

## General Description

The XC6220B Series are a group of voltage regulators manufactured by CMOS technology with high ripple rejection, ultra-fast transient and low dropout voltage, which large output currents even when the difference of the input-output voltage is small. Each of the XC6220B of a high-precision voltage reference, error correction circuit, and a current limited output driver. Thus the series very suitable for the battery-powered equipments, wireless communication applications, industry equipments and so on.

## Features

- 25µA Ground Current at no Load
- ±2% Output Accuracy
- 900mA Output Current
- Wide Operating Input Voltage Range: 1.2V to 5.5V
- Dropout Voltage: 0.45V at 800mA/  $V_{OUT}$  3.3V
- Support Fixed Output Voltage 1.2V, 1.5V, 1.6V, 1.8V, 2.5V, 2.8V, 3.0V, 3.3V, 3.6V
- Stable with Ceramic or Tantalum Capacitor
- Current Limit Protection
- Over Temperature Protection
- SOT23-5 Packages

## Applications

- Battery powered systems
- Portable instrumentations
- PC peripherals
- CD/DVD-ROM, CD/RW
- Wireless devices
- Battery charger

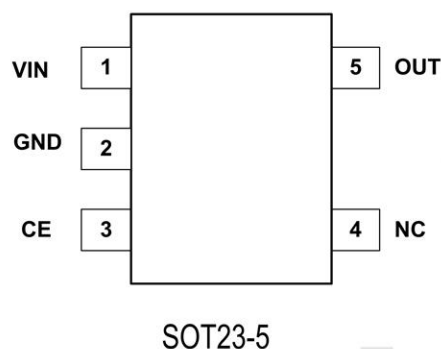
## Ordering Information

### XC6220B331MR

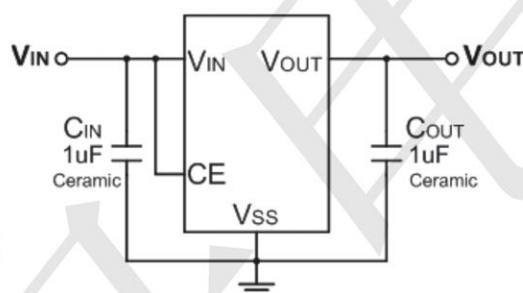
MR: SOT23-5 Package

Output voltage: 12=1.2V  
15=1.5V  
18=1.8V  
30=3.0V  
33=3.3V  
36=3.6V

## PIN CONFIGURATION



## Typical Application Circuit



## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage	$V_{IN}$	$V_{SS}-0.3 \sim V_{SS}+7$	V
Output Current	$I_{OUT}$	1000	mA
Output Voltage	$V_{OUT}$	$V_{SS}-0.3 \sim V_{IN}+0.3$	V
Power Dissipation	SOT23-5 $P_d$	250	mW
Operating Temperature	$T_{opr}$	-40~+85	°C
Storage Temperature	$T_{stg}$	-40~+125	°C
Soldering Temperature & Time	$T_{solder}$	260°C, 10s	

**Electrical Characteristics** ( $T_A=25\text{ C}$  unless otherwise noted)

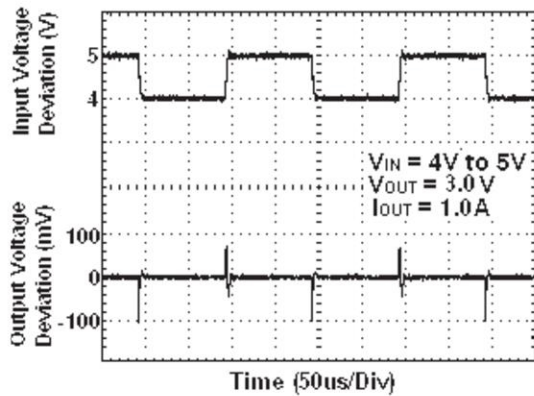
( $V_{IN}=V_{OUT}+1V, C_{IN}=C_{OUT}=4.7\mu F, T_a=25^\circ\text{C}$ )

