



TX6212-adj 300mA Low Power LDO

Features

- programmable output: Minimum can go to 0.8V
- Highly Accurate: $\pm 1.5\%$
- Dropout Voltage: 300mV @ 100mA (3.0V type)
- High Ripple Rejection: 50dB (10 kHz)
- Low Power Consumption: 30 μ A (TYP.)
- Maximum Output Current : 300mA ($V_{IN} \cong V_{OUT} + 1V$)
- Standby Current : less than 0.1 μ A
- Internal protector: current limiter ,short protector and over temperature protection
- Instructions with POWER GOOD
- SOT23-5 and SOT23-6 packages

Applications

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

General Description

The TX6212-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.

TX6212-adj may have the POWER GOOD indicator. When the FB voltage reaches 0.75V , PG output is high . When the FB drops below 0.7V , PG output is low. The internal op amp with advanced structure, the output capacitor can be omitted !

Order Information

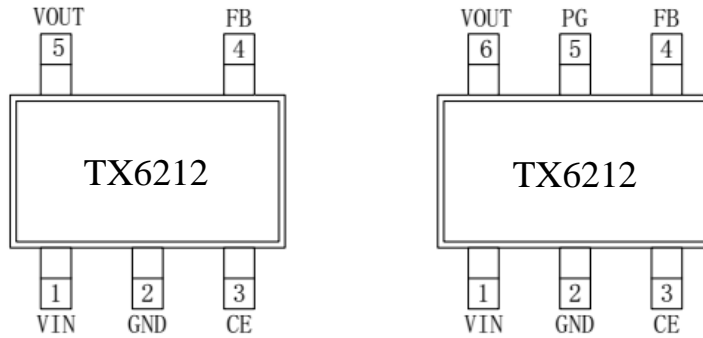
TX6212-adj^{①②}

Designator	Symbol	Description
adj	Integer	Output Voltage
①	M5	Package:SOT23-5
	M6	Package:SOT23-6
②	R	RoHS / Pb Free
	G	Halogen Free

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



Pin Configuration

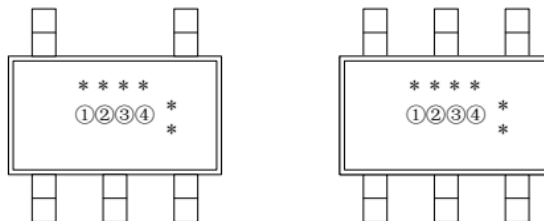


Pin Assignment

Pin Number		Pin Name	Function
SOT23-5L	SOT23-6L		
1	1	VIN	Supply Power
2	2	VSS	Ground
3	3	CE	Enable Pin
4	4	FB	Feedback
	5	PG	POWERGOOD
5	6	VOUT	Voltage Output

Marking Rule

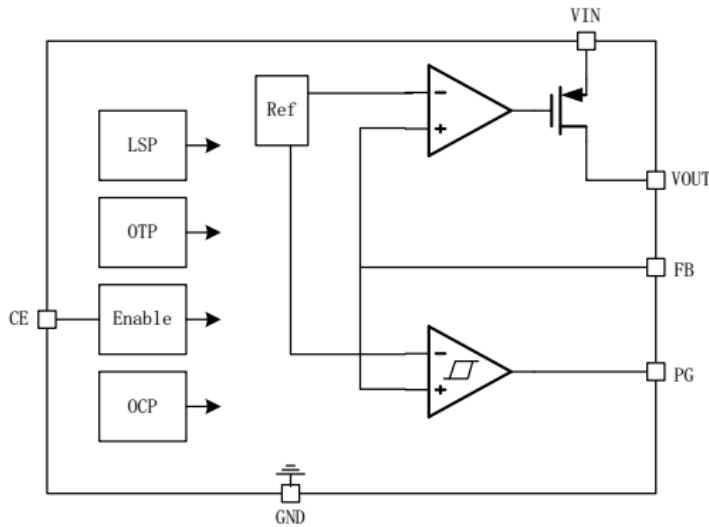
- SOT-23-6L/SOT23-5L



Parameter	Content	Description
①	4	Representative TX6212
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 , without PG
	p	Representative programmable , with PG
④	Defined within the company	Custom Production
*	Combination “.”	Representative Lot



