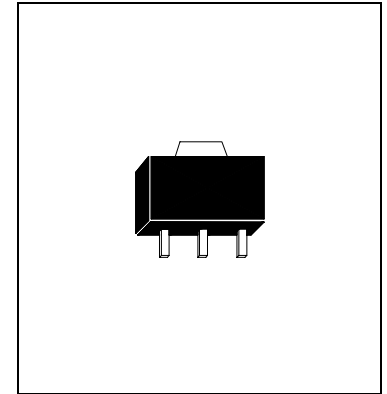




# H7809AM

# H7809BM

Low Current Positive Voltage Regulator Of Surface Mount Device



## Description

The H7809\_M series of surface mount device regulators are easy-to-use devices suitable for multitude of applications that require a regulated supply of up to 100mA. These regulators feature internal current limiting and thermal shutdown making them remarkably rugged. No external components are required with the 780-9\_M devices in many applications.

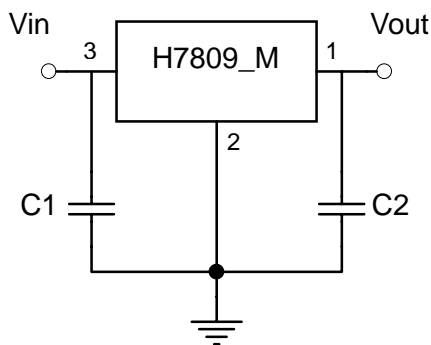
These devices offer a substantial performance advantage over the traditional zener diode resistor combination, as output impedance and quiescent current are substantially reduced.

- Wide Range Of Available, Fixed Output Voltages
- Internal Short-Circuit Current Limiting
- Internal Thermal Overload Protection
- No External Components Required

## Absolute Maximum Ratings (Ta=25°C)

- Input Voltage..... 30 V (5V Through 9V), 35 V (12V Through 18V)
- Total Power Dissipation ..... Internal limit
- Operating Temperature Range ..... 0 °C to +70 °C
- Maximum Junction Temperature..... 125 °C
- Storage Temperature Range ..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S)..... 260 °C

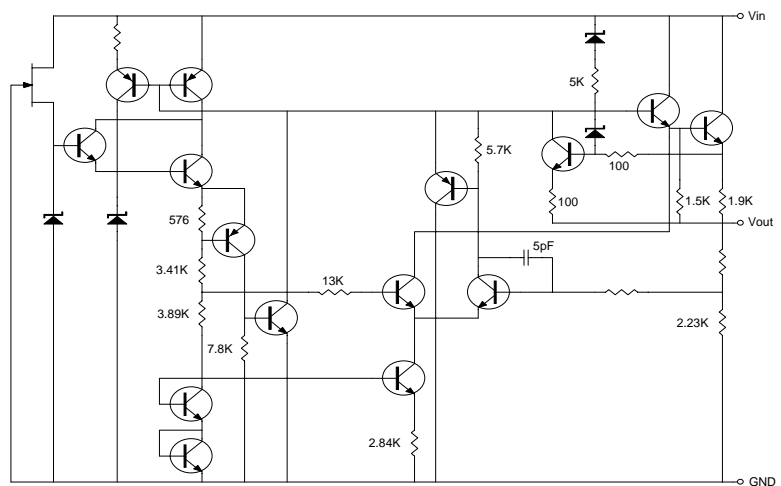
### Typical Application



A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0V above the output voltage even during the low point on the input ripple voltage.

Note : C1 and C2 are required if regulator is located far from power supply filter and load, or oscillation may induced on the load.

### Schematic Diagram





### Electrical Characteristics

$V_{in}=15V$ ,  $I_o=40mA$ ,  $T_j=25^{\circ}C$   $C_{in}=0.33\mu F$ ,  $C_{out}=0.1\mu F$  (unless otherwise noted)

Symbol	Parameter	Conditions	H7809AM			Units
			Min	Typ	Max	
$V_o$	Output Voltage	$T_j=25^{\circ}C$	8.73	9	9.27	V
		$11.5V \leq V_{in} \leq 24V$ $1mA \leq I_o \leq 40mA$	8.55	9	9.45	
		$1mA \leq I_o \leq 70mA$	8.55	9	9.45	
$\Delta V_o$	Line Regulation	$11.5V \leq V_{in} \leq 24V$	-	-	200	mV
		$13V \leq V_{in} \leq 24V$	-	-	150	
$\Delta V_o$	Load Regulation	$1mA \leq I_o \leq 100mA$	-	-	90	mV
		$1mA \leq I_o \leq 40mA$	-	-	45	
$I_Q$	Quiescent Current	$T_a=25^{\circ}C$	-	-	5.5	mA
$\Delta I_Q$	Quiescent Current Change	$11.5V \leq V_{in} \leq 24V$	-	-	1.5	mA
		$1mA \leq I_o \leq 40mA$	-	-	0.1	
$V_n$	Output Noise Voltage	$T_a=25^{\circ}C$	-	70	-	$\mu V$
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$15V \leq V_{in} \leq 25V$ , $f=120Hz$	38	44	-	dB
$I_{pk}$	Peak Output Current	$T_a=25^{\circ}C$	-	140	-	mA
$V_D$	Dropout Voltage	$T_a=25^{\circ}C$	-	1.7	-	V

Symbol	Parameter	Conditions	H7809BM			Units
			Min	Typ	Max	
$V_o$	Output Voltage	$T_j=25^{\circ}C$	8.55	9	9.45	V
		$11.5V \leq V_{in} \leq 24V$ $1mA \leq I_o \leq 40mA$	8.55	9	9.45	
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		$13V \leq V_{in} \leq 24V$	-	-	150	
$\Delta V_o$	Load Regulation	$1mA \leq I_o \leq 100mA$	-	-	90	mV
		$1mA \leq I_o \leq 40mA$	-	-	45	
$I_Q$	Quiescent Current	$T_a=25^{\circ}C$	-	-	5.5	mA
$\Delta I_Q$	Quiescent Current Change	$11.5V \leq V_{in} \leq 24V$	-	-	1.5	mA
		$1mA \leq I_o \leq 40mA$	-	-	0.1	
$V_n$	Output Noise Voltage	$T_a=25^{\circ}C$	-	70	-	$\mu V$
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$15V \leq V_{in} \leq 25V$ , $f=120Hz$	38	44	-	dB
$I_{pk}$	Peak Output Current	$T_a=25^{\circ}C$	-	140	-	mA
$V_D$	Dropout Voltage	$T_a=25^{\circ}C$	-	1.7	-	V



### SOT-89 Dimension

**Marking :**

Style : Pin 1.Vout 2.Ground 3.Vin

3-Lead SOT-89 Plastic Surface Mounted Package  
 HSMC Package Code : M

\*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.52
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.0141	0.0201	0.36	0.51					

**Notes :** 1.Dimension and tolerance based on our Spec. dated May. 05,1996.  
 2.Controlling dimension : millimeters.  
 3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

**Material :**

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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