

XC6206

300mA Low Power LDO

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 5uA at 6V
- Output voltage accuracy: tolerance $\pm 2\%$

Applications

- Battery-powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

General Description

XC6206 series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage .

The XC6206 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is

compatible with low ESR ceramic capacitors. The current limiter's foldback circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 3.0V to 3.6V. XC6206 series are available in SOT-23 package.

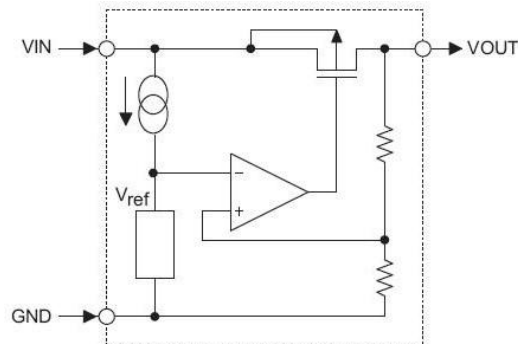
Order Information

XC6206-①②③④

| Designator | Symbol | Description |
|------------|---------|--------------------------|
| ①② | Integer | Output Voltage(3.0~3.6V) |
| ③ | N | Package:SOT23 |
| ④ | R | RoHS / Pb Free |
| | G | Halogen Free |

Note: "①②" stands for output voltages. Other voltages can be specially customized

Block Diagram



XC6206

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Pin Assignment

SOT23 (Top View)

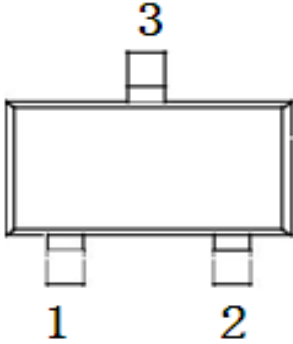
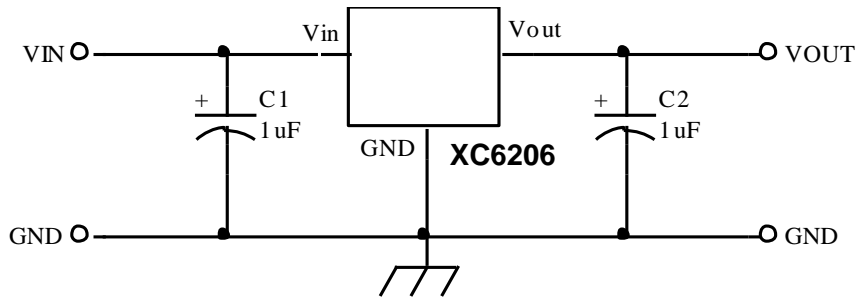


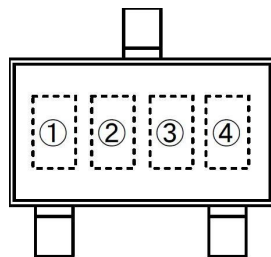
Table1: XC6206 series (SOT23 PKG)

| PIN NO. | PIN NAME | FUNCTION |
|---------|----------|--------------------|
| 1 | GND | GND pin |
| 2 | VOUT | Output voltage pin |
| 3 | VIN | Input voltage pin |

Typical Application



Marking Rule



SOT-23
(TOP VIEW)

① represents product number

| MARK | PRODUCT SERIES |
|------|----------------|
| 6 | XC6206 |

② represents 3 pins regulator

| MARK | | PRODUCT SERIES |
|------------------|-------------------|----------------|
| VOLTAGE=0.1~3.0V | VOLTAGE=3.1V~6.0V | |
| 5 | 6 | XC6206 |

XC6206

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③ represents output voltage

| MARK | VOLTAGE(V) | | | MARK | VOLTAGE(V) | | |
|------|------------|-----|---|------|------------|-----|---|
| 0 | - | 3.1 | - | F | 1.6 | 4.6 | - |
| 1 | - | 3.2 | - | H | 1.7 | 4.7 | - |
| 2 | - | 3.3 | - | K | 1.8 | 4.8 | - |
| 3 | - | 3.4 | - | L | 1.9 | 4.9 | - |
| 4 | - | 3.5 | - | M | 2.0 | 5.0 | - |
| 5 | - | 3.6 | - | N | 2.1 | - | - |
| 6 | - | 3.7 | - | P | 2.2 | - | - |
| 7 | - | 3.8 | - | R | 2.3 | - | - |
| 8 | - | 3.9 | - | S | 2.4 | - | - |
| 9 | - | 4.0 | - | T | 2.5 | - | - |
| A | - | 4.1 | - | U | 2.6 | - | - |
| B | 1.2 | 4.2 | - | V | 2.7 | - | - |
| C | 1.3 | 4.3 | - | X | 2.8 | - | - |
| D | 1.4 | 4.4 | - | Y | 2.9 | - | - |
| E | 1.5 | 4.5 | - | Z | 3.0 | - | - |

