产品概述

FP6291LR-G1是一款微小型、高效率、升压型 DC/DC 调整器。电路由电流模 PWM 控制环路，误差放大器，斜波补偿电路，比较器和功率开关等模块组成。该芯片可在较宽负载范围内高效稳定的工作，内置一个 4A 的功率开关和软启动保护电路。高达 93%的转换效率能够高效的延长电池寿命。可以通过调整两个外加电阻来设定输出电压。

产品特点

- 效率高达 93%
- 输出电压可升到 28V
- 输入电压范围 2-24V
- 1.2MHz 的固定开关频率
- 自动 PWM/PFM 切换模式
- 功率通路支持短路保护

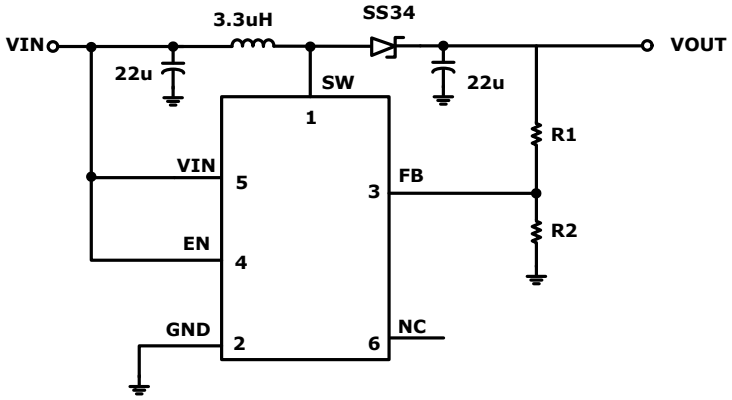
用途

- 便携式移动设备
- 无线通信设备
- 电池后备电源

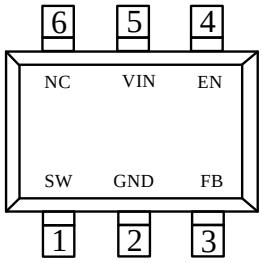
封装

- SOT-23-6L

典型应用电路



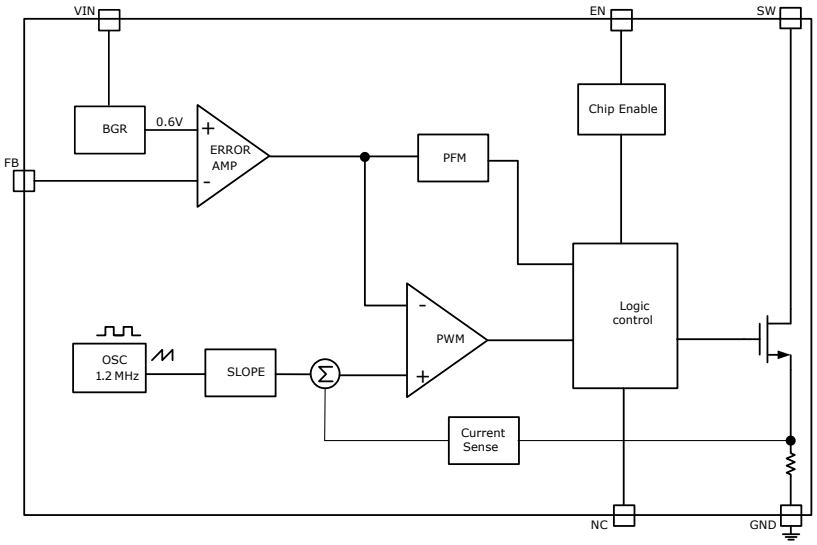
引脚配置



SOT-23-6L

脚位顺序	引脚名称	功能描述
1	SW	开关引脚
2	GND	接地端
3	FB	反馈端
4	EN	使能端，高有效
5	VIN	输入端
6	NC	悬空

功能框图



绝对最大额定值

项目	符号	绝对最大额定值	单位
输入电压	VIN	Vss-0.3～Vss+24	V
输出电压	VOUT	Vss-0.3～Vss+28	
	VSW	Vss-0.3～Vss+28	
SW端开关电流	ISW	4	A
容许功耗	PD	250	mW
工作环境温度	Topr	-40～＋80	℃
保存温度	Tstg	-40～＋125	

