



# Bay Linear

Inspire the Linear Power

## 250 mA CMOS Low Dropout LDO

# B4250

### Description

The B4250 series are a group of positive output voltage, three-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 B4250 consists of a high-precision voltage reference, an error correction circuit, and a current limited output driver.

Available in SOT-23 (150mW) and SOT-89 (500mW) packages minimizing the usage of board real state.

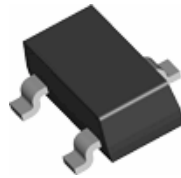
### Features

- **Maximum output current: 250 mA.**
- **Highly accurate: Output voltage +/- 2%. (1%)**
- **CMOS low power consumption.**
- **Small input/output differential:**  
     **0.38V at 160mA (Vout=3.3V)**  
     **0.12V at 100mA (Vout=5V)**
- **Pin-to-Pin Improve XC62FP/XC6201**

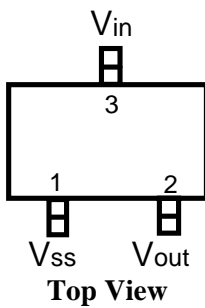
### Applications

- **Battery Powered Equipment**
- **Notebook PC, Palmtops, PDA**
- **Portable Cameras and Video Recorders**
- **Reference Voltage Sources**

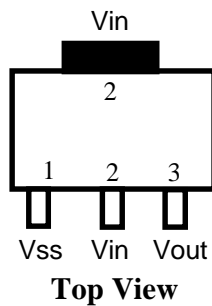
### Pin Connection



SOT-23-3 (K3)



SOT-89 (R)



### Ordering Information

-40°C to +125°C	
Package	Part No.
SOT-23	B4250CK3 -X.X
SOT-89	B4250CR-X.X
X.X = Fixed Output Voltages from 2.0V to 6.0V	

## Absolute Maximum Ratings

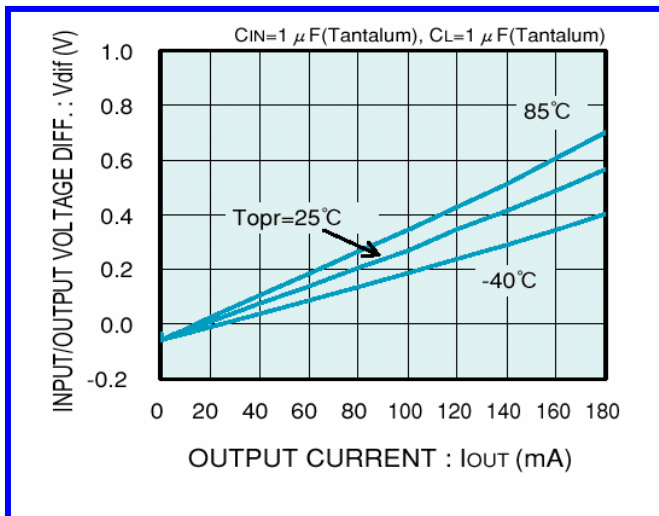
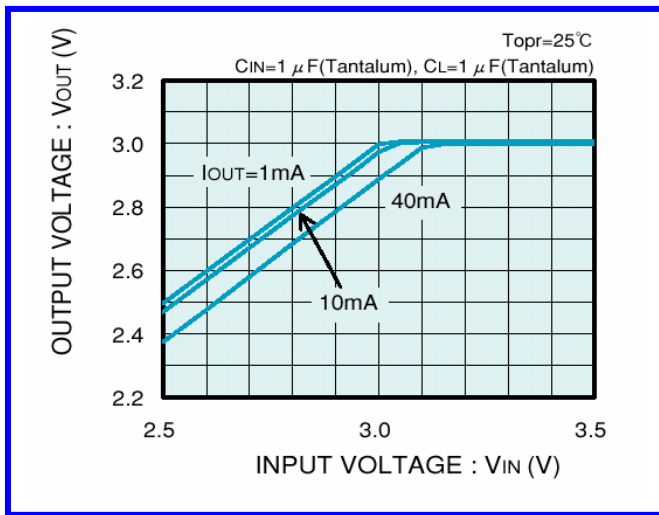
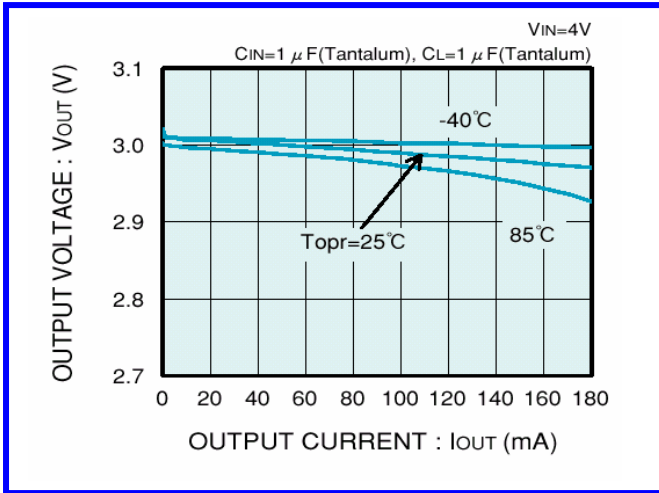
Parameter	Symbol	Ratings	Units
Input Voltage	$V_{IN}$	12	V
Output Current	$I_{OUT}$	500	mA
Output Voltage	$V_{OUT}$	$V_{SS} - 0.3$ to $V_{IN} 0.3$	V
Continual Total Power Dissipation	SOT-23	150	mW
	SOT-89	500	
Operating Ambient Temperature	$T_{OPR}$	-30 to 80	°C
Storage Temperature	$T_{STG}$	-40 to 125	°C

## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ , $V_{IN} = V_{OUT} + 1\text{V}$ ; unless otherwise noted)

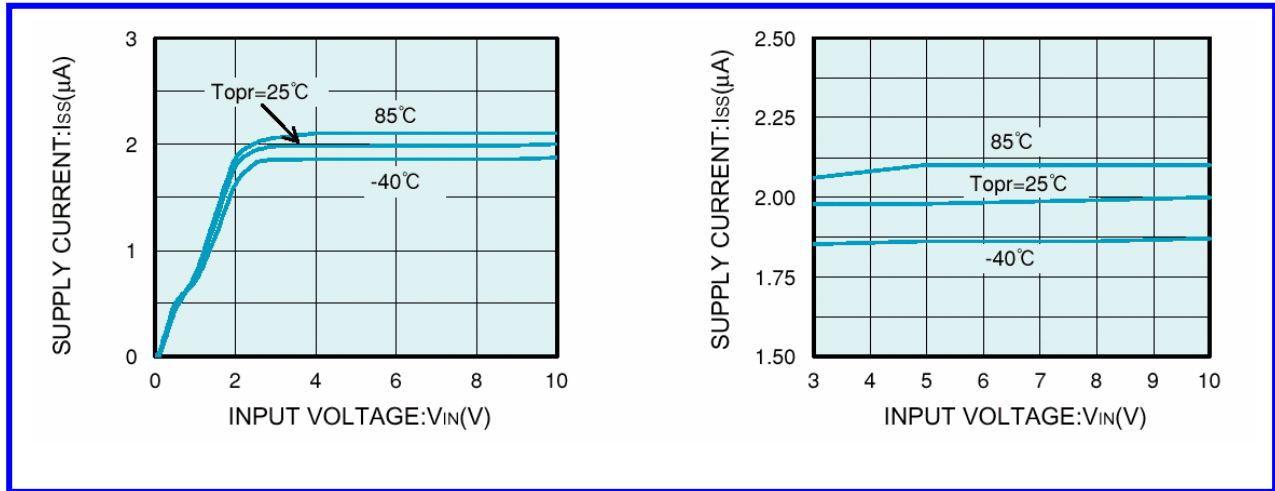
Parameter	Conditions	MIN	TYP	MAX	UNIT
Output Voltage	3.3V $I_O = 40\text{mA}$ , $V_{IN} = 4.3\text{V}$	3.234	3.300	3.366	V
	5.0V $I_O = 40\text{mA}$ , $V_{IN} = 6.0\text{V}$	4.900	5.000	5.100	
Line Regulation $\Delta V_{OUT}/\Delta V_{IN} - V_{OUT}$	3.3V $I_O = 40\text{mA}$ , $4.3\text{V} < V_{IN} < 10\text{V}$		0.2	0.3	%V
	5.0V $I_O = 40\text{mA}$ , $6.0\text{V} < V_{IN} < 10\text{V}$				
Load Regulation	3.3V $V_{IN} 4.3\text{V}$ , $1\text{mA} < I_O < 80\text{mA}$		45	90	mV
	5.0V $V_{IN} 6\text{V}$ , $1\text{mA} < I_O < 100\text{mA}$		40	80	
Current Consumption	3.3V $V_{IN} = 4.3\text{V}$		1.0	2.9	$\mu\text{A}$
	5.0V $V_{IN} = 6.0\text{V}$		2.0	4.5	
Dropout Voltage	3.3V $I_O = 160\text{mA}$		0.4	0.7	V
	5.0V $I_O = 100\text{mA}$ 200 mA		0.12 0.38	0.3 0.6	

