



H7809AA

H7809BA

3-TERMINAL POSITIVE VOLTAGE REGULATOR

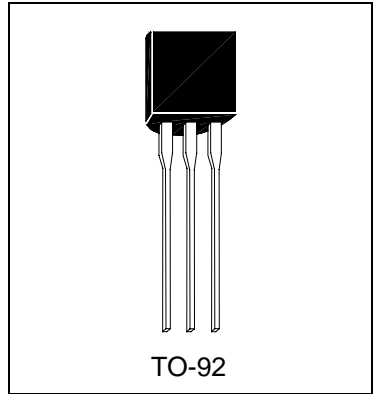
Description

These regulators employ internal current-limiting and thermal-shutdown, making them essentially indestructible. They can deliver up to 100mA output current. if the case temperature can keep in $T_c=25^\circ\text{C}$.

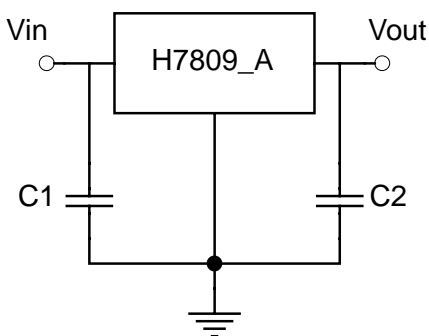
They are intended as fixed voltage regulators in a wide range of applications including local (on-card) regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators. The H7809_A used as a Zener diode/resistor combination replacement, offers an effective output impedance improvement of typically two orders of magnitude, along with lower quiescent current and lower noise.

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

- 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



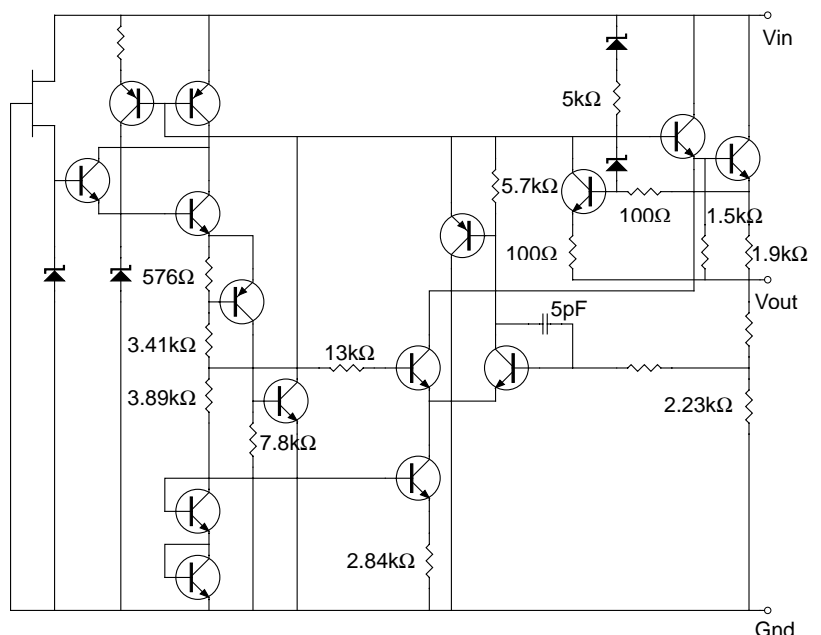
Typical Application



Note:

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

Schematic Diagram





Electrical Characteristics

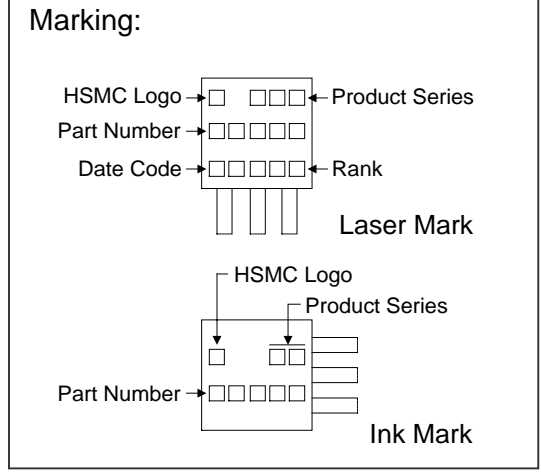
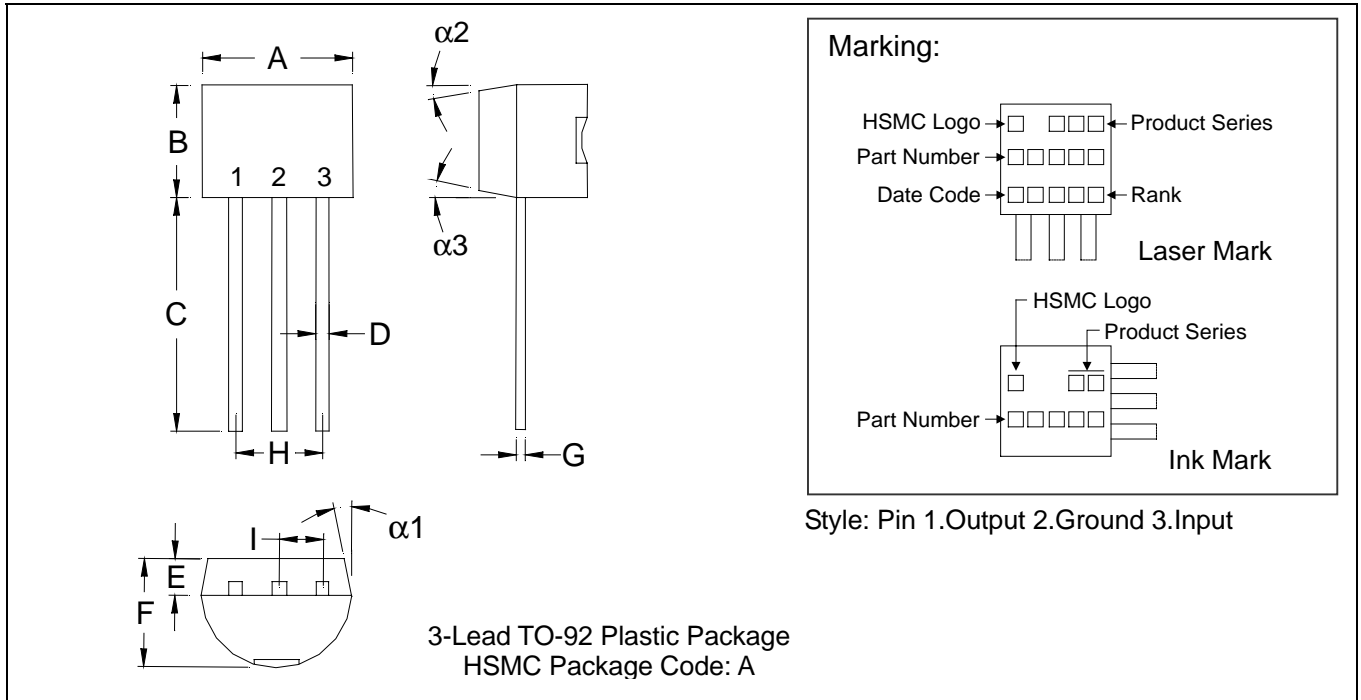
$V_{in}=15V$, $I_{out}=40mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$ (unless otherwise noted)

