2A high -efficiency boost DC/DC voltage adjustment device

product description

LN3608 is a tiny, high -efficiency, booster DC/DC adjustrator。

Circuit is composed of modules such as current mode PWM control ring circuit, error amplifier, oblique compensation circuit, comparator and power switch. This chip can work efficiently and stable in the wide load range, and a 4A power switch and a soft start - built in protective protection circuit. Up to 93 % of the conversion efficiency, can efficiently extend battery life. The output voltage can be set by adjusting the two external resistance.

Uses

- Portable mobile device
- Wireless communication equipment
- Battery backup power supply

Ordering Information

LN3608 ①②

数字项目	符号	描述
①	A	External feedback, feedback voltage 0.6V
②	R	Rolling direction
	L	Roll belt direction reverse

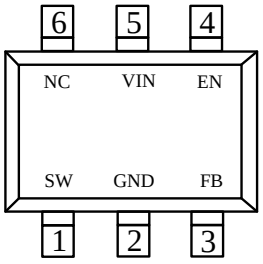
Features

- Efficiency is as high as 92 %
- The output voltage can rise to 28V
- Input voltage range 2-24V
- 1.2MHz fixed switch frequency
- Automatic PWM/PFM switch mode
- Power channel support short circuit protection

Package

- SOT23-6L
- SMD:B528

Pin configuration

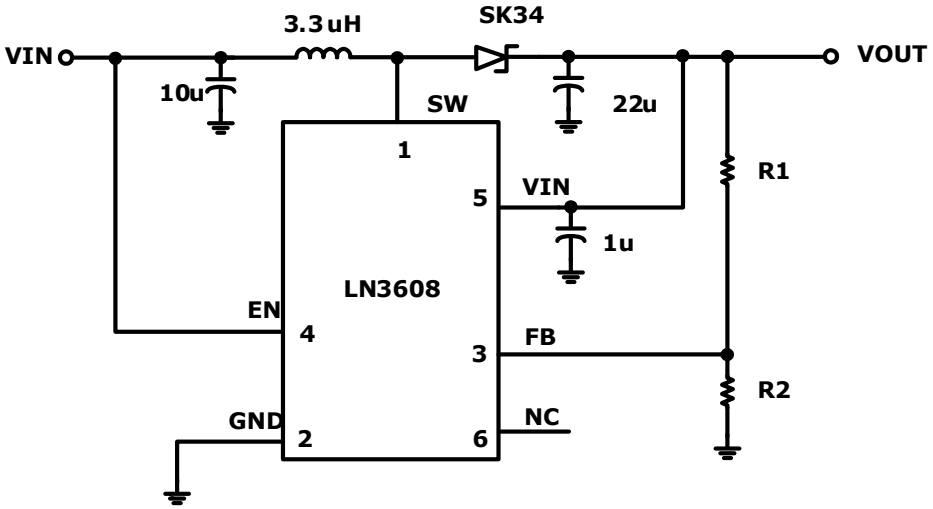


SOT-23-6L
(Top View)

Pins

Pin Number	Pin Name	Function description
5	VIN	Input
3	FB	Feedback
2	GND	Ground
1	SW	Switch pins
4	EN	Enable, high and effective
6	NC	Not connected

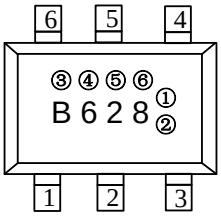
■ Typical application circuit



$$VOUT = VFB \times \left(1 + \frac{R1}{R2}\right)$$

Note: The chip's 5 -pin VIN terminal can be connected to VOUT or VIN. When VIN <5V, it is recommended to connect VOUT to enhance the driving capacity.