## Marking Format

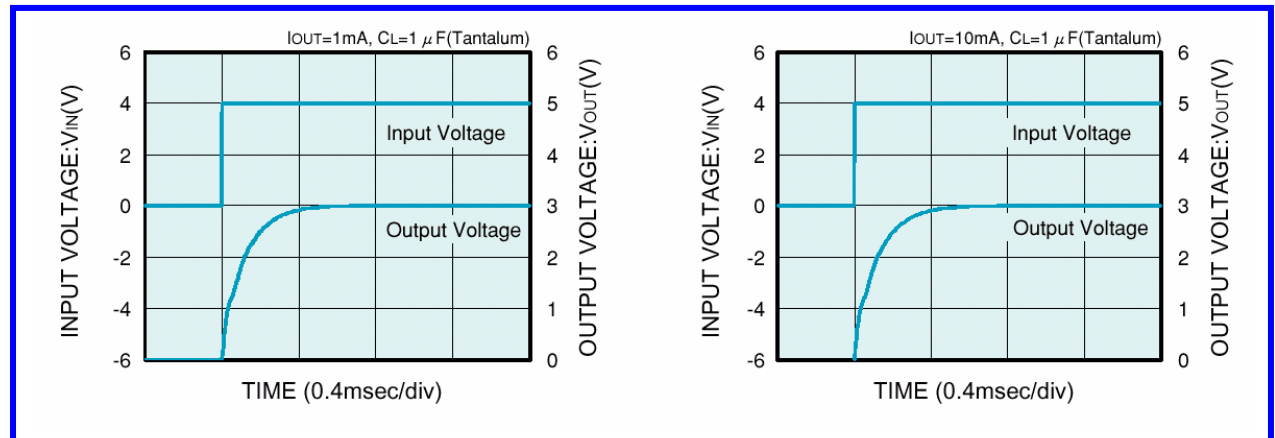
SOT-23		SOT-89	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">CXWW</div> C = B4250		<div style="border: 1px solid black; padding: 5px; display: inline-block;">B4250 XZYWW</div>	
Variables			
X = Voltage Codes	Z = Production Code	Y = Year	WW = Work Week Code
B = 2.0 C = 2.5 D = 2.8 E = 3.0	F = 3.3 G = 3.5 H = 5.0	01 = 2001 02 = 2002 03 = 2004 etc	SOT-23 = 01 to 99 SOT-89 = 01 to 52



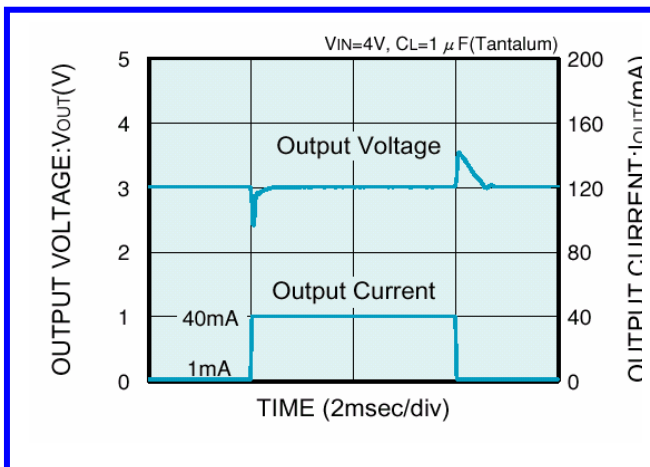
### Supply Current vs. Input Voltage (B4250-3.0)