Function Block Diagram

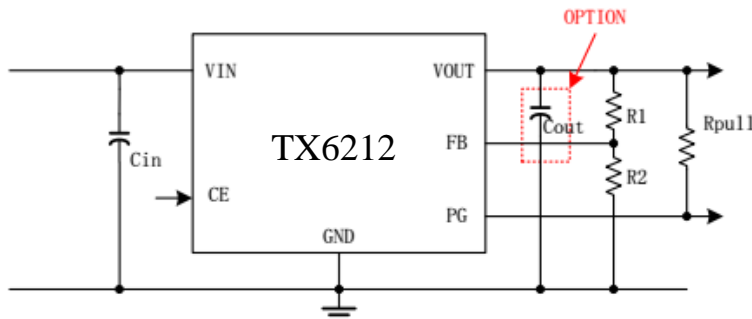


Absolute Maximum Ratings

Parameter	Symbol	Maximum Rating	Unit	
Input Voltage	V_{IN}	$V_{SS}-0.3 \sim V_{SS}+6$	V	
Enable Voltage	V_{CE}	$V_{SS}-0.3 \sim V_{IN}+0.3$		
Feedback voltage	V_{FB}	$V_{SS}-0.3 \sim V_{IN}+0.3$		
Output Current	V_{OUT}	$V_{SS}-0.3 \sim V_{IN}+0.3$		
Power Dissipation	P_D	SOT-23-5L/SOT23-6L	350	mW
Operating Ambient Temperature	T_{opr}	-40 ~ +85		°C
Storage Temperature	T_{stg}	-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.

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.

$$V_{out} = (1 + R1/R2) \times 0.8, \text{ R1 and R2 must GT } 100k\Omega.$$



Electrical Characteristics

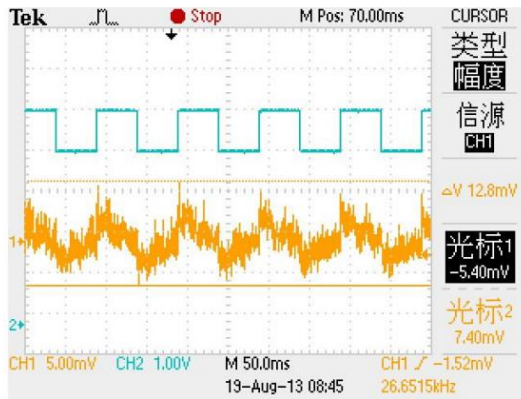
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Feedback Voltage	V_{FB}	$V_{IN}=4.2V, V_{out}=3.3V, I_{OUT}=30mA$	790	800	810	mV
Output Current	I_{OUT}	$V_{IN} \geq V_{OUT(S)}+1.0V$	300 *5	-	-	mA
Dropout Voltage	V_{drop}	$I_{OUT}=50\text{ mA}$	-	0.12	0.20	V
		$I_{OUT}=100\text{ mA}$	-	0.30	0.45	
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{OUT(S)}+0.5\text{ V} \leq V_{IN} \leq 7V$ $I_{OUT}=30mA$	-	0.30	0.50	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT(S)}+1.0\text{ V}$ $1.0mA \leq I_{OUT} \leq 100mA$	-	50	100	mV
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{Ta \times V_{OUT}}$	$V_{IN}=V_{OUT(S)}+1.0\text{ V}, I_{OUT}=10\text{ mA}$ $-40^{\circ}C \leq Ta \leq 85^{\circ}C$	-	± 100	-	ppm/ $^{\circ}C$
Supply Current	I_{SS1}	$V_{IN}=V_{OUT(S)}+1.0\text{ V}$	-	30	40	$\mu\text{ A}$
Shutdown Current	I_{shut}	$V_{IN}=5\text{ V}, V_{CE}=0$			0.1	$\mu\text{ A}$
Input Voltage	V_{IN}	---	2.0	-	8	V
Ripple-Rejection	PSRR	$V_{IN}=V_{OUT(S)}+1.0\text{ V}, f=1kHz$ $V_{rip}=0.5\text{ Vrms}, I_{OUT}=50\text{ mA}$	-	50	-	dB
Short-circuit Current	I_{short}	$V_{IN}=V_{OUT(S)}+1.0V,$ ON/OFF Terminal is ON, $V_{OUT}=0V$	-	30	-	mA
CE "High Voltage"	V_{CEH}		0.8			V
CE "Low" Voltage	V_{CEL}				0.75	V
CE "High Current"	ICEH	$V_{IN}=V_{CE}=V_{OUT(T)}+1V$	-0.1		0.1	$\mu\text{ A}$
CE "Low" Current	ICEL	$V_{IN}=V_{OUT(T)}+1V, V_{CE}=V_{SS}$	-0.1		0.1	$\mu\text{ A}$



Typical Performance Characteristics (Output 3.3V)

