

High Efficiency 1MHz, 2A Step Up Regulator

Preliminary Specification

General Description

The AM9208 is a high efficiency boost regulators targeted for general step-up applications.

Ordering Information

AM9208 □(□□)□

- └─ Temperature Code
- └─ Package Code
- └─ Optional Spec Code

Temperature Range: -40°C to 85°C

Ordering Number	Package type	Note
AM9208ABC	SOT23-6	2A

Features

- Wide input range: 3-25V bias input, 25V_{out} max
- 1MHz switching frequency
- Minimum on time: 100ns typical
- Minimum off time: 100ns typical
- Low R_{DS(ON)}: 150mΩ
- RoHS Compliant and Halogen Free
- Accurate Reference: 0.6V_{REF}
- Compact package: SOT23 6 pins

Applications

- WLED Drivers
- Networking cards powered from PCI or PCI-express slots

Typical Applications

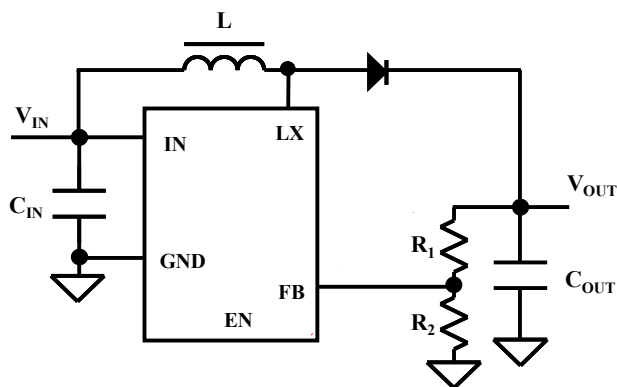


Figure 1. Schematic Diagram

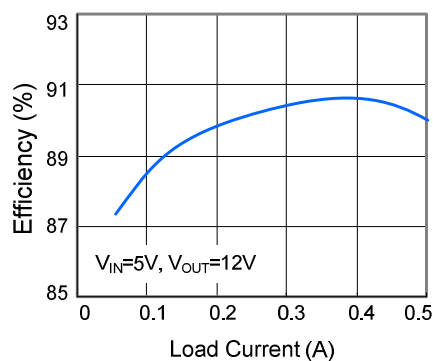
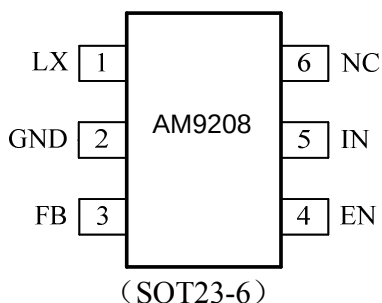


Figure 2. Efficiency vs Load Current

Pinout (top view)



Top Mark: CAxyz (Device code: CA, *x*=year code, *y*=week code, *z*=lot number code)

Pin Name	Pin Number	Pin Description
IN	5	Input pin. Decouple this pin to GND pin with 1uF ceramic cap.
GND	2	Ground pin
LX	1	Inductor node. Connect an inductor between IN pin and LX pin.
FB	3	Feedback pin. Connect a resistor R1 between V _{OUT} and FB, and a resistor R2 between FB and GND to program the output voltage: $V_{OUT}=0.6V*(R1/R2+1)$.
EN	4	Enable control. High to turn on the part. Don't leave it floated.
NC	6	No connection.

Absolute Maximum Ratings (Note 1)

LX, IN, EN	26V
All other pins	4V
Power Dissipation, P _D @ T _A = 25°C SOT23-6	0.6W
Package Thermal Resistance (Note 2)	
θ _{JA}	161°C/W
θ _{JC}	130°C/W
Junction Temperature Range	125°C
Lead Temperature (Soldering, 10 sec.)	260°C
Storage Temperature Range	-65°C to 150°C
ESD Susceptibility (Note 2)	
HBM (Human Body Mode)	2kV
MM (Machine Mode)	200V
Dynamic LX voltage in 50ns duration	IN+3V to GND-4V

Recommended Operating Conditions (Note 3)

Input Voltage Supply	3V to 25V
Junction Temperature Range	-40°C to 125°C
Ambient Temperature Range	-40°C to 85°C