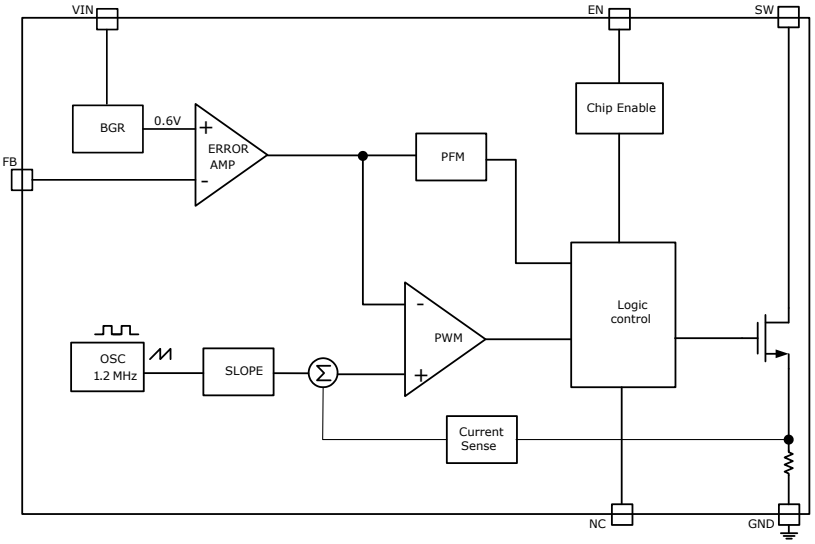
■ Print information



SOT-23-6L

注：①②③④⑤⑥码点为产品质量信息码

■ Functional frame



■ Absolute maximum rated value

Item	Notation	Absolute maximum rated value	Unit
Input voltage	VIN	Vss-0.3～Vss+24	V
output voltage	VOUT	Vss-0.3～Vss+28	
	VSW	Vss-0.3～Vss+28	
SW -end switching current	ISW	3.5	A
Power	PD	250	mW
Working temperature	Topr	-40～＋80	℃
Save temperature	Tstg	-40～＋125	

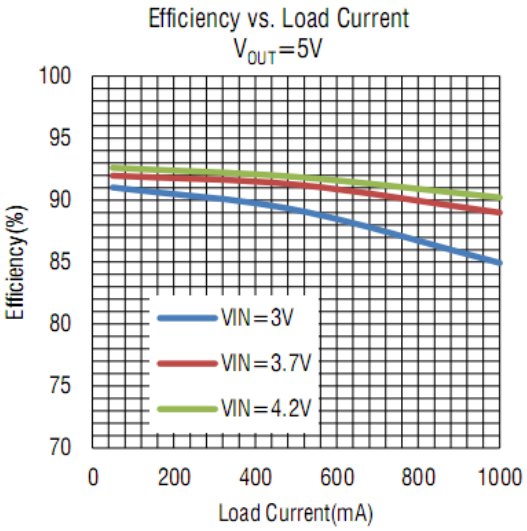
■ Electrical characteristic parameters

（VIN=5V，Ta=25℃，Unless there are other specifications）

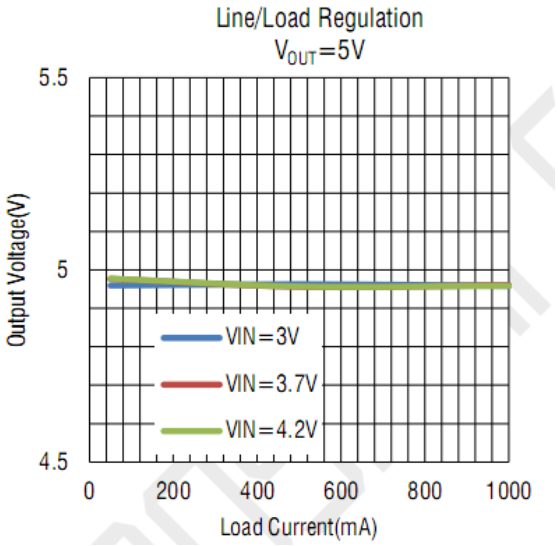
Item	Notation	Prerequisite	MIN	Nominal	MAX	Unit
Output voltage	VOUT	-	2.5		28	V
Input voltage	VIN	-	2	-	24	
Under V Protecion	UVLO_F	-	1.7	-	2	V
Protection delay	UVLO_HYS	-	-	110	-	mV
Off State current	IOFF	VEN<VENL	-	-	1	μA
Non -load current	IC	VIN=4.2V，VOUT=5V	-	90	-	μA
Feedback benchmark voltage	VR	VOUT=5V	588	600	612	mV
On-off level	FS	IOUT=1A	-	1.2	-	MHz
Maximum duty ratio	DMAX	VFB=0V	-	90	-	%
Internal resistance	RDSON	VIN=5V	-	80	150	mΩ
Switch current	ISW	VIN=5V	3.5	-	-	A
Linear adjustment	ΔVLINE	IOUT=1.2A，VIN=3V 到 4.2V	-	0.38	-	%
Load adjustment	ΔVLOAD	VIN=3.6V，IOUT=10mA 到 1.2A	-	0.41	-	%
EN high level	VENH	VIN=3.6V	1.2	-	-	V
EN low level	VENL	VIN=3.6V	-	-	0.5	V
SW -end leakage current	ISW_L	VSW=20V	-	-	1	uA
Overheating temperature	TSHD	VIN=3.6V，IOUT=10mA	-	160	-	℃

