GENERAL DESCRIPTION

XC6202 series are a set of Low Dropout LinearRegulator ICs implemented in CMOS technology. They can withstand voltage 20V. And they areavailable with low voltage drop and low quiescentcurrent, widely used in audio,video and communication appliances.

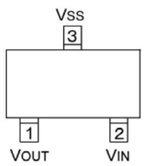
FEATURES

- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 20V
- Quiescent Current 2.0μA
- Output Voltage Accuracy : tolerance ±2%
- High output current:150mA

TYPICALAPPLICATIONS

- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments
- Smart Battery Packs
- Smoke Detectors
- CO2 DETECTORS

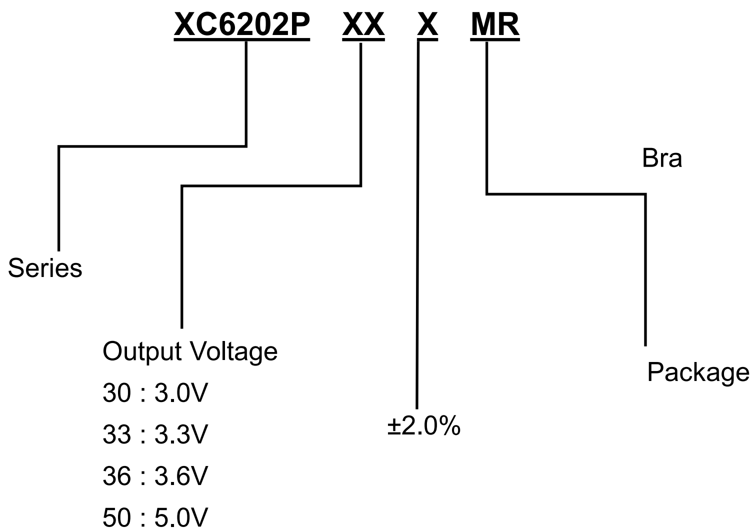
PACKAGE/ORDER INFORMATION

Part Number	Package	Pin Configuration	Marking	QTY
XC6202P302MR	SOT-23		24ZX	3000
XC6202P332MR			252A	3000
XC6202P362MR			255B	3000
XC6202P502MR			25MX	3000

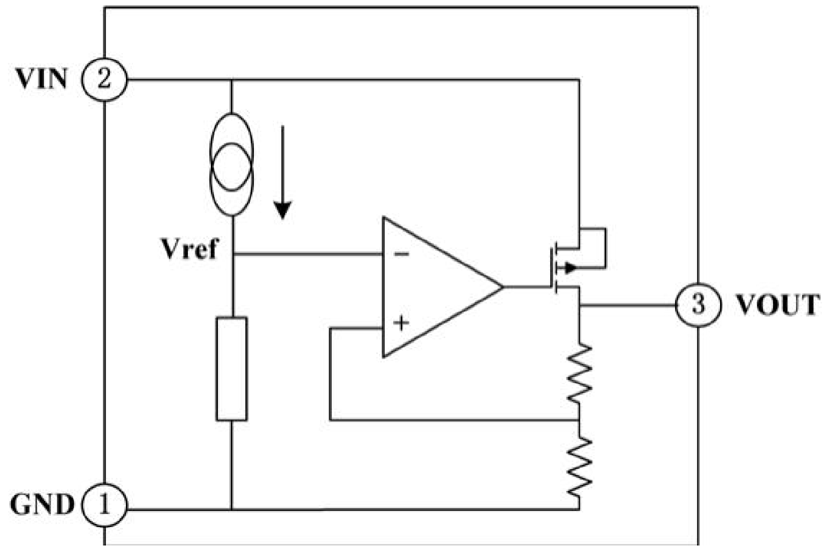
PIN DESCRIPTION

PIN No.	Name	Functions Description
SOT-23		
3	GND	ground
2	V_{IN}	input
1	V_{OUT}	output

PRODUCT NAMING



FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Description	Symbol	Value range	Unit
Limit Power Voltage	V_{IN}	-0.3～+22	V
Storage Temperature Range	T_{STG}	-50～+125	℃
Operating Free-air Temperature Range	T_A	-40～+85	℃

Note: Stressesgreaterthanthoselistedunder“AbsoluteMaximumRatings”maycausepermanentdamage tothedevice.Thesearestressratingsonly,andfunctionaloperationofthedeviceattheseoranyother conditionsbeyondthoseindicatedunder“RecommendedOperatingConditions”isnotimplied.Exposure to“AbsoluteMaximumRatings”forextendedperiodsmayaffectdevicereliability.

HEAT DISSIPATION

Description	Symbol	Package	Value range	Unit
Thermal resistance	θJA	SOT-23	500	℃/W
Power dissipation	PW	SOT-23	200	mW

DC CHARACTERISTICS (unless otherwise noted TA =＋25℃)

(VIN= VOUT+2.0V ， CIN=CL=10uF ， Ta=25℃, unless otherwise noted)

Series +3.0V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.94	3.0	3.06	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load Regulation	△ V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA， △V_{OUT}=2%	—	30	100	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	△ V_{OUT}/ V_{OUT}* △ V_{IN}	V_{OUT}+1.0V≤V_{IN}≤20V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	△ V_{OUT}/ △ T_A*V_{OUT}	V_{IN}=V_{OUT}+2.0V，I_{OUT}=10mA， -40°C≤T_A≤85°C	—	±100	—	ppm/ °C

Note : When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DIF}=V_{IN}-V_{OUT}.

