



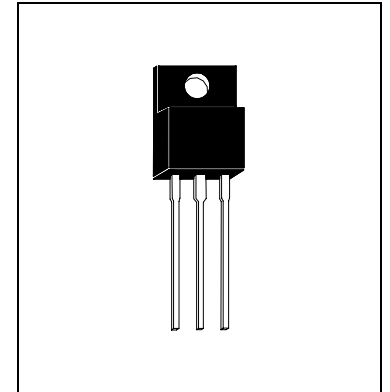
H7809AF

H7809BF

3-TERMINAL POSITIVE VOLTAGE REGULATOR

Description

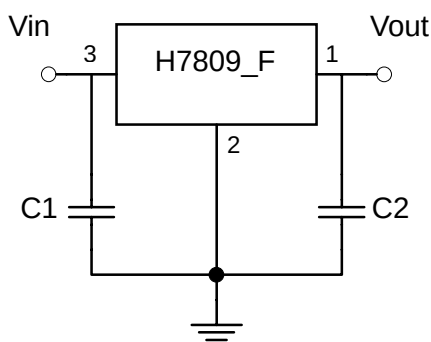
The H7809_F series of three-terminal positive regulators are available in the TO-220FP package and with several fixed output voltages, making it useful in a wide range of applications. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents. H7809_F is characterized for operation from 0°C to +125°C, and if operating temperature will always hi, please refer the power dissipation curve.



Absolute Maximum Ratings (Ta=25°C)

- Input Voltage.....35V(5V Through 9V), 40V(24V)
- Total Power DissipationInternal limit
- Operating Temperature Range0°C to +70°C
- Maximum Junction Temperature.....125°C
- Storage Temperature Range-55°C to +150°C
- Lead Temperature (Soldering 10S).....230°C

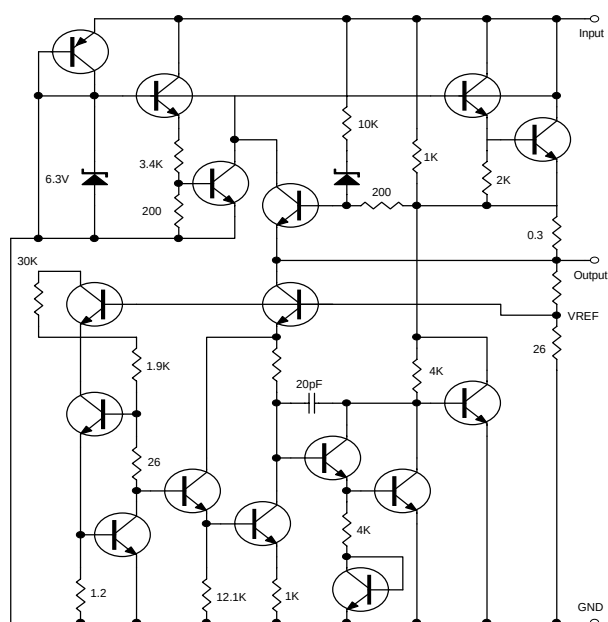
Typical Application



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

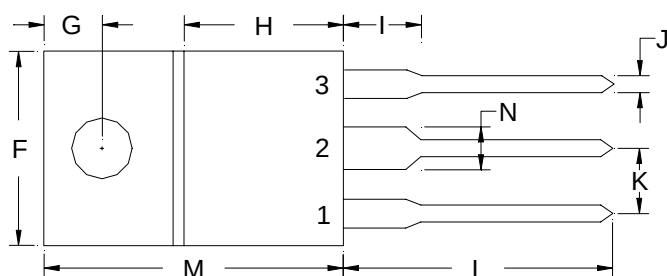
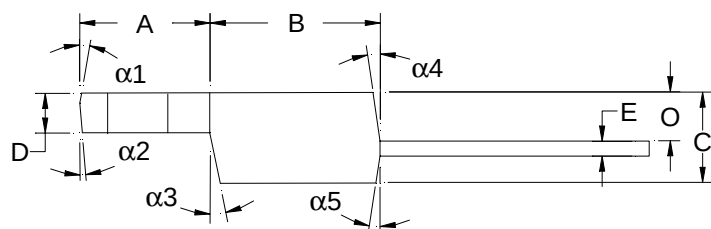
$V_{in}=15V$, $I_o=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ (unless otherwise noted)

