

Features

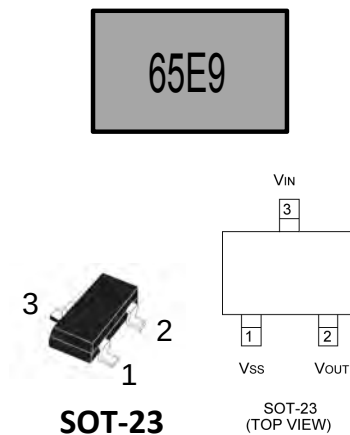
Maximum Output Current	: 250mA (5.0V type)
Dropout Voltage	: 160mV @ I _{OUT} =100mA (5.0V type)
Maximum Operating Voltage	: 6.0V
Output Voltage Range	: 1.5V (100mV steps)
Highly Accurate	: $\pm 2\%$ ($\pm 30\text{mV}$ @ $V_{\text{OUT}} < 1.5\text{V}$) ($\pm 1\%$ @ $V_{\text{OUT}} \geq 2.0\text{V}$)
Low Power Consumption	: 1.0 μ A (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	: $\pm 2\%$
Output Voltage Range	: 1.5V
Low ESR Capacitor Compatible	

Applications

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



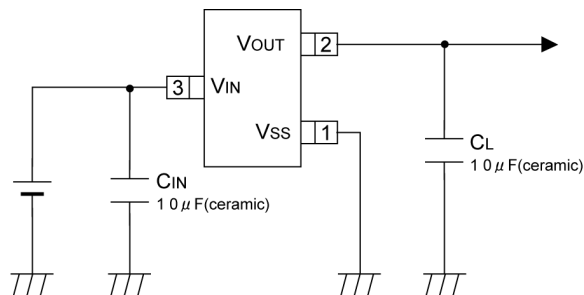
General Description

The XC6206P152MR 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 XC6206P152MR 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 1.5V.



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		T _{opr}	- 40 ~ + 85	°C
Storage Temperature Range		T _{stg}	- 55 ~ + 125	°C

* I_{OUT}=P_d / (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≤T _{opr} ≤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

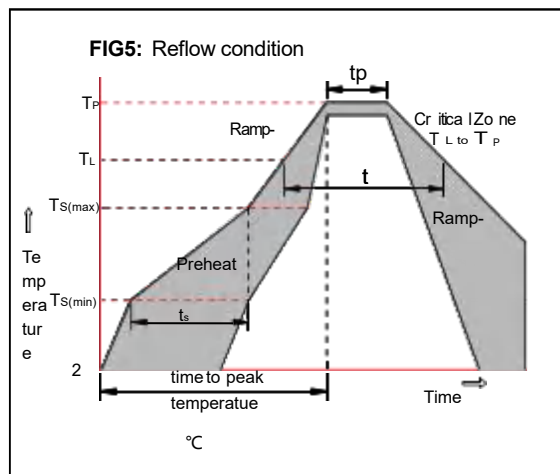
NOTE:

- * 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}^(*) + V_{OUT 1}^(*)}
- * 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

	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								
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.
1.5	1.470	1.530			60	45	300	510	580	860	155

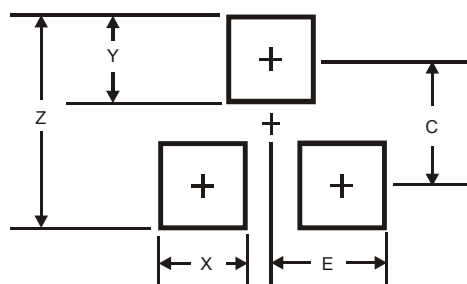
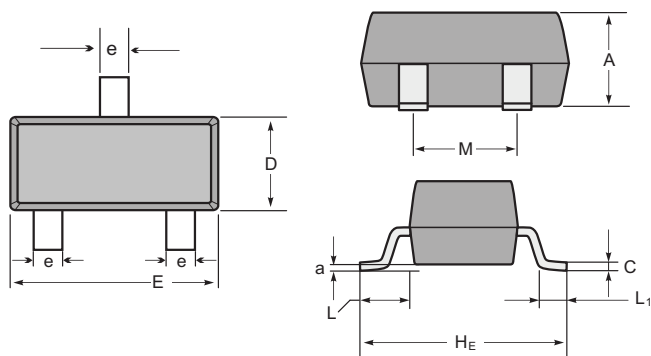
Soldering parameters

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



Package Dimensions & Suggested Pad Layout

SOT23

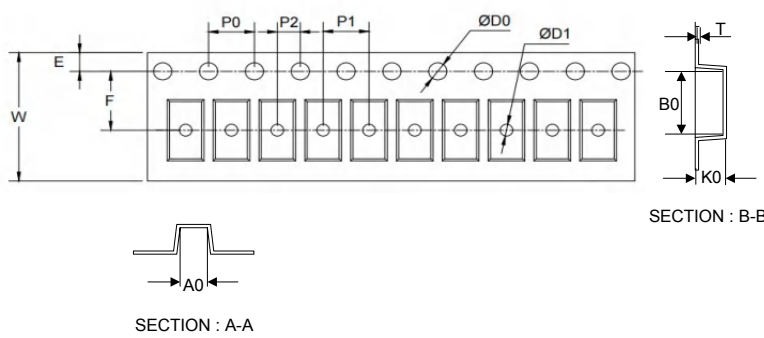
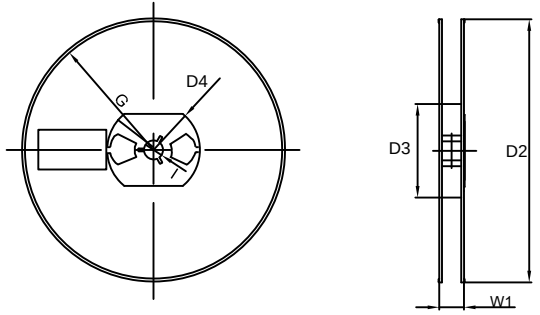


SOT-23 mechanical data

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 & reel specification

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