



# H7806AM

# H7806BM

Low Current Positive Voltage Regulator Of Surface Mount Device

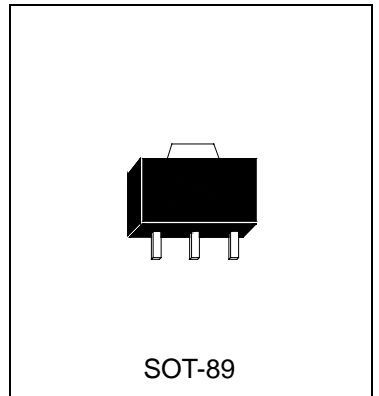
## Description

The H7806\_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 H7806\_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.

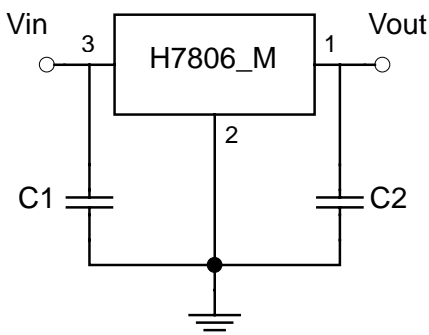
- Wide Range Of Available, Fixed Output Voltages
- Internal Short-Circuit Current Limiting
- Internal Thermal Overload Protection
- No External Components Required

## Absolute Maximum Ratings (Ta=25°C)

- Input Voltage ..... 35 V
- Total Power Dissipation..... Internally limited
- Operating Temperature Range ..... 0 °C to +125 °C
- Maximum Junction Temperature..... 125 °C
- Storage Temperature Range..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S)..... 260 °C

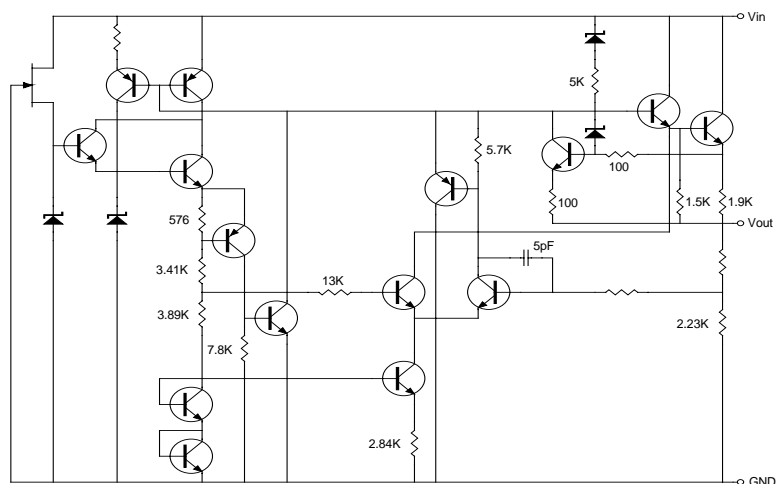


## Typical Application



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 be induced on the loop.

## Schematic Diagram





### Electrical Characteristics

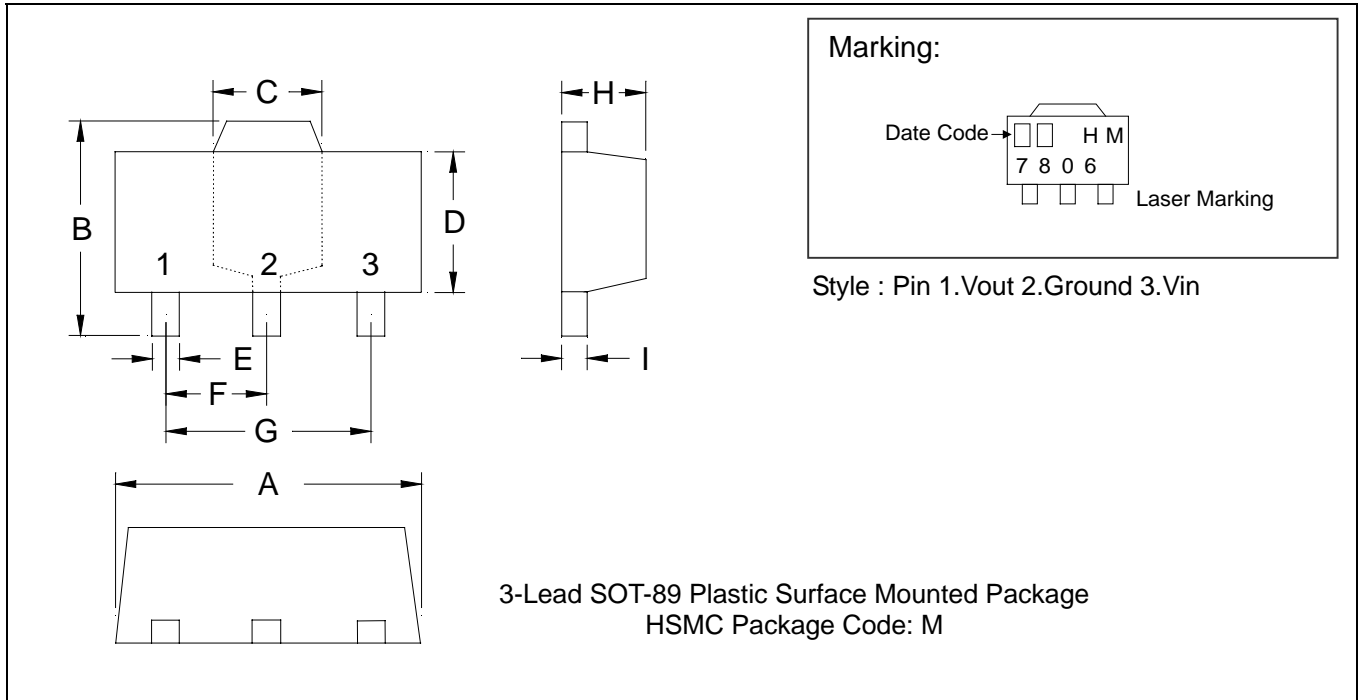
$V_{in}=12V$ ,  $I_o=40mA$ ,  $0^{\circ}C \leq T_j \leq 125^{\circ}C$   $PD \leq 750mW$ , unless otherwise specified

