General Description

XC6202 series are a set of Low Dropout Linear Regulator ICs implemented in CMOS technology. They can withstand voltage 20V. And they are available with lowvoltage drop and low quiescent current, widely used in audio, video and communication appliances.

Features

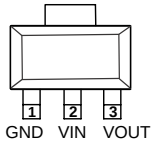
- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 20V
- Quiescent Current 2.0μA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 150mA

Application

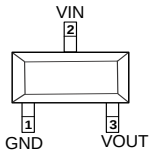
- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments

Pin Configuration And Descriptions

SOT-89



SOT-23



No.	Name	Functions Description
1	GND	Ground
2	V_{IN}	Input
3	V_{OUT}	Output

Order Information

Orderable Device	Package	Output Voltage	Packing Option
XC6202Pxx2MR	SOT-23	3.0V,3.3V,5.0V	3000/Reel
XC6202Pxx2PR	SOT-89	3.0V,3.3V,5.0V	1000/Reel

Note: xx is 30,33,50

Absolute Maximum Ratings

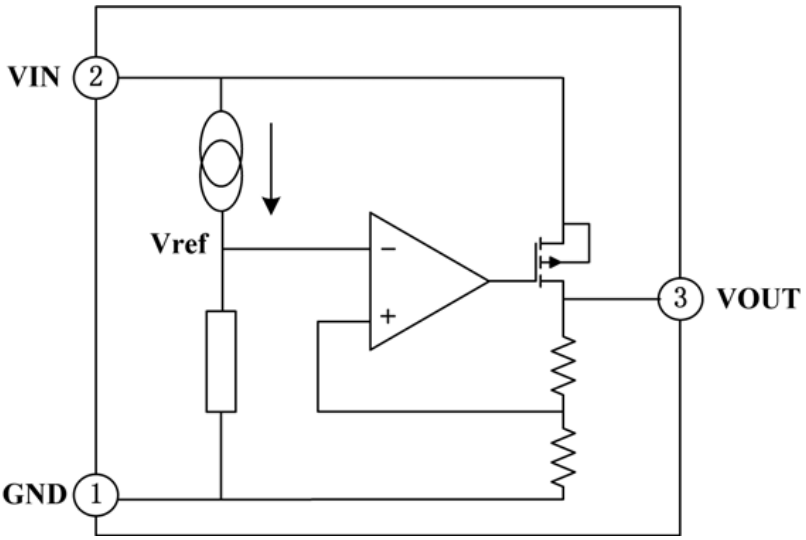
Description	Symbol	Value Range	Unit
Limit Power Voltage	V_{IN}	-0.3～+24	V
Storage Temperature Range	T_{STG}	-50～+125	℃
Operating Free-air Temperature Range	T_A	-40～+85	℃

Note:Stresses greater than those listed under "Absolute Maximum Ratingsmay" cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditionsis" not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Heat Dissipation

Description	Symbol	Package	Value Range	Unit
Thermal resistance	θ_{JA}	SOT-89	200	°C/W
		SOT-23	500	°C/W
Power dissipation	P_W	SOT-89	500	mW
		SOT-23	200	mW

Block Diagram



DC Characteristics (unless otherwise noted T_A= 25°C)

XC6202P302

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}	$V_{IN}=V_{OUT}+2.0V$	150			mA
Load Regulation	△ V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ 1mA≤I_{OUT}≤150mA		37	100	mV
Voltage Drop	V_{DIF}	I_{OUT}=100mA, △V_{OUT}=2%		210	300	mV
Quiescent Current	I_{SS}	NoLoad		1.5	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}				20	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
Overcurrent Protection	Ilim	V_{OUT}=0V		400		mA

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

XC6202P332

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, I_{OUT}=10mA	3.234	3.3	3.366	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	150			mA
Load Regulation	△ V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ 1mA≤I_{OUT}≤150mA		37	100	mV
Voltage Drop	V_{DIF}	I_{OUT}=100mA, △V_{OUT}=2%		195	300	mV
Quiescent Current	I_{SS}	NoLoad		1.5	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}				20	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
Overcurrent Protection	Ilim	V_{OUT}=0V		400		mA

