



Low ESR Cap.Compatible Positive Voltage Regulators

■ GENERAL DESCRIPTION

The AMS6209 series are highly precise, low power consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The AMS6209 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin.

Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 3.0V to 5.0V.

SOT-23, SOT-89, TO-92 are available.

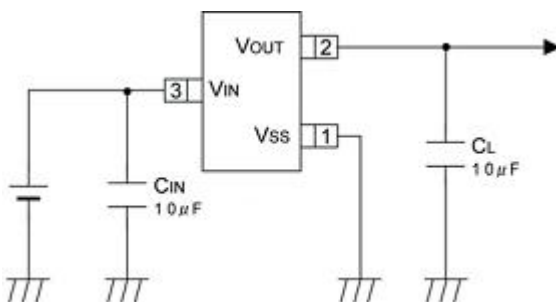
■ APPLICATIONS

- Battery powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games
- Cordless phones, wireless communication equipment

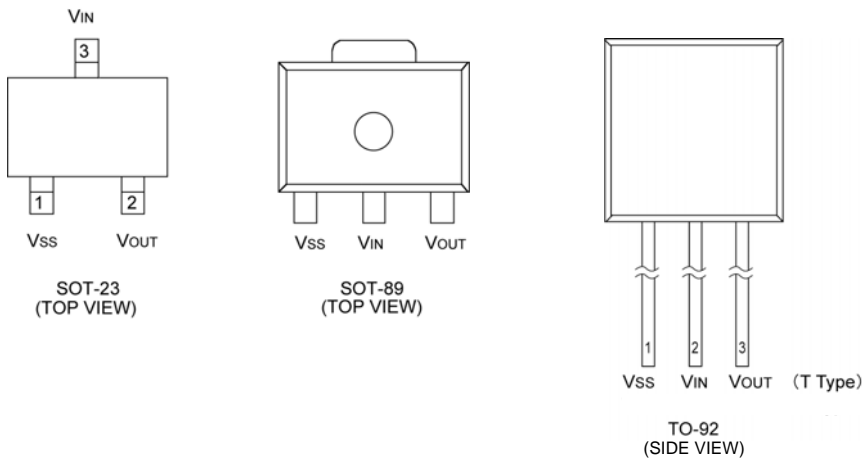
■ FEATURES

Maximum Output Current	: 250mA (Vin=4.3V, Vout=3.3V)
Dropout Voltage	: 80mV@40mA and Vout=3.3V
Maximum Operating Voltage	: <18V
Output Voltage Range	: 3.0V ~ 5.0V (0.1V increments)
Highly Accurate	: ±2%
Low Power Consumption	: 3 μA (TYP.)
Low ESR Capacitor	: Ceramic capacitor compatible
Protection	: Current Limit Circuit Built-in
Operating Ambient Temperature	: -40°C~ +85°C
Packages	: SOT-23 SOT-89 TO-92
Environmentally Friendly	: EU RoHS Compliant, Pb Free

■ TYPICAL APPLICATION CIRCUIT



PIN CONFIGURATION



PIN ASSIGNMENT

PIN NUMBER			PIN NAME	FUNCTIONS
SOT-23	SOT-89	TO-92		
1	1	1	Vss	Ground
3	2	2	VIN	Power Input
2	3	3	VOUT	Output

PRODUCT CLASSIFICATION

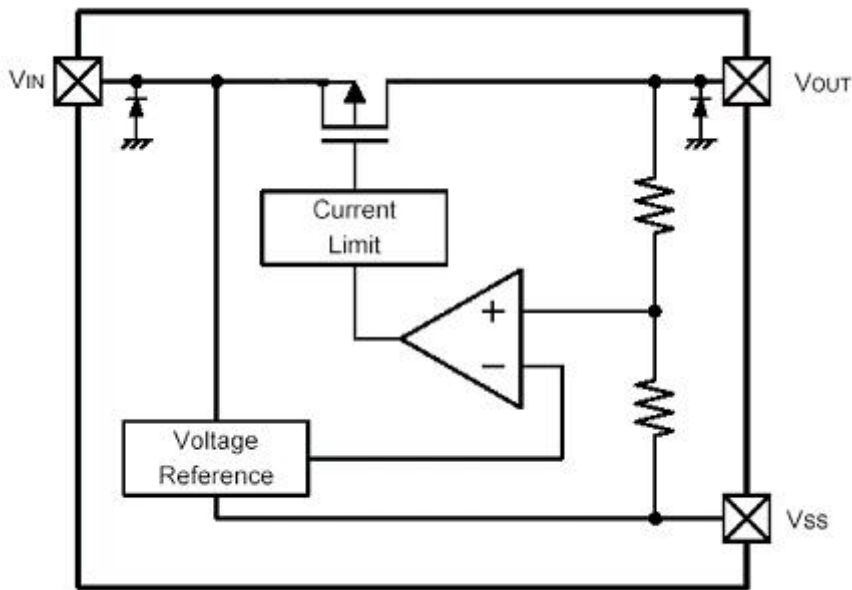
Ordering Information

AMS6209 ①②③④⑤-⑥^(*)

DESIGNATOR	ITEM	SYMBOL	DESCRIPTION
①②	Output Voltage	30~50	e.g. Vout: 3.0V → ①=3, ②=0
③	Accuracy	2	± 2% (Vout ≥ 3.0V), ±30mV (Vout < 3.0V)
④⑤-⑥	Packages (Order Unit)	MR	SOT-23 (3,000/Reel)
		MR-G	SOT-23 (3,000/Reel)
		PR	SOT-89 (1,000/Reel)
		PR-G	SOT-89 (1,000/Reel)
		TH	TO-92 (T type), Paper type (2,000/Tape)
		TH-G	TO-92 (T type), Paper type (2,000/Tape)
		TB	TO-92 (T type), Bag type (500/Bag)
		TB-G	TO-92 (T type), Bag type (500/Bag)

