

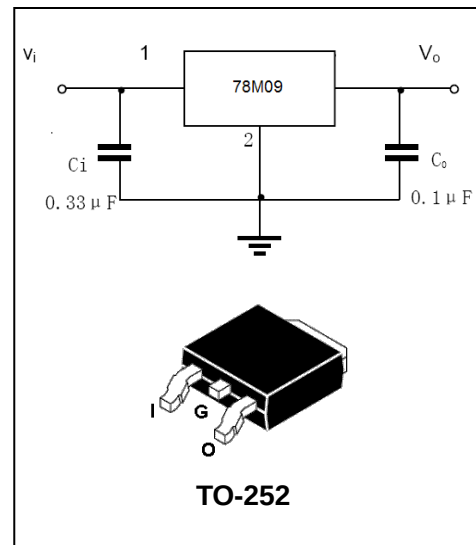
Three-terminal positive voltage regulator

BL78M09

FEATURES

- Output current in excess of 0.5A.
- No external components.
- Internal thermal overload protection.
- Internal short circuit current-limiting.
- Output transistor safe-area compensation.

HF



APPLICATIONS

- Three-terminal positive voltage regulator.

Ordering Information

Part Number	Package	Shipping	Marking Code
BL78M09	TO-252	80pcs / Tube or 2500pcs / Tape * Reel	78M09

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_i	Input voltage	35	V
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction-Air	92	$^{\circ}\text{C}/\text{W}$
T_{OPR}	Operating junction temperature	0 to 125	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	-65 to +150	$^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS

($V_{IN}=14V$, $I_O=350mA$, $C_{IN}=0.33\mu F$, $C_O=0.1\mu f$, unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	V_O	$I_O=350mA$, $V_{IN}=16V$ $5mA \leq I_O \leq 350mA$ $11.5V \leq V_{IN} \leq 24V$	8.65 8.55 8.55	9 9 9	9.35 9.45 9.45	V
Load regulation(Note1)	ΔReg_{load}	$5mA \leq I_O \leq 500mA$ $5mA \leq I_O \leq 200mA$		20 10	180 90	mV
Line regulation(Note1)	ΔReg_{line}	$11.5V \leq V_{IN} \leq 26V$, $I_O=200mA$ $12V \leq V_{IN} \leq 26V$, $I_O=200mA$		6 2	100 50	mV
Quiescent Current	I_Q	$V_{IN}=16V$, $I_O=350mA$		4.6	6.0	mA
Quiescent Current Change	ΔI_Q	$5mA \leq I_O \leq 350mA$ $11.5V \leq V_{IN} \leq 26V$, $I_O=200mA$			0.5 0.8	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100KHz$		60		$\mu V/V_O$
Ripple Rejection	RR	$f=120Hz$, $I_O=300mA$, $V_I=13V$ to $23V$		56	80	dB
Dropout Voltage	V_D	$T_A=+25^\circ C$, $I_O=350mA$		2.0		V
Short Circuit Current	I_{SC}	$V_I=16V$, $T_J=25^\circ C$		250		mA
Peak Current	I_{PK}	$T_J=25^\circ C$		700		mA

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TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

