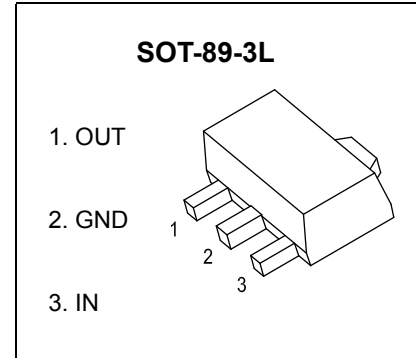


SOT-89-3L Plastic-Encapsulate Voltage Regulators

78L09 Three-terminal positive voltage regulator

FEATURES

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



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

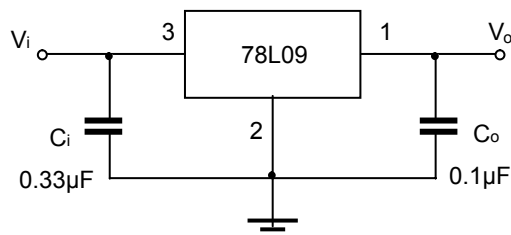
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	166.7	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-25~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

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

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

* Pulse test.

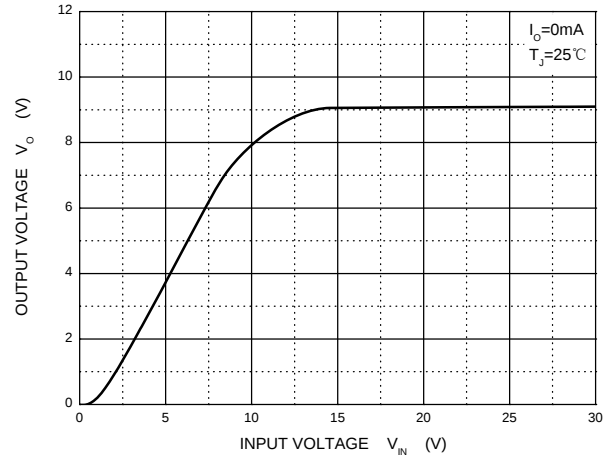
TYPICAL APPLICATION



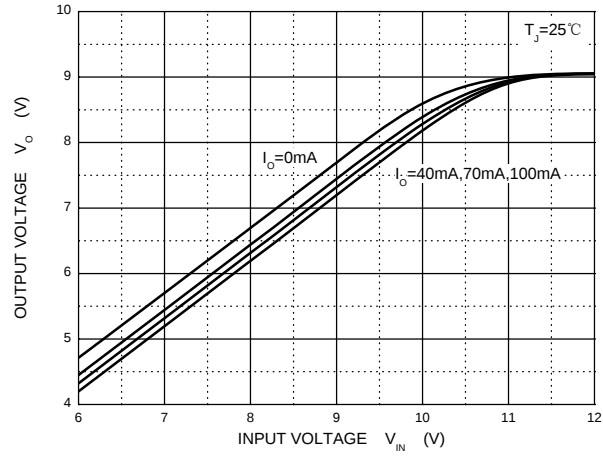
Note : Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Typical Characteristics

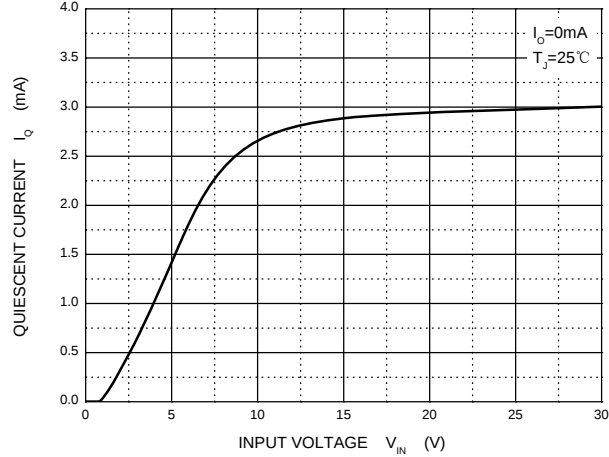
Output Characteristics



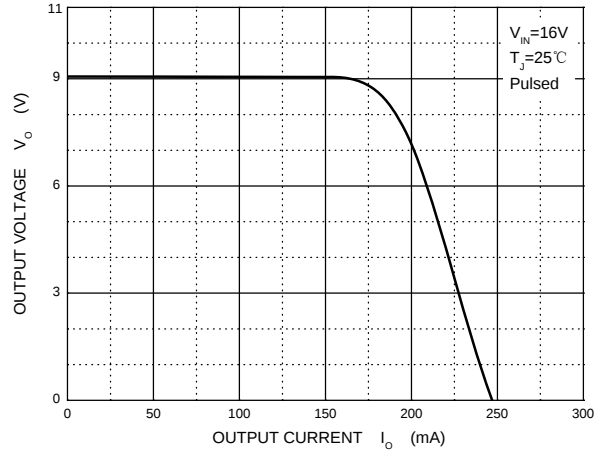
Dropout Characteristics



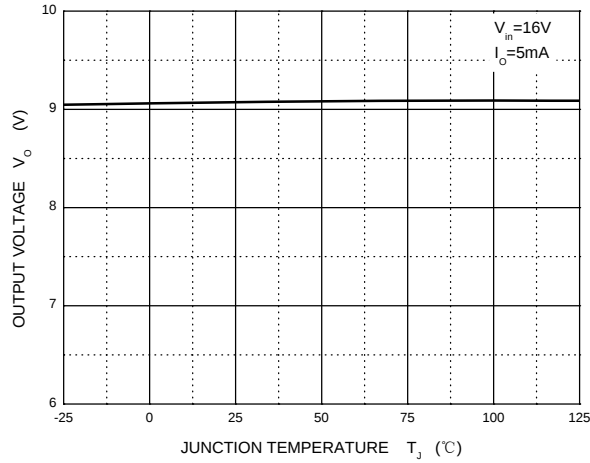
Quiescent Current vs Input Voltage



Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature



Power Derating Curve

