Preliminary

- **CMOS Low Power Consumption**
- **Operating Voltage Range : up to 20V**
- **Dropout Voltage : 0.20V @ 30mA**
- **Maximum Output Current ： more than 100mA**
- **Highly Accurate : ± 2%**
- **Output Voltage Range : 1.8V to 15.0V**
- **Current Limiter Circuit Built-In**
- **SOT-23 / SOT-89 Package**

■ Applications

- Battery Powered Equipment
- Reference Voltage Sources
- Cameras, Video Cameras
- Palmtops

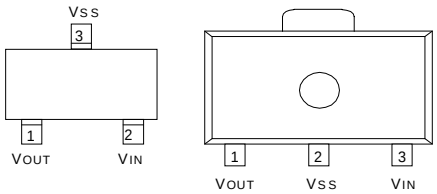
■ General Description

The XC6202 series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The XC6202 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit.
Since the current limiter circuit is built-in, the IC is protected against overshoot currents at such times of output shorts etc.
SOT-23 (150mW) and SOT-89 (500mW) packages are available.

■ Features

Maximum Output Current : 100mA
Dropout Voltage : 0.20V @ 30mA
Operating Voltage Range : up to 20V
Output Voltage Range : 1.8V to 6.0V (selectable in 0.1V steps)
8.0V, 12V & 15V also possible
Highly Accurate : ± 2%
Low Power Consumption : TYP 7.0 μA (5.0V)
Output VoltageTemp. Characteristics : TYP ± 100ppm/°C
Input Stability : TYP 0.2% / V
Ultra Small Packages : SOT-23 (150mW), SOT-89 (500mW)

■ Pin Configuration



SOT-23 (TOP VIEW)　SOT-89 (TOP VIEW)

■ Pin Assignment

PIN NUMBER		PIN NAME	FUNCTION
SOT-23	SOT-89		
1	1	VOUT	Output
3	2	VSS	Ground
2	3	VIN	Power Input

■ Absolute Maximum Ratings

Ta = 25°C

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		VIN	22	V
Output Current		IOUT	500	mA
Output Voltage		VOUT	VSS -0.3 to VIN +0.3	V
Continuous Total Power Dissipation	SOT-23	Pd	150	mW
	SOT-89	Pd	500	
Operating Ambient Temperature		Topr	-40 to +85	°C
Storage Temperature		Tstg	-40 to +125	°C

Preliminary

■ Electrical Characteristics

3.0V Part, $V_{OUT}(T)$ = 3.0V (Note 1) Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT}(E)$ (Note2)	I_{OUT}=30mA V_{IN}=4.0V	2.940	3.000	3.060	V
Maximum Output Current	I_{OUT} max	V_{IN}=4.0V, $V_{OUT}(E) \geq$ 2.7V		100		mA
Load Stability	ΔV_{OUT}	V_{IN}=4.0V ; 1mA≤ $I_{OUT} \leq$ 30mA		9		mV
Dropout Voltage(Note 3)	Vdif 1	I_{OUT}=30mA		200		mV
Supply Current	I_{SS}	V_{IN}=4.0V		7.0		μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT}=1mA 4.0V≤ $V_{IN} \leq$ 20.0V		0.2		%/V
Input Voltage	V_{IN}				20	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta Topr \bullet V_{OUT}}$	I_{OUT}=30mA -40°C ≤ Topr ≤ 85°C		± 100		ppm/°C

5.0V Part, $V_{OUT}(T)$ = 5.0V (Note 1) Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT}(E)$ (Note2)	I_{OUT}=30mA V_{IN}=6.0V	4.900	5.000	5.100	V
Maximum Output Current	I_{OUT} max	V_{IN}=6.0V, $V_{OUT}(E) \geq$ 4.5V		100		mA
Load Stability	ΔV_{OUT}	V_{IN}=6.0V ; 1mA≤ $I_{OUT} \leq$ 30mA		12		mV
Dropout Voltage(Note 3)	Vdif 1	I_{OUT}=30mA		200		mV
Supply Current	I_{SS}	V_{IN}=6.0V		7.0		μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT}=1mA 6.0V≤ $V_{IN} \leq$ 20.0V		0.2		%/V
Input Voltage	V_{IN}				20	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta Topr \bullet V_{OUT}}$	I_{OUT}=30mA -40°C ≤ Topr ≤ 85°C		± 100		ppm/°C

12.0V Part, $V_{OUT}(T)$ = 12.0V (Note 1) Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT}(E)$ (Note2)	I_{OUT}=30mA V_{IN}=13.0V	11.760	12.000	12.240	V
Maximum Output Current	I_{OUT} max	V_{IN}=13.0V, $V_{OUT}(E) \geq$ 10.8V		100		mA
Load Stability	ΔV_{OUT}	V_{IN}=13.0V ; 1mA≤ $I_{OUT} \leq$ 30mA		23		mV
Dropout Voltage(Note 3)	Vdif 1	I_{OUT}=30mA		200		mV
Supply Current	I_{SS}	V_{IN}=13.0V		10		μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT}=1mA 13.0V≤ $V_{IN} \leq$ 20.0V		0.2		%/V
Input Voltage	V_{IN}				20	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta Topr \bullet V_{OUT}}$	I_{OUT}=30mA -40°C ≤ Topr ≤ 85°C		± 100		ppm/°C

15.0V Part, $V_{OUT}(T)$ = 15.0V (Note 1) Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Output Voltage	$V_{OUT}(E)$ (Note2)	I_{OUT}=30mA V_{IN}=16.0V	14.700	15.000	15.300	V
Maximum Output Current	I_{OUT} max	V_{IN}=16.0V, $V_{OUT}(E) \geq$ 14.4V		100		mA
Load Stability	ΔV_{OUT}	V_{IN}=16.0V ; 1mA≤ $I_{OUT} \leq$ 30mA		27		mV
Dropout Voltage(Note 3)	Vdif 1	I_{OUT}=30mA		200		mV
Supply Current	I_{SS}	V_{IN}=16.0V		11		μA
Input Stability	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \bullet V_{OUT}}$	I_{OUT}=1mA 16.0V≤ $V_{IN} \leq$ 20.0V		0.2		%/V
Input Voltage	V_{IN}				20	V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta Topr \bullet V_{OUT}}$	I_{OUT}=30mA -40°C ≤ Topr ≤ 85°C		± 100		ppm/°C

Note : 1. $V_{OUT}(T)$ = Specified Output Voltage.
2. $V_{OUT}(E)$ = Effective Output Voltage (i.e. the output voltage when "$V_{OUT}(T)$+1.0V" is provided at the V_{IN} pin while maintaining a certain I_{OUT} value).
3. Vdif = V_{IN1} - V_{OUT1}
4. $V_{OUT}1$ = A voltage equal to 98% of the output voltage when "$V_{OUT}(T)$+1.0V" is input.e
5. $V_{IN}1$ = The input voltage when V_{OUT1} is output following a gradual decrease in the input voltage.