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MC7809

Three-Terminal Positive Voltage Regulators

Features

- Output current in excess of 1.0 Ampere
- No external components required
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output voltage offered in 2% tolerance

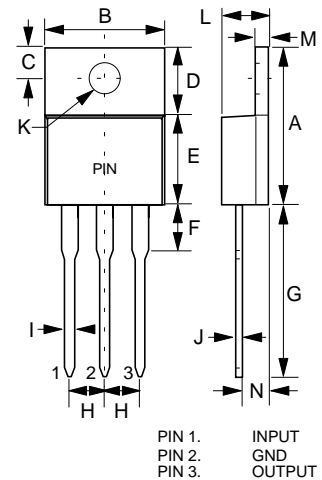
Maximum Ratings @ $T_A=25^\circ\text{C}$, Unless Otherwise Noted

Parameter	Symbol	Value	Unit
Input Voltage	V_1	30	V
Operating Ambient Temperature	P_D	15	W
Operating Junction Temperature	T_{OPR}	-20---+75	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55---+125	$^\circ\text{C}$

Electrical Characteristics ($V_i=15\text{V}$, $I_o=500\text{mA}$, $0^\circ\text{C}<T_j<125^\circ\text{C}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	V_o	8.82V	9.0V	9.18V	$T_j=25^\circ\text{C}$
		8.77V		9.23V	$10.5\text{V} \leq V_1 \leq 27\text{V}$, $5\text{mA} \leq I_o \leq 1.0\text{A}$, $P_D=15\text{W}$
Load Regulation	ΔV_o		12mV	160mV	$5\text{mA} \leq I_o \leq 1.5\text{A}$, $T_j=25^\circ\text{C}$,
			4.0mV	80mV	$250\text{mA} \leq I_o \leq 750\text{mA}$, $T_j=25^\circ\text{C}$
Line regulation	ΔV_o		6.0mV	160mV	$11.5\text{V} \leq V_1 \leq 30\text{V}$, $T_j=25^\circ\text{C}$
			2.0mV	80mV	$12\text{V} \leq V_1 \leq 18\text{V}$, $T_j=25^\circ\text{C}$
Quiescent Current	I_q		4.3mA	8.0mA	$T_j=25^\circ\text{C}$, $I_o=0$
Quiescent Current Change	ΔI_q			1.0mA 0.5mA	$14.5\text{V} \leq V_1 \leq 30\text{V}$ $5\text{mA} \leq I_o \leq 1.0\text{A}$
Output Noise Voltage	V_N		52 μV		$10\text{Hz} \leq f \leq 100\text{KHz}$ $T_j=25^\circ\text{C}$
Ripple Rejection	RR	55dB	72dB		$f=120\text{Hz}$
Dropout Voltage	V_d		2.0V		$I_o=1.0\text{A}$, $T_j=25^\circ\text{C}$
Output Short Circuit Current	R_o		16mohm		$f=1.0\text{KHz}$
Output Short Circuit Current	I_{os}		450mA		$T_j=25^\circ\text{C}$
Peak Output Current	I_{opeak}		2.2A		$T_j=25^\circ\text{C}$
Temperature Coefficient of Output voltage	$\frac{\Delta V_o}{\Delta T_j}$		1.8mV/ $^\circ\text{C}$		$0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $I_o=5\text{mA}$

TO-220



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.100	.135	2.54	3.43	
D	.230	.270	5.84	6.86	
E	.380	.420	9.65	10.67	
F	-----	.250	-----	6.35	
G	.500	.580	12.70	14.73	
H	.090	.110	2.29	2.79	
I	.020	.045	0.51	1.14	
J	.012	.025	0.30	0.64	
K	.139	.161	3.53	4.09	∅
L	.140	.190	3.56	4.83	
M	.045	.055	1.14	1.40	
N	.080	.115	2.03	2.92	

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Representation Schematic Diagram

