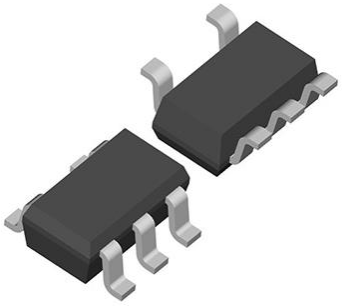
300mA、6V、Low Power LDO

SSP7212

General Description

The SSP7212-ADJ series are highly precise, low noise, positive voltage LDO regulators manufactured using CMOS processes. The series achieves high ripple rejection and low dropout and consists of a standard voltage source, an error correction, current limiter and a phase compensation circuit plus a driver transistor. External output feedback, customers can easily get the required voltage . In order to make the load current does not exceed the current capacity of the output transistor , built-in over-current protection , over temperature protection and short circuit protection.



Features

- programmable output: Minimum can go to 0.8V
- Highly Accurate: ± 1.5%
- Dropout Voltage: 300mV @ 100mA (3.0V type)
- High Ripple Rejection: 50dB (10 kHz)
- Low Power Consumption: 30μA (TYP.)
- Maximum Output Current : 300mA（Vin≧Vout+1V）
- Standby Current : less than 0.1μA
- Internal protector: current limiter ,short protector and over temperature protection
- Instructions with POWER GOOD
- SOT23-5L packages

Applications

- Mobile phones
- Cordless phones
- Cameras, Video cameras
- Portable games
- Portable AV equipment
- Reference voltage
- Battery powered equipment

Order information

Device	Package	Packaging style	SPQ
SSP7212-ADJXX	SOT23-5L	Reel	3000

Order Information

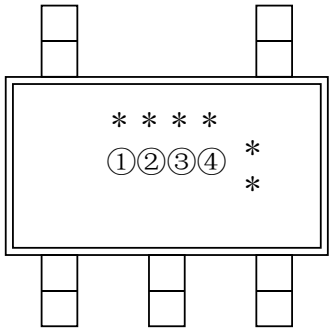
SSP7212-ADJ①②

Designator	Symbol	Description
ADJ	ADJ	Output Voltage
①	M5	Package:SOT23-5L
②	R	RoHS / Pb Free
	G	Halogen Free

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

Marking Rule

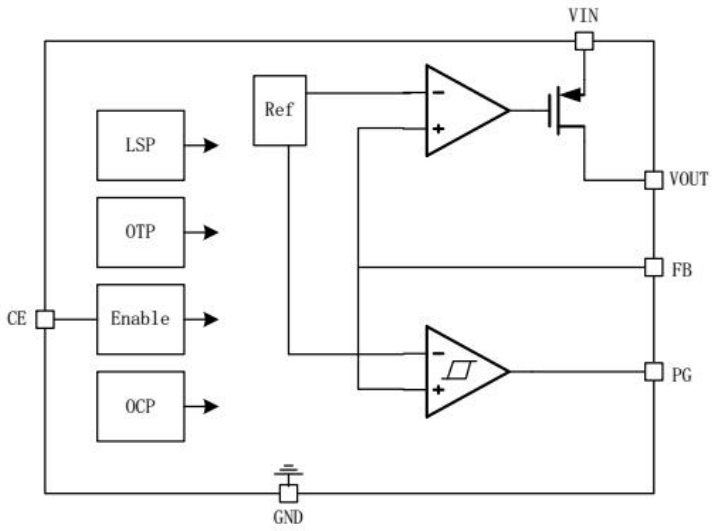
- SOT23-5L



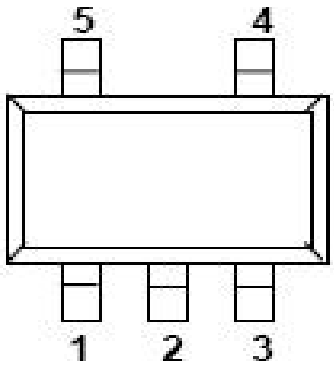
Function Block Diagram

Parameter	Content	Description
①	4	Representative SSP7212-ADJ
②	a	Active 'High' (pull-down resistor built in)
	b	Active 'High' (no pull-down resistor built in)
	c	Active 'Low' (pull-up resistor built in)
	d	Active 'Low' (no pull-up resistor built in)
③	a	Representative programmable
④	Defined within the	Custom Production

