



# H7805AA

# H7805BA

3-TERMINAL POSITIVE VOLTAGE REGULATOR

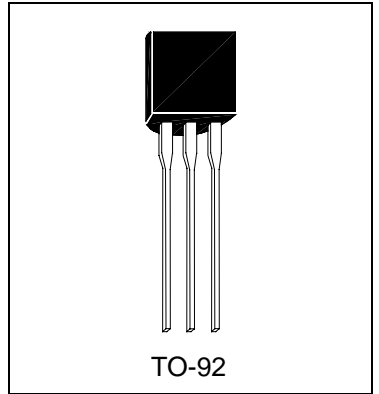
## Description

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  $T_c=25^\circ\text{C}$ .

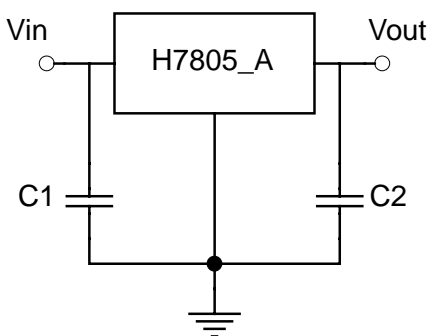
They are intended as fixed voltage regulators in a wide range of applications including local (on-card) regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators. The H7805\_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



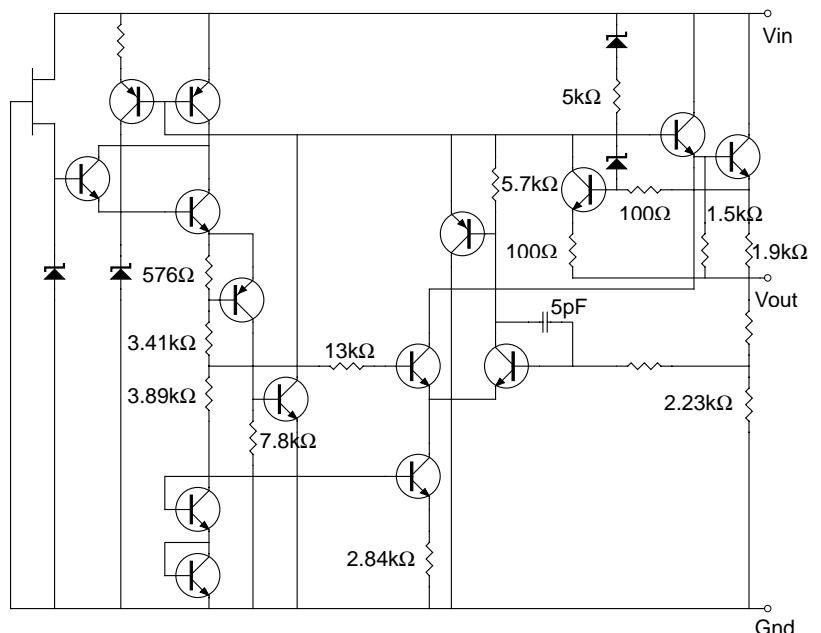
## Typical Application



### 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

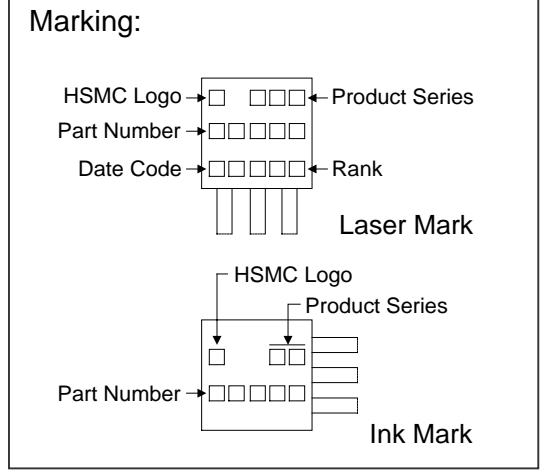
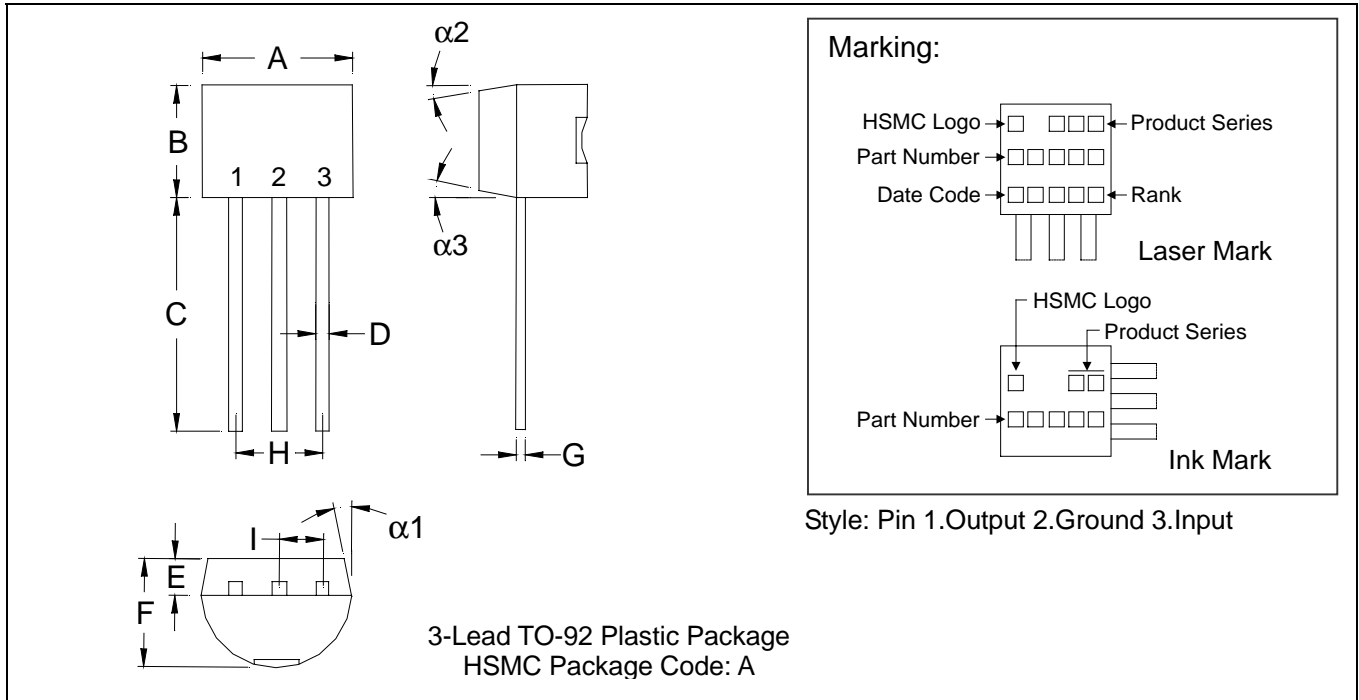
$V_{in}=10V$ ,  $I_{out}=40mA$ ,  $0^{\circ}C \leq T_j \leq 125^{\circ}C$ ,  $C_{in}=0.33\mu F$ ,  $C_{out}=0.1\mu F$  (unless otherwise noted)