④ Z

Absolute Maximum Ratings

| Parameter | | Symbol | Ratings | Units |
|-----------------------------|---------|-----------|------------------------------|-------|
| Input Voltage | | V_{IN} | 8 | V |
| Output Current | | I_{OUT} | 300* | mA |
| Output Voltage | | V_{OUT} | $V_{SS}-0.3 \sim V_{IN}+0.3$ | V |
| Power Dissipation | SOT-23 | P_d | 0.20 | W |
| | SOT23-3 | | 0.25 | W |
| | SOT-89 | | 0.50 | W |
| | USP-6B | | 0.10 | W |
| | TO-92 | | 0.50 | W |
| Operating Temperature Range | | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | | T_{stg} | -55~+125 | °C |

* $I_{OUT}=P_d/(V_{IN}-V_{OUT})$

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Electrical Characteristics

XC6206 for any output voltage

(Ta=25°C)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---------------------------------|---------------|------|---------------|--------|
| Output Voltage | Vout | Vin=Vout+1V 1.0mA≤Iout≤30mA | Vout×0.9 8 | -- | Vout×1.0 2 | V |
| Output Current*1 | Iout | Vin-Vout=1V | -- | 300 | -- | mA |
| Low dropout*2 | Vdrop | Refer to the next table | | | | |
| Line Regulation | $\Delta V_{out}/(V_{in} \cdot V_{out})$ | 1.6V≤Vin≤8V Iout=40mA | -- | 0.05 | 0.2 | %/V |
| Load Regulation | $\Delta V_{out} / \Delta I_{out}$ | Vin= Vout+1V 1.0mA≤Iout≤80mA | -- | 12 | 30 | mV |
| Output voltage Temperature Coefficiency | $\Delta V_{out}/(T_a \cdot V_{out})$ | Iout=30mA 0°C≤Ta≤70°C | -- | ±100 | -- | Ppm/°C |
| Supply Current | Iss | -- | -- | 5 | 8 | uA |
| Input Voltage | Vin | -- | -- | 6 | 8 | V |
| PSRR | PSRR | F=1KHz Vin=Vout+1V | -- | 50 | -- | dB |
| Output Noise | EN | BW=10Hz~ 100KHz | -- | 30 | -- | uVrms |

Electrical Characteristics by Output Voltage:

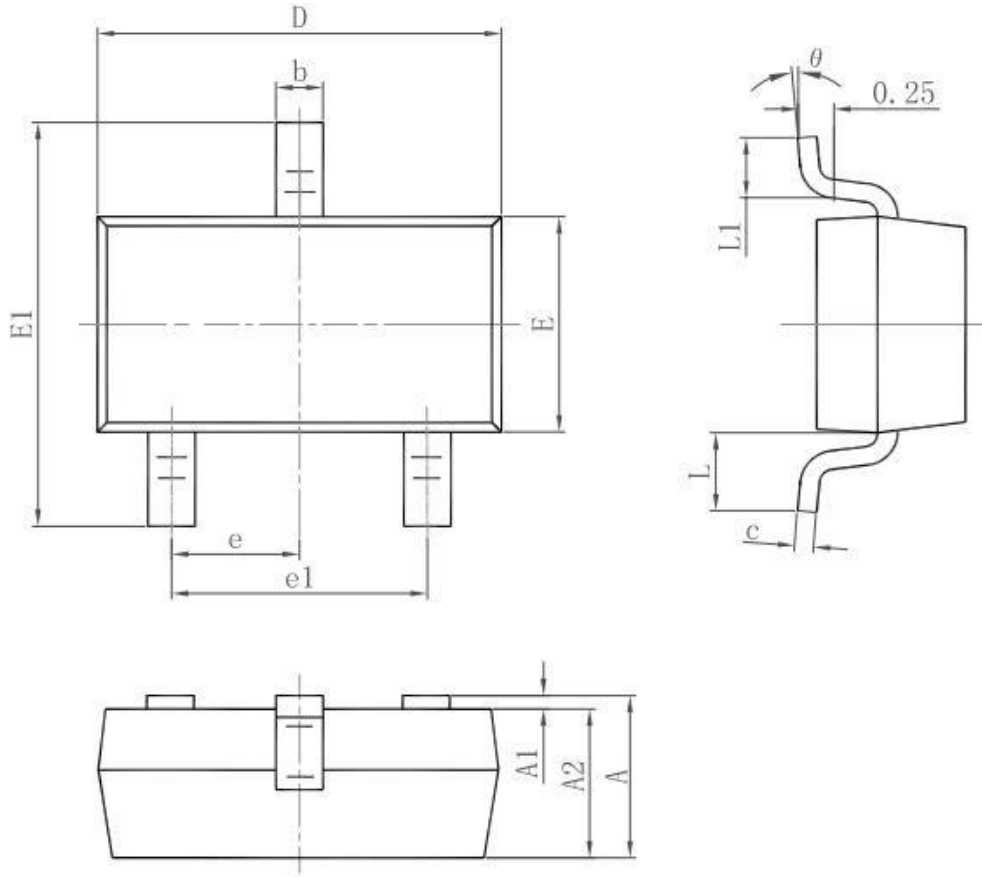
| Output Voltage Vout(V) | Dropout Voltage Vdif (V) | | |
|---------------------------|--------------------------|------|------|
| | Conditions | Typ. | Max. |
| Vout≤1.5V | Iout=100 mA | 0.50 | 0.68 |
| 1.8 ≤ Vout ≤ 2 | | 0.39 | 0.53 |
| 2.8 ≤ Vout ≤ 5.0 | | 0.28 | 0.39 |

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Package Information

3-pin SOT23 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |