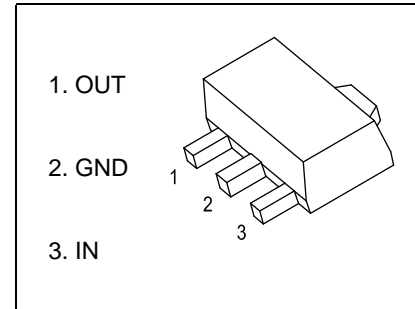


78L09 Three-terminal positive voltage regulator

SOT-89-3L

FEATURES

- Maximum output current
 $I_{OM}: 0.1A$
- Output voltage
 $V_O: 9V$
- Continuous total dissipation
 $P_D: 0.6 W (T_a= 25 ^\circ C)$



ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

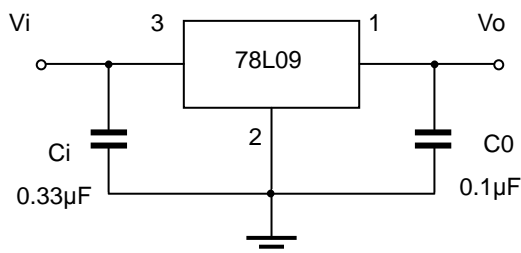
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	166.7	$^\circ C/W$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ C$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ C$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=16V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output voltage	V_o	$25^\circ C$	8.64	9.0	9.36	V	
		0-125 $^\circ C$	$12V \leq V_i \leq 24V, I_o=1mA-40mA$	8.55	9.0	9.45	V
			$I_o=1mA-70mA$	8.55	9.0	9.45	V
Load Regulation	ΔV_o	$I_o=1mA-100mA, 25^\circ C$		19	90	mV	
		$I_o=1mA-40mA, 25^\circ C$		11	40	mV	
Line regulation	ΔV_o	$12V \leq V_i \leq 24V, 25^\circ C$		45	175	mV	
		$13V \leq V_i \leq 24V, 25^\circ C$		40	125	mV	
Quiescent Current	I_q	$25^\circ C$		4.1	6.0	mA	
Quiescent Current Change	ΔI_q	$13V \leq V_i \leq 24V, 0-125^\circ C$			1.5	mA	
	ΔI_q	$1mA \leq I_o \leq 40mA, 0-125^\circ C$			0.1	mA	
Output Noise Voltage	V_N	$10Hz \leq f \leq 100KHz, 25^\circ C$	58			$\mu V/V_o$	
Ripple Rejection	RR	$15V \leq V_i \leq 25V, f=120Hz, 0-125^\circ C$	37	45		dB	
Dropout Voltage	V_d	$25^\circ C$		1.7		V	

* Pulse test.

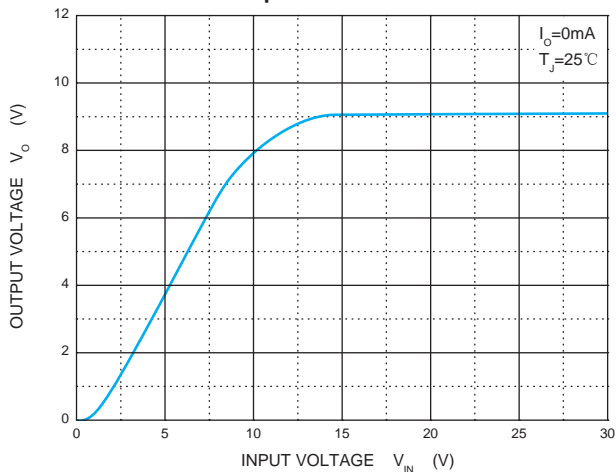
TYPICAL APPLICATION



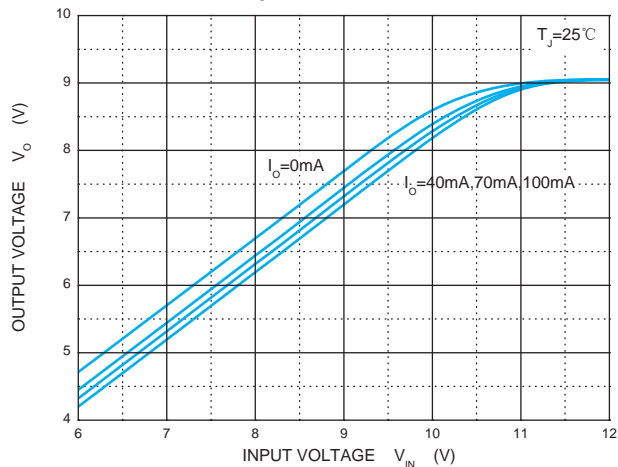
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as

