



General Description

The XC6201Pxx2PR-G series is a group of positive voltage output, three-pin regulators, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The XC6201Pxx2PR-G consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing SOT-89 package are available.

Features

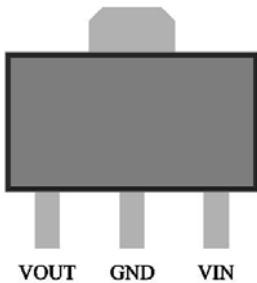
- Low voltage drop: 0.17V@100mA
- High input voltage: 12V
- Low temperature coefficient
- Large Output Current: >0.5A
- Low Quiescent Current: 2.0uA
- Output Voltage Accuracy: tolerance $\pm 2\%$
- Built-in current limiter
- SOT-89 package

Application

- Battery-powered equipment
- Hand-Hold Equipment
- GRS Receivers
- Wireless LAN

Pin Configuration And Descriptions

SOT89 (Top view)



Order Information

| Orderable Device | Package | Output Voltage | Packing Option |
|------------------|---------|--------------------------|----------------|
| XC6201Pxx2PR-G | SOT-89 | 3.0V,3.3V,4.0V,4.5V,5.0V | 1000/Reel |

xx:From 30-50

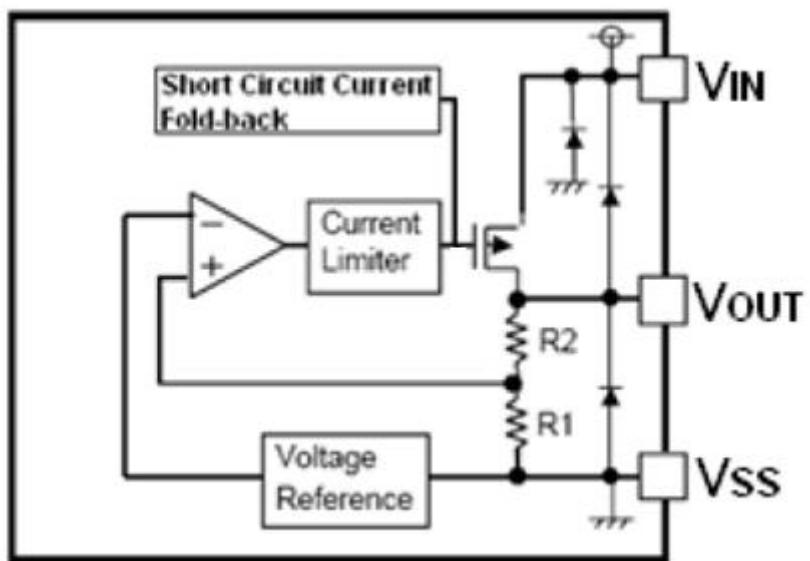


Absolute Maximum Ratings

| Description | Symbol | Value Range | Unit |
|--------------------------------------|------------------|-------------|------|
| Supply Voltage | V _{IN} | -0.3~+15 | V |
| Storage Temperature Range | T _{STG} | -40~+125 | °C |
| Operating Free-air Temperature Range | T _A | -40~+85 | °C |

Note:Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Block Diagram





DC Characteristics (unless otherwise noted $T_A = 25^\circ\text{C}$)

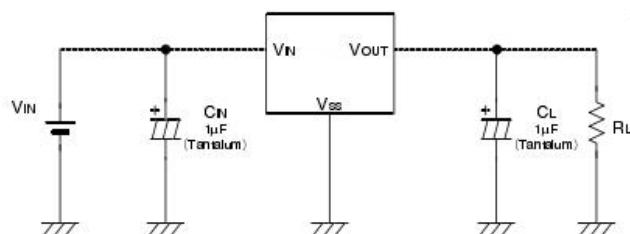
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|-------------------------|-----------|-----------------------|--------|
| Output Voltage | V_{out} | $V_{in}=V_{out}+1\text{V}$ $1.0\text{mA} \leq I_{out} \leq 30\text{mA}$ | $V_{out} \times 0.98$ | - | $V_{out} \times 1.02$ | V |
| Output Current*1 | I_{out} | $V_{in}-V_{out}=1\text{V}$ | -- | 250 | -- | mA |
| Low dropout*2 | V_{drop} | | Refer to the next table | | | |
| Line Regulation | $\frac{\Delta V_{out}}{\Delta V_{in} \times V_{out}}$ | $1.6\text{V} \leq V_{in} \leq 8\text{V}$ $I_{out}=100\text{mA}$ | -- | 0.05 | 0.2 | %/V |
| Load Regulation | ΔV_{out} | $V_{in}=V_{out}+1\text{V}$ $1.0\text{mA} \leq I_{out} \leq 100\text{mA}$ | -- | 12 | 30 | mV |
| Output voltage Temperature Coefficiency | $\frac{\Delta V_{out}}{\Delta T_a}$ | $I_{out}=30\text{mA}$ $0^\circ\text{C} \leq T_a \leq 70^\circ\text{C}$ | -- | ± 100 | -- | Ppm/°C |
| Supply Current | I_{ss1} | -- | -- | 2 | -- | uA |
| Input Voltage | V_{in} | -- | -- | -- | 15 | V |

