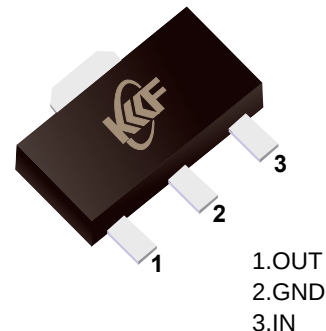


78L09

■ 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 ($T_a = 25^\circ\text{C}$)



■ Simplified outline(SOT-89)

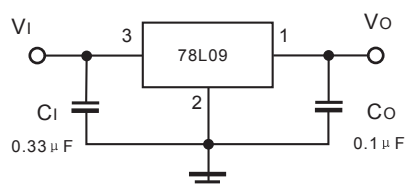
■ Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Rating	Unit
Input Voltage	V_i	30	V
Operating Junction Temperature Range	T_{opr}	$-55 \sim +125$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

■ Electrical Characteristics ($V_i=16\text{V}$, $I_o=40\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

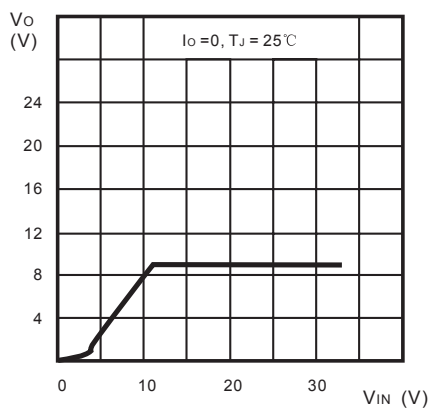
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Voltage	V_o	$T_J = 25^\circ\text{C}$	8.64	9.0	9.36	V
		$T_J = 0 \sim 125^\circ\text{C}$, $12\text{V} \leq V_i \leq 24\text{V}$, $I_o = 1\text{mA} \sim 40\text{mA}$	8.55	9.0	9.45	V
		$T_J = 0 \sim 125^\circ\text{C}$, $I_o = 1\text{mA} \sim 70\text{mA}$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

■ Typical Application

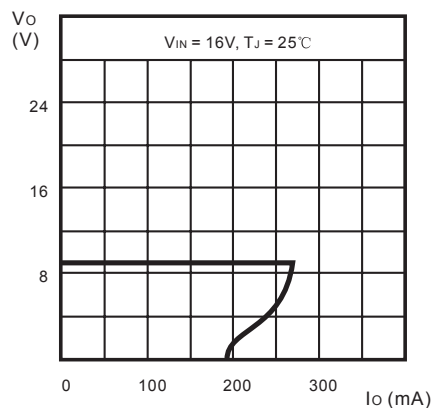


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

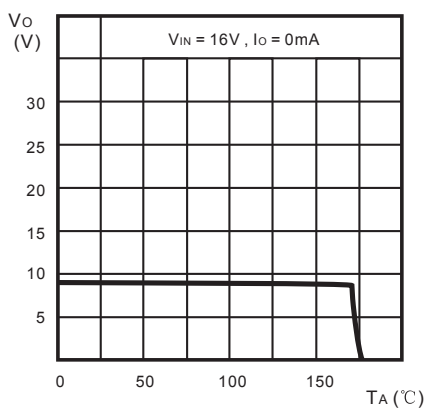
■ Typical Characteristics



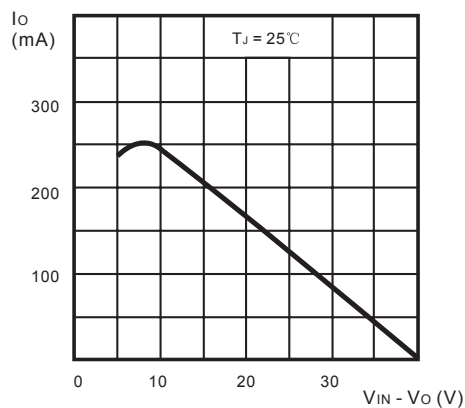
Output Characteristics



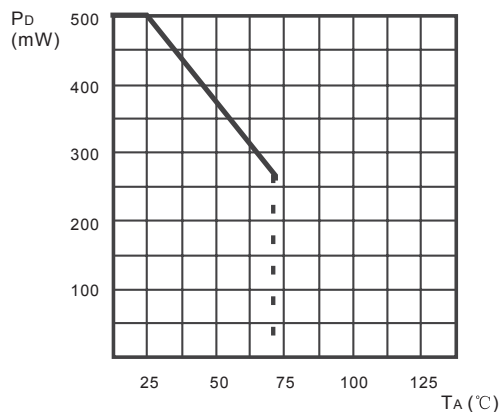
Load Characteristics



Thermal Shutdown



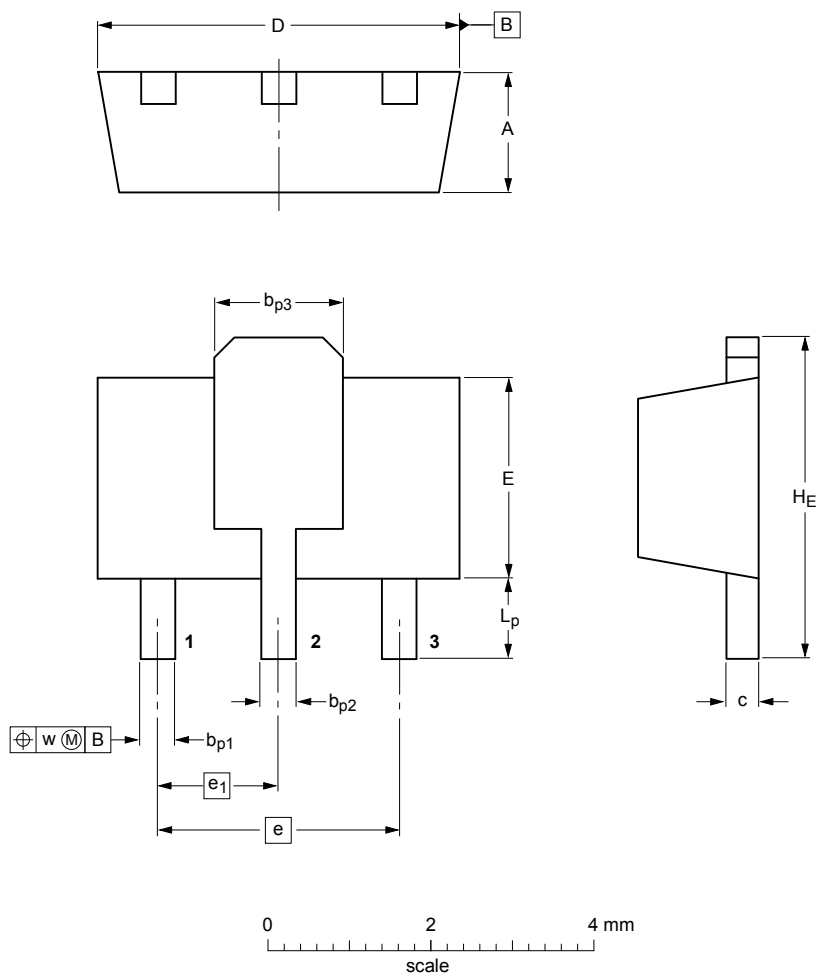
Short Circuit Output Current



Power Dissipation vs. Ambient Temperature



■ SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b _{p1}	b _{p2}	b _{p3}	c	D	E	e	e ₁	H _E	L _p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13