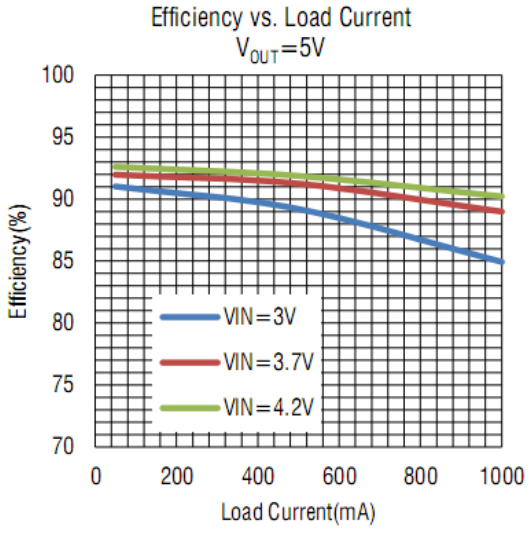
电学特性参数

（VIN=5V，Ta=25℃，除非另有指定）

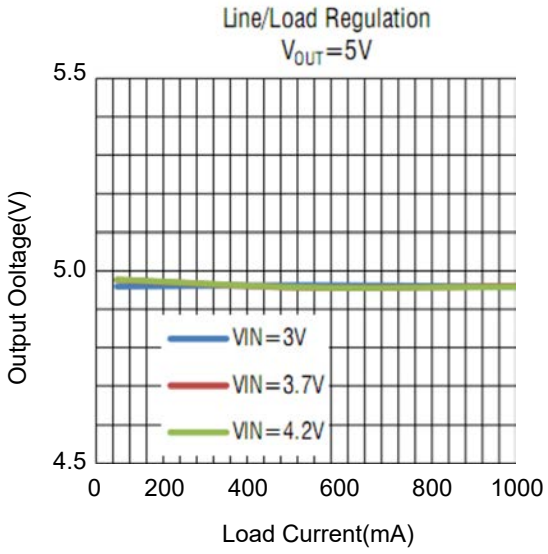
项目	符号	条件	最小值	典型值	最大值	单位
输出电压	VOUT	-	2.5		28	V
输入电压	VIN	-	2	-	24	
输入欠压保护	UVLO_F		1.7		2	V
欠压保护迟滞	UVLO_HYS	-	-	100	-	mV
关断电流	IOFF	VEN<VENL	-	0.01	1	μA
无负载电流	IC	VIN=3.6V，VOUT=5V	-	100	-	μA
反馈基准电压	VR	VOUT=5V	588	600	612	mV
开关频率	FS	IOUT=1.2A	-	1.2	-	MHz
最大占空比	DMAX	VFB=0V	85	-	-	%
功率管内阻	RDSON	VIN=3.6V，ISW=2A	-	80	150	mΩ
开关电流	ISW	VIN=4.2V	-	4	-	A
线性调整度	ΔVLINE	IOUT=1.2A，VIN=3V 到 4.2V	-	0.4	-	%
负载调整度	ΔVLOAD	VIN=3.6V，IOUT=10mA 到 1.2A	-	0.45	-	%
EN 高电平	VENH	VIN=3.6V	1.2	-	-	V
EN 低电平	VENL	VIN=3.6V	-	-	0.4	V
SW 端漏电流	ISW_L	VSW=20V			1	uA
过热关断温度	TSHD	VIN=3.6V，IOUT=10mA	-	160	-	℃