Symbol	Parameter	Conditions	H7809AF			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	8.23	9	9.27	V
		$PD \leq 15W$, $5mA \leq I_o \leq 1A$	8.73	9	9.27	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $11.5V \leq V_{in} \leq 25V$	-	6	90	mV
		$T_j=25^{\circ}C$, $12V \leq V_{in} \leq 25V$	-	2	45	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	100	mV
		$250mA \leq I_o \leq 750mA$	-	-	50	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j=25^{\circ}C$	-	5.5	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$11.5V \leq V_{in} \leq 26V$	-	-	1.3	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 100KHz$	-	-	200	μV
RR	Ripple Rejection	$13V \leq V_{in} \leq 23V$, $f=120Hz$	-	68	-	dB
VD	Dropout Voltage	$T_j=25^{\circ}C$, $I_o=1A$	-	2	-	V
I_{sc}	Short Circuit Current	$T_j=25^{\circ}C$	-	1.5	-	A
I_{pk}	Peak Output Current	$T_j=25^{\circ}C$	1.7	-	-	A
$\Delta V_o / \Delta T$	Average T_c of V_{out}	$0^{\circ}C \leq T_j \leq +125^{\circ}C$, $I_o=5mA$	-	-0.8	-	$mV/^{\circ}C$

Symbol	Parameter	Conditions	H7809BF			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	8.64	9	9.36	V
		$PD \leq 15W$, $5mA \leq I_o \leq 1A$	8.55	9	9.45	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $11.5V \leq V_{in} \leq 25V$	-	4	100	mV
		$T_j=25^{\circ}C$, $12V \leq V_{in} \leq 25V$	-	2	50	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	180	mV
		$250mA \leq I_o \leq 750mA$	-	-	90	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j=25^{\circ}C$	-	5.5	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$11.5V \leq V_{in} \leq 26V$	-	-	1.3	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 100KHz$	-	-	300	μV
RR	Ripple Rejection	$13V \leq V_{in} \leq 23V$, $f=120Hz$	62	73	-	dB
VD	Dropout Voltage	$T_j=25^{\circ}C$, $I_o=1A$	-	2.5	-	V
I_{sc}	Short Circuit Current	$T_j=25^{\circ}C$	-	1.5	-	A
I_{pk}	Peak Output Current	$T_j=25^{\circ}C$	1.7	-	-	A
$\Delta V_o / \Delta T$	Average T_c of V_{out}	$0^{\circ}C \leq T_j \leq +125^{\circ}C$, $I_o=5mA$	-	-0.8	-	$mV/^{\circ}C$

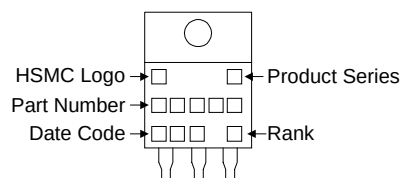


TO-220FP Dimension



3-Lead TO-220FP Plastic Package
HSMC Package Code : F

Marking :



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

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2480	0.2520	6.30	6.40	K	-	*0.1004	-	*2.55
B	0.3386	0.3425	8.60	8.70	L	0.5118	0.5906	13.00	15.00
C	0.1673	0.1870	4.25	4.75	M	0.5886	0.5925	14.95	15.05
D	0.1043	0.1083	2.65	2.75	N	-	*0.0669	-	*1.70
E	0.0230	0.0242	0.58	0.61	O	0.1098	0.1114	2.79	2.83
F	0.3980	0.4039	10.11	10.26	1	-	-2°	-	*2°
G	0.1083	0.1122	2.75	2.85	2	-	*5°	-	*5°
H	0.3386	0.3425	8.60	8.70	3	-	*15°	-	*15°
I	-	*0.1496	-	*3.80	4	-	*5°	-	*5°
J	-	*0.0236	-	*0.60	5	-	*5°	-	*5°

Notes : 1.Dimension and tolerance based on our Spec. dated Sep. 07,1997.

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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