

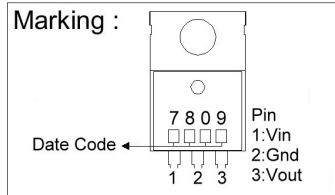
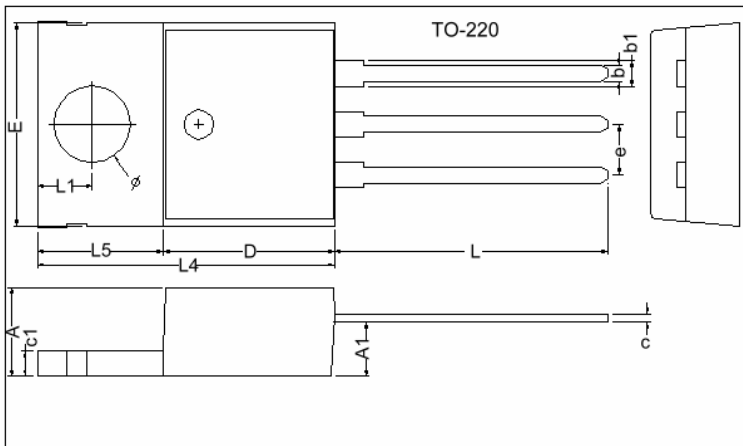
GE7809

3-TERMINAL POSITIVE VOLTAGE REGULATOR

Description

The GE7809 series of three-terminal positive regulators are available in the TO-220 package. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each 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 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.00	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	e	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	Ø	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80

Absolute Maximum Ratings

Parameter	Ratings	Unit
Input Voltage	35V	V
Operating Junction Temperature Range	0 ~ +125	°C
Output Current	1	A
Storage Temperature Range	-55 ~ +150	°C
Total Power Dissipation	Internal limit	W

Electrical Characteristics

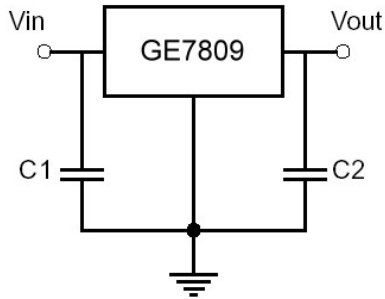
Refer to the test circuits, $T_j=0$ to 125°C , $I_o=500\text{mA}$, $V_i=15\text{V}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified

Symbol	Rank A (3%)			Unit	Test Conditions
	Min.	Typ.	Max.		
VO	8.73	9	9.27	V	$T_j=25^\circ\text{C}$
	8.73	9	9.27		$PD \leq 15\text{W}$, $5\text{mA} \leq I_o \leq 1\text{A}$
ΔVO (Line Regulation)	-	5	90	mV	$T_j=25^\circ\text{C}$, $11.5\text{V} \leq V_{in} \leq 25\text{V}$
	-	2	45		$T_j=25^\circ\text{C}$, $12\text{V} \leq V_{in} \leq 25\text{V}$
ΔVO (Load Regulation)	-	48	100	mV	$5\text{mA} \leq I_o \leq 1\text{A}$
	-	25	50		$250\text{mA} \leq I_o \leq 750\text{mA}$
IQ	-	4.5	8	mA	$I_o \leq 1\text{A}$, $T_j=25^\circ\text{C}$
ΔIQ	-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1\text{A}$
	-	-	1.3		$11.5\text{V} \leq V_{in} \leq 26\text{V}$
Vn	-	-	200	μV	$T_a=25^\circ\text{C}$, $10\text{Hz} \leq f \leq 100\text{KHz}$
RR	62	68	-	dB	$13\text{V} \leq V_{in} \leq 23\text{V}$, $f=120\text{Hz}$
VD	-	2	-	V	$T_j=25^\circ\text{C}$, $I_o=1\text{A}$
Isc	-	1.5	-	A	$T_j=25^\circ\text{C}$,
Ipk	-	1.7	-	A	$T_j=25^\circ\text{C}$
$\Delta Vo / \Delta Tj$	-	-0.8	-	mV/°C	$0^\circ\text{C} \leq T_j \leq +125^\circ\text{C}$, $I_o=5\text{mA}$

Refer to the test circuits, $T_j=0$ to 125°C , $I_o=500\text{mA}$, $V_i=15\text{V}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$ unless otherwise specified

Symbol	Rank B (5%)			Unit	Test Conditions
	Min.	Typ.	Max.		
VO	8.55	9	9.45	V	$T_j=25^\circ\text{C}$
	8.55	9	9.45		$PD \leq 15\text{W}$, $5\text{mA} \leq I_o \leq 1\text{A}$
ΔV_O (Line Regulation)	-	5	100	mV	$T_j=25^\circ\text{C}$, $11.5\text{V} \leq V_{in} \leq 25\text{V}$
	-	2	50		$T_j=25^\circ\text{C}$, $12\text{V} \leq V_{in} \leq 25\text{V}$
ΔV_O (Load Regulation)	-	-	180	mV	$5\text{mA} \leq I_o \leq 1\text{A}$
	-	-	90		$250\text{mA} \leq I_o \leq 750\text{mA}$
IQ	-	4.5	8	mA	$I_o \leq 1\text{A}$, $T_j=25^\circ\text{C}$
ΔI_Q	-	-	0.5	mA	$5\text{mA} \leq I_o \leq 1\text{A}$
	-	-	1.3		$11.5\text{V} \leq V_{in} \leq 26\text{V}$
Vn	-	-	300	μV	$T_a=25^\circ\text{C}$, $10\text{Hz} \leq f \leq 100\text{KHz}$
RR	62	68	-	dB	$13\text{V} \leq V_{in} \leq 23\text{V}$, $f=120\text{Hz}$
VD	-	2.5	-	V	$T_j=25^\circ\text{C}$, $I_o=1\text{A}$
Isc	-	1.5	-	A	$T_j=25^\circ\text{C}$,
Ipk	-	1.7	-	A	$T_j=25^\circ\text{C}$
$\Delta V_o / \Delta T_j$	-	-0.8	-	mV/ $^\circ\text{C}$	$0^\circ\text{C} \leq T_j \leq +125^\circ\text{C}$, $I_o=5\text{mA}$

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.

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