



78L09U Three-Terminal Positive Voltage Regulator

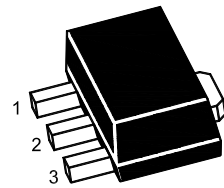
Features

Maximum Output current I_o : 0.1A

Output Voltage V_o : 9V

Continuous Total Dissipation P_D : 0.5W ($T_a = 25^\circ\text{C}$)

Mraking:78L09



1.OUT 2.GND 3.IN
SOT-89-3L

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

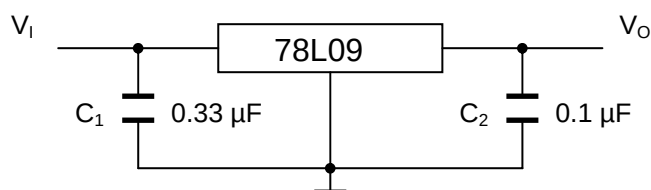
Parameter	Symbol	Value	Unit
Input Voltage	V_I	35	V
Power Dissipation	P_{tot}	800 ¹⁾	mW
Operating Temperature	T_{opr}	- 20 to + 120	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

¹⁾ 15 mm X 25 mm X 0.7 mm alumina ceramic board, $T_a = 25^\circ\text{C}$

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

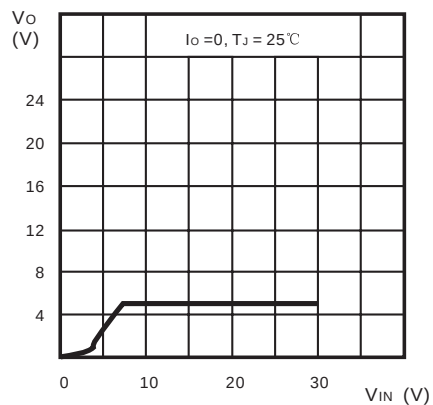
(Unless otherwise specified, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $V_I = 15\text{ V}$, $I_o = 40\text{ mA}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_j = 25^\circ\text{C}$	8.64	9	9.36	V
		$11.4\text{ V} \leq V_I \leq 24\text{ V}$, $1\text{ mA} \leq I_o \leq 40\text{ mA}$	8.55	-	9.45	V
		$V_I = 15\text{ V}$, $1\text{ mA} \leq I_o \leq 70\text{ mA}$	8.55	-	9.45	V
Line Regulation	Regline	$11.4\text{ V} \leq V_I \leq 24\text{ V}$, $T_j = 25^\circ\text{C}$	-	-	200	mV
		$12\text{ V} \leq V_I \leq 24\text{ V}$, $T_j = 25^\circ\text{C}$	-	-	160	
Load Regulation	Regload	$1\text{ mA} \leq I_o \leq 100\text{ mA}$, $T_j = 25^\circ\text{C}$	-	-	90	mV
		$1\text{ mA} \leq I_o \leq 40\text{ mA}$, $T_j = 25^\circ\text{C}$	-	-	45	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	-	-	6	mA
Quiescent Current Change	ΔI_Q	$12\text{ V} \leq V_I \leq 24\text{ V}$, $I_o = 40\text{ mA}$	-	-	1.5	mA
		$V_I = 15\text{ V}$, $1\text{ mA} \leq I_o \leq 40\text{ mA}$	-	-	0.1	
Output Noise Voltage	V_N	$10\text{ Hz} \leq f \leq 100\text{ KHz}$, $T_j = 25^\circ\text{C}$	-	70	-	μV
Ripple Rejection	RR	$f = 120\text{ Hz}$, $12\text{ V} \leq V_I \leq 24\text{ V}$, $T_j = 25^\circ\text{C}$	38	-	-	dB
Dropout Voltage	V_{Drop}	$T_j = 25^\circ\text{C}$	-	1.7	-	V

