Bay Linear

Inspire the Linear Power

150 mA CMOS Low Dropout LDO ON/OFF

B4151

Description

The B4151 series are a group of positive output voltage, five-pin regulators, which provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved though CMOS and programmable fuse technologies. Output voltage: 2.0V to 6.0V in 0.1V increments.

The B4151 consists of a high-precision voltage reference, an error correction circuit, and a current limited output driver. Key features include a Shutdown Pin that reduces supply current. With good transient responses, output remains stable even during load changes.

The ON/OFF pin enables the output to be turned off, resulting in reduced power consumption. Provided in SOT-25 (150mW) packages minimizes the usage of board real state.

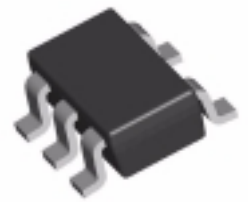
Features

- **Maximum output current: 150 mA.**
- **Highly accurate: Output voltage +/- 2%(1%)**
- **Shutdown Supply Current 1μA**
- **Ground Current of Less than 20μA**
- **CMOS low power consumption.**
  - **0.20V at 160mA**
  - **0.38V at 80mA**
- **Small input/output differential:**
- **Shut Down Mode for Power Savings**
- **Improve pin-to-pin XC62GR-XX**
- **Pin-to-Pin Low Power to Bipolar LDO's**

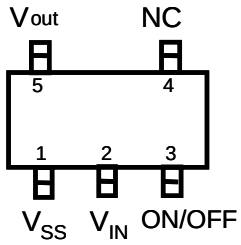
Applications

- **Battery Powered Equipment**
- **Notebook PC, Palmtops, PDA**
- **Portable Cameras and Video Recorders**
- **Reference Voltage Sources**
- **Cellular / GSM / PCS Phones**

Pin Connection



SOT-25 (K5)



Top View

Ordering Information

Package	Part No.
SOT-25	B4151CK5 -X.X
X.X = Fixed Output Voltages from 2.0V to 6.0V	

Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	12	V
Output Current		I_{OUT}	500	mA
Output Voltage		V_{out}	V_{SS} -0.3 to V_{IN} 0.3	V
CE Output Voltage		V_{OUT}	V_{SS} -0.3 to V_{IN} 0.3	V
Continual Total Power Dissipation	SOT-25 SOT-89	Pd	300 500	mW
Operating Ambient Temperature		T_{OPR}	-30 to 80	°C
Storage Temperature		T_{STG}	-40 to 125	°C

Electrical Characteristics (T_a = 25°C, V_{IN} = V_{OUT} + 0.5V; unless otherwise noted)

Parameter	Conditions	MIN	TYP	MAX	UNIT
Output Voltage Accuracy	I_O = 1mA	-1.4%	-	+1.4%	V
	I_O = 0 to 40mA	-2%	-	+2%	
Line Regulation $\Delta V_{OUT}/\Delta V_{IN}$-$V_{OUT}$	I_O= 40mA, (V_{OUT} + 0.1V)<V_{IN}<10V		0.2	0.3	%/V
Load Regulation	VIN=V_{out}+1V 1mA < I_O < 80mA C_{OUT} = 1µF			0.04	%/mV
Maximum Output Current		150			mA
Current Limit			1000		
CE input voltage High		1.5			V
CE input voltage Low				0.25	V
CE input voltage High	V_{CE}=V_{IN}			1.0	µkA
CE input voltage Low	V_{CE}=V_{SS}	-0.2	-0.05	0	µkA
Input Stability $\Delta V_{out}/\Delta T_{opr}$. V_{out}	I_{out}=40mA, 4V≤V_{in}≤10V		0.2	0.3	%/V
Input Voltage			10.0		V
Ground Pin Current	V_{in}=V_{ce}=V_{out}+1V V_{in}=V_{out}+1V, V_{ce}=V_{ss}			19 0.1	µA
Dropout Voltage	I_O = 100mA		200	395	mV
	I_O = 150 mA		380	770	
Output Voltage Temp.			±100		°C

