Bay Linear

Linear Excellence

8.0A Low Dropout Voltage Regulator

B1584

Adjustable & Fix Output

Advance Information

Description

The Bay Linear B1584 is Monolithic low power 8.0A 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 B1584 Outstanding features include full power usage up to 8.0Amp of load current internal current limiting and thermal shutdown. Other fixed versions are also available consult with factory.

The B1584 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

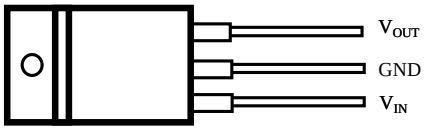
- **Adjustable Output Down to 1.2V**
- **Fixed Output Voltages 2.5V, 3.0V 3.3V, and 5.0V**
- **Output Current of 8.0A**
- **Low Dropout Voltage 1.1V Typ.**
- **Current & Thermal Limiting**
- **Standard 3-Terminal Low Cost TO-220**
- **Similar to industry Standard LT1083/LT1584**

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

Plastic Package
TO-220



Front View

Ordering Information

Devices	Package	Temp.
B1584T	TO-220	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	θ_{JC}	3	°C/W
Thermal Resistance Junction to Ambient	θ_{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 8.0Amp, unless otherwise specified)

Parameter	Symbol	Conditions	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$0<I_{OUT}<5A$, $3.3V<V_{IN}<7V$, T= 25 °C	1.485	1.5	1.515	V
		$0<I_{OUT}<5A$, $3.3V<V_{IN}<7V$, Over Temp.	1.475		1.525	
		$0<I_{OUT}<5A$, $4.0V<V_{IN}<7V$, T= 25 °C	2.475	2.5	2.525	
		$0<I_{OUT}<5A$, $4.0V<V_{IN}<7V$, Over Temp.	2.460		2.540	
		$0<I_{OUT}<5A$, $4.5V<V_{IN}<7V$, T= 25 °C	2.970	3.0	3.030	
		$0<I_{OUT}<5A$, $4.5V<V_{IN}<7V$, Over Temp.	2.950		3.050	
		$0<I_{OUT}<5A$, $4.8V<V_{IN}<7V$, T= 25 °C	3.267	3.3	3.333	
		$0<I_{OUT}<5A$, $4.8V<V_{IN}<7V$, Over Temp.	3.247		3.353	
		$0<I_{OUT}<5A$, $6.5V<V_{IN}<7V$, T= 25 °C	4.950	5.0	5.050	
		$0<I_{OUT}<5A$, $6.5V<V_{IN}<7V$, Over Temp.	4.920		5.080	
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 °C		0.04	0.2	%
Load Regulation (1)	$REG_{(LOAD)}$	I_O = 10mA, V_{IN} =5V, T= 25 °C		0.08	0.40	
Dropout Voltage	V_D	T= 25 °C		1.0		V
		Over Temperature		1.1	1.3	
Minimum load Current	I_{min}			5.0	10	mA
Current Limit	I_S	$(V_{in}-V_{out})$=3V	8	10		A
Ground Pin Current	I_Q	V_{IN} =5V		0	200	mA
Temperature Stability	T_S	I_O = 10mA, V_{IN} =5V		0.5		%
Thermal Regulation		T= 25 °C, 30ms pulse		0.003		%/W
Ripple Rejection	R_A	T= 25 °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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