Block Diagram



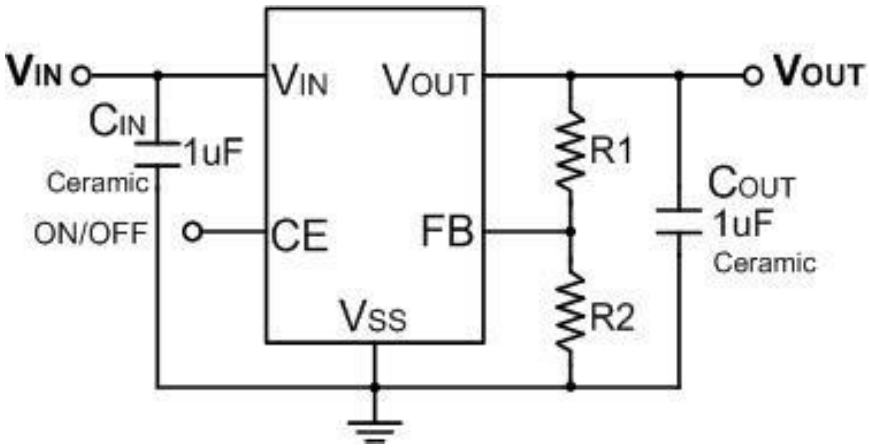
Pin Configuration



Pin Assignment

Pin Number	Pin Name	Function
SOT23-5L		
1	VIN	Supply Power
2	VSS	Ground
3	CE	Enable Pin
4	FB	Feedback
5	VOUT	Voltage Output

Typical Application Circuit



Caution: The above connection diagram and constant will not guarantee successful operation. Perform thorough evaluation using the actual application to set the constant.

Vout=(1+R1/R2)×0.8，R1 and R2 must greater than 100kΩ.

Absolute Maximum Ratings

Parameter	Symbol	Maximum Rating		Unit
Input Voltage	VIN	VSS-0.3～VSS+6		V
Enable Voltage	VCE	VSS-0.3～VIN+0.3		
Feedback Voltage	VFB	VSS-0.3～VIN+0.3		
Output Voltage	VOUT	VSS-0.3～VIN		
Power Dissipation	PD	SOT23-5L	350	mW
Operating Ambient Temperature	Topr	-40～+85		℃
Storage Temperature	Tstg	-40～+125		

Caution: The absolute maximum ratings are rated values exceeding which the product could suffer physical damage.These values must therefore not be exceeded under any conditions.

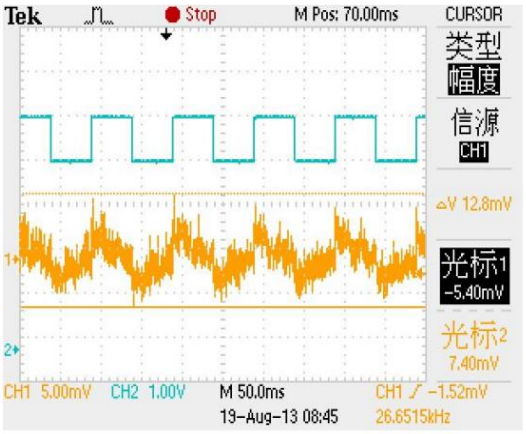
Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Feedback Voltage	VFB	VIN=4.2V,Vout=3.3V,IOUT=30mA	790	800	810	mV
Output Current	IOUT	VIN≥VOUT(S)+1.0V	300	-	-	mA
Dropout Voltage	Vdrop	IOUT=50 mA	-	0.12	0.20	V
		IOUT=100 mA	-	0.30	0.45	
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	VOUT(S)+0.5 V≤VIN≤6V IOUT=30mA	-	0.10	0.20	%/V
Load Regulation	$V_{OUT}2$	VIN=VOUT(S)+1.0 V 1.0mA≤IOUT≤100mA	-	50	100	mV
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{Ta \times V_{OUT}}$	VIN=VOUT(S)+1.0 V, IOUT=10 mA -40℃≤Ta ≤85℃	-	±100	-	ppm/℃
Supply Current	ISS1	VIN=VOUT(S)+1.0 V	-	30	40	μA
Shutdown Current	I_{shut}	VIN=5 V,VCE=0			0.1	μA
Input Voltage	VIN	——	2.0	-	6	V
Ripple-Rejection	|PSRR|	VIN=VOUT(S)+1.0 V， f=1kHz Vrip=0.5 Vrms, IOUT=50 mA	-	50	-	dB
Short-circuit Current	I_{short}	VIN=VOUT(S)+1.0V, ON/OFF Terminal is ON,VOUT=0V	-	30	-	mA
CE “High Voltage	VCEH		0.8			V
CE “Low” Voltage	VCEL				0.75	V
CE “High Current	ICEH	VIN=VCE=VOUT(T)+1V	-0.1		0.1	μA
CE “Low” Current	ICEL	VIN= VOUT(T)+1V， VCE=VSS	-0.1		0.1	μA