■ 典型特性曲线

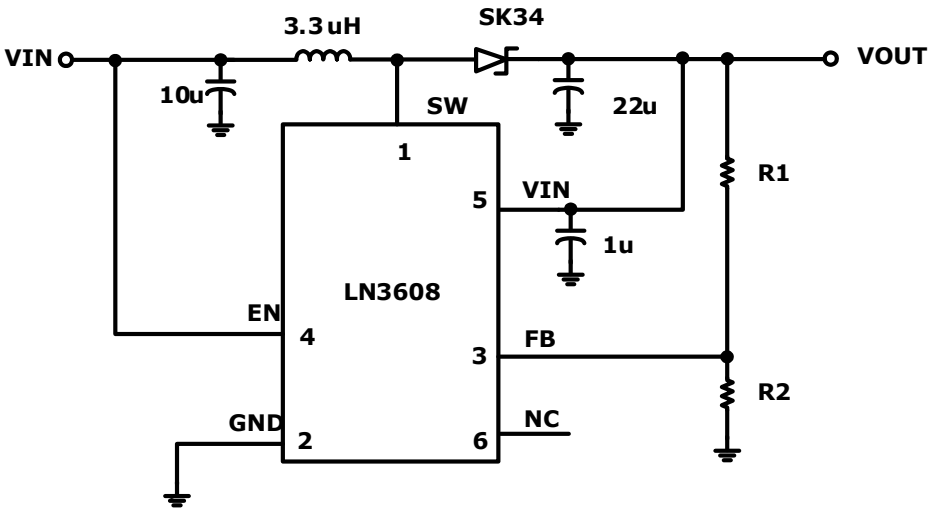
- efficiency



Linear adjustment and load adjustment



■ Application information



- Setting of the output voltage
  Through the external resistance voltage of the FB, the output voltage value can be calculated based on the following formulas:

$$VOUT = VFB \times \left(1 + \frac{R1}{}\right)$$, R1 Take a hundred K -level resistance