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=100\text{mA}$	$V_{OUT}$ *0.98	$V_{OUT}$ (Note 1)	$V_{OUT}$ *1.02	V
Supply Current	$I_{SS}$				25	µA
Shutdown Current	$I_{SHDN}$	$V_{CE}=V_{SS}$		0.1	1.0	µA
Output Current	$I_{OUT}$	—		900		mA
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT}=300\text{mA}$		150		mV
	$V_{dif2}$	$I_{OUT}=800\text{mA}$		400		mV
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V,$ $1\text{mA}\leq I_{OUT}\leq 1.0\text{A}$		30		mV
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} * V_{OUT}}$	$I_{OUT}=100\text{mA}$ $V_{OUT}+1V\leq V_{IN}\leq 6V$		0.02	0.2	%/V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T * V_{OUT}}$	$I_{OUT}=100\text{mA}$ $-40^\circ\text{C}\leq T\leq +85^\circ\text{C}$		50		ppm/ °C
Short Current	$I_{short}$	$V_{OUT}=V_{SS}$		200		mA
Input Voltage	$V_{IN}$	—	2.0		6.0	V
Power Supply Rejection Rate	1KHz	PSRR	$I_{OUT}=100\text{mA}$	70		dB
	10KHz			50		
CE "High" Voltage	$V_{CE}\text{"H"}$		0.6			V
CE "Low" Voltage	$V_{CE}\text{"L"}$				0.3	V
Thermal Shutdown Temperature	$T_{SD}$			150		°C
Thermal Shutdown Temperature Hysteresis	$\Delta T_{SD}$			30		°C