Electrical Characteristics by Output Voltage:

| Output Voltage V_{out} (V) | Dropout Voltage V_{dif} (V) | | |
|------------------------------|-------------------------------|------|------|
| | Conditions | Typ. | Max. |
| $V_{out} \leq 2.0\text{V}$ | $I_{out}=60\text{ mA}$ | 0.1 | 0.12 |
| $2.0 < V_{out} \leq 3.0$ | $I_{out}=80\text{ mA}$ | 0.12 | 0.14 |
| $3.0 < V_{out} \leq 4.0$ | $I_{out}=100\text{ mA}$ | 0.16 | 0.18 |
| $4.0 < V_{out} \leq 5.0$ | | 0.17 | 0.18 |
| $3.0 < V_{out} \leq 4.0$ | $I_{out}=200\text{ mA}$ | 0.21 | 0.24 |
| $4.0 < V_{out} \leq 14.0$ | | 0.20 | 0.22 |
| $3.0 < V_{out} \leq 4.0$ | $I_{out}=500\text{ mA}$ | 0.7 | 0.75 |
| $4.0 < V_{out} \leq 14.0$ | | 0.72 | 0.76 |

Application Circuit

Basic Circuits



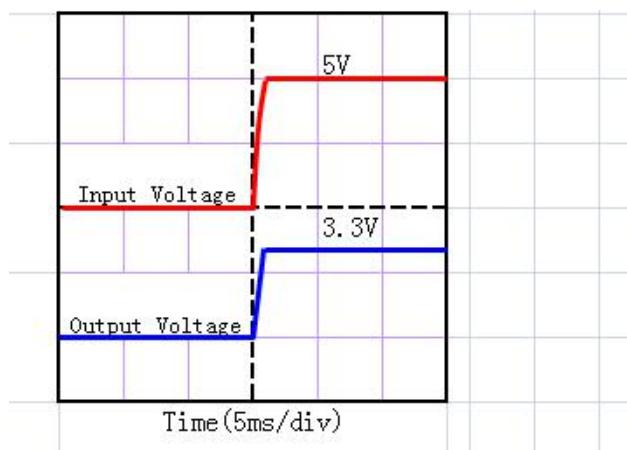
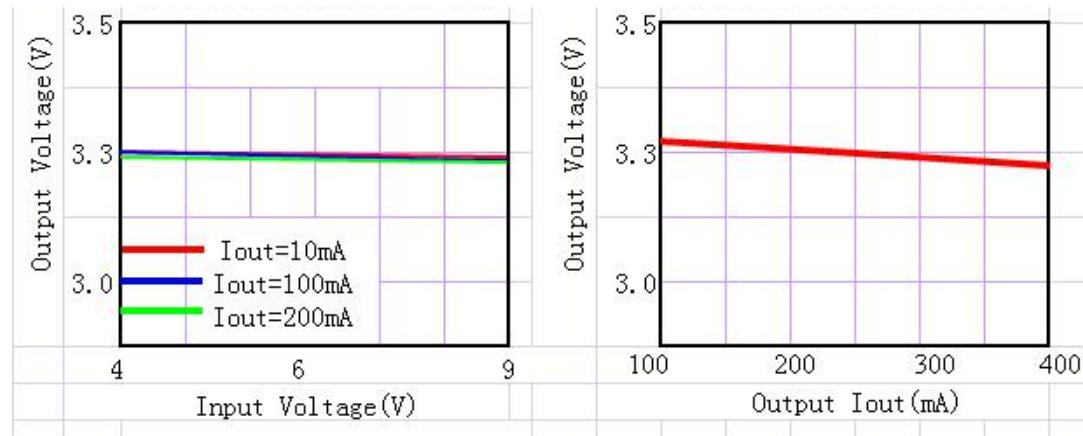
Note1:Input capacitor $C_{IN}=1\mu\text{F}$.

