



### Features

- Output current greater than 1.5A
- Range Output voltage range adjustable from 1.25V to 37V

### Applications

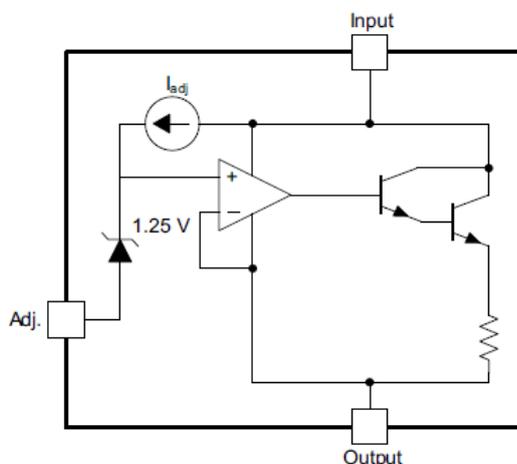
- Power Management for Computer Mother Board, Graphic Card
- LCD Monitor and LCD TV
- DVD Decode Board
- ADSL Modem
- Post Regulators for Switching Supplies

### General Description

The MB317 device is an adjustable three-terminal positive-voltage regulator capable of supplying more than 1.5A over an output-voltage range of 1.25V to 37V. MB317 features a very low standby current 1.5mA .

MB317 is available in TO220 package.

### Block Diagram





### Pin Configuration

TO220 Top View

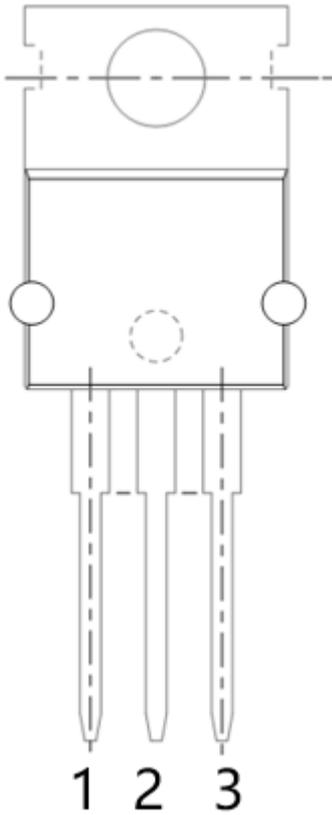


Table1: MB317 series (TO220 PKG)

PIN NO.	PIN NAME	FUNCTION
1	ADJ	ADJ pin
2	VOUT	Output voltage pin
3	VIN	Input voltage pin

**Absolute Maximum Ratings**

Max Input Voltage .....40V  
 Max Operating Junction Temperature(Tj) .....150°C  
 Ambient Temperature(Ta).....-20°C~ 85°C  
 Storage Temperature(Ts).....-40°C~150°C

Caution: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

**Thermal Information**

Symbol	Parameter	TO220	UNIT
$R_{\theta(JA)}$	Junction-to-ambient thermal resistance	37.9	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	51.1	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	23.2	°C/W
$\Psi_{JT}$	Junction-to-top characterization parameter	13.0	°C/W
$\Psi_{JB}$	Junction-to-board characterization parameter	22.8	°C/W
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	4.2	°C/W

**Electrical Characteristics**

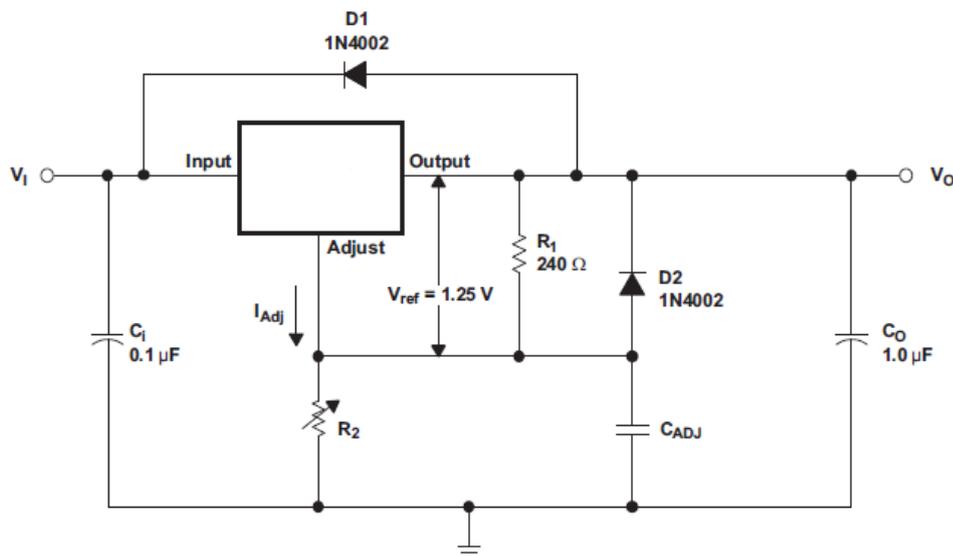
$T_A=25^\circ\text{C}$ , unless otherwise noted.