典型特性曲线

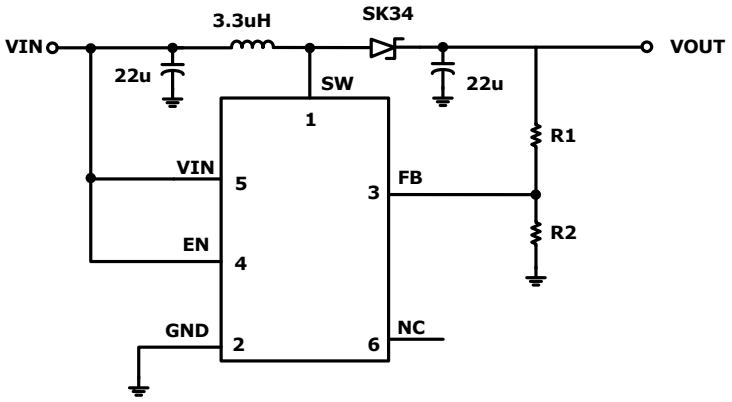
效率



度和负载调整度



应用信息



输出电压的设置

通过 FB 的外部电阻分压，输出电压值可根据以下公式计算：

$$VOUT = VFB \times \left(1 + \frac{R1}{R2}\right)$$，R1 取百 K 级电阻

电感选择

推荐电感值范围选择 3.3uH 到 22uH。电感选择主要考虑较小的 DCR 电阻以确保较高的效率。

输入输出电容

输入电容和输出电容的容值建议使用 22uF 以上，为了得到更小的输出纹波，建议输出使用陶瓷电容。

二极管

续流二极管请使用快速响应的肖特基二极管，正向压降越低则负载效率越高。针对不同的输出电压，注意续流二极管的反向耐压选择要足够高（>VOUT+5V）以防止反向漏电或者击穿。

PCB 布局

为了得到更好的使用效果，PCB 布局主要注意事项如下：

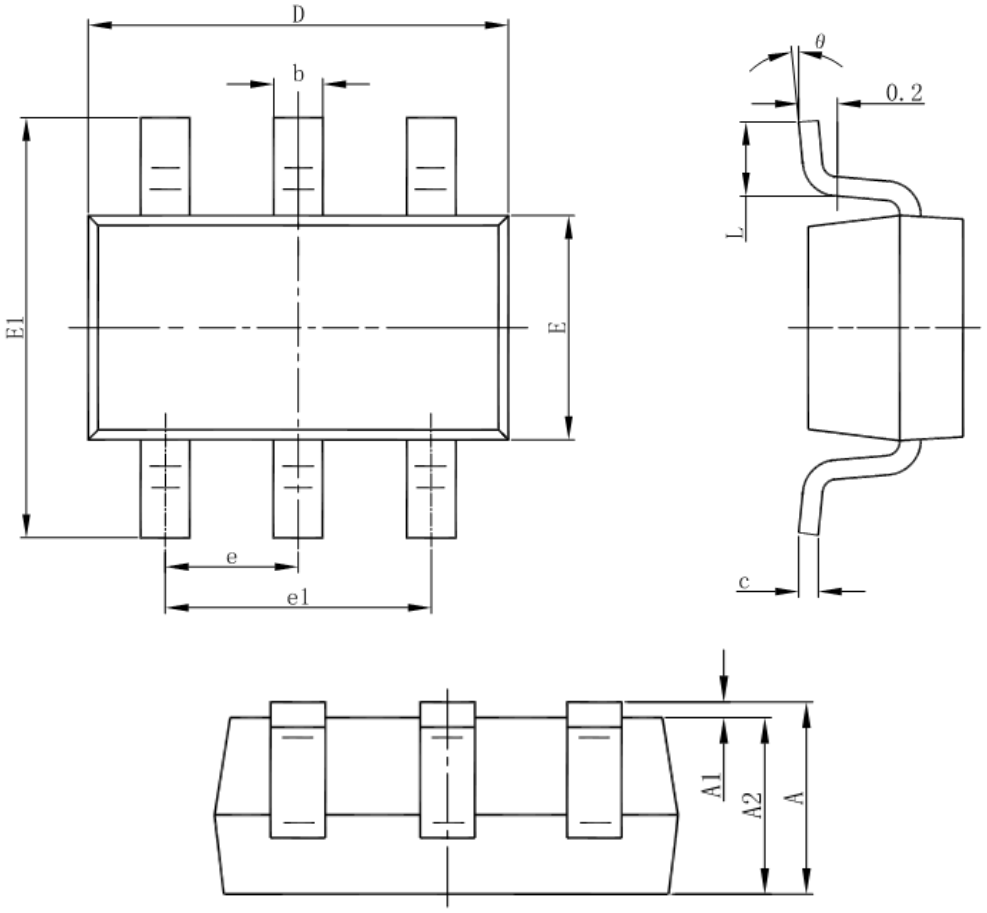
输入电容和输出电容尽可能靠近芯片引脚；

从 VIN 到电感 L 再到 VOUT 的功率通路，走线尽可能短而粗；

SW 引脚有高频开关信号，注意和板上其他元件的隔离。

封装信息

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°

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