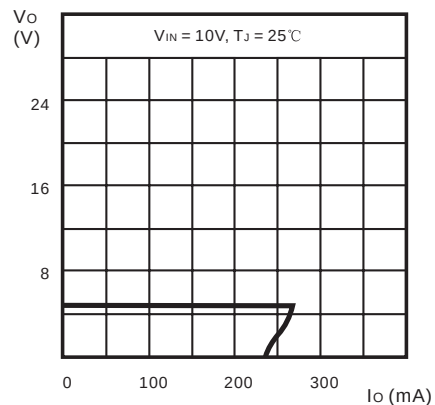




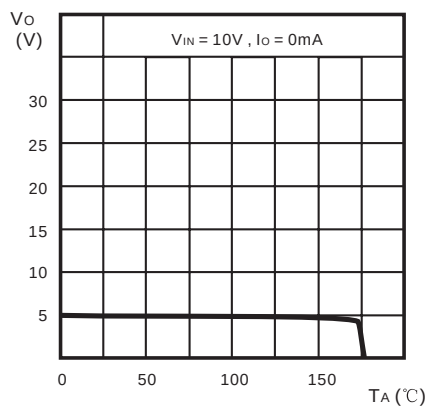
Typical Characteristics



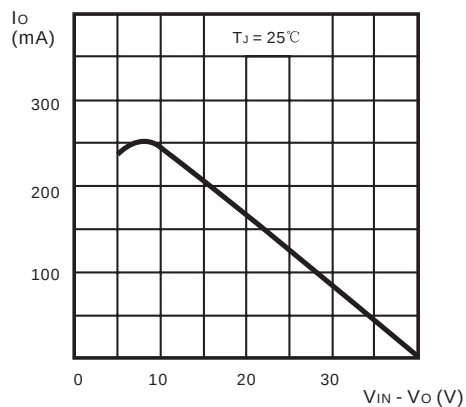
Output Characteristics



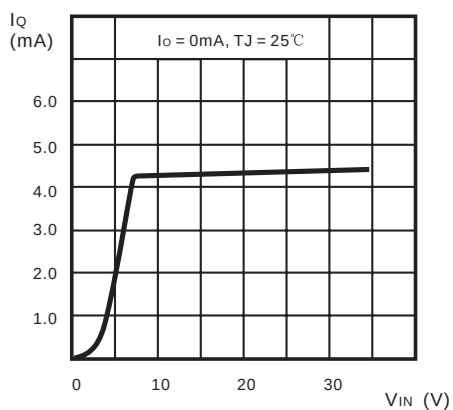
Load Characteristics



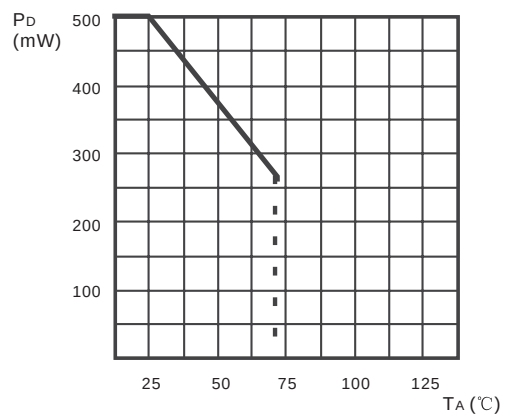
Thermal Shutdown



Short Circuit Output Current



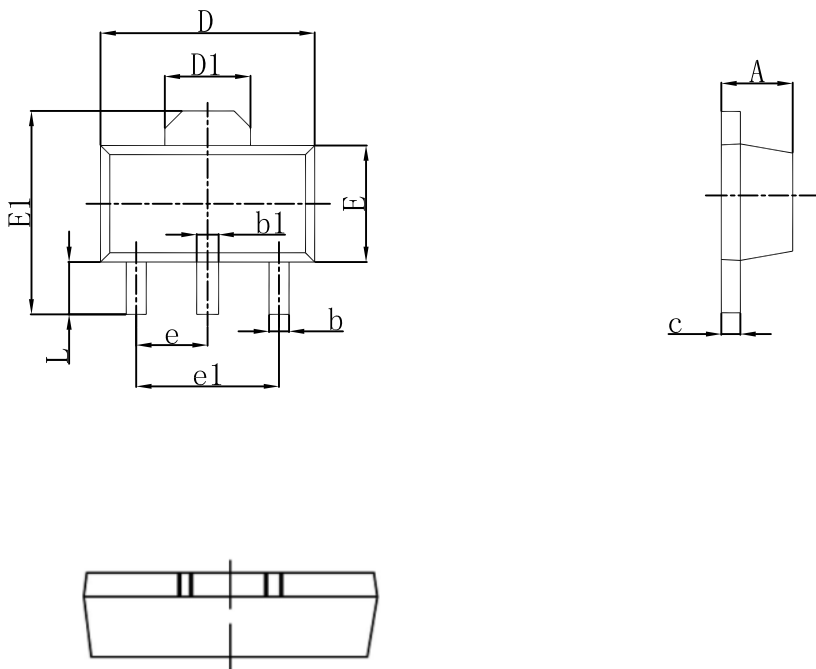
Quiescent Current vs Input Voltage



Power Dissipation vs. Ambient Temperature



SOT-89-3L Outlines Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047