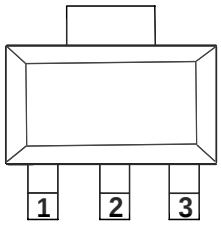
GENERAL DESCRIPTION

XC6201P332MRG series are a set of Low Dropout LinearRegulator ICs implemented in CMOS technology.They can withstand voltage 10V. And they areavailable with low voltage drop and low quiescentcurrent, widely used in audio, video and communication appliances.

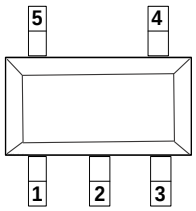
FEATURES

- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 12V
- Quiescent Current 2.0μA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 300mA

PIN CONFIGURATION



SOT-89



SOT-23-5L
(SOT-25/SOT-25-5)

TYPICAL APPLICATIONS

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

PIN DESCRIPTION

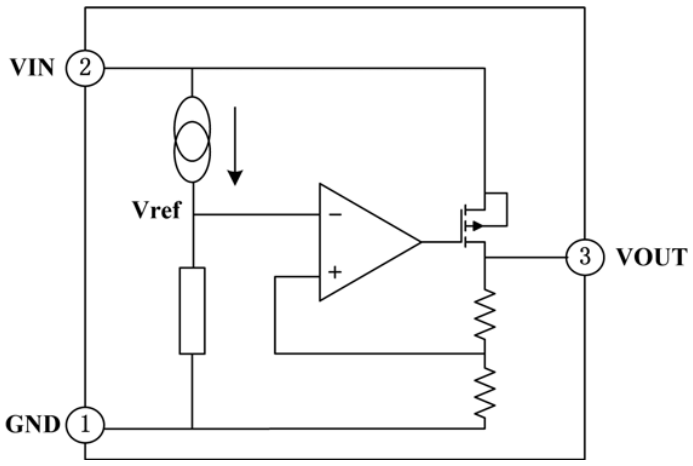
PIN No.		Name	Functions Description
SOT-23-5L SOT-25 SOT-25-5	SOT-89		
2	2	GND	ground
1	3	V_{IN}	input
5	1	V_{OUT}	output
3		NC	No Connect
4		NC	No Connect

OUTPUT

XC6201P－XX X XX

- Type of regulator 3-pin
- Output Voltage
  - 25 : 2.5V
  - 30 : 3.0V
  - 33 : 3.3V
  - 36 : 3.6V
  - 50 : 5.0V
- Output Voltage Accuracy
  - e.g.2: ±2.0%
- Package
  - MR : SOT-23-5L
  - PR : SOT-89

FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Description	Symbol	Value range	Unit
Limit Power Voltage	V_{IN}	−0.3～+15	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 Ratings” may 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 Conditions” is 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	℃/W
		SOT-23-5L	500	℃/W
Power dissipation	P_W	SOT-89	500	mW
		SOT-23-5L	200	mW

DC CHARACTERISTICS (unless otherwise noted T_A =+25°C)

(V_{IN}= V_{OUT}+2.0V，C_{IN}=C_L=10uF，Ta=25°C, unless otherwise noted)

Series +2.5V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V， I_{OUT}=10mA	2.450	2.500	2.550	V
Output Current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	300	—	—	mA
Load Regulation	△ V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤300mA	—	37	100	mV
Voltage Drop	V_{DIF}	I_{OUT}=10mA，△V_{OUT}=2%	—	35	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}≤12V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	12	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
Output Short Circuit Current	Ilim	V_{OUT}=0V	—	400	—	

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

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	300	—	—	mA
Load Regulation	△ V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤300mA	—	37	100	mV
Voltage Drop	V_{DIF}	I_{OUT}=100mA，△V_{OUT}=2%	—	210	300	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	△ V_{OUT}/ V_{OUT}* △ V_{IN}	V_{OUT}+1.0V≤V_{IN}≤12V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	12	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
Output Short Circuit Current	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}.