Series +3.3V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	3.23	3.3	3.36	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load Regulation	△ V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage Drop	V_{DIF}	I_{OUT}=1mA， △V_{OUT}=2%	—	25	55	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	△ V_{OUT}/ V_{OUT}* △ V_{IN}	V_{OUT}+1.0V≤V_{IN}≤20V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	△ V_{OUT}/ △ T_A*V_{OUT}	V_{IN}=V_{OUT}+2.0V，I_{OUT}=10mA， -40°C≤T_A≤85°C	—	±100	—	ppm/ °C

Note : When V_{IN}=V_{OUT}+2.0V, as the output voltage declined 2%, the V_{DIF}=V_{IN}-V_{OUT}.

Series +3.6V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	3.52	3.6	3.67	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 50mA$	—	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$， $\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	$\triangle V_{OUT}/ V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 20V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/ \triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40°C \le T_A \le 85°C$	—	±100	—	ppm/°C

Note : When $V_{IN}=V_{OUT}+2.0V$, as the output voltage declined 2%, the $V_{DIF}=V_{IN}-V_{OUT}$.

Series +5.0V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	4.9	5.0	5.1	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 70mA$	—	25	60	mV
Voltage Drop	V_{DIF}	$I_{OUT}=1mA$， $\triangle V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	$\triangle V_{OUT}/ V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 12V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	24	V
Temperature Coefficient	$\triangle V_{OUT}/ \triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40°C \le T_A \le 85°C$	—	±100	—	ppm/°C

Note : When $V_{IN}=V_{OUT}+2.0V$, as the output voltage declined 2%, the $V_{DIF}=V_{IN}-V_{OUT}$.

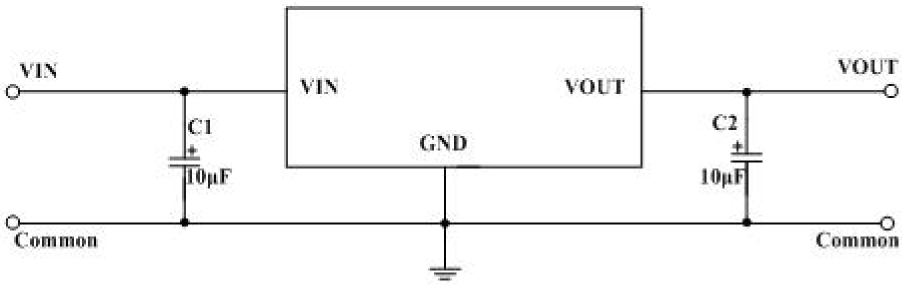
FUNCTIONAL DESCRIPTION

XC6202 series are linear voltage regulator ICs withstanding 20V voltage。The series ICconsists of a voltage reference, an error amplifier, a current limiter and a phase compensationcircuit plus a driver transistor. The output stabilization capacitor is also compatible with low ESR ceramic capacitors.

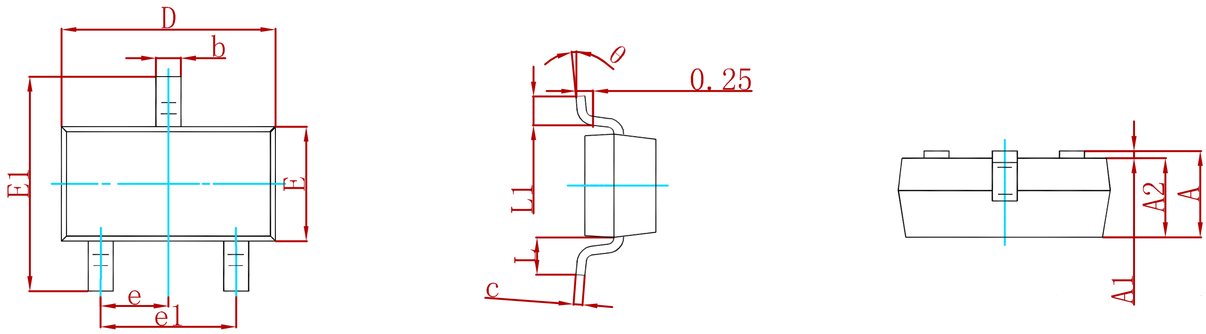
The over current protection circuit and the over voltage protection circuit are built-in. The protection circuit will operate when the output current or input voltage reaches limit level.

TYPICAL APPLICATION CIRCUIT

Basic Circuit

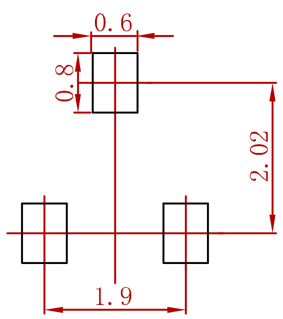


PACKAGE MECHANICAL DATA



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°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.