3.0A，800KHz，开关式同步降压型锂电池充电 IC

器件概述

FH5306 是一款面向5V交流适配器的 3.0A 锂离子电池充电器。它是采用 800KHz 固定频率的同步降压型转换器，因此具有高达 92% 以上的充电效率，自身发热量极小。

FH5306 包括完整的充电终止电路、自动再充电和一个精确度达±1%的4.2V预设充电电压，内部集成了防反灌保护、输出短路保护、芯片及电池温度保护等多种功能。

FH5306 采用带散热片封装 ESOP-8L，并且只需极少的外围元器件，因此能够被嵌入在各种手持式应用中，作为大容量电池的高效充电器。

最大额定值

- 输入电源电压 (V_{CC}): -0.3V~6.5V
- BAT: -0.3V ~ 7.0V
- PROG : -0.3V~7.0V
- LX : -0.3V ~ 7.0V
- NCHRG : -0.3V~7.0V
- NSTDBY: -0.3V~7.0V
- TS: -0.3V~7.0V
- BAT短路持续时间: 连续
- 最大结温: 145℃
- 工作环境温度范围: -40℃ ~ 85℃
- 贮存温度范围: -65℃ ~ 125℃
- 引脚温度(焊接时间10秒): 260℃

电气特性

- 固定开关频率: 800kHz
- 输出效率高达 92%
- 最大的可调输出电流 3.5A
- 输入电流自动识别，适配器自适应
- 输出电压可调
- 无需高精度毫欧电阻
- 无需防反灌电流二极管
- 无需外置功率器件MOSFET或续流二极管
- 充电电压精度达到4.2V(±1%)
- 充电状态双输出、无电池和故障状态显示
- 待机模式下的供电电流为 70uA
- 涓流充电电压: 2.9V
- 软启动限制了浪涌电流
- 电池温度监测功能
- 输出短路保护功能
- 采用封装形式: ESOP-8L

应用领域

- 移动电话
- 平板电脑
- 播放器: MP3/MP4
- 便携式设备、各种充电器
- 数码相机
- 电子词典

参考应用电路

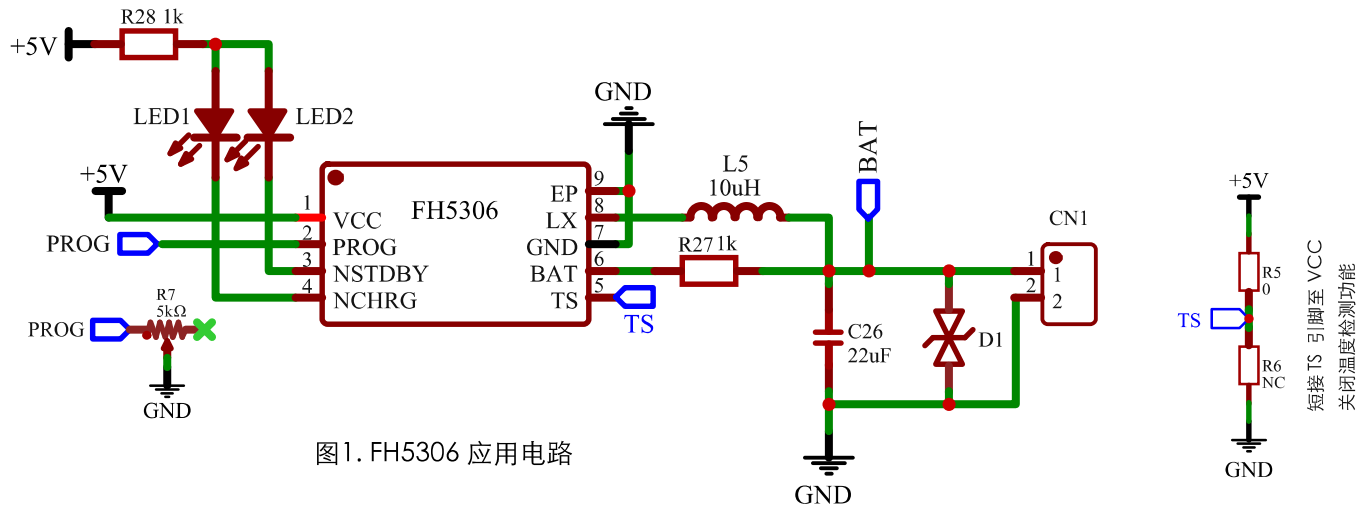
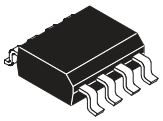
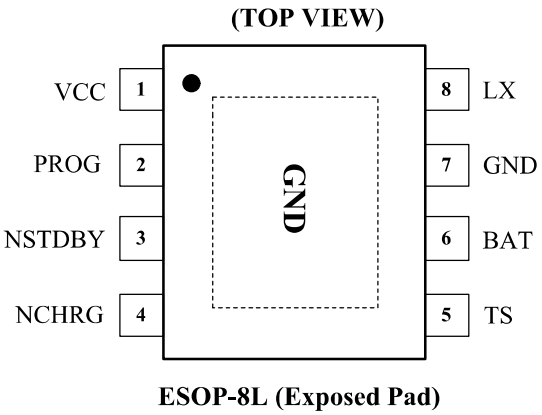


