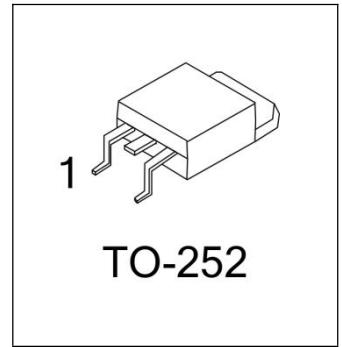


General Description

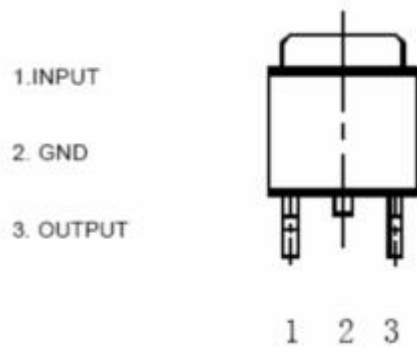
The 78M09 is monolithic fixed voltage regulator integrated circuit. They are suitable for applications that required supply current up to 0.5 A.

Features

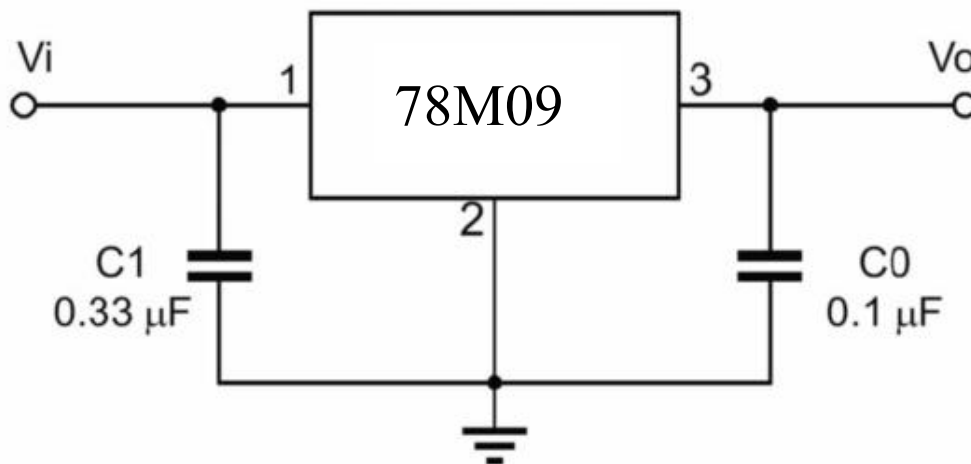
- Output Current Up To 0.5 A
- Fixed Output Voltage Of 9V, Available
- Thermal Overload Shutdown Protection
- Short Circuit Current Limiting
- Output Transistor SOA Protection



Pin Connection



Typical Application Circuits



Absolute Maximum Ratings ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

Characteristic	Value	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance Junction-Case	$R_{\theta JC}$	10	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-Air	$R_{\theta JA}$	93	$^{\circ}\text{C}/\text{W}$
Operating Temperature Range	T_{OPR}	-40~+85	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~+150	$^{\circ}\text{C}$

Electrical Characteristics

 (Unless otherwise specified, $-40^{\circ}\text{C} < T_J < 85^{\circ}\text{C}$, $I_o=500\text{mA}$, $V_i=10\text{V}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$)

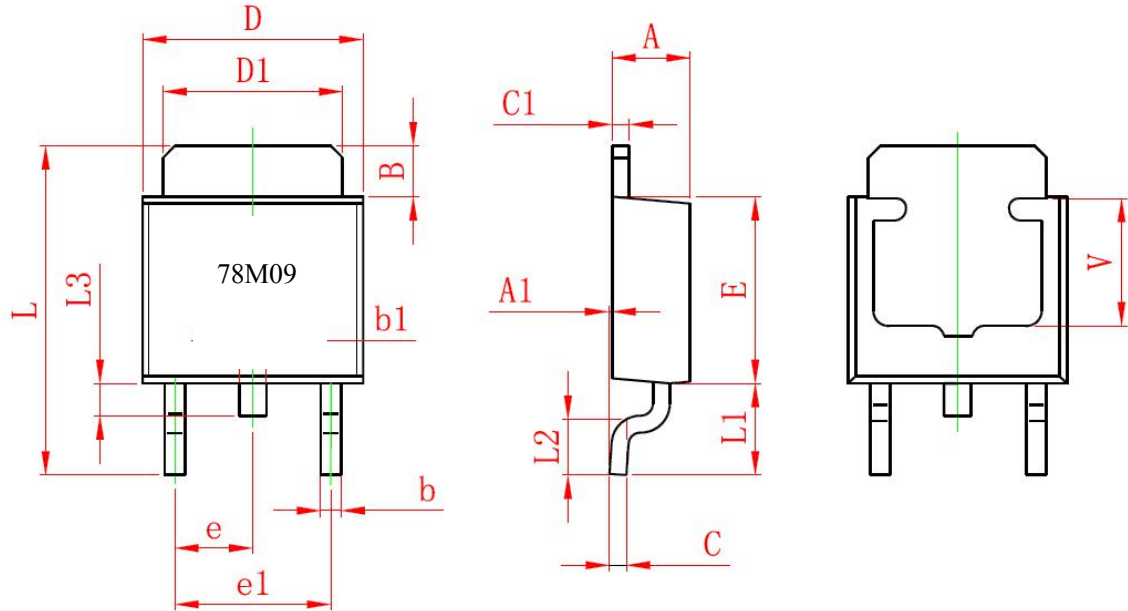
For 78M09 (unless otherwise noted, $V_i=15\text{V}$, $I_o=350\text{mA}$, $0^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $C_1=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$)

Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_o	$T_J=+25^{\circ}\text{C}$	8.64	9	9.36	V
		$11.5\text{V} \leq V_i \leq 26\text{V}$, $I_o=5\text{mA} \sim 0.35\text{A}$	8.55	9	9.45	
Line Regulation*	ΔV_o	$11.5\text{V} \leq V_i \leq 26\text{V}$, $I_o=0.2\text{A}$, $T_J=25^{\circ}\text{C}$		5	100	mV
		$13\text{V} \leq V_i \leq 26\text{V}$, $I_o=0.2\text{A}$, $T_J=25^{\circ}\text{C}$		3	50	
Load Regulation*	ΔV_o	$T_J=25^{\circ}\text{C}$, $I_o=5\text{mA} \sim 0.5\text{A}$		25	180	mV
		$T_J=25^{\circ}\text{C}$, $I_o=5\text{mA} \sim 200\text{mA}$		10	90	
Quiescent Current	I_Q	$T_J=+25^{\circ}\text{C}$		4.0	6.0	mA
Quiescent Current Change	ΔI_Q	$12\text{V} \leq V_i \leq 26\text{V}$, $I_o=0.2\text{A}$			0.8	mA
		$5\text{mA} \leq I_o \leq 0.35\text{A}$			0.5	
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{kHz}$, $T_J=25^{\circ}\text{C}$		60	250	μV
Ripple Rejection	RR	$12\text{V} \leq V_i \leq 22\text{V}$, $f=120\text{Hz}$, $I_o=300\text{mA}$, $T_J=25^{\circ}\text{C}$	56	80		dB
Dropout Voltage	V_d	$T_J=+25^{\circ}\text{C}$		2		V
Short Circuit Current Limit	I_{SC}	$T_J=+25^{\circ}\text{C}$		0.8		A

OUTLINE DRAWING

TO252-2

Unit: mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF.		0.150 REF.	