Symbol	Parameter	Conditions	H7809AA			Units
			Min	Typ	Max	
Vo	Output Voltage	$T_j=25^{\circ}C$	8.73	9	9.27	V
		$1mA \leq I_o \leq 70mA$	8.55	-	9.45	
		$1mA \leq I_o \leq 40mA$ and $11.5V \leq V_{in} \leq 24V$	8.55	-	9.45	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $11.5V \leq V_{in} \leq 24V$	-	-	200	mV
		$T_j=25^{\circ}C$, $13V \leq V_{in} \leq 24V$	-	-	150	
ΔV_o	Load Regulation	$T_j=25^{\circ}C$, $1mA \leq I_o \leq 40mA$	-	-	45	mV
		$T_j=25^{\circ}C$, $1mA \leq I_o \leq 100mA$	-	-	90	
IQ	Quiescent Current	$T_j=25^{\circ}C$	-	-	5.5	mA
ΔIQ	Quiescent Current Change	$1mA \leq I_o \leq 40mA$	-	-	0.1	mA
		$11.5V \leq V_{in} \leq 24V$	-	-	1.5	
Vn	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 10KHz$	-	70	-	μV
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$15V \leq V_{in} \leq 25V$, $f=120Hz$	38	44	-	dB
Isc	Peak Output / Short Circuit Current	$T_j=25^{\circ}C$	-	140	-	mA
VD	Dropout Voltage	$T_j=25^{\circ}C$	-	1.7	-	V

Symbol	Parameter	Conditions	H7809BA			Units
			Min	Typ	Max	
Vo	Output Voltage	$T_j=25^{\circ}C$	8.55	9	9.45	V
		$1mA \leq I_o \leq 70mA$	8.5	-	9.5	
		$1mA \leq I_o \leq 40mA$ and $11.5V \leq V_{in} \leq 24V$	8.5	-	9.5	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $11.5V \leq V_{in} \leq 24V$	-	-	200	mV
		$T_j=25^{\circ}C$, $13V \leq V_{in} \leq 24V$	-	-	150	
ΔV_o	Load Regulation	$T_j=25^{\circ}C$, $1mA \leq I_o \leq 40mA$	-	-	45	mV
		$T_j=25^{\circ}C$, $1mA \leq I_o \leq 100mA$	-	-	90	
IQ	Quiescent Current	$T_j=25^{\circ}C$	-	-	5.5	mA
ΔIQ	Quiescent Current Change	$1mA \leq I_o \leq 40mA$	-	-	0.1	mA
		$11.5V \leq V_{in} \leq 24V$	-	-	1.5	
Vn	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 10KHz$	-	70	-	μV
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$15V \leq V_{in} \leq 25V$, $f=120Hz$	38	44	-	dB
Isc	Peak Output / Short Circuit Current	$T_j=25^{\circ}C$	-	140	-	mA
VD	Dropout Voltage	$T_j=25^{\circ}C$	-	1.7	-	V



TO-92 Dimension



Style: Pin 1.Output 2.Ground 3.Input

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	$\alpha 1$	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	$\alpha 2$	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	$\alpha 3$	-	*2°	-	*2°

Notes: 1.Dimension and tolerance based on our Spec. dated Apr. 25,1996.
 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

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of HSMC.
- HSMC reserves the right to make changes to its products without notice.
- **HSMC semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- HSMC assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

Head Office And Factory:

- **Head Office** (Hi-Sincerity Microelectronics Corp.): 10F.,No. 61, Sec. 2, Chung-Shan N. Rd. Taipei Taiwan R.O.C.
 Tel : 886-2-25212056 Fax : 886-2-25632712, 25368454
- **Factory 1:** No. 38, Kuang Fu S. Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C
 Tel: 886-3-5983621~5 Fax: 886-3-5982931