300mA Low Power LDO

General Description

RLCP6206 series are a highly precise, lower consumption, 3 terminal,positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage . The RLCP6206 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 operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 5.0V. RLCP6206series are available in SOT-23 、SOT23-3and SOT-89 packages.

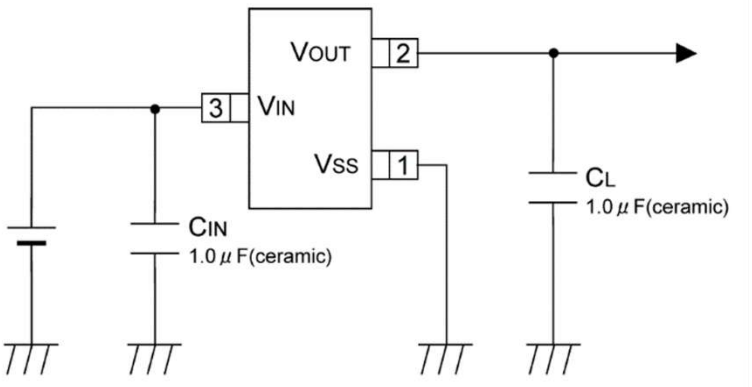
Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 3uA at 6V
- Output voltage accuracy: tolerance ±2%

Applications

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

Typical Application



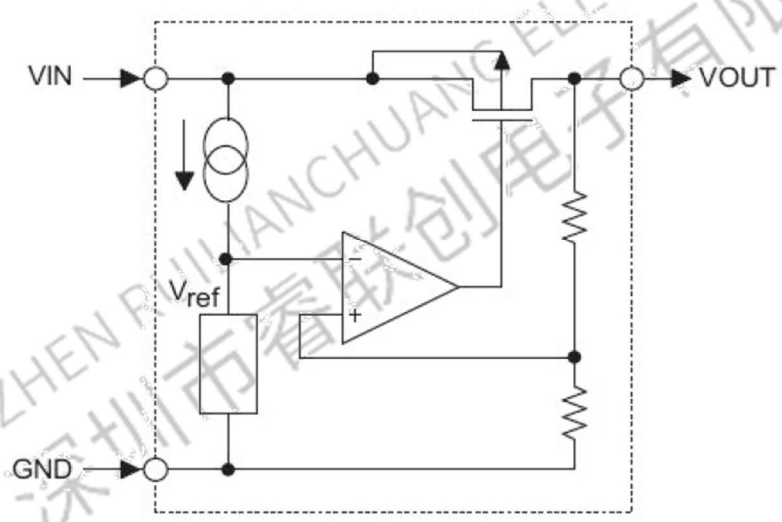
Order Information

6206-①②③④

Designator	Symbol	Description
①②	Integer	Output Voltage(1.2~5.0V)
③	N	Package:SOT23
	M	Package:SOT23-3
	P	Package:SOT89A
	P1	Package:SOT89B
④	R	RoHS / Pb Free
	G	Halogen Free

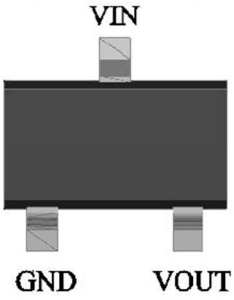
Note:"①②" stands for output voltages. Other voltages can be specially customized

Block Diagram

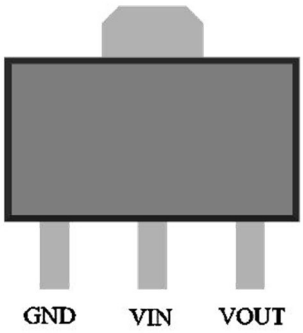


Pin Assignment

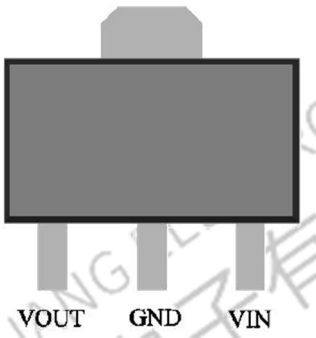
SOT23-3 and SOT23
(Top view)



SOT89 A (Top view)



SOT89 B (Top view)



Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	8	V
Output Current		I_{OUT}	300*	mA
Output Voltage		V_{OUT}	V_{SS}-0.3~V_{IN}+0.3	V
Power Dissipation	SOT-23	P_d	0.20	W
	SOT23-3		0.25	W
	SOT-89		0.50	W
	USP-6B		0.10	W
	TO-92		0.50	W
Operating Temperature Range		T_{opr}	-40~+85	℃
Storage Temperature Range		T_{stg}	-55~+125	℃