1、 The input voltage transient response

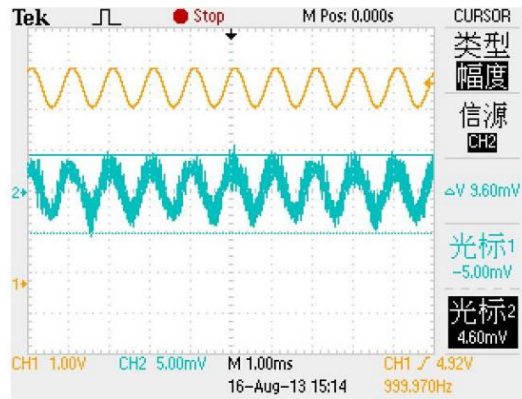
Test Conditions: $V_{in}=4.3V-5.3V$, $I_{out}=10mA$, $C_{in}=C_{out}=1\mu F$



Channel 2 input, channel 1 Output

2、 Ripple rejection

Test Conditions: $V_{in}=4.3V-5.3V$, $I_{out}=10mA$, $C_{in}=C_{out}=1\mu F$



Channel 1 input, channel 2 Output

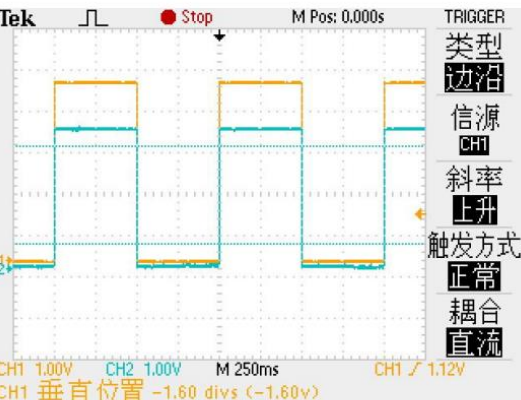
3、 The load transient response

Test Conditions: $V_{in}=CE=4.3V$, $C_{in}=C_{out}=1\mu F$, $I_{out}=0-100mA$



5、 Overshoot

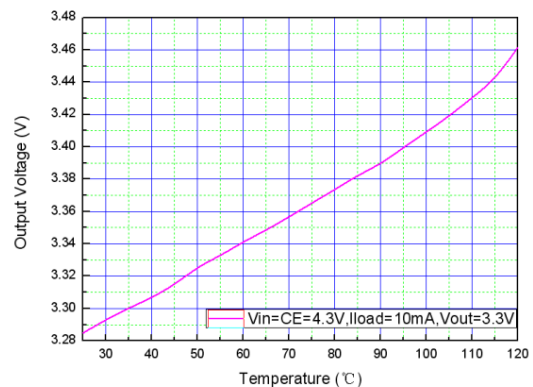
Test Conditions: $V_{in}=0V-4.3V$, $I_{out}=0mA$, $C_{in}=C_{out}=1\mu F$



Channel 1 input, channel 2 Output

4、 The output voltage temperature curve

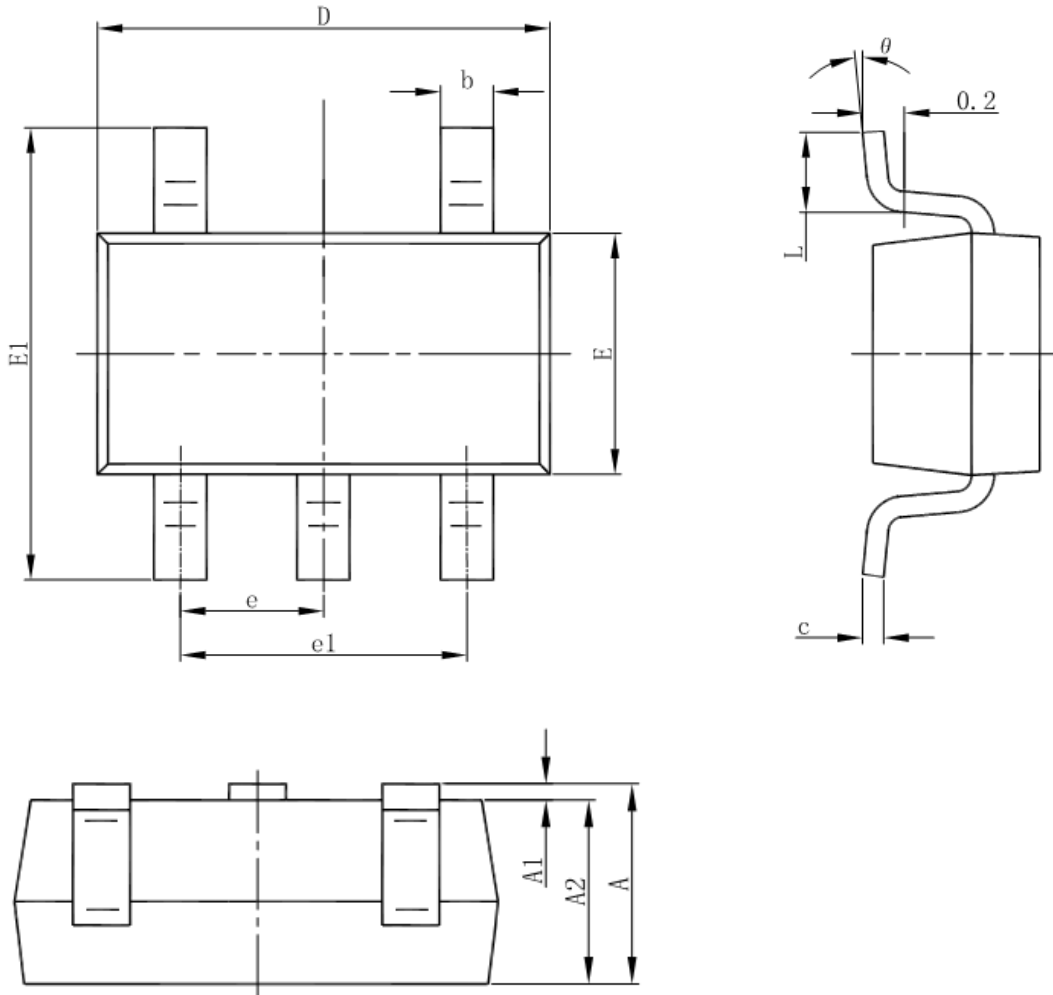
Test Conditions: $V_{in}=CE=4.3V$, $C_{in}=C_{out}=1\mu F$, $I_{out}=10mA$





