ◆ Fixed output voltage: 1.5v, 1.8v, 2.5v, 2.8v, 3.0v, 3.3v and 3.6v.
- ◆ Low power consumption: TYP=10μA
- ◆ Operating temperature range: -40°C ~ +80°C

### Applications

- ◆ Battery-powered equipment
- ◆ Palmtops, notebook computers
- ◆ Hand-held instruments
- ◆ PCMCIA cards

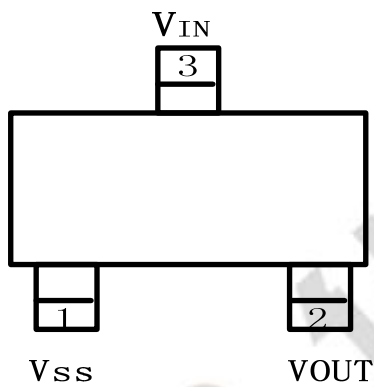
### Block diagram



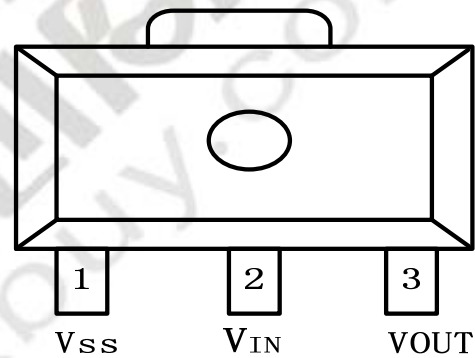
### Ordering information

TOP MARK	TEMP.RANGE	PACKAGE	Output Voltage(V)
65E9	-40°C to +80°C	SOT23, SOT89-3 and SOT23-3 (L-Type)	1.5
65K5			1.8
58GC			2.5
54FK			2.8
65Z5			3.0
662K			3.3
59I6			3.6

### Pin Configuration(Top View)



SOT-23  
TOP-VIEW



SOT-89  
TOP-VIEW

Remark: SOT23-3 package has the same pin definition with SOT23 package.

### Pin assignment

Pin NO.		Pin Name	Function
SOT23, SOT23-3	SOT89-3		
1	1	Vss	Ground
2	3	Vout	Output Voltage
3	2	Vin	Power Input

### Absolute maximum rating

Parameter	Symbol	Ratings	Units	
Input Voltage	V <sub>IN</sub>	7	V	
Power Dissipation	SOT23	P <sub>d@Ta=25°C</sub>	250	mW
	SOT23-3	P <sub>d@Ta=25°C</sub>	350	mW
	SOT-89-3	P <sub>d@Ta=25°C</sub>	450	mW
Operating Junction Temperature Range	T <sub>opr</sub>	- 40 ~ +125	°C	
Storage Temperature	T <sub>stg</sub>	-55~+150	°C	
SOT23 Package Thermal Resistance (Note1)	θ <sub>JA</sub>	400	°C/W	
SOT23-3 Package Thermal Resistance (Note1)	θ <sub>JA</sub>	285	°C/W	
SOT-89 Package Thermal Resistance (Note1)	θ <sub>JA</sub>	220	°C/W	

### Electrical Characteristics (V<sub>IN</sub>=5.5V, C<sub>IN</sub>=1uF, C<sub>OUT</sub>=1uF, T<sub>A</sub>=25°C, unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Input Voltage Range	V <sub>IN</sub>		2	---	7	V
Output Voltage Accuracy	Δ V <sub>OUT</sub>	I <sub>L</sub> =1mA	-2	---	+2	%
Maximum Output Current	I <sub>MAX</sub>	V <sub>IN</sub> = V <sub>OUT</sub> +0.6V, V <sub>IN</sub> ≥3.6V	---	250	---	mA
Supply Current	I <sub>SS</sub>	V <sub>in</sub> =V <sub>out</sub> +1V	---	10	---	uA
Dropout Voltage	V <sub>DROP</sub>	DV REF = 1%, I <sub>out</sub> =1mA,	---	4	10	mV
		DV REF = 1%, I <sub>out</sub> =50mA,	---	100	200	
		DV REF = 1%, I <sub>out</sub> =100mA,	---	200	300	
Line Regulation	Δ V <sub>LINE</sub>	V <sub>IN</sub> =(V <sub>OUT</sub> +0.3V) to 6V V <sub>IN</sub> ≥3.6V, I <sub>out</sub> =1mA	---	---	+0.2	%/V
Load Regulation	Δ V <sub>LOAD</sub>	I <sub>LOAD</sub> =0mA to 100mA	---	0.01	0.04	%/mA
Output Noise	e <sub>ON</sub>	BW=100Hz to 50kHz C <sub>OUT</sub> =10uF	---	250	---	uV
Ripple Rejection	PSRR	F=1kHz, C <sub>OUT</sub> =1uF	---	30	---	dB
Thermal Shutdown Protection			125	---	---	°C

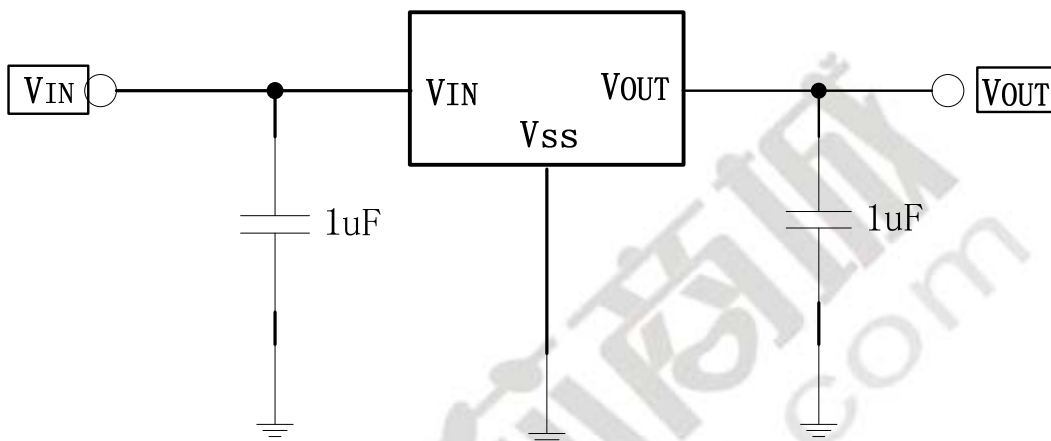
**Note1.** θ<sub>JA</sub> is measured in the natural convection at T<sub>A</sub>=25°C on a low effective thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

### Application information

A 1 $\mu$ F (or larger) capacitor is recommended between VOUT and GND for stability. The part may oscillate without the capacitor. Any type of capacitor can be used, but not Aluminum electrolytes when operating below  $-25^{\circ}\text{C}$ . The capacitance may be increased without limit.