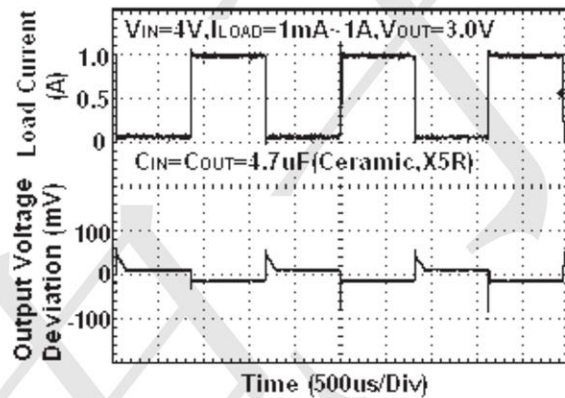


### Typical Characteristics

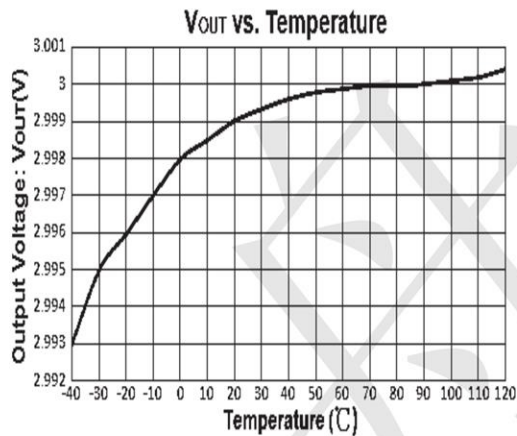
(1) Input Transient Response



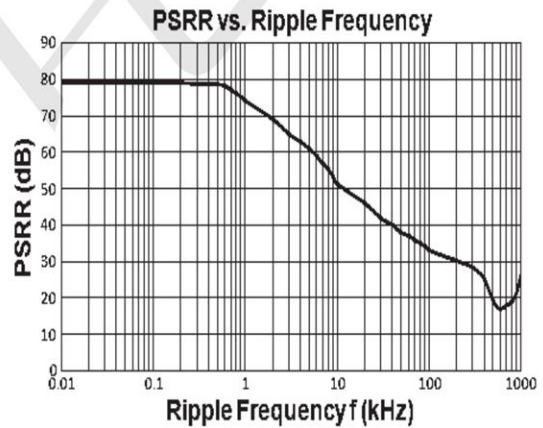
(2) Load Transient Response



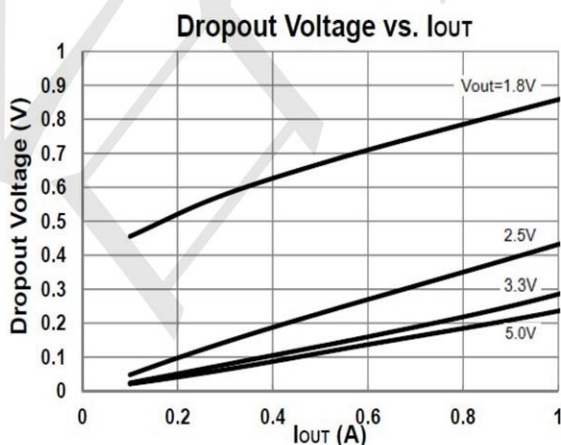
(3) Output Voltage vs. Temperature



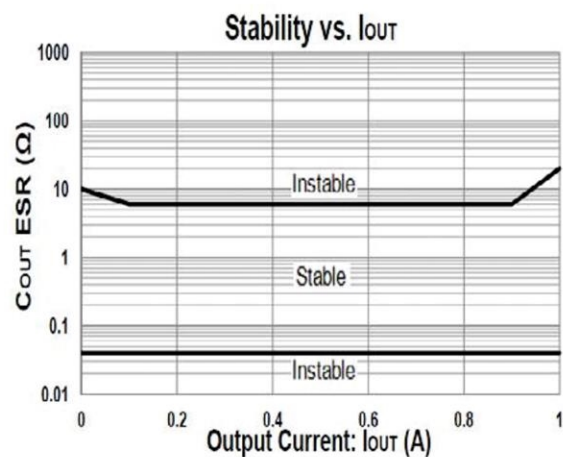
(4) Power Supply Rejection Ratio



(5) Dropout Voltage vs. Output Current



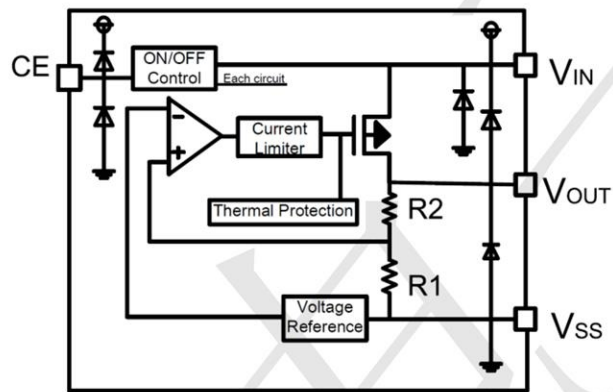
(6) Region of Stable  $C_{OUT}$  ESR vs. Load







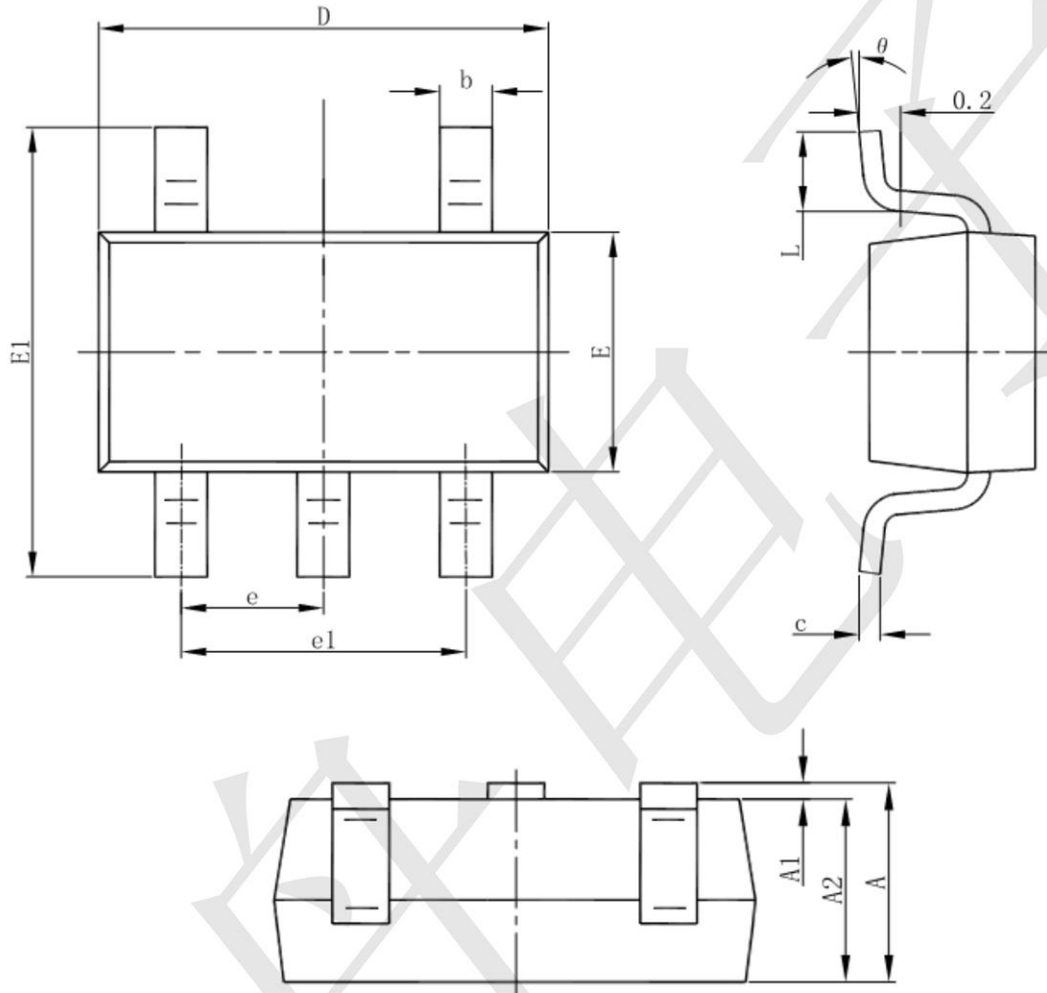
**BLOCK DIAGRAM**





**Package informantion**

SOT23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°