^(*) The "-G" suffix denotes Halogen and Antimony free as well as being fully RoHS compliant.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

Ta=25°C

PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage	V _{IN}	18	V
Output Current	I _{OUT}	500	mA
Output Voltage	V _{OUT}	V _{SS} - 0.3 ~ V _{IN} + 0.3	V
Power Dissipation	SOT-23	300	mW
	SOT-89	500	
	TO-92	500	
Operating Ambient Temperature	T _{opr}	- 25 ~ + 85	°C
Storage Temperature	T _{stg}	- 40 ~ + 125	°C



●AMS6209332

Ta=25 °C

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	S
Output Voltage	$V_{out(E)}^{(*)2}$	$I_{out}=40mA, V_{in}=V_{out}+1V$	x 0.98	$V_{OUT(T)}^{(*)1}$	x 1.02	V	
Maximum Output Current	I_{outMAX}	$V_{in}=V_{out}+1V$	250		-	mA	
Load Regulation	ΔV_{out}	$V_{in}=V_{out}+1V$ $1mA \leq I_{out} \leq 60mA$		15	40	mV	
Dropout Voltage ^{(*)3}							
	V_{dif}	$I_{out}=40mA$		80		mV	
Supply Current	I_{ss}	$V_{in}=V_{out}+1V$		3	4	μA	
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{out}+1V \leq V_{in} \leq 18V$ $I_{out}=40mA$		0.1		%/V	
Input Voltage	V_{IN}			-	18	V	
Power Supply Ripple Rejection Ratio	PSRR	$V_{in}=[V_{out}+1]V+1V_{p-pAC}$ $I_{out}=10mA, f=1KHz$		50		dB	
Short Circuit Current	I_{short}	$V_{in}=V_{out(T)}+1.5V, V_{out}=V_{ss}$		25		mA	

●AMS6209402

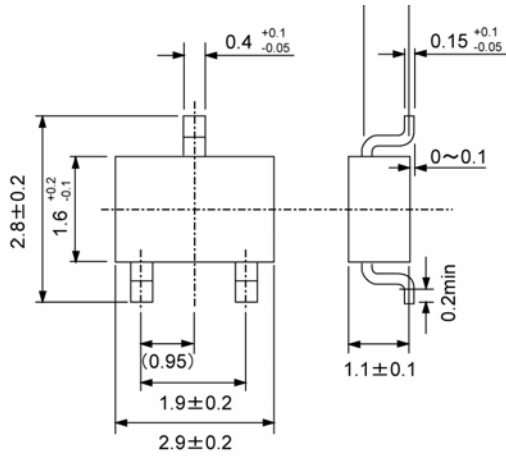
Ta=25 °C

PARAMETER	SYMBOL	CONDITIONS ^{(*)1}	MIN.	TYP.	MAX.	UNIT	S
Output Voltage	$V_{out(E)}^{(*)2}$	$I_{out}=40mA, V_{in}=V_{out}+1V$	x 0.98	$V_{OUT(T)}^{(*)1}$	x 1.02	V	
Maximum Output Current	I_{outMAX}	$V_{in}=V_{out}+1V$	250		-	mA	
Load Regulation	ΔV_{out}	$V_{in}=V_{out}+1V$ $1mA \leq I_{out} \leq 60mA$		15	40	mV	
Dropout Voltage ^{(*)3}							
	V_{dif}	$I_{out}=40mA$		70		mV	
Supply Current	I_{ss}	$V_{in}=V_{out}+1V$		3	4	μA	
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{out}+1V \leq V_{in} \leq 18V$ $I_{out}=40mA$		0.1	0.2	%/V	
Input Voltage	V_{IN}			-	18	V	
Power Supply Ripple Rejection Ratio	PSRR	$V_{in}=[V_{out}+1]V+1V_{p-pAC}$ $I_{out}=10mA, f=1KHz$		50		dB	
Short Circuit Current	I_{short}	$V_{in}=V_{out(T)}+1.5V, V_{out}=V_{ss}$		30		mA	

■ PACKAGING INFORMATION

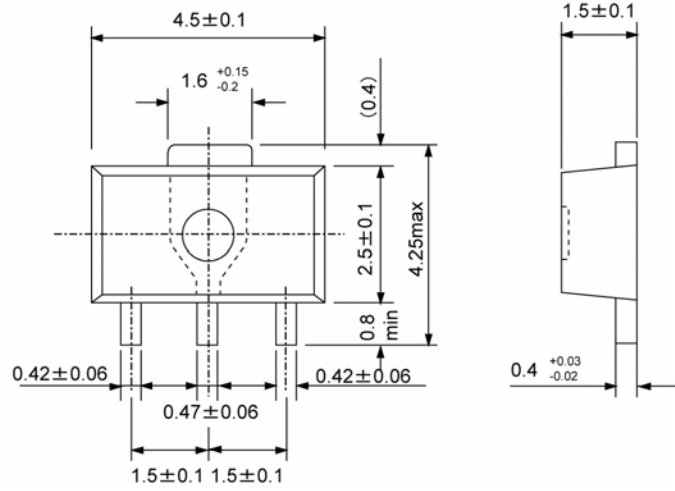
● SOT-23

Unit : mm



● SOT-89

Unit : mm



● TO-92

Unit : mm

