78M09
DATASHEET

Specification Revision History:

Version	Date	Description
V1.0	2019/08	New
V1.1	2021/05	Modify Ordering Information
V1.2	2025/02	Modify Ordering Information
V1.3	2025/03	Add application precautions and overall typesetting.

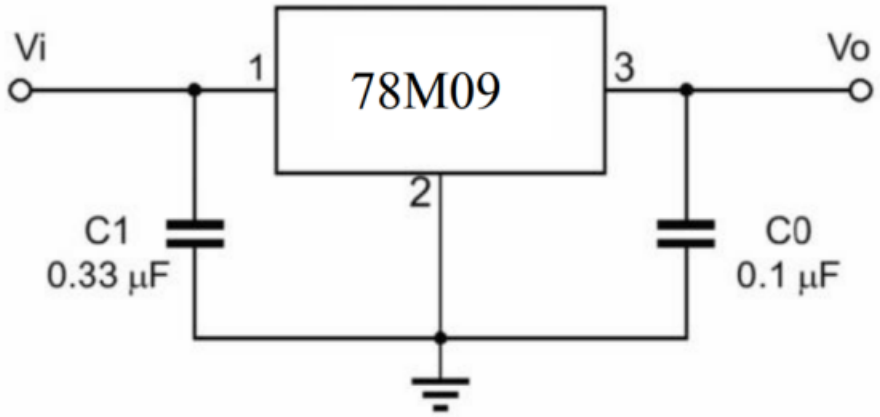
General Description

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

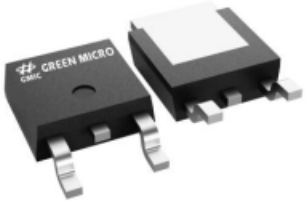
Features

- 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

Typical Application Circuits



The appearance of the product



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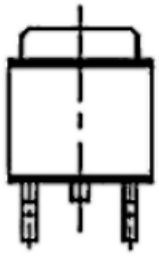
1.INPUT
2. GND
3. OUTPUT



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Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
78M09	TO-252-2	78M09 058	REEL	2500PCS/REEL

Absolute Maximum Ratings (Tj=25°C,unless otherwise specified)

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

Electrical Characteristics

(Unless otherwise specified,-40°C<Tj<85°C,Io=500mA,Vi=10V,Ci=0.33μF,Co=0.1μF)

For 78M09 (unless otherwise noted,Vi=15V,Io=350mA,0 °C<Tj<125°C,C'=0.33μF,Co=0.1μF)

Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	Vo	T_J=+25°C	8.64	9	9.36	V
		11.5V≤Vi≤26V,Io=5mA~0.35A	8.55	9	9.45	
Line Regulation*	△Vo	11.5V≤Vi≤26V,Io=0.2A,Tj=25°C		5	100	mV
		13V≤Vi≤26V,Io=0.2A,Tj=25°C		3	50	
Load Regulation*	△Vo	Tj=25°C,Io=5mA~0.5A		25	180	mV
		Tj=25°C,Io=5mA~200mA		10	90	
Quiescent Current	I_Q	T_J=+25°C		4.0	6.0	mA
Quiescent Current Change	$\triangle I_Q$	12V≤Vi≤26V,Io=0.2A			0.8	mA
		5mA≤Io≤0.35A			0.5	
Output Noise Voltage	V_N	10Hz≤f≤100kHz,Tj=25°C		60	250	μV
Ripple Rejection	RR	12V≤Vi≤22V,f=120Hz, Io=300mA,Tj=25°C	56	80		dB
Dropout Voltage	Vd	T_J=+25°C		2		V
Short Circuit Current Limit	Isc	T_J=+25°C		0.8		A

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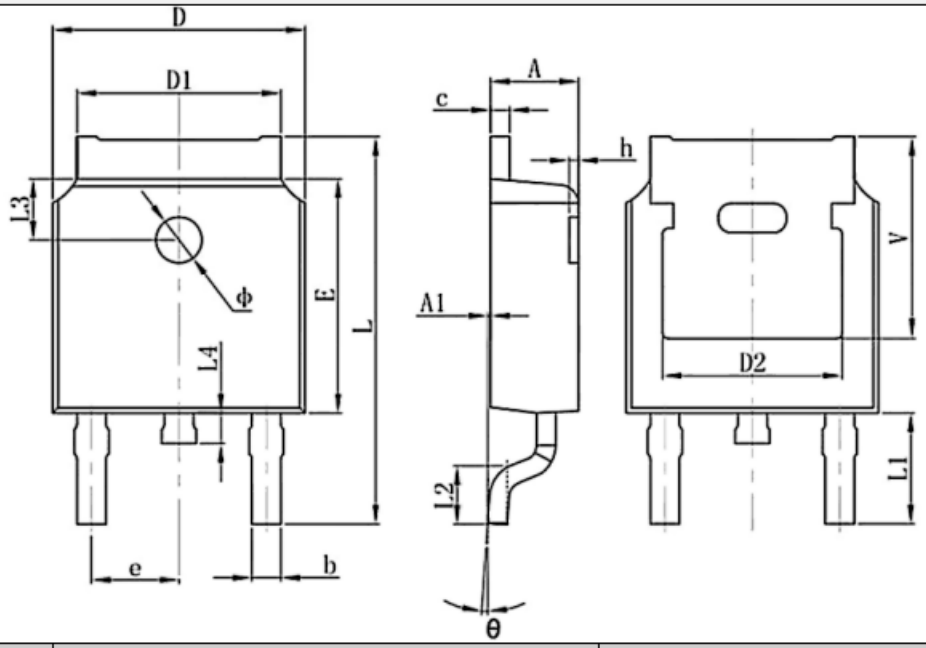
Unit : mm



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	0.660	0.860	0.026	0.034
C	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

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