XC6206P122MR

Low ESR Cap.Compatible Positive Voltage Regulators

Features

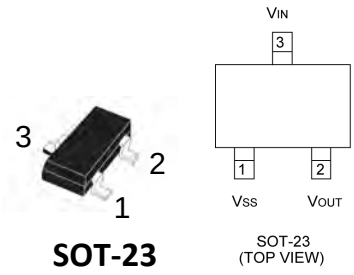
Maximum Output Current	: 250mA (5.0V type)
Dropout Voltage	: 160mV @ IOUT=100mA (5.0V type)
Maximum Operating Voltage	: 6.0V
Output Voltage Range	: 1.5V（100mV steps）
Highly Accurate	: ±2% (±30mV@VOUT<1.5V) (±1% @VOUT≧2.0V)
Low Power Consumption	: 1.0μA (TYP.)
Operational Temperature Range	: -40°C ~ 85°C
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
Low ESR Capacitor Compatible

Applications

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





SOT-23

General Description

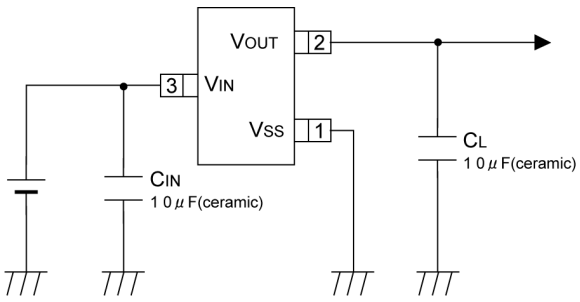
The XC6206P122MR series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The XC6206P122MR 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 currrent 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 1.5V.



Absolute Maximum Ratings Ta=25℃

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℃

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	$\triangle V_{OUT}$	$V_{OUT(T)}$>1.8V, 1mA≦I_{OUT}≦100mA $V_{OUT(T)}$≦1.8V, 1mA≦I_{OUT}≦50mA	-	-	E-3	mV	①
Dropout Voltage	Vdif1	I_{OUT}=30mA	-	E-4		mV	①
	Vdif2	$V_{OUT(T)}$>1.8V: I_{OUT}=100mA $V_{OUT(T)}$≦1.8V: I_{OUT}=60mA	-	E-5		mV	
Supply Current	I_{DD}	VCE=VIN	-	1.0	3.0	μA	②
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	$V_{OUT(T)}$<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	$\frac{\triangle V_{OUT}}{\triangle Topr \cdot V_{OUT}}$	I_{OUT}=30mA -40 °C≦Topr≦85 °C	-	±100	-	ppm/ °C	①
Short Circuit Current	Ishort	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 (Ie. 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_{IN} 1(*5) + V_{OUT} 1(*4) }
* 4 : V_{OUT}1 = 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_{OUT}1 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

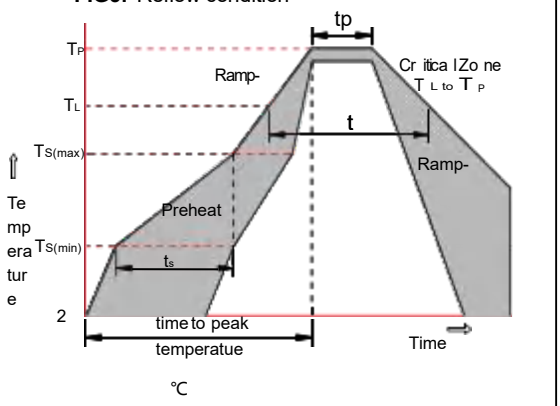
ElectricalCharacteristics(Continued)

	E-1				E-2	E-3	E-4		E-5		E-6
PARAMETER / SETTING VOLTAGE	OUTPUT VOLTAGE				MAX. OUTPUT CURRENT	LOAD REGULATION	DROPOUT VOLTAGE 1		DROPOUT VOLTAGE 2		SHORT CURRENT
	2% ACCURACY		1% ACCURACY								
$V_{OUT(T)}$	$V_{OUT(E)}$ (V)		$V_{OUT(E)}$ (V)		I_{OUTMAX} (mA)	$\triangle V_{OUT}$	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

Soldering parameters

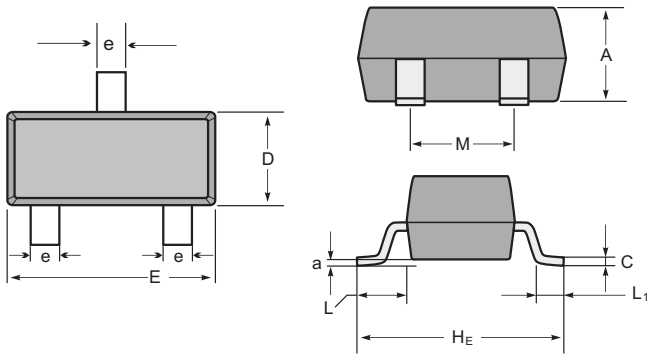
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

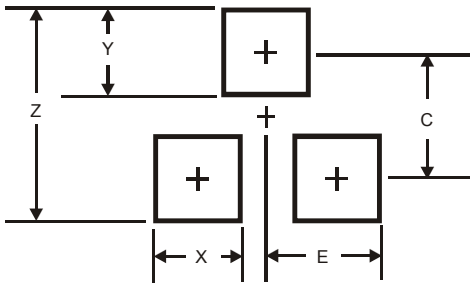
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23





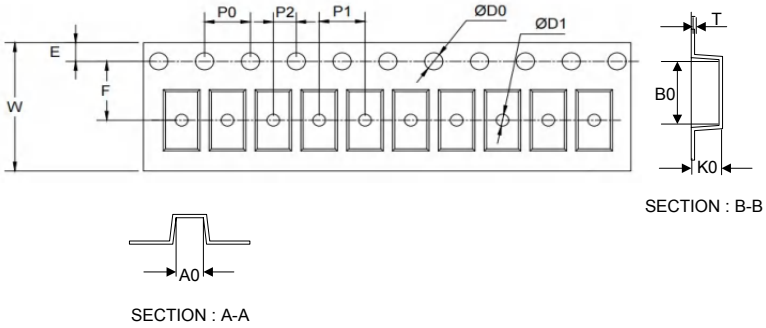
SOT-23 mechanical data

UNIT		A	C	D	E	H_E	e	M	L	L_1	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & rell specification

Tape

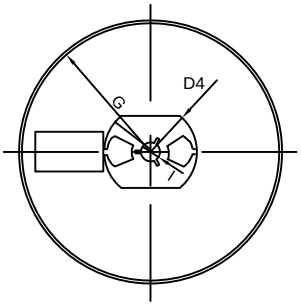


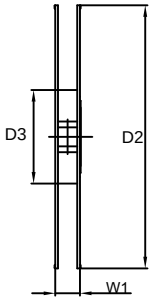
SECTION : B-B

SECTION : A-A

Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05

7” Reel





D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0
Quantity: 3000PCS	