Series +3.3V OUTPUT

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$， $I_{OUT}=10mA$	2.23	3.3	3.36	V
Output Current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	300	—	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 300mA$	—	37	100	mV
Voltage Drop	V_{DIF}	$I_{OUT}=100mA$，$\triangle V_{OUT}=2\%$	—	195	300	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 12V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	12	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40°C\leq T_A\leq 85°C$	—	±100	—	ppm/°C
Output Short Circuit Current	Ilim	$V_{OUT}=0V$	—	400	—	mA

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

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}	$V_{IN}=V_{OUT}+2.0V$	300	—	—	mA
Load Regulation	$\triangle V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 300mA$	—	37	100	mV
Voltage Drop	V_{DIF}	$I_{OUT}=100mA$，$\triangle V_{OUT}=2\%$	—	180	300	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	$\triangle V_{OUT}/V_{OUT}*\triangle V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 12V$， $I_{OUT}=1mA$	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	12	V
Temperature Coefficient	$\triangle V_{OUT}/\triangle T_A*V_{OUT}$	$V_{IN}=V_{OUT}+2.0V$，$I_{OUT}=10mA$， $-40°C\leq T_A\leq 85°C$	—	±100	—	ppm/°C
Output Short Circuit Current	Ilim	$V_{OUT}=0V$	—	400	—	

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	300	—	—	mA
Load Regulation	△ V_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤300mA	—	37	100	mV
Voltage Drop	V_{DIF}	I_{OUT}=100mA， △V_{OUT}=2%	—	170	300	mV
Quiescent Current	I_{SS}	—	—	2.0	3.0	μA
Line Regulation	△ V_{OUT}/ V_{OUT}* △ V_{IN}	V_{OUT}+1.0V≤V_{IN}≤12V， I_{OUT}=1mA	—	—	0.2	%/V
Input Voltage	V_{IN}	—	—	—	12	V
Temperature Coefficient	△ V_{OUT}/ △ T_A*V_{OUT}	V_{IN}=V_{OUT}+2.0V，I_{OUT}=10mA， -40℃≤T_A≤85℃	—	±100	—	ppm/℃
Output Short Circuit Current	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}.

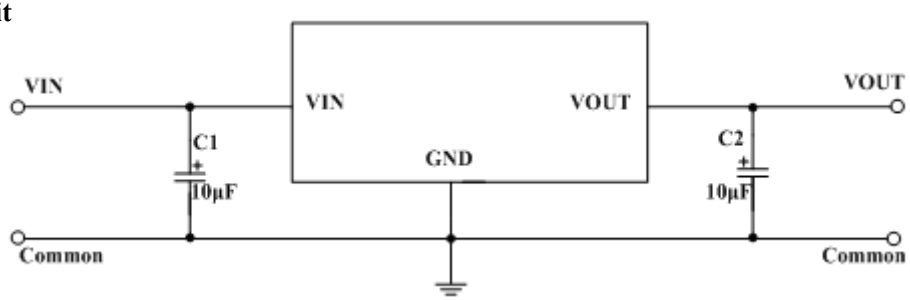
FUNCTIONAL DESCRIPTION

XC6201P332MR-G series are linear voltage regulator ICs withstanding 12V voltage. The series IC consists 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.