Marking Format

SOT-25

EXWW

E = B4151

Variables

X = Voltage Codes

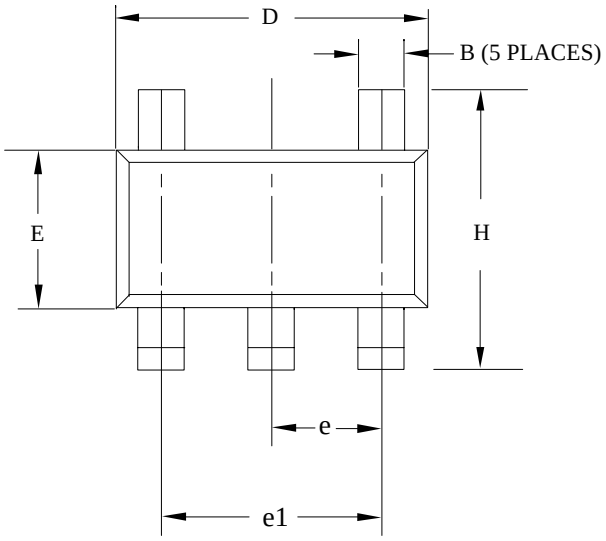
B = 2.0 F = 3.3
C = 2.5 G = 3.5
D = 2.8 H = 5.0
E = 3.0

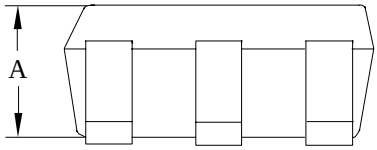
WW = Work Week Code

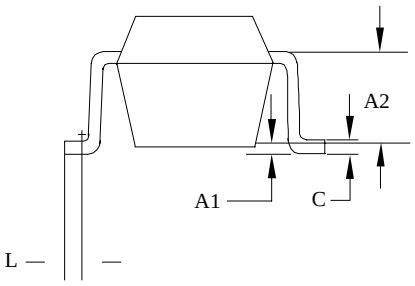
SOT-25 = 01 to 99

SERIES	CE	VOLTAGE OUTPUT
B4151R	H	ON
	L	OFF
B4151P	H	OFF
	L	ON

SOT-25 Packaging Outline





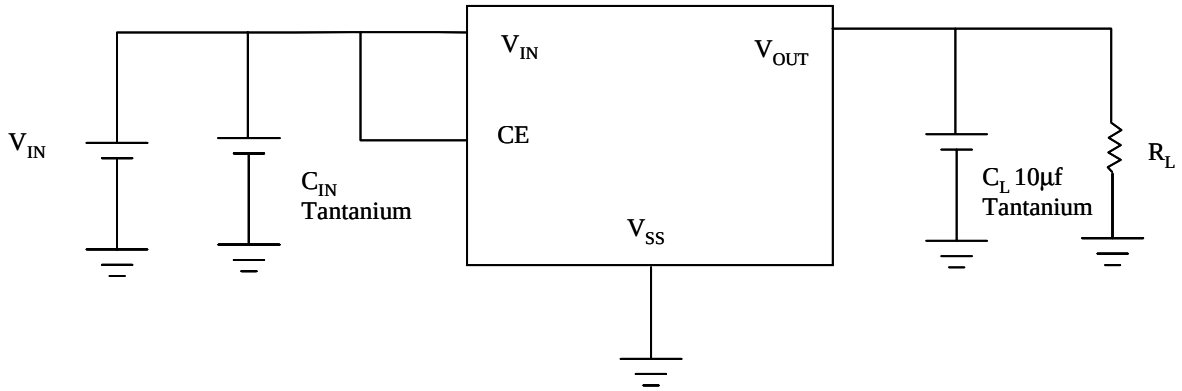


SYMBOL	MILLIMETERS			INCHES	
	MIN.	MAX		MIN.	MAX.
A	0.90	1.30		.035	.051
A1	0	0.10		0	.004
A2	0.80 REF			.0315 REF	
B	0.30	0.50		.012	.019
C	0.10	0.35		.004	.0137
D	2.70	3.10		.106	.122
E	1.40	1.80		.055	.071
e	0.95 BSC.			.037 BSC.	
e1	1.70	2.10		.066	.082
H	2.50	3.00		.098	.118
L	MIN 0.2			MIN .0078	

NOTE:

1. REFER TO APPLICABLE
2. CONTROLLING DIMENTION : MILLIMETER
3. PACKAGE SURFACE FINISHING TO BE SMOOTH FINISH.

STANDARD CIRCUIT



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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