Symbol	Characteristic	H7806AM			Units
		Min	Typ	Max	
Vo	Output Voltage ( $T_j=25^{\circ}C$ )	5.82	6	6.18	V
	Output Voltage ( $8V \leq V_{in} \leq 20V$ , $1mA \leq I_o \leq 40mA$ )	5.76	6	6.24	
	Output Voltage ( $8V \leq V_{in} \leq 30V$ , $1mA \leq I_o \leq 70mA$ )	5.76	6	6.24	
Regline	Line Regulation ( $T_j=25^{\circ}C$ , $8V \leq V_{in} \leq 20V$ )	-	55	150	mV
	Line Regulation ( $T_j=25^{\circ}C$ , $9V \leq V_{in} \leq 20V$ )	-	45	100	
Regload	Load Regulation ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 100mA$ )	-	10	70	mV
	Load Regulation ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 40mA$ )	-	5	35	
IB	Quiescent Current ( $T_j=25^{\circ}C$ )	-	2	5.5	mA
$\Delta IB$	Quiescent Current Change ( $T_j=25^{\circ}C$ , $8V \leq V_{in} \leq 20V$ )	-	-	1.5	mA
	Quiescent Current Change ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 40mA$ )	-	-	0.1	
RR	Ripple Rejection ( $9V \leq V_{in} \leq 19V$ , $f=120Hz$ )	40	-	-	dB
$V_i-V_o$	Dropout Voltage ( $T_j=25^{\circ}C$ )	-	1.7	-	V
VN	Output Noise Voltage ( $T_j=25^{\circ}C$ , $10Hz \leq f \leq 100KHz$ )	-	50	100	$\mu V$
Isc	Short Circuit Current Limit ( $T_j=25^{\circ}C$ , $V_{in}=35V$ )	-	140	-	mA
I <sub>max</sub>	Peak Output Current ( $T_j=25^{\circ}C$ )	-	140	-	mA
TCVo	Average Temperature Coefficient of Outpt Voltage, $I_o=5mA$	-	-0.5	-	$mV/^{\circ}C$

Symbol	Characteristic	H7806BM			Units
		Min	Typ	Max	
Vo	Output Voltage ( $T_j=25^{\circ}C$ )	5.7	6	6.3	V
	Output Voltage ( $8V \leq V_{in} \leq 20V$ , $1mA \leq I_o \leq 40mA$ )	5.68	6	6.36	
	Output Voltage ( $8V \leq V_{in} \leq 30V$ , $1mA \leq I_o \leq 70mA$ )	5.68	6	6.36	
Regline	Line Regulation ( $T_j=25^{\circ}C$ , $8V \leq V_{in} \leq 20V$ )	-	55	175	mV
	Line Regulation ( $T_j=25^{\circ}C$ , $9V \leq V_{in} \leq 20V$ )	-	45	125	
Regload	Load Regulation ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 100mA$ )	-	10	100	mV
	Load Regulation ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 40mA$ )	-	5	50	
IB	Quiescent Current ( $T_j=25^{\circ}C$ )	-	2	6	mA
$\Delta IB$	Quiescent Current Change ( $T_j=25^{\circ}C$ , $8V \leq V_{in} \leq 20V$ )	-	-	1.6	mA
	Quiescent Current Change ( $T_j=25^{\circ}C$ , $1mA \leq I_o \leq 40mA$ )	-	-	0.1	
RR	Ripple Rejection ( $9V \leq V_{in} \leq 19V$ , $f=120Hz$ )	40	-	-	dB
$V_i-V_o$	Dropout Voltage ( $T_j=25^{\circ}C$ )	-	1.7	-	V
VN	Output Noise Voltage ( $T_j=25^{\circ}C$ , $10Hz \leq f \leq 100KHz$ )	-	50	120	$\mu V$
Isc	Short Circuit Current Limit ( $T_j=25^{\circ}C$ , $V_{in}=35V$ )	-	140	-	mA
I <sub>max</sub>	Peak Output Current ( $T_j=25^{\circ}C$ )	-	140	-	mA
TCVo	Average Temperature Coefficient of Outpt Voltage, $I_o=5mA$	-	-0.5	-	$mV/^{\circ}C$



### SOT-89 Dimension



\*: 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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