

HIGH CURRENT ADJUSTABLE VOLTAGE REGULATOR BL317B

DESCRIPTION

The BL317B is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of output current with voltage adjustable from 1.3V ~ 37V.

FEATURES

- Output current up to 1.5A
- Output voltage adjustable from 1.3V to 37V
- Internal short circuit protection
- Internal over temperature protection
- Safe-Area compensation for output transistor

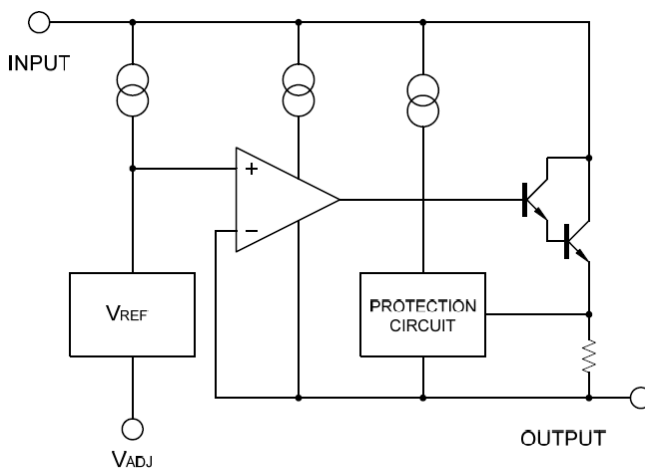
APPLICATIONS

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD Player
- Network Interface Card/Switch
- Telecom Equipment
- Printer and other Peripheral Equipment

ORDERING INFORMATION

Device	Package	Shipping
BL317BT	TO-220	Tube
BL317BY-B	TO-252	2500pcs/Reel

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C) *

Characteristic	Symbol	Min.	Max.	Unit
Input - Output Voltage Difference	V _{in} -V _{out}		40	V
Power Dissipation	P _d	Internal limited		
Operating Temperature Range	TOPR	-15	125	°C
Storage temperature	T _s	-65	150	°C
Lead temperature (soldering, 10sec)	T _{LEAD}		260	°C

*: Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.

ELECTRICAL CHARACTERISTICS

($V_I - V_O = 5V, 0^\circ C < T_j < 125^\circ C, I_O = 500mA, I_{MAX} = 1.5A, P_{MAX} = 20W$, unless otherwise specified)

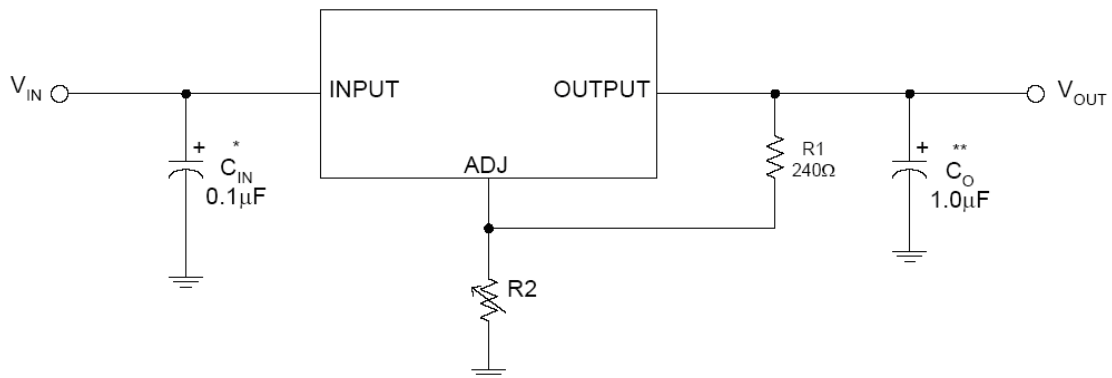
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Line Regulation	ΔV_O	$T_a = 25^\circ C, 3V \leq V_I - V_O \leq 40V$		0.01	0.04	%V	
		$T_a = 0 - 125^\circ C, 3V \leq V_I - V_O \leq 40V$		0.02	0.07		
Load Regulation	ΔV_O	$T_a = 25^\circ C$		18	25	mV	
		$10mA \leq I_O \leq I_{MAX}$	$V_O \leq 6V$		0.4	0.5	%V _O
		AX	$V_O \leq 5V$		40	70	mV
		$10mA \leq I_O \leq I_{MAX}$	$V_O \leq 5V$		0.8	1.5	%V _O
		$T_a = 0 - 125^\circ C$					
		$V_O \leq 6V$					
Adjustable Pin current	IADJ			46	100	μA	
Adjustable Pin Current Change	$\Delta IADJ$	$2.5V \leq V_I - V_O \leq 40V,$ $10mA \leq I_O \leq I_{MAX}, PD \leq P_{MAX}$		2.0	5	μA	
Reference Voltage	VREF	$3V \leq V_I - V_O \leq 40V,$ $10mA \leq I_O \leq I_{MAX}, PD \leq P_{MAX}$	1.20	1.25	1.30	V	
Temperature Stability	STT			0.7		%V _O	
Minimum Load Current for regulation	IL(MIN)	$V_I - V_O = 40V$		3.5	10	mA	
Maximum output Current	IO(MAX)	$V_I - V_O \leq 15V, PD \leq P_{MAX}$	1.5	2.2		A	
		$V_I - V_O \leq 40V, PD \leq P_{MAX},$ $T_a = 25^\circ C$	0.15	0.4			
RMS Noise v.s. %of V _{out}	eN	$T_A = 25^\circ C, 10HZ \leq f \leq 10KHZ$		0.003	0.01	%V _O	
Ripple Rejection	RR	$V_O = 10V, f = 120HZ, C_{ADJ} = 0$		60		dB	
		$V_O = 10V, f = 120HZ, C_{ADJ} = 10\mu F$	66	75			
Long-term Stability, T _J =THIGH	ST	$T_A = 25^\circ C, 1000 hr$		0.3	1	%	