Package Information

- SOT-23-5L

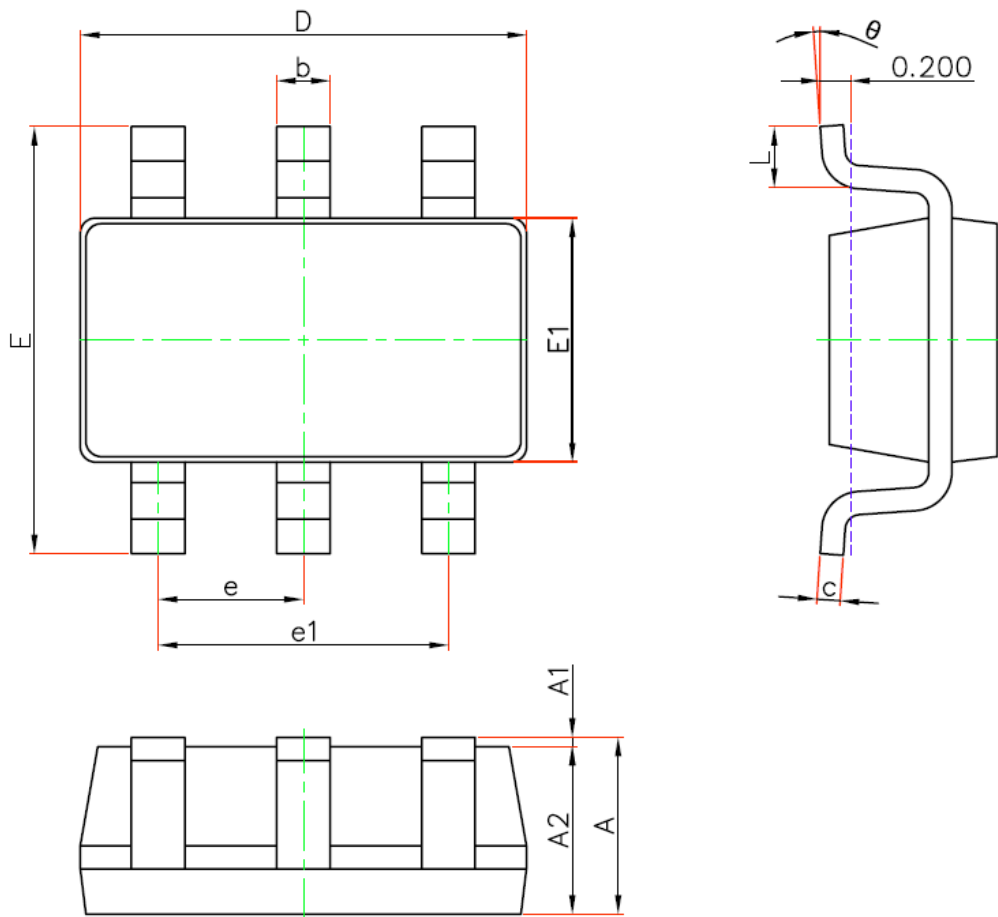




TX6212-adj 300mA Low Power LDO

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°

● SOT23-6





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	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
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