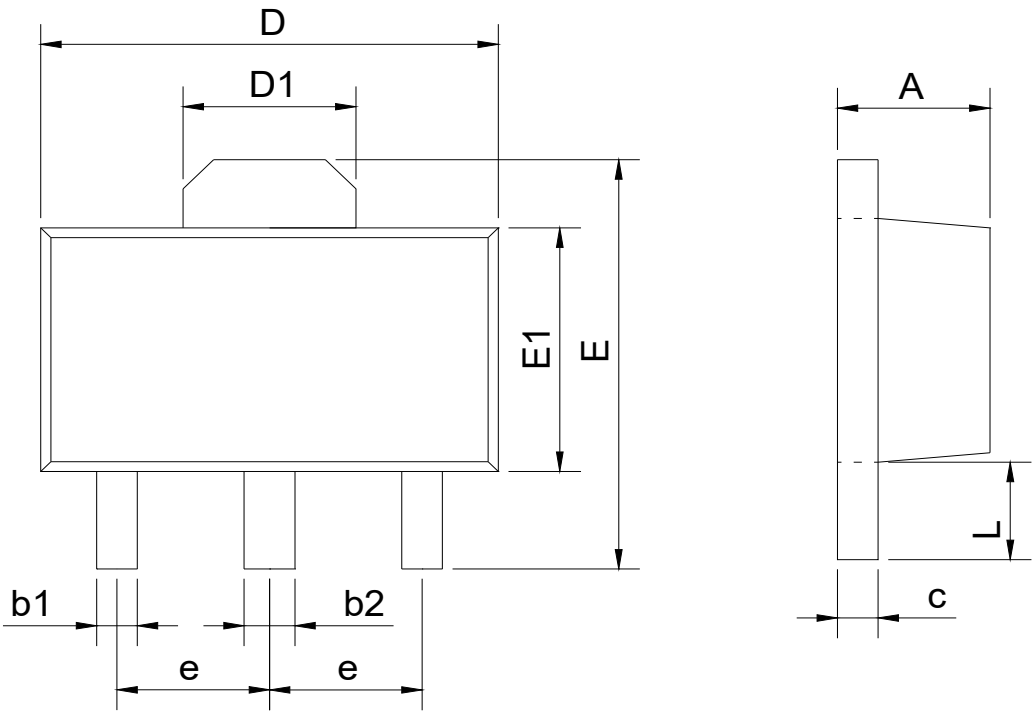
TYPICAL APPLICATION CIRCUIT

Basic Circuit



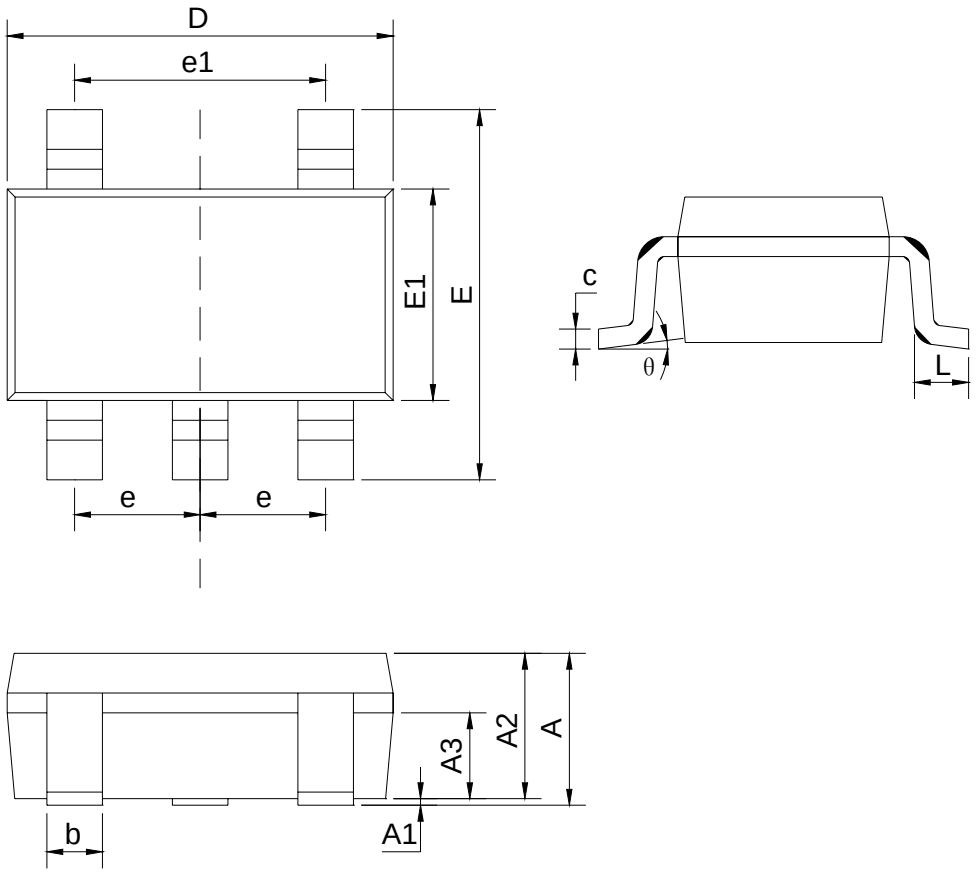
PACKAGE INFORMATION

SOT-89



SYMBOL	mm	
	min	max
A	1.40	1.60
b1	0.35	0.50
b2	0.45	0.60
c	0.36	0.46
D	4.30	4.70
D1	1.40	1.80
E	4.00	4.40
E1	2.30	2.70
e	1.50BSC	
L	0.80	1.20

SOT-23-5L(SOT-25/SOT-25-5)



SYMBOL	mm	
	min	max
A		1.35
A1	0.04	0.15
A2	1.00	1.20
A3	0.55	0.75
b	0.38	0.48
c	0.10	0.25
D	2.72	3.12
E	2.60	3.00
E1	1.40	1.80
e	0.95BSC	
e1	1.90BSC	
L	0.30	0.60
θ	0	8°

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