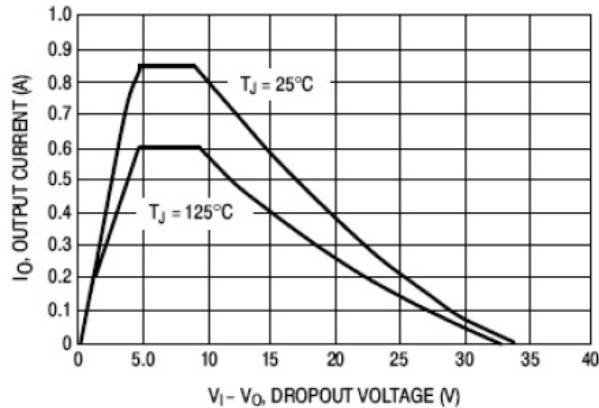


Figure 1. Peak Output Current versus Dropout Voltage

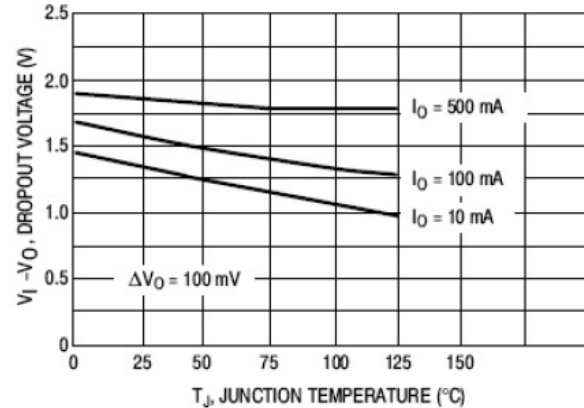


Figure 2. Dropout Voltage versus Junction Temperature

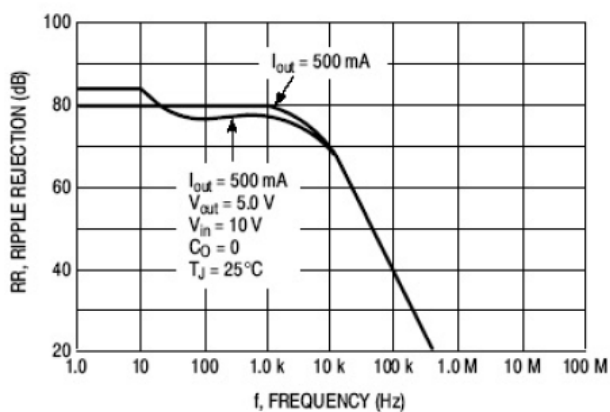


Figure 3. Ripple Rejection versus Frequency

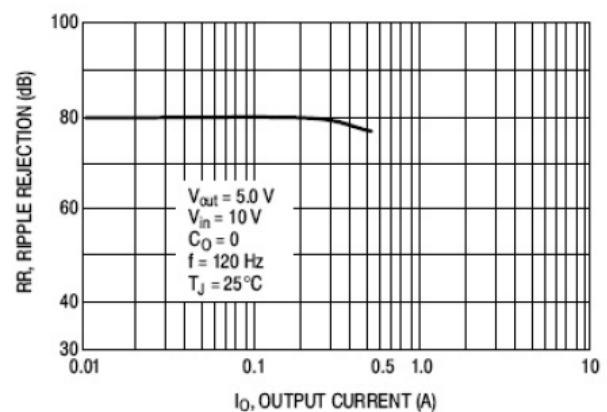


Figure 4. Ripple Rejection versus Output Current