*$I_{OUT}=P_d/(V_{IN}-V_{OUT})$

Electrical Characteristics

6206 for any output voltage （Ta=25℃）

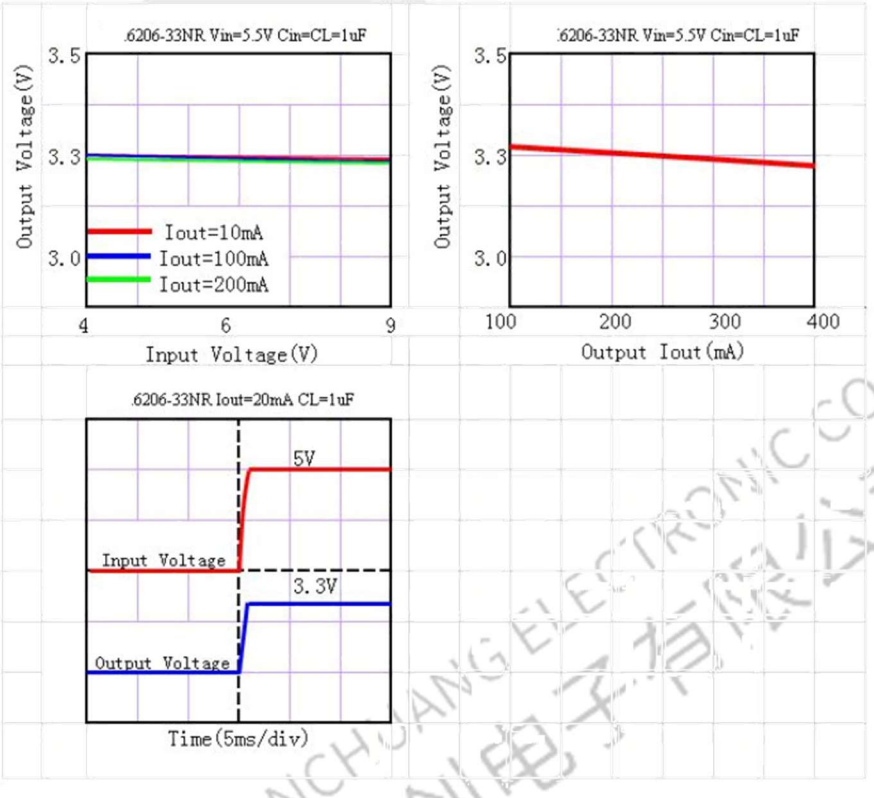
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vout	Vin=Vout+1V 1.0mA≤Iout≤30mA	Vout×0.98	--	Vout×1.02	V
Output Current*1	Iout	Vin-Vout=1V	--	300	--	mA
Low dropout*2	V_{drop}	Refer to the next table				
Line Regulation	△Vout1/(Vin·Vout)	1.6V≤Vin≤8V Iout=40mA	--	0.05	0.2	%/V
Load Regulation	△Vout /ΔIout	Vin= Vout+1V 1.0mA≤Iout≤80mA	--	12	30	mV
Output voltage Temperature Coefficiency	△Vout/(Ta·Vout)	Iout=30mA 0℃≤Ta≤70℃	--	±100	--	Ppm/℃
Supply Current	Iss	--	--	3	5	uA
Input Voltage	Vin	--	--	6	8	V
PSRR	PSRR	F=1KHz Vin=Vout+1V	--	50	--	dB
Output Noise	EN	BW=10Hz～100KHz	--	30	--	uVrms

Electrical Characteristics by Output Voltage：

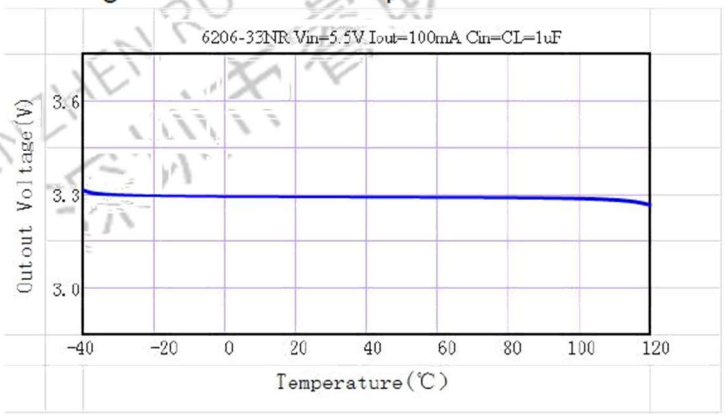
Output Voltage Vout(V)	Dropout Voltage Vdif（V）		
	Conditions	Typ.	Max.
Vout≤1.5V	Iout=100 mA	0.35	0.57
1.8 ≤ Vout ≤ 2		0.28	0.42
2.8 ≤ Vout ≤ 5.0		0.19	0.35

Typical Performance Characteristics

(1) Output Voltage vs Input voltage and Output Voltage vs.Output Current and Input Transient Response

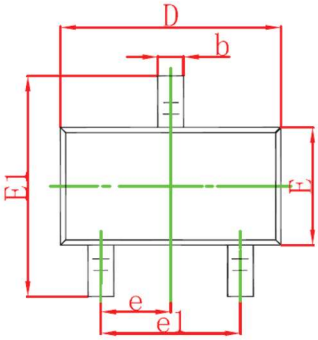


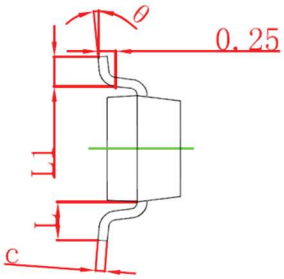
(2) Output Voltage vs. Ambient Temperature

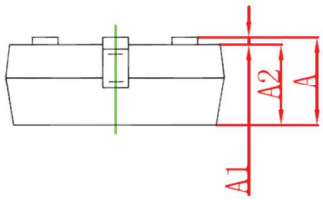


Package Outline Dimensions

SOT-23



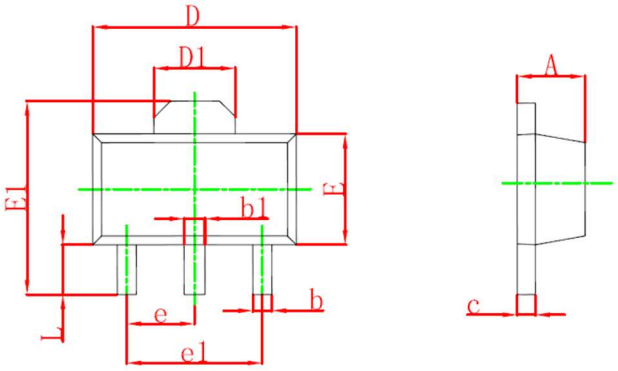




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037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

Package Outline Dimensions

SOT-89-3L



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

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