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

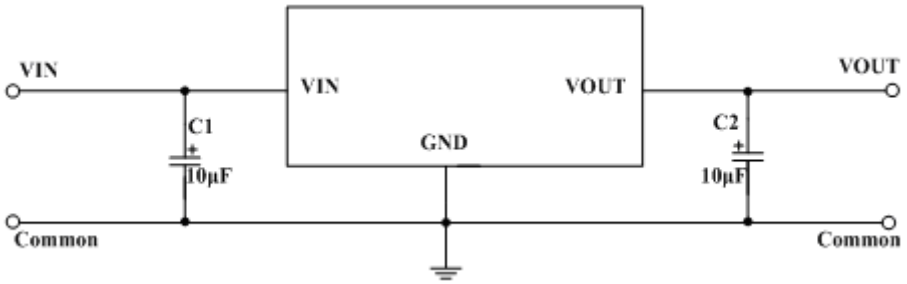
XC6202P502

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}	$V_{IN}=V_{OUT}+2.0V$	200			mA
Load Regulation	△ V_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 150mA$		37	100	mV
Voltage Drop	V_{DIF}	$I_{OUT}=100mA$，△$V_{OUT}=2\%$			300	mV
Quiescent Current	I_{SS}	NoLoad		1.5	3.0	μA
Line Regulation	△ V_{OUT}/ V_{OUT}* △V_{IN}	$V_{OUT}+1.0V \le V_{IN} \le 20V$， $I_{OUT}=1mA$			0.2	%/V
Input Voltage	V_{IN}				20	V
Temperature Coefficient	△ V_{OUT}/ △ T_A*V_{OUT}	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40°C \le T_A \le 85°C$		±100		ppm /°C
Overcurrent Protection	Ilim	$V_{OUT}=0V$		400		mA

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

Application Circuit

Basic Circuits

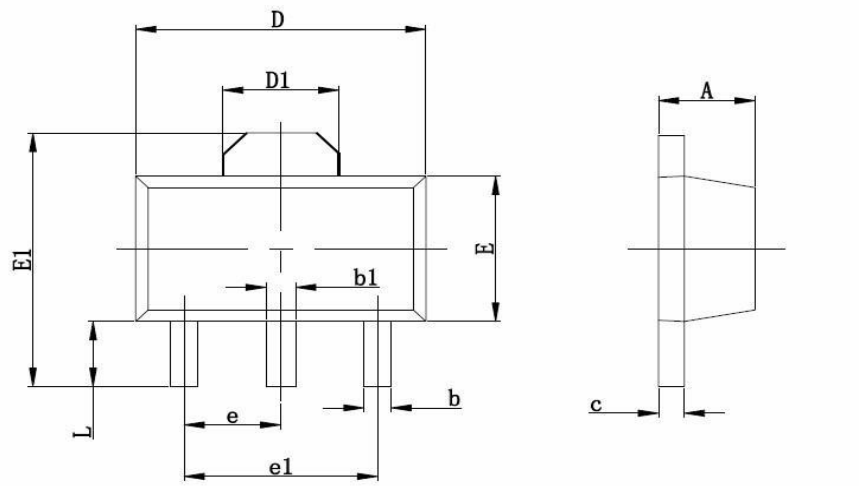


Function Description

XC6202 series arr lineat voltage regulator ICs withstanding 20V voltage. The series IC consists of a voltage reference,an error amplifier,a current limiter and a phase compensation circuit plus a driver transistor.The output stabilization capacitor is also compatible with low ESR ceramic capacitors.

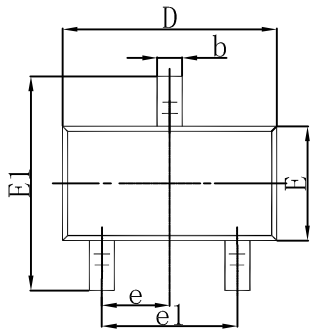
The over current protection circuit and the over voltage protection circuit are built-in. The protection circuit will operate when the output current or input voltage reaches limit level.

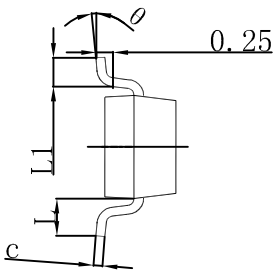
SOT-89 Package Outline Dimensions

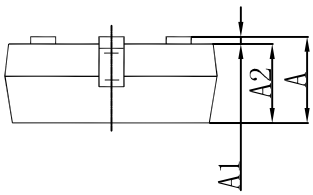


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

SOT-23 Package Outline Dimensions

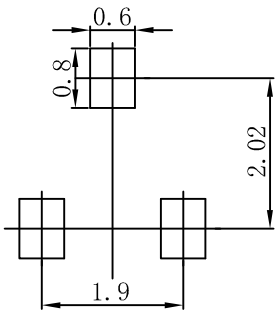






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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°

SOT-23 Suggested Pad Layout



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

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