



**Bay Linear**  
Linear Excellence

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## 1.5A Low Dropout Voltage Regulator

Adjustable & Fix Output

**B1586**

### Description

The Bay Linear B1586 is Monolithic low power 1.5A Adjustable and fixed NPN voltage regulator that are easy to use with minimum external components. It is suitable for applications requiring a well-regulated positive output voltage with low input-output differential voltage requirements and output voltage 1.5V, 2.5V, 3.0V, 3.3V, or 5V.

The B1586 Outstanding features include full power usage up to 1.5Amp of load current internal current limiting and thermal shutdown. Other fixed versions are also available consult with factory.

The B1586 is offered in 3-pin TO-220 & TO-263 packages compatible with other 3 terminal regulators. For 5A Low dropout Regulator refer to the B1585 data sheet.

### Features

- Adjustable Output Down to 1.2V
- Fixed Output Voltages 2.5V, 3.0V 3.3V, and 5.0V
- Output Current of 1.5A
- Low Dropout Voltage 1.1V Typ.
- Current & Thermal Limiting
- Standard 3-Terminal Low Cost TO-220, D<sup>2</sup>, D Packages
- Similar to industry Standard LT1086

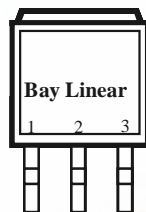
### Applications

- 3.3V to 2.5V for Pentium Processor
- SMPS Post Regulator
- High Efficiency "Green" Computer Systems
- High Efficiency Linear Power Supplies
- 5V to 3.XXV fro Pentium Processor
- Battery Charger

### Pin Connection



TO-263-3 (S)



Top View

### Ordering Information

Devices	Package	Temp.
B1586T	TO-220	0 °C to 70 °C
B1586S	TO-263	0 °C to 70 °C
B1586D	TO-252	0 °C to 70 °C

### Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Maximum Input Voltage	$V_{IN}$	7	V
Power Dissipation	$P_O$	Internally Limited	W
Thermal Resistance Junction to Case	$\theta_{JC}$	3	°C/W
Thermal Resistance Junction to Ambient	$\theta_{JA}$	50	
Operating Junction Temperature Range Control Section Power Transistor	$T_J$	0 to 125 0 to 150	°C
Storage Temperature Range	$T_{STG}$	-65 to 150	
Lead Temperature (Soldering 10 Sec.)	$T_{LEAD}$	260	

### Electrical Characteristics

( $V_{IN} = 4.75V$  to  $5.25V$ ;  $I_O = 10mA$  to  $1.5Amp$ , unless otherwise specified)

Parameter	Symbol	Conditions	MIN	TYP	MAX	UNIT
Output Voltage	$V_O$	$0 < I_{OUT} < 1.5A$ , $3.3V < V_{IN} < 7V$ , $T = 25^\circ C$	1.485	1.5	1.515	V
		$0 < I_{OUT} < 1.5A$ , $3.3V < V_{IN} < 7V$ , Over Temp.	1.475		1.525	
		$0 < I_{OUT} < 1.5A$ , $4.0V < V_{IN} < 7V$ , $T = 25^\circ C$	2.475	2.5	2.525	
		$0 < I_{OUT} < 1.5A$ , $4.0V < V_{IN} < 7V$ , Over Temp.	2.460		2.540	
		$0 < I_{OUT} < 1.5A$ , $4.5V < V_{IN} < 7V$ , $T = 25^\circ C$	2.970	3.0	3.030	
		$0 < I_{OUT} < 1.5A$ , $4.5V < V_{IN} < 7V$ , Over Temp.	2.950		3.050	
		$0 < I_{OUT} < 1.5A$ , $4.8V < V_{IN} < 7V$ , $T = 25^\circ C$	3.267	3.3	3.333	
		$0 < I_{OUT} < 1.5A$ , $4.8V < V_{IN} < 7V$ , Over Temp.	3.247		3.353	
Reference Voltage	$V_{ref}$	$V_{IN} < 7V$ , $1.5V < V_{IN} < 5.75$ , $10mA < I_{out} < 5Amp$	1.238	1.250	1.262	V
			1.230		1.270	
Line Regulation (1)	$REG_{(line)}$	$I_O = 10mA$ , $V_{IN} = 5V$ , $T = 25^\circ C$		0.04	0.2	%
Load Regulation (1)	$REG_{(LOAD)}$	$I_O = 10mA$ , $V_{IN} = 5V$ , $T = 25^\circ C$		0.08	0.40	
Dropout Voltage	$V_D$	$T = 25^\circ C$ Over Temperature		1.0		V
				1.1	1.3	
Minimum load Current	$I_{min}$			5.0	10	mA
Current Limit	$I_S$	$(V_{in} - V_{out}) = 3V$	1.5	2.3		A
Ground Pin Current	$I_O$	$V_{IN} = 5V$		6	10	mA
Temperature Stability	$T_S$	$I_O = 10mA$ , $V_{IN} = 5V$		0.5		%
Thermal Regulation		$T = 25^\circ C$ , 30ms pulse		0.003		%/W
Ripple Rejection	$R_A$	$T = 25^\circ C$ , $V_{IN} = 5V$	60	80		dB
Thermal Resistance	-	TO-220 Junction to Tab		3.0	3.0	°C/W
		Junction to Ambient		60	60	
		DD Package Junction to Tab		3.0	3.0	
		Junction to Ambient		60	60	

**Note:** Output Switch tests are performed under pulsed conditions to minimize power dissipation

**Advance Information-** These data sheets contain descriptions of products that are in development. The specifications are based on the engineering calculations, computer simulations and/ or initial prototype evaluation.

**Preliminary Information-** These data sheets contain minimum and maximum specifications that are based on the initial device characterizations. These limits are subject to change upon the completion of the full characterization over the specified temperature and supply voltage ranges.

The application circuit examples are only to explain the representative applications of the devices and are not intended to guarantee any circuit design or permit any industrial property right to other rights to execute. Bay Linear takes no responsibility for any problems related to any industrial property right resulting from the use of the contents shown in the data book. Typical parameters can and do vary in different applications. Customer's technical experts must validate all operating parameters including "Typical" for each customer application.

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#### LIFE SUPPORT AND NUCLEAR POLICY

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Bay Linear products are not authorized for and should not be used within life support systems which are intended for surgical implants into the body to support or sustain life, in aircraft, space equipment, submarine, or nuclear facility applications without the specific written consent of Bay Linear President.

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