Typical Characteristics

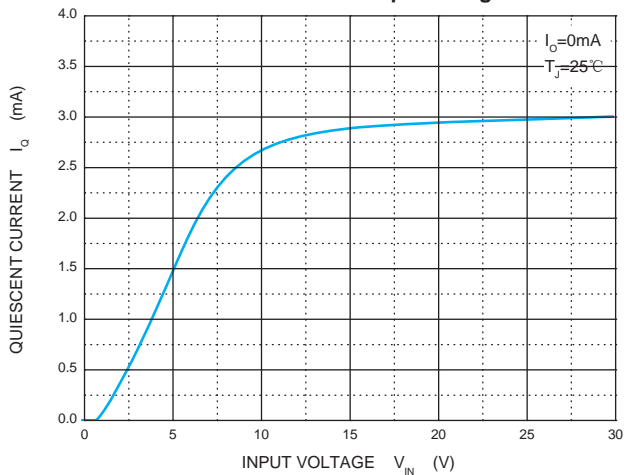
Output Characteristics



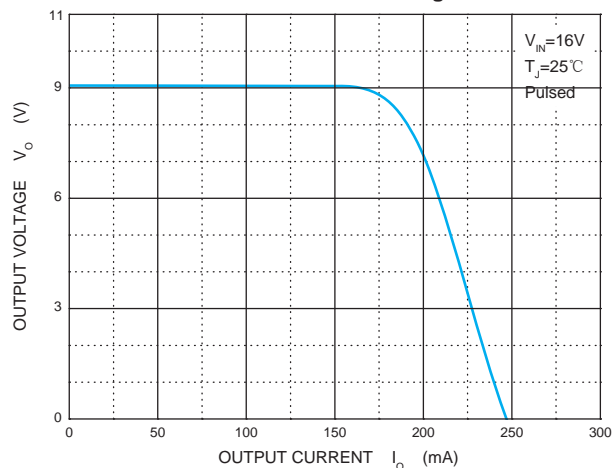
Dropout Characteristics



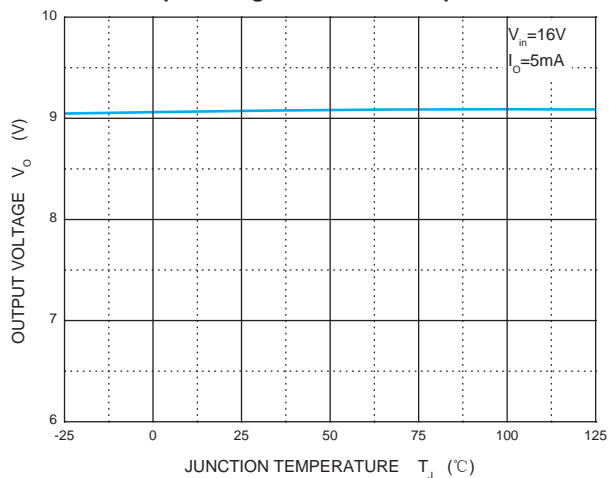
Quiescent Current vs Input Voltage



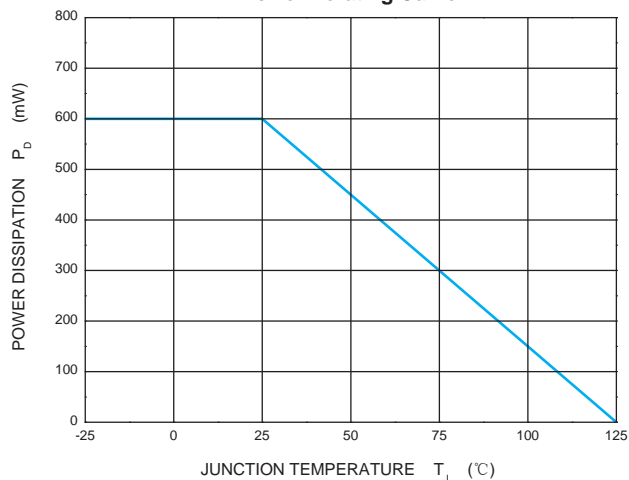
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

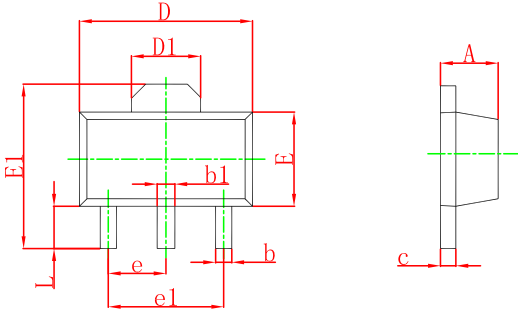


Power Derating Curve



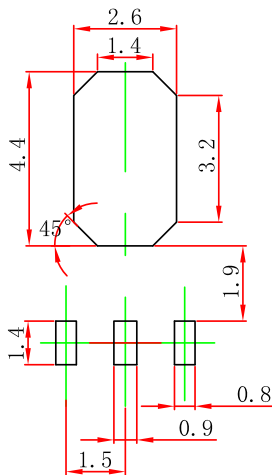
Outline Drawing

SOT-89-3L Package Outline 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

SOT-89-3L Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	G.W.(Kg)
SOT-89-3L	7'	330	1000	203×203×195	40000	438×438×220	180000