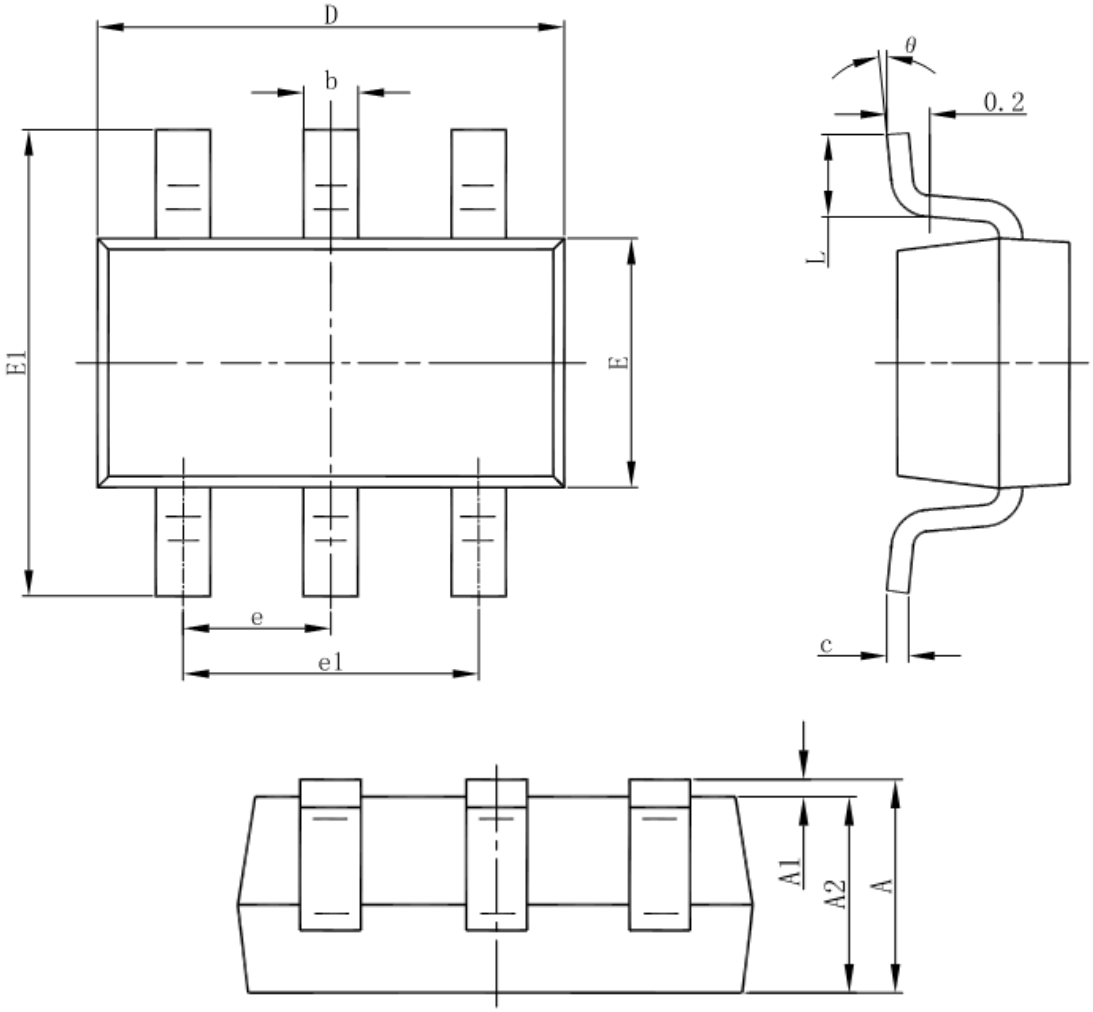
- **Delectomadic choice**
  The recommended electrical value range is 3.3UH to 22UH. The choice of inductance mainly considers smaller DCR resistors to ensure higher efficiency.
- **Input and output capacitance**
  Input capacitors and output capacitors are recommended to use more than 22UF. In order to get smaller output ripples, it is recommended to use ceramic capacitors.

The 5th side needs 1UF capacitor for stabilization. It is recommended to use ceramic capacitors.

- **diode**
- Renewal diode, please use the fast -responding Schottky diode. The lower the forward voltage drop, the higher the load efficiency. For different output voltages, pay attention to the negative voltage selection of the continuing diodes (> vout +5V) to prevent reverse leakage or breakdown.
- **PCB Layout**
- In order to get better use effects, the main precautions of the PCB layout are as follows:
- Input capacitors and output capacitors are as close to the chip pin as much as possible;
- From VIN to inductive L to VOUT's power channel, the wiring is as short and thick as possible;
- The SW pin has a high -frequency switch signal, pay attention to the isolation of other components on the board.

■ Package Information

- **SOT-23-6L**



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°

■ 版本历史

序号	版本号	修改日期	修改内容	修改人	批准人
01	01	2018.08.20			