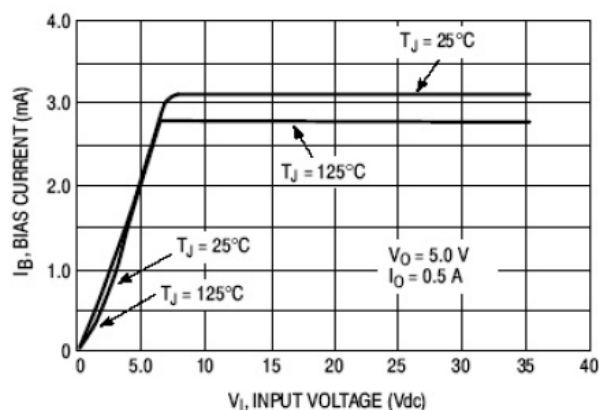


Figure 5. Bias Current versus Input Voltage

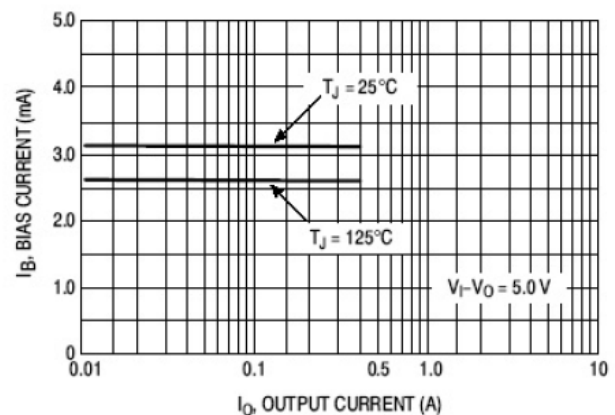


Figure 6. Bias Current versus Output Current

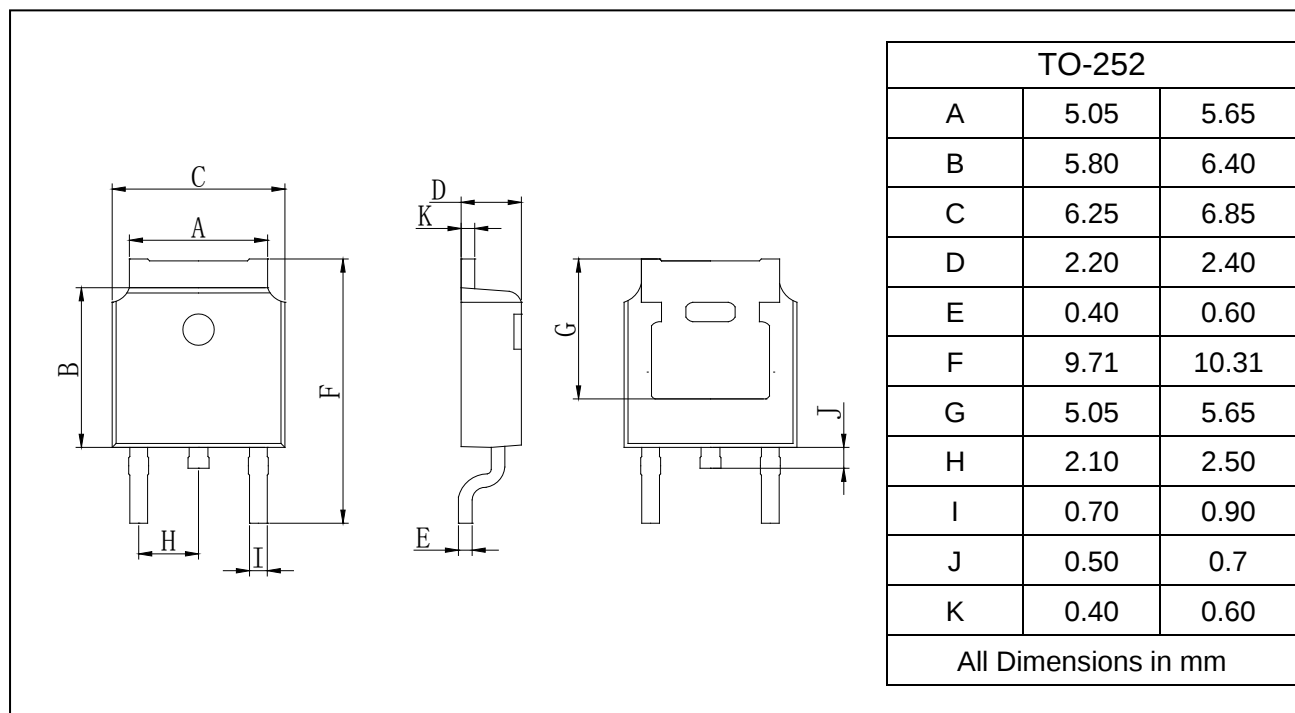
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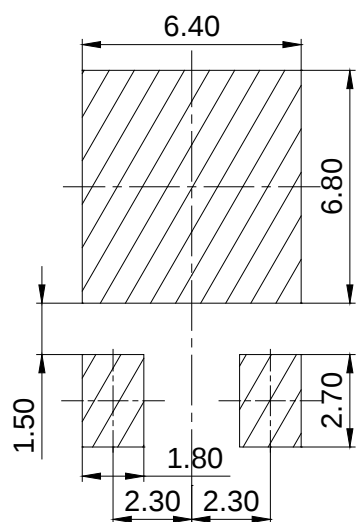
PACKAGE OUTLINE

Plastic surface mounted package

TO-252



SOLDERING FOOTPRINT



Unit: mm