Electrical Characteristics

($V_{IN} = 5V$, $V_{OUT} = 12V$, $I_{OUT} = 100mA$, $T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		3		25	V
Quiescent Current	I_Q	$V_{FB} = 0.66V$		100		μA
Shutdown Current	I_{SHDN}	EN=0		1	5	μA
Low Side Main FET RON	$R_{ds(on)}$			150		m Ω
Main FET Current Limit	I_{LIM1}		2		2.6	A
Switching Frequency	Fsw		0.8	1	1.2	MHz
Feedback Reference Voltage	V_{REF}		0.588	0.6	0.612	V
IN UVLO Rising Threshold	$V_{IN,UVLO}$				2.7	V
UVLO Hysteresis	$U_{VLO,HYS}$			0.1		V
Thermal Shutdown Temperature	T_{SD}			150		$^\circ C$
EN Rising Threshold	V_{ENH}		2			V
EN Falling Threshold	V_{ENL}				0.4	V
EN Pin Input Current	I_{EN}		0		100	nA

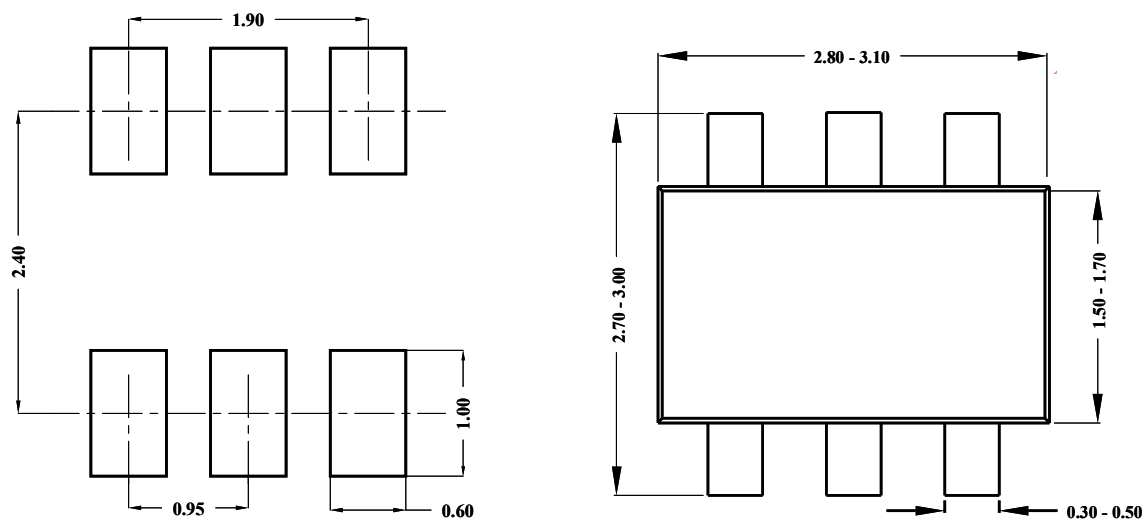
Note 1: Stresses listed as the above “Absolute Maximum Ratings” may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability.

Note 2: θ_{JA} is measured in the natural convection at $T_A = 25^\circ C$ on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard. Test condition: Device mounted on 2” x 2” FR-4 substrate PCB, 2oz copper, with minimum recommended pad on top layer and thermal vias to bottom layer ground plane.

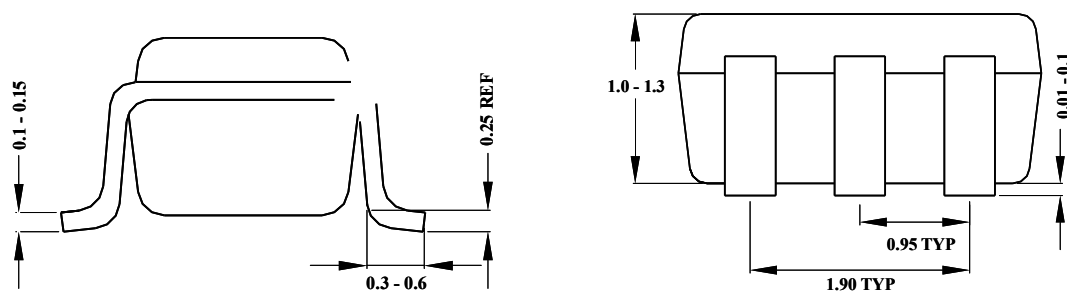
Note 3: The device is not guaranteed to function outside its operating conditions.

Note 4: IC could be start up in 2.7V.

SOT23-6 Package outline & PCB layout design



Recommended Pad Layout



Notes: All dimensions are in millimeters.

All dimensions don't include mold flash & metal burr.