Typical Performance Characteristics (Output 3.3V)

1、 The input voltage transient response

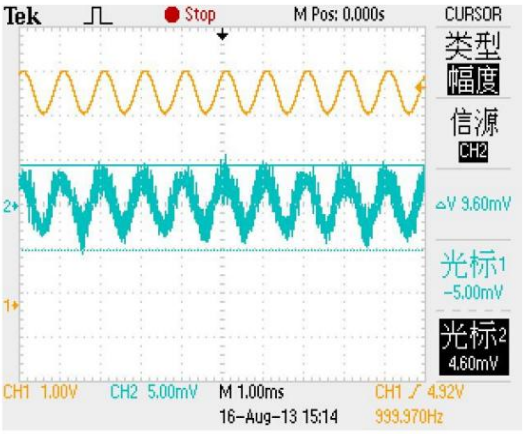
Test Conditions: Vin=4.3V-5.3V, Iout=10mA, Cin=Cout=1uF



Channel 2 input, channel 1 Output

2、 Ripple rejection

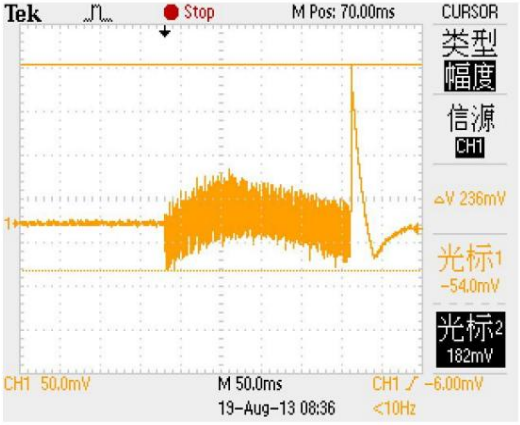
Test Conditions: Vin=4.3V-5.3V, Iout=10mA, ,Cin=Cout=1uF