Parameter	Test Conditions	Min	Typ	Max	Unit
Line regulation	$V_I-V_O=3\text{V to }40\text{V}$ $T_J=25^\circ\text{C}$	-5	--	5	mV
Load regulation	$I_o=10\text{mA to }1500\text{mA}$	-25	--	25	mV
Reference voltage	$V_I - V_O = 3\text{V to }40\text{V}$ , $P_D \leq 20\text{W}$ , $I_o=10\text{mA to }1.5\text{A}$	1.2	1.25	1.3	V
Output-voltage Temperature stability	$T_J = 0^\circ\text{C to }125^\circ\text{C}$		0.7		% $V_O$
Maximum output current	$V_I - V_O \leq 15\text{V}$ , $T_J=25^\circ\text{C}$	1.5	2		A

**Detailed Description**

MB317 device is an adjustable three-terminal positive-voltage regulator capable of supplying up to 1.5A over an output-voltage range of 1.25V to 37V. It requires only two external resistors to set the output voltage. The device features a typical line regulation of 1mV and typical load regulation of 7 mV.

The MB317 device is versatile in its applications, including uses in programmable output regulation and local on-card regulation. Or, by connecting a fixed resistor between the ADJUST and OUTPUT terminals, the MB317 device can function as a precision current regulator. An optional output capacitor can be added to improve transient response.

**Typical Application**

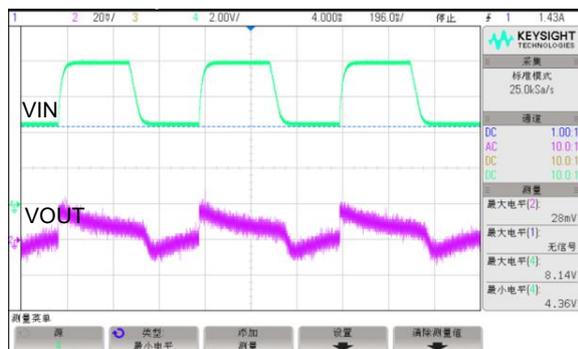
Adjustable Voltage Regulator

1. R1 and R2 are required to set the output voltage.
2. C<sub>ADJ</sub> is recommended to improve ripple rejection. It prevents amplification of the ripple as the output voltage is adjusted higher.
3. C<sub>1</sub> is recommended, particularly if the regulator is not in close proximity to the power-supply filter capacitors. A 0.1μF or 1μF ceramic or tantalum capacitor provides sufficient bypassing for most applications, especially when adjustment and output capacitors are used.
4. C<sub>0</sub> improves transient response, but is not needed for stability.
5. Protection diode D2 is recommended if C<sub>ADJ</sub> is used. The diode provides a low-impedance discharge path to prevent the capacitor from discharging into the output of the regulator.
6. Protection diode D1 is recommended if C<sub>0</sub> is used. The diode provides a low-impedance discharge path to prevent the capacitor from discharging into the output of the regulator.
7. V<sub>o</sub> is calculated as shown:  $V_o = V_{REF}(1+R_2/R_1) + (I_{ADJ} \times R_2)$ , I<sub>ADJ</sub> is typically 50μA and negligible in most applications.