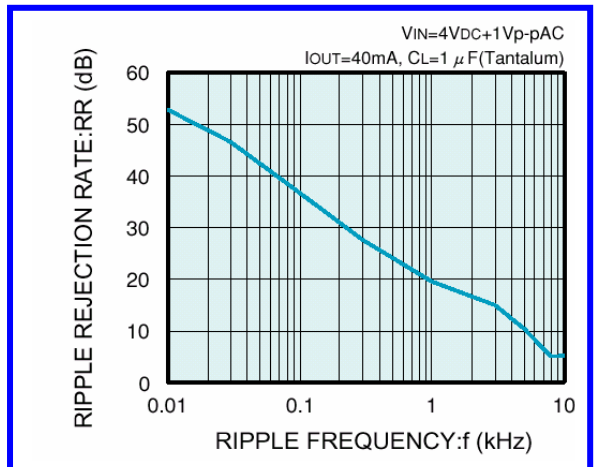
### Input Transient Response (B4250-3.0)



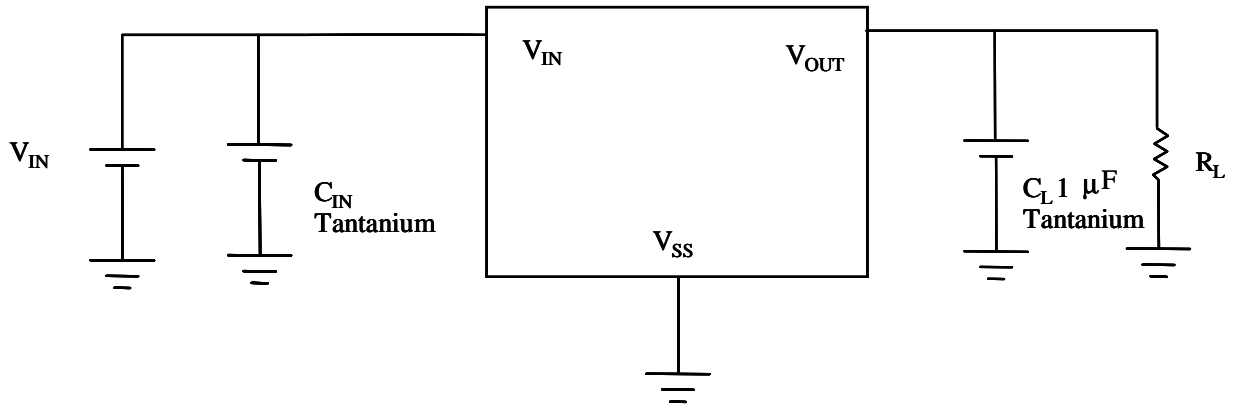
### Load Transient Response (B4250-3.0)



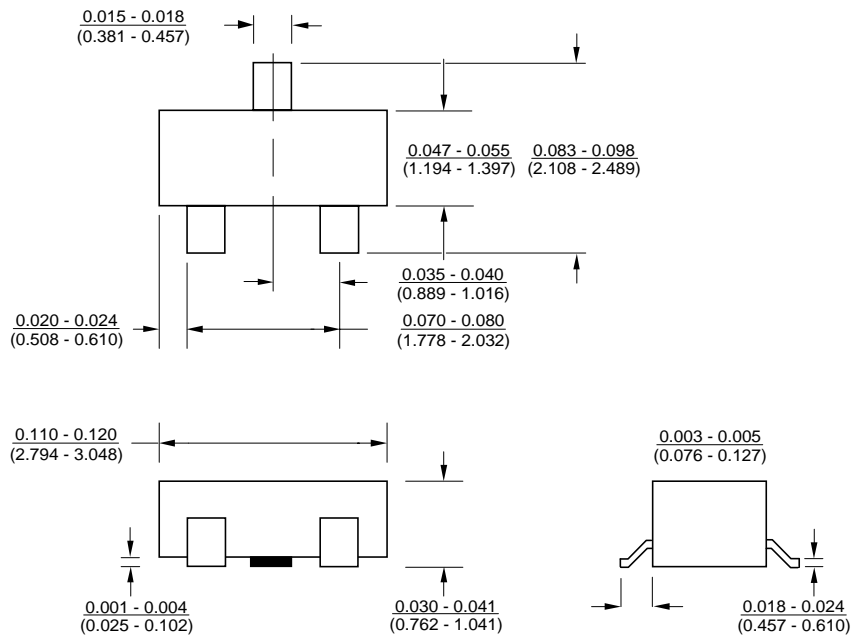
### Ripple Rejection Ratio (B4250-3.0)



STANDARD CIRCUIT



SOT-23



**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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