

■ Low ESR Cap.Compatible Positive Voltage Regulators

■ Features

Maximum Output Current	: 250mA (5.0V type)
Dropout Voltage	: 160mV @ I _{OUT} =100mA (5.0V type)
Maximum Operating Voltage	: 6.0V
Output Voltage Range	: 1.2V ~ 5.0V (100mV steps)
Highly Accurate	: ±2% (±30mV@V _{OUT} <1.5V) (±1% @V _{OUT} ≥2.0V)
Low Power Consumption	: 1.0μA (TYP.)
Operational Temperature Range	: -40°C ~ 85°C
Ultra Small Package	: SOT-23
Low ESR Capacitor	: Ceramic capacitor compatible

- CMOS Low Power Consumption
- Dropout Voltage : 160mV @ 100mA
: 400mV @ 200mA
- Output Current : More Than 250mA (5.0V type)
- Highly Accurate : ±2%
- Output Voltage Range : 1.2V ~ 5.0V
- Low ESR Capacitor Compatible

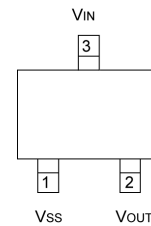
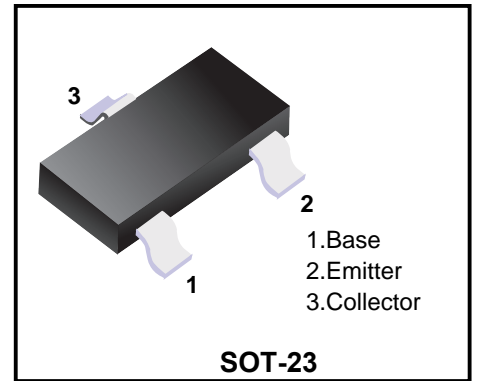
■ General Description

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

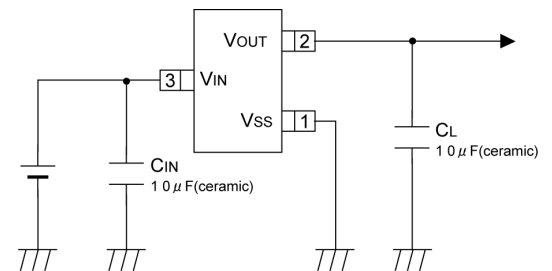
The XC6206 consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit.

The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin. Output voltage can be set internally by laser trimming technologies. It is selectable in 100mV increments within a range of 1.2V to 5.0V.

SOT-23



SOT-23
(TOP VIEW)



■ Applications

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

■ Absolute Maximum Ratings Ta=25°C

PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage	V _{IN}	7.0	V
Output Current	I _{OUT}	500 *	mA
Output Voltage	V _{OUT}	V _{SS} - 0.3 ~ V _{IN} + 0.3	V
Power Dissipation	SOT-23	250	mW
Operating Temperature Range	Topr	- 40 ~ + 85	°C
Storage Temperature Range	Tstg	- 55 ~ + 125	°C

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

■ Electrical Characteristics Ta = 25°C

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS	CIRCUIT
Output Voltage (*7)	V _{OUT(E)}	I _{OUT} =30mA	x 0.98	V _{OUT(T)} E-1	x 1.02	V	①
Maximum Output Current	I _{OUTMAX}		-	-	E-2	mA	①
Load Regulation	ΔV _{OUT}	V _{OUT(T)} >1.8V, 1mA ≤ I _{OUT} ≤ 100mA V _{OUT(T)} ≤ 1.8V, 1mA ≤ I _{OUT} ≤ 50mA	-	-	E-3	mV	①
Dropout Voltage	V _{dif1}	I _{OUT} =30mA	-	E-4		mV	①
	V _{dif2}	V _{OUT(T)} >1.8V: I _{OUT} =100mA V _{OUT(T)} ≤ 1.8V: I _{OUT} =60mA	-	E-5		mV	
Supply Current	I _{DD}	V _{CE} =V _{IN}	-	1.0	3.0	μA	②
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	V _{OUT(T)} <4.5V: V _{OUT(T)} +1.0V ≤ V _{IN} ≤ 6.0V V _{OUT(T)} ≥ 4.5V: 5.5V ≤ V _{IN} ≤ 6.0V I _{OUT} =30mA	-	0.05	0.25	%/V	①
Input Voltage	V _{IN}		1.8	-	6.0	V	-
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T_{opr}} \cdot V_{OUT}$	I _{OUT} =30mA -40 °C ≤ Topr ≤ 85 °C	-	±100	-	ppm/ °C	①
Short Circuit Current	I _{short}	V _{IN} =V _{OUT} +1.5V, V _{OUT} =V _{SS}	-	E-6	-	mA	①

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 : V_{dif} = {V_{IN} 1⁽⁵⁾ + V_{OUT} 1⁽⁴⁾}

* 4 : V_{OUT1} = A voltage equal to 98% of the output voltage whenever an amply stabilized I_{OUT} {V_{OUT(T)} + 1.0V} is input.