Note2:Output capacitor $C_{OUT}=1\mu\text{F}/6.8\mu\text{F}(1\mu\text{F}$ Tantalum capacitor or $6.8\mu\text{F}$ ceramic capacitor is recommended).

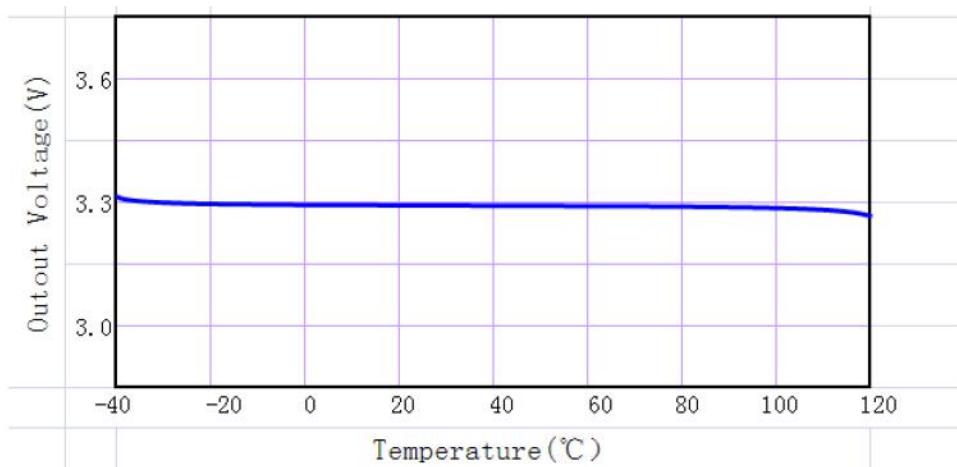


Typical Characteristics

(1) Output Voltage vs Input voltage and Output Voltage vs. Output Current and Input Transient Response

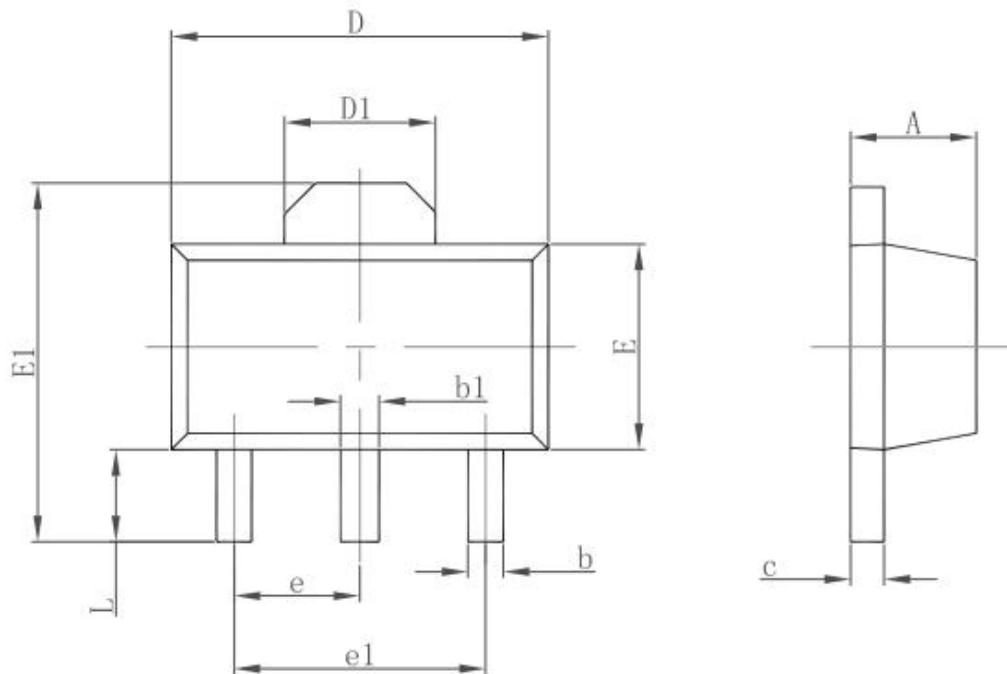


(2) Output Voltage vs. Ambient Temperature





Package Outline Dimensions
SOT-89



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF. | | 0.061 REF. | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP. | | 0.060 TYP. | |
| e1 | 3.000 TYP. | | 0.118 TYP. | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |



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