图1. FH5306 应用电路



引脚功能表



图二. FH5306引脚封装图

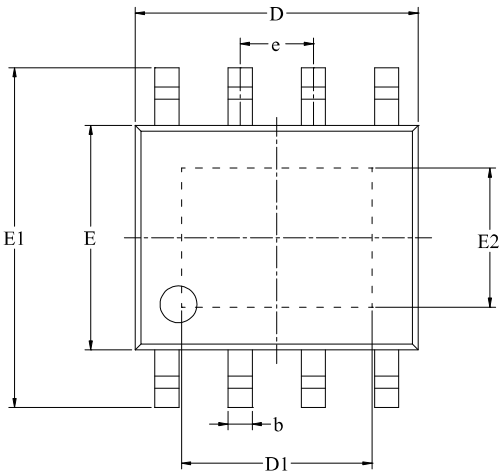
引脚	名称	说明
1	VCC	输入电源端
2	PROG	充电电流设置端
3	NSTDBY	电池充电完成指示端
4	NCHRG	电池充电指示端
5	TS	使能控制和电池温度检测输入端
6	BAT	电池电压检测端
7	GND	接地
8	LX	开关端

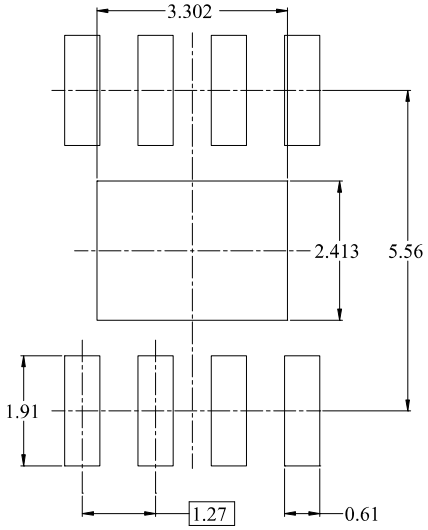
引脚功能

引脚1	**VCC**	输入电源电压端。 当VCC 与BAT 管脚的电压差小于30mV时，FH5306将进入低功耗的停机模式，此时BAT管脚的电流将小于2uA。
引脚2	**PROG**	最大充电电流设置，电阻阻值在1K～200ohm之间。
引脚3	**NSTDBY**	充电完成指示端。 当电池充电完成时，该管脚被内部开关拉至低电平，表示充电完成， 否则该管脚处于高阻态。
引脚4	**NCHRG**	充电状态指示端。 当充电器向电池充电时，该管脚被内部开关拉至低电平，表示充电正在进行，否则该管脚处于高阻态。
引脚5	**TS**	电池温度检测输入端。 将TS 管脚接到电池的NTC 传感器的输出端。如果TS 管脚的电压小于输入电压的45%或者大于输入电压的80%，意味着电池温度过低或过高，则充电被暂停。如果TS 直接接VCC，电池温度检测功能取消，其他充电功能正常。如果TS 直接接GND，则进入待机模式，充电终止。
引脚6	**BAT**	电池电压检测端。 在电池的正端和管脚之间串接一个电阻可以调节电池充满电压。在芯片被禁止工作或者睡眠模式时，BAT 管脚的漏电流小于2uA。
引脚7	**GND**	电源接地
引脚8	**LX**	内置功率MOSFET 连接点。 LX为FH5306的电流输出端与外部电感相连作为电池充电电流的输入端。

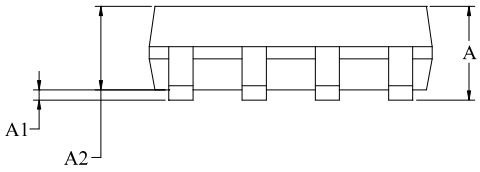
PACKAGE OUTLINE DIMENSIONS

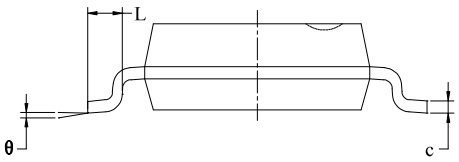
ESOP-8L (Exposed Pad)





RECOMMENDED LAND PATTERN(Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.700		0.067
A1	0.000	0.100	0.000	0.004
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
D1	3.202	3.402	0.126	0.134
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
E2	2.313	2.513	0.091	0.099
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

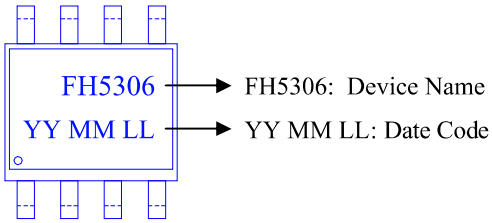
ORDERING INFORMATION

Part Number	Voltage Range	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH5306S8	4.0V ~ 6.0V	● Battery Charger, buck mode ● Output current: 3.5A ● Efficiency: 92% ● Charge voltage: 4.2V(±1%) ● Switch Frequency: 800KHz	-40°C to 85°C	ESOP-8L	FH5306 YY MM LL	2500PCS/Reel

Note:

- **FH5306** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.
- ForDevices reserves the right to amend and legally interpret the electrical parameters of this chip device. (http://www.fordevices.com)

Device Name: ESOP-8L



ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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▲ Update by Jun.2018