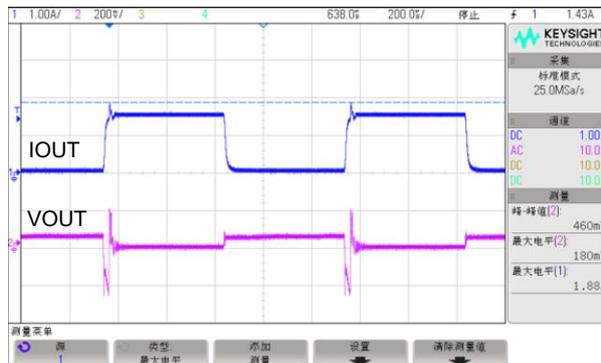


### Typical Performance Characteristics

#### Line Transient Response



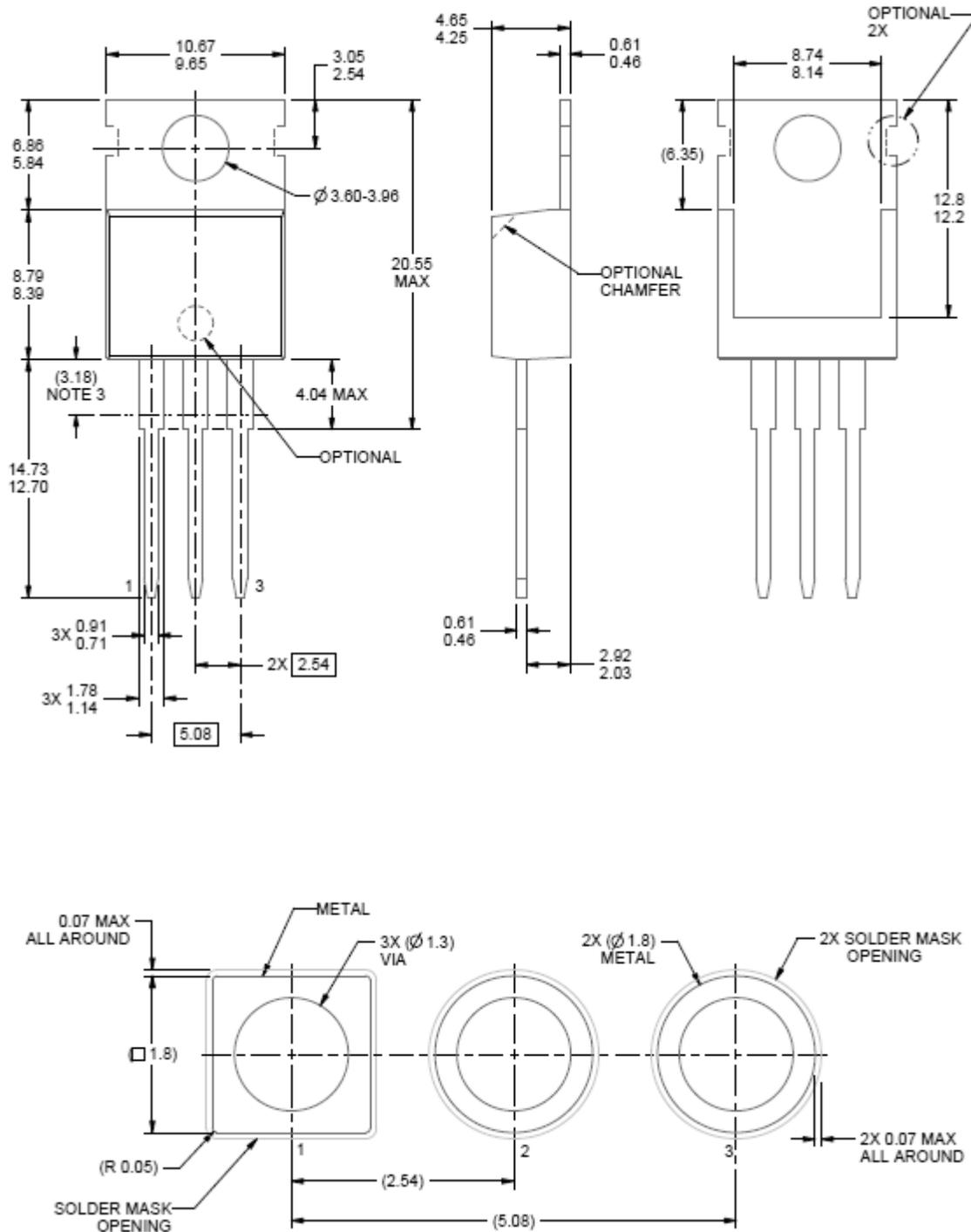
#### Load Transient Response





Package Information

TO220 Package



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