

150 mA CMOS Low Dropout LDO

B4151

ON/OFF

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 through 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.

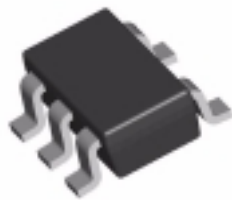
Features

- **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**

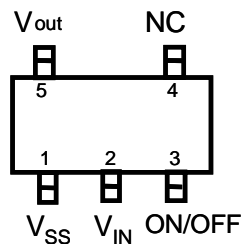
Applications

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

Pin Connection



SOT-25 (K5)



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	mW
			500	
Operating Ambient Temperature	T_{OPR}	-30 to 80	°C	
Storage Temperature	T_{STG}	-40 to 125	°C	

Electrical Characteristics ($T_a = 25^\circ\text{C}$, $V_{IN} = V_{OUT} + 0.5\text{V}$; unless otherwise noted)

Parameter	Conditions	MIN	TYP	MAX	UNIT
Output Voltage Accuracy	$I_O = 1\text{mA}$	-1.4%	-	+1.4%	V
	$I_O = 0$ to 40mA	-2%	-	+2%	
Line Regulation $\Delta V_{OUT}/\Delta V_{IN} - V_{OUT}$	$I_O = 40\text{mA}$, $(V_{OUT} + 0.1\text{V}) < V_{IN} < 10\text{V}$		0.2	0.3	%/V
Load Regulation	$V_{IN} = V_{out} + 1\text{V}$ $1\text{mA} < I_O < 80\text{mA}$ $C_{OUT} = 1\mu\text{F}$			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 $\Delta V_{out}/\Delta T_{opr} \cdot V_{out}$	$I_{out} = 40\text{mA}$, $4\text{V} \leq V_{in} \leq 10\text{V}$		0.2	0.3	%/V
Input Voltage			10.0		V
Ground Pin Current	$V_{in} = V_{ce} = V_{out} + 1\text{V}$			19	μA
	$V_{in} = V_{out} + 1\text{V}$, $V_{ce} = V_{ss}$			0.1	
Dropout Voltage	$I_O = 100\text{mA}$		200	395	mV
	$I_O = 150\text{mA}$		380	770	
Output Voltage Temp.			± 100		°C

Marking Format

SOT-25

EXWW

E = B4151

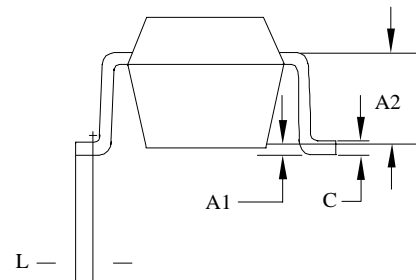
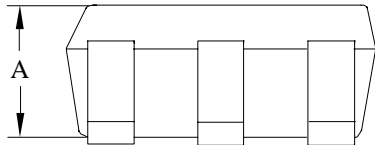
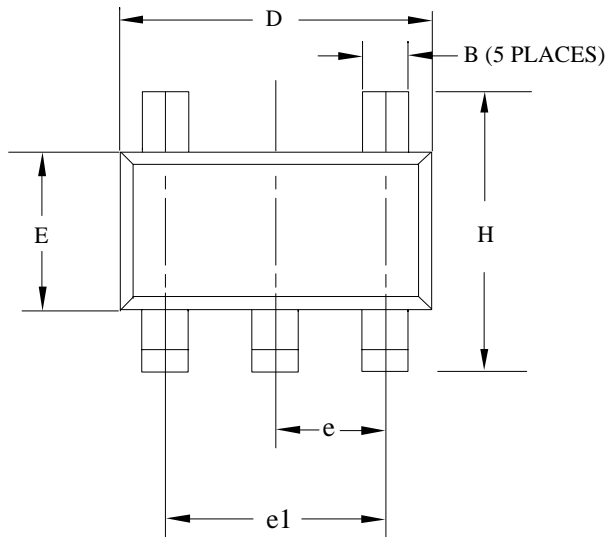
Variables

X = Voltage Codes **WW = Work Week Code**

B = 2.0	F = 3.3	SOT-25 = 01 to 99
C = 2.5	G = 3.5	
D = 2.8	H = 5.0	
E = 3.0		

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

SOT-25 Packaging Outline

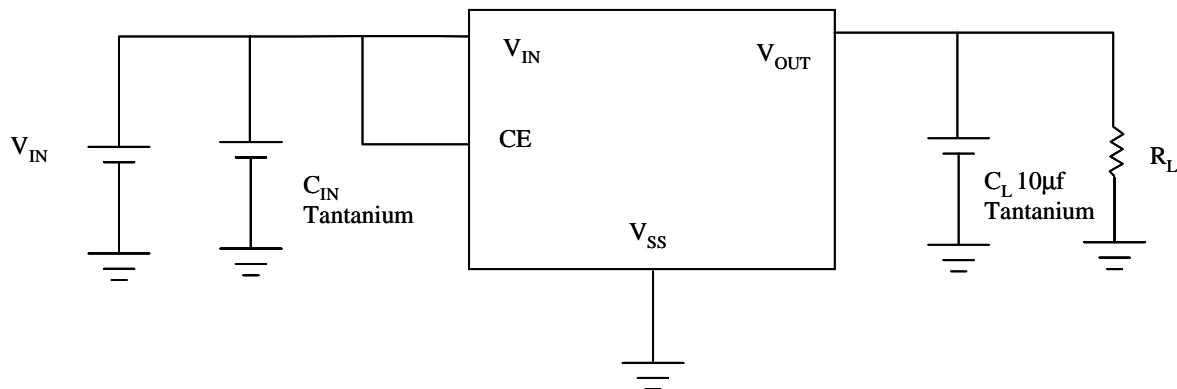


SYMBOL	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.90	1.30	.035	.051
A1	0	0.10	0	.004
A2	0.80 REF		.0315 REF	
B	0.30	0.50	.012	.019
C	0.10	0.35	.004	.0137
D	2.70	3.10	.106	.122
E	1.40	1.80	.055	.071
e	0.95 BSC.		.037 BSC.	
e1	1.70	2.10	.066	.082
H	2.50	3.00	.098	.118
L	MIN 0.2		MIN .0078	

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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