Channel 1 input, channel 2 Output

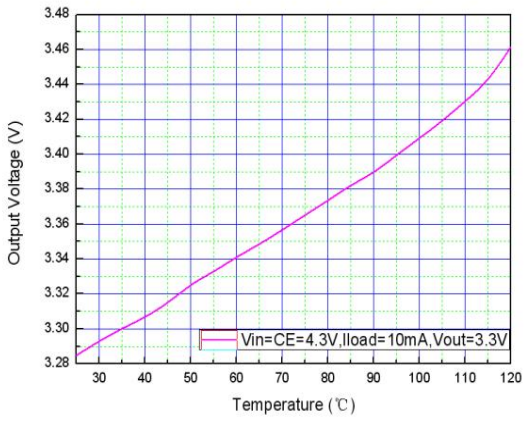
3、 The load transient response

Test Conditions: Vin=CE=4.3V,Cin=Cout=1uF, Iout=0-100mA



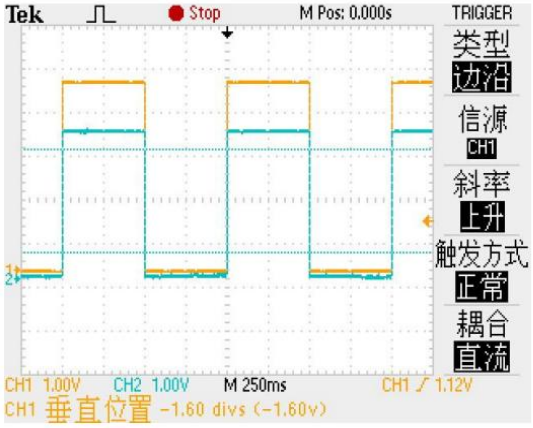
4、 The output voltage temperature curve

Test Conditions: Vin=CE=4.3V, ,Cin=Cout=1uF, Iout=10mA



5、Overshoot

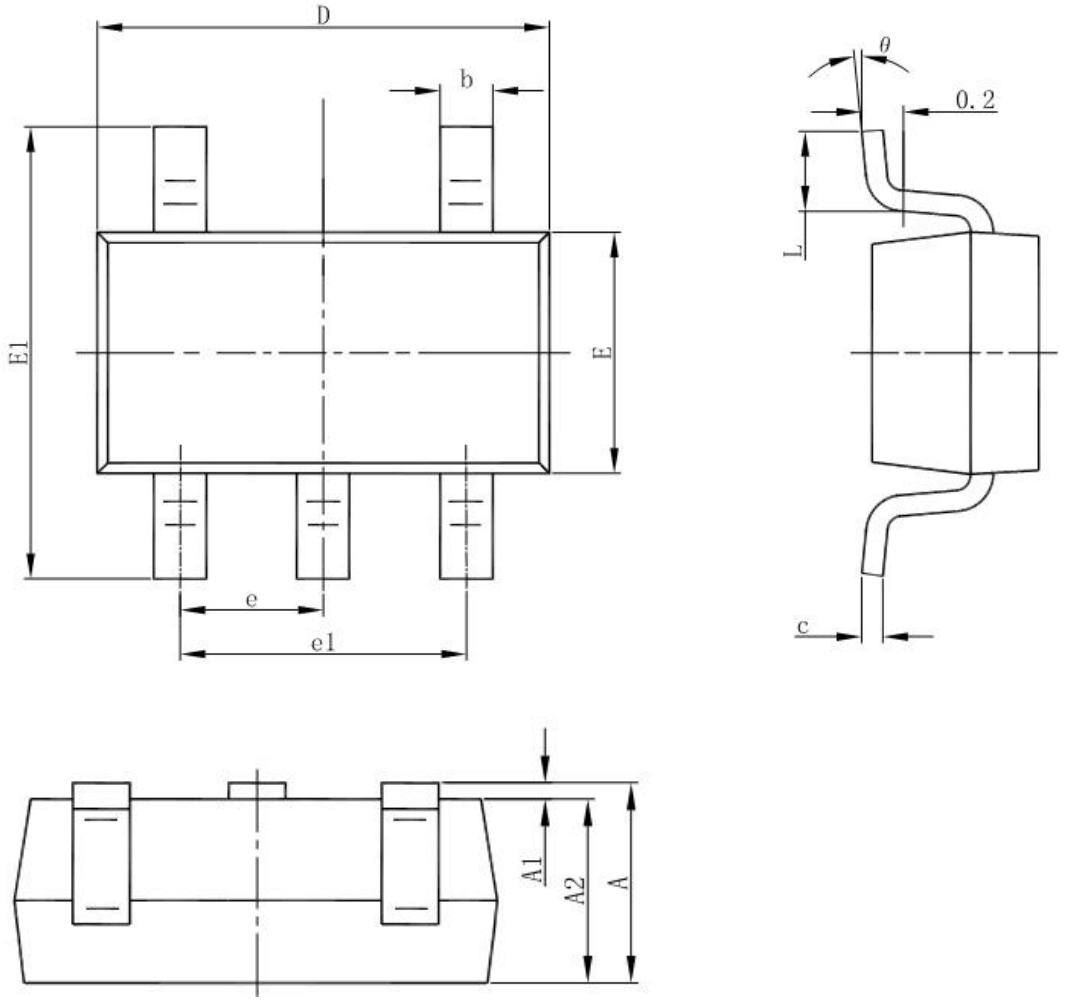
Test Conditions: Vin=0V-4.3V, Iout=0mA, Cin=Cout=1uF



Channel 1 input, channel 2 Output

Package Information

- **SOT23-5L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Special Version

The company reserves the right of final interpretation of this specification.

Version Change Description

Versions：V1.5 Writer：Xin CHun Li Time：2021.10.15

Amendant record：

1. Re-typesetting the manual and checking some data

Versions：V1.6 Writer：Yang Time：2023.11.14

Amendant record：

1. Modifying the Electrical Characteristics

The statement

The information in the usage specification is correct at the time of publication, Shanghai Siproin Microelectronics Co.,Ltd. has the right to change and interpret the specification, and reserves the right to modify the product without prior notice. Users can obtain the latest version information from our official website or other effective channels before confirmation, and verify whether the relevant information is complete and up to date.

With any semiconductor product, there is a certain possibility of failure or failure under certain conditions. The buyer is responsible for complying with safety standards and taking safety measures when using the product for system design and complete machine manufacturing. The product is not authorized to be used as a critical component in life-saving or life-sustaining products or systems, in order to avoid potential failure risks that may cause personal injury or property loss.