Symbol	Parameter	Conditions	H7805AA			Units
			Min	Typ	Max	
Vo	Output Voltage	T <sub>j</sub> =25°C	4.85	5.00	5.15	V
		1mA ≤ I <sub>o</sub> ≤ 70mA	4.85	-	5.15	
		1mA ≤ I <sub>o</sub> ≤ 40mA and 7V ≤ V <sub>in</sub> ≤ 20V	4.85	-	5.15	
ΔVo	Line Regulation	T <sub>j</sub> =25°C, 7V ≤ V <sub>in</sub> ≤ 20V	-	-	100	mV
		T <sub>j</sub> =25°C, 8V ≤ V <sub>in</sub> ≤ 20V	-	-	150	
ΔVo	Load Regulation	T <sub>j</sub> =25°C, 1mA ≤ I <sub>o</sub> ≤ 40mA	-	-	30	mV
		T <sub>j</sub> =25°C, 1mA ≤ I <sub>o</sub> ≤ 100mA	-	-	100	
IQ	Quiescent Current	T <sub>j</sub> =25°C	-	3	6	mA
		T <sub>j</sub> =125°C	-	-	5.5	
ΔIQ	Quiescent Current Change	1mA ≤ I <sub>o</sub> ≤ 40mA	-	-	0.1	mA
		8V ≤ V <sub>in</sub> ≤ 20V	-	-	1.5	
Vn	Output Noise Voltage	T <sub>a</sub> =25°C, 10Hz ≤ f ≤ 10KHz	-	40	-	uV
ΔVin / ΔVout	Ripple Rejection	8V ≤ V <sub>in</sub> ≤ 16V, f=120Hz	47	62	-	dB
VD	Dropout Voltage	T <sub>j</sub> =25°C	-	1.7	-	V

Symbol	Parameter	Conditions	H7805BA			Units
			Min	Typ	Max	
Vo	Output Voltage	T <sub>j</sub> =25°C	4.80	5.00	5.20	V
		1mA ≤ I <sub>o</sub> ≤ 70mA	4.75	-	5.25	
		1mA ≤ I <sub>o</sub> ≤ 40mA and 7V ≤ V <sub>in</sub> ≤ 20V	4.75	-	5.25	
ΔVo	Line Regulation	T <sub>j</sub> =25°C, 7V ≤ V <sub>in</sub> ≤ 20V	-	-	150	mV
		T <sub>j</sub> =25°C, 8V ≤ V <sub>in</sub> ≤ 20V	-	-	100	
ΔVo	Load Regulation	T <sub>j</sub> =25°C, 1mA ≤ I <sub>o</sub> ≤ 40mA	-	-	30	mV
		T <sub>j</sub> =25°C, 1mA ≤ I <sub>o</sub> ≤ 100mA	-	-	100	
IQ	Quiescent Current	T <sub>j</sub> =25°C	-	3	6	mA
		T <sub>j</sub> =125°C	-	-	5.5	
ΔIQ	Quiescent Current Change	1mA ≤ I <sub>o</sub> ≤ 40mA	-	-	0.1	mA
		8V ≤ V <sub>in</sub> ≤ 20V	-	-	1.5	
Vn	Output Noise Voltage	T <sub>a</sub> =25°C, 10Hz ≤ f ≤ 10KHz	-	40	-	uV
ΔVin / ΔVout	Ripple Rejection	8V ≤ V <sub>in</sub> ≤ 16V, f=120Hz	47	62	-	dB
VD	Dropout Voltage	T <sub>j</sub> =25°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

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