

TO-92 Encapsulate Three Terminal Voltage Regulator

78L09 Three terminal positive voltage regulator

FEATURES

Maximum Output current

I_{OM} : 0.1 A

Output voltage

V_O : 9 V

Operating and storage junction temperature range

T_J , T_{stg} : -55 to +150

TO-92

1. OUT

2. GND

3. IN



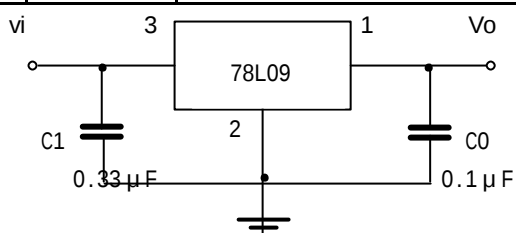
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Units
Input Voltage	V_I	30	V
Operating Junction Temperature Range	T_{OPR}	0—+125	
Storage Temperature Range	T_{STG}	-55—+150	

ELECTRICAL CHARACTERISTICS ($V_I=15V, I_O=40mA, 0 < T_J < 125$, $C_1=0.33 \mu F, C_O=0.1 \mu F$, unless otherwise specified)

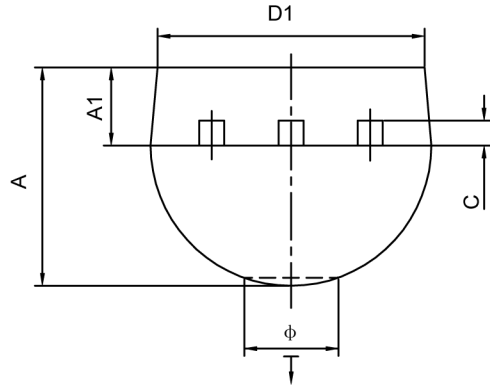
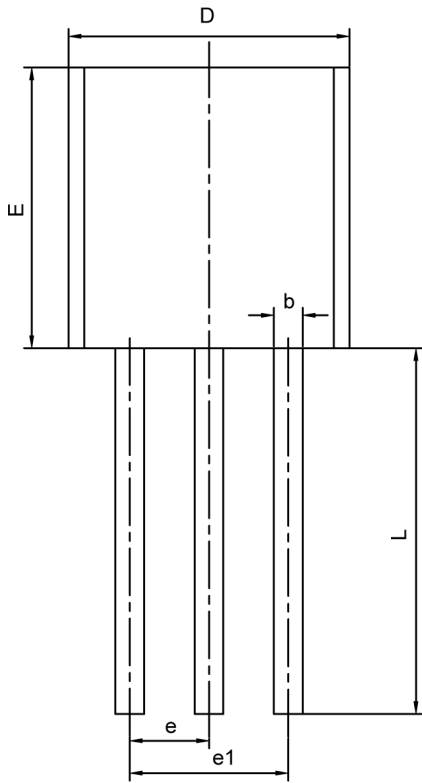
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	V_O	$T_J=25$	8.64	9.0	9.36	V
		$7V \leq V_I \leq 20V, I_O=1mA-40mA$	8.55	9.0	9.45	V
		$7V \leq V_I \leq V_{MAX}, I_O=1mA-70mA$	8.55	9.0	9.45	V (note)
Load Regulation	V_O	$T_J=25$, $I_O=1mA-100mA$		19	90	mV
		$T_J=25$, $I_O=1mA-40mA$		11	40	mV
Line regulation	V_O	$12V \leq V_I \leq 24V, T_J=25$		45	175	mV
		$13V \leq V_I \leq 24V, T_J=25$		40	125	mV
Quiescent Current	I_q			4.1	6.0	mA
Quiescent Current Change	I_q	$8V \leq V_I \leq 20V$			1.5	mA
	I_q	$1mA \leq V_I \leq 40mA$			0.1	mA
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$		58		μV
Ripple Rejection	RR	$15V \leq V_I \leq 25V, f=120Hz, T_J=25$		45		dB
Dropout Voltage	V_d	$T_J=25$		1.7		V

TYPICAL APPLICATION



Note 1: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators

TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Ö		1.600		0.063
↓	0.000	0.380	0.000	0.015