Note: Testing with low duty pulse should be used to avoid heating effect.

THERMAL DATA

Parameter		Symbol	RATING	UNITS
Junction-to-Ambient	TO-252	θ_{JA}	112	°C/W
	TO-220		54	
Junction-to-Case	TO-252	θ_{JC}	12	°C/W
	TO-220		5	

APPLICATION CIRCUIT



* = C_{IN} is required if the regulator is located near power supply filter.

**= C_O is needed for stability and it improves transient response.

$$V_{OUT} = V_{REF} \times (1 + R2/R1) + I_{ADJ} \times R2$$

Since I_{ADJ} is controlled to less than 100 μ A, the error associated with this term is negligible in most applications.

CHARACTERISTICS CURVES

Fig.1. Load Regulation vs temperature

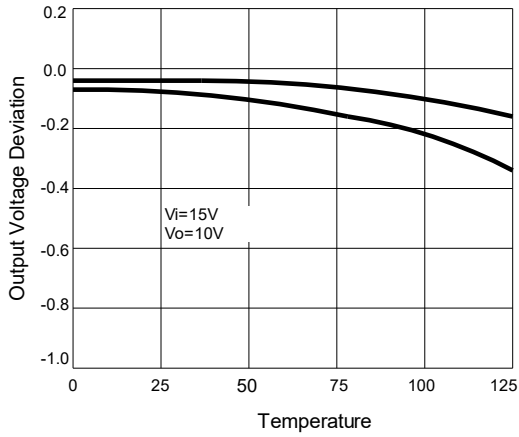


Fig.2 Adjustment Current vs Temperature

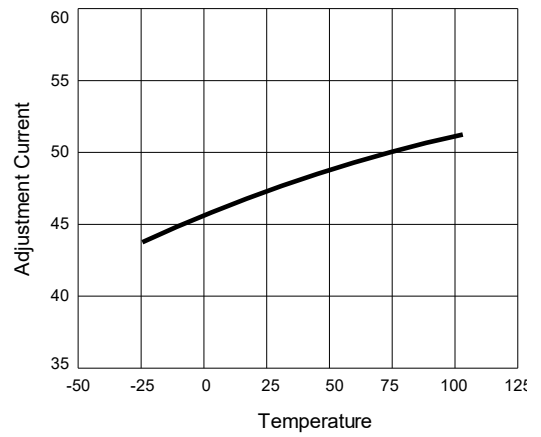


Fig.3. Dropout Voltage vs Input-Output Voltage Difference

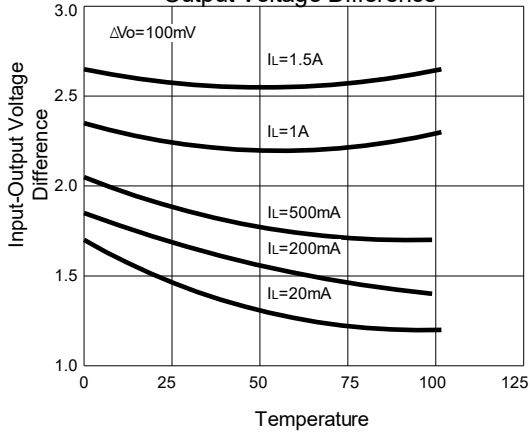
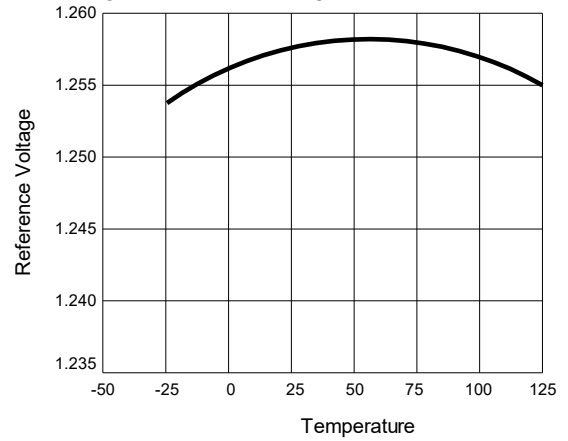
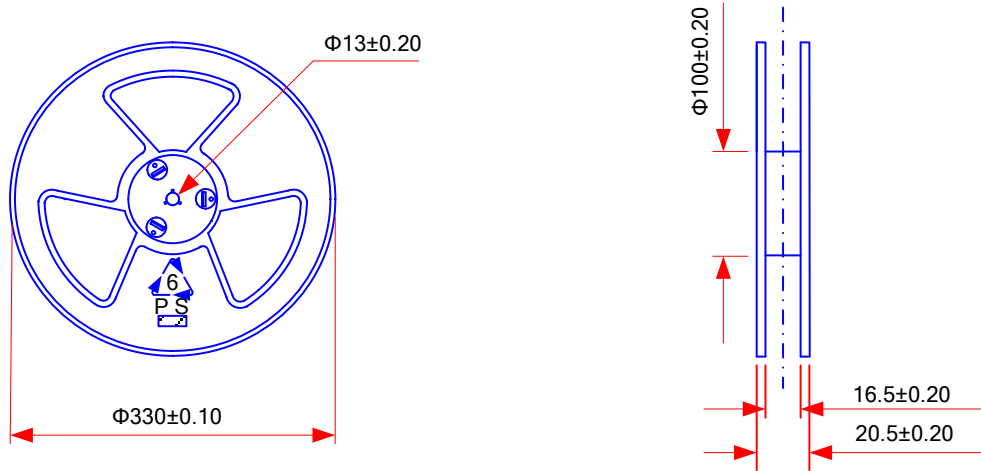


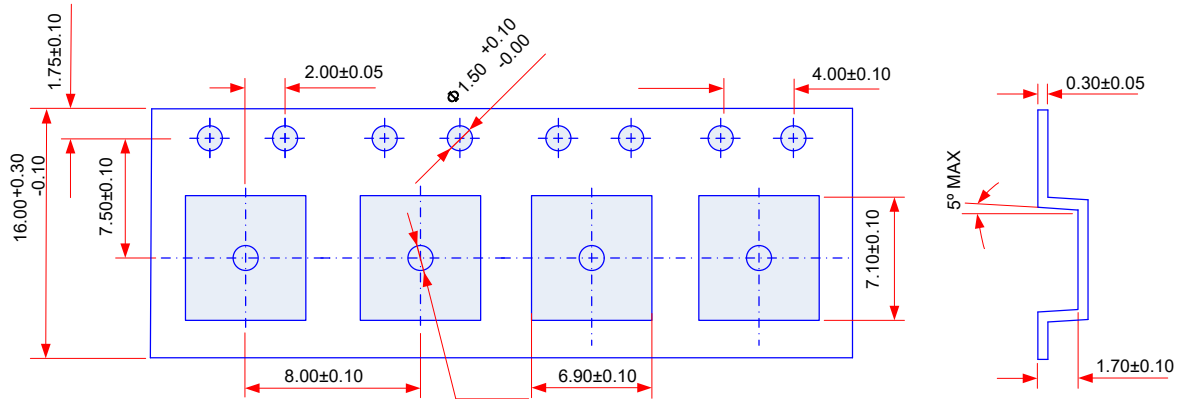
Fig.4 Reference Voltage vs Temperature



Taping reel dimension:

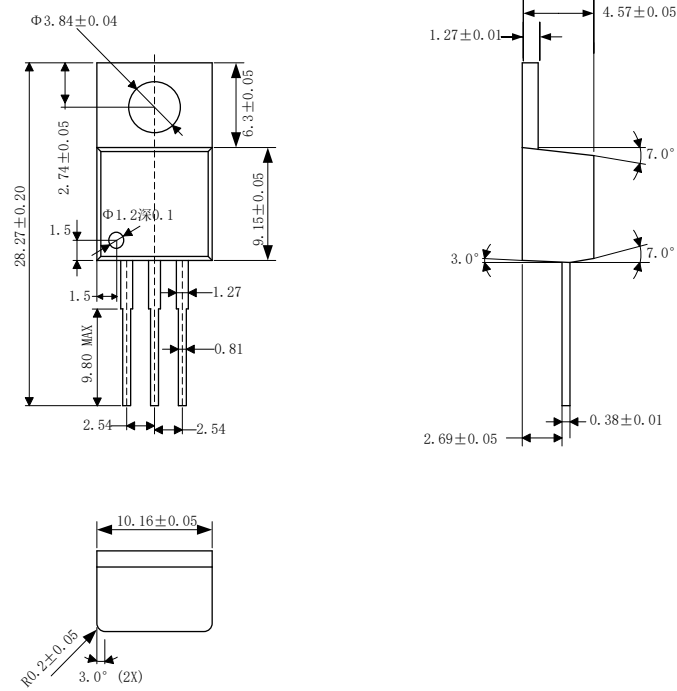


Taping dimension:



PACKAGE DIMENSIONS

TO-220
Unit: mm



TO-252
Unit: mm