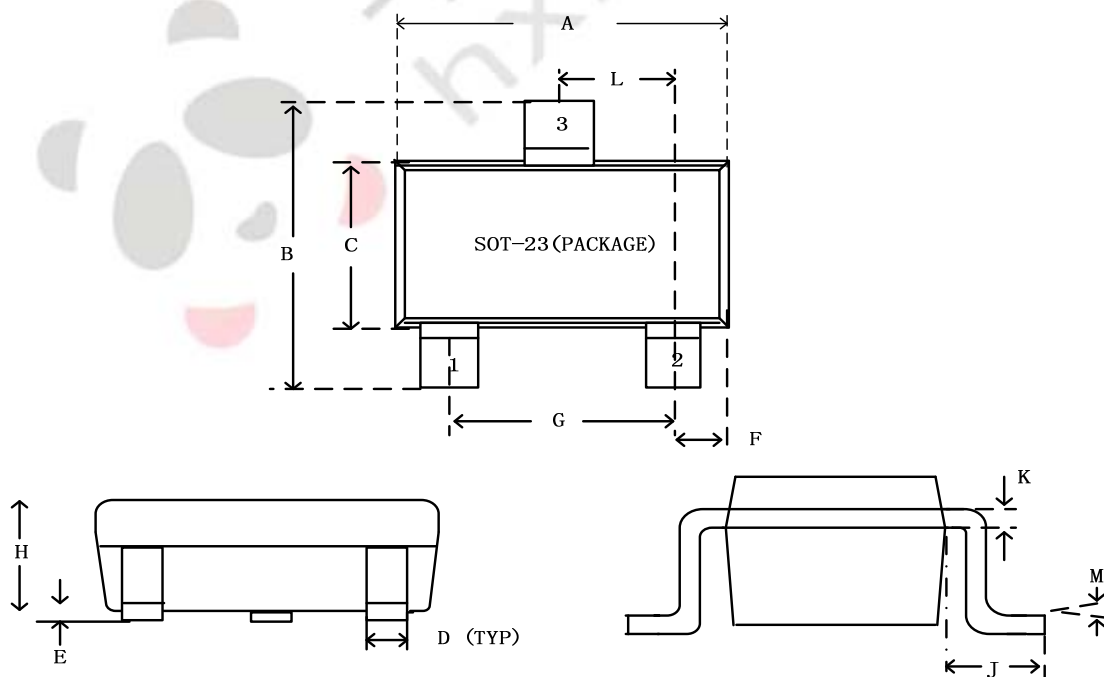
A 1 $\mu$ F capacitor (or larger) should be placed between VIN to GND.

### Typical application circuit



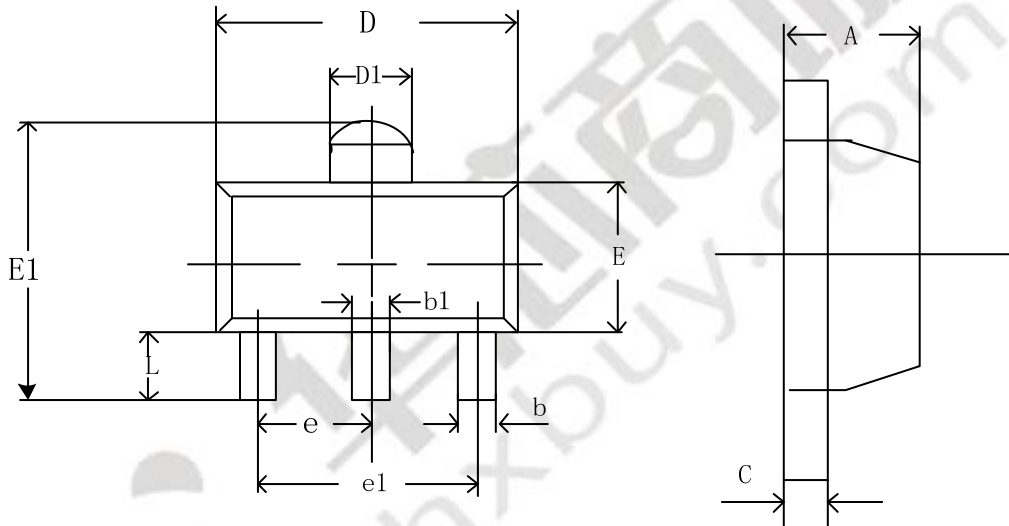
### Package description

Package: SOT23 and SOT23-3 have the same dimensions except h



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.7	3.1	H(SOT23)	0.734	1.143
B	2.4	2.8	H(SOT23-3)	0.977	1.383
C	1.4	1.6	K	0.10	0.2
D	0.35	0.5	J	0.4	--
E	0	0.1	L	0.85	1.15
F	0.45	0.55	M	0°	10°
G	1.9REF				

### Package SOT-89-3



Symbol	Dimensions In Millimeters	
	Min	Max
A	1.400	1.600
b	0.320	0.520
b1	0.360	0.560
c	0.350	0.440
D	4.400	4.600
D1	1.400	1.800
E	2.300	2.600
E1	3.940	4.250
e	1.500TYP	
e1	2.900	3.100
L	0.900	1.100