* 5 : V_{IN} 1 = The input voltage when V_{OUT1} appears as input voltage is gradually decreased.

* 6 : Unless otherwise stated, V_{IN} = V_{OUT(T)} + 1.0V

* 7 : When V_{OUT(T)} ≥ 1.5V, accuracy is ±2%.

When V_{OUT(T)} < 1.5V, accuracy is MIN.: V_{OUT(T)} - 30mV / MAX.: V_{OUT(T)} + 30mV

+1% accuracy (MIN.: V_{OUT(T)} x 0.99 / MAX.: V_{OUT(T)} x 1.01) is set at V_{OUT(T)} ≥ 2.0V

■ Electrical Characteristics(Continued)

PARAMETER SETTING VOLTAGE	E-1				E-2	E-3	E-4		E-5		E-6
	OUTPUT VOLTAGE				MAX. OUTPUT CURRENT	LOAD REGULATION	DROPOUT VOLTAGE 1		DROPOUT VOLTAGE 2		SHORT CURRENT
	2% ACCURACY		1% ACCURACY				Vdif1		Vdif2		
VOUT(T)	VOUT(E) (V)		VOUT(E) (V)		IOUTMAX (mA)	ΔVOUT	Vdif1		Vdif2		Ishort
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.
1.2	1.170	1.230			60	40	460	760	700	960	180
1.3	1.270	1.330					400	650			
1.4	1.370	1.430					350	590			
1.5	1.470	1.530					300	510			
1.6	1.568	1.632			80	45	250	450	450	810	155
1.7	1.666	1.734					200	410			
1.8	1.764	1.836					150	390			
1.9	1.862	1.938									
2.0	1.960	2.040	1.980	2.020	120	50	100	370	350	710	130
2.1	2.058	2.042	2.079	2.121							
2.2	2.156	2.244	2.178	2.222							
2.3	2.254	2.346	2.277	2.323							
2.4	2.352	2.448	2.376	2.424	150	55					
2.5	2.450	2.550	2.475	2.525							
2.6	2.548	2.652	2.574	2.626							
2.7	2.646	2.754	2.673	2.727							
2.8	2.744	2.856	2.772	2.828	200	60	75	350	250	680	100
2.9	2.842	2.958	2.871	2.929							
3.0	2.940	3.060	2.970	3.030							
3.1	3.038	3.162	3.069	3.131							
3.2	3.136	3.264	3.168	3.232	250	70	60	320	200	630	
3.3	3.234	3.366	3.267	3.333							
3.4	3.332	3.468	3.366	3.434							
3.5	3.430	3.570	3.465	3.535							
3.6	3.528	3.672	3.564	3.636	250	75					
3.7	3.626	3.774	3.663	3.737							
3.8	3.724	3.876	3.762	3.838							
3.9	3.822	3.978	3.861	3.939							
4.0	3.920	4.080	3.960	4.040	250	80	50	290	175	600	
4.1	4.018	4.182	4.059	4.141							
4.2	4.116	4.284	4.158	4.242							
4.3	4.214	4.386	4.257	4.343							
4.4	4.312	4.488	4.356	4.444	250	75					
4.5	4.410	4.590	4.455	4.545							
4.6	4.508	4.692	4.554	4.646							
4.7	4.606	4.794	4.653	4.747							
4.8	4.704	4.896	4.752	4.848	250	80	50	290	175	600	
4.9	4.802	4.998	4.851	4.949							
5.0	4.900	5.100	4.950	5.050							

Ordering information

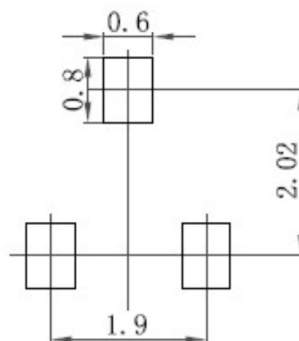
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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