

Peak 3.0A, 1.0MHz, High Efficiency, Internal MOSFET Synchronous Boost(Step-Up) DC-DC Converter

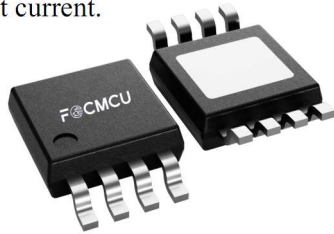
Description

The FH4202 is synchronous, 2.0A, 1.0MHz step-up (Boost) DC-DC Converter, which mainly consists of a reference voltage source, an oscillation circuit, an error amplifier, a phase compensation circuit, a PWM/PFM switching control circuit and an adjustable output current limit circuit. With an internal low-ON-resistance N-ch and P-ch Power MOSFET.

This product is ideal for applications requiring high efficiency and a high output current.

Package Type

- 8-Pin ESOP8



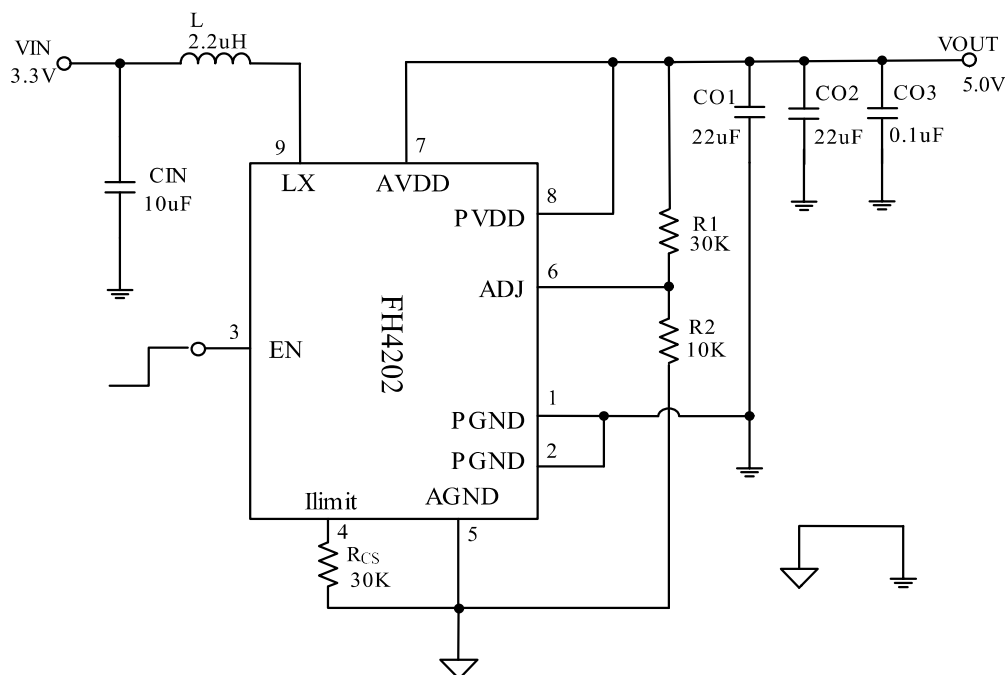
Typical Application

- Portable charger, mobile power
- Digital cameras, GPS, wireless transceiver
- IPad-like computers, smart phones and port-able handheld devices

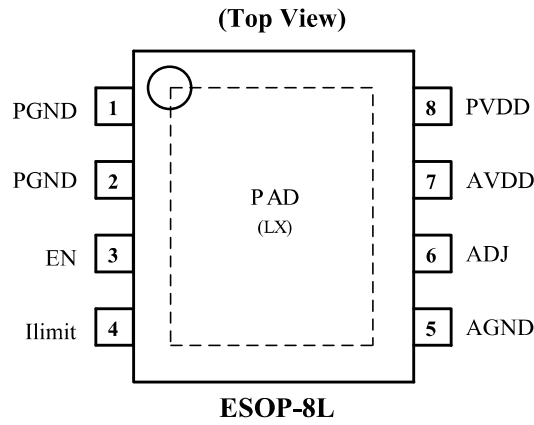
Features

- High efficiency.(up to 94%)
- Up to 92.5% Efficiency
@ $I_{OUT} = 2.0A$ $V_{OUT} = 5.0V$ from 3.3V Input
- Guaranteed 2.5A Output Current
@ $V_{OUT} = 5.0V$ from 3.3V Input
- Synchronous and internal P-ch Power MOSFET and N-ch Power MOSFET, No Schottky Diode Required
- Oscillator frequency: 1.0MHz
- Reference voltage: 1.25V($\pm 2\%$)
- Input voltage range: 2.9V to 4.4V
- Continuous output current: 2.0A typ. ($V_{IN} = 3.0V$, $V_{OUT} = 5.0V$)
- Soft start function
- Shutdown function: 1.0 μA max.
- UVLO (under-voltage lockout) function
- Current Limit: adjustable by the Rcs using different valve
- Thermal Shutdown Protection: 156 $^{\circ}C$

Typical Application Circuit



Pin Configuration



Pin Assignment

Pin Number	Pin Name	Function
1	PGND	Power Ground
2	PGND	Power Ground
3	EN	Power-enable “H” : Power-on (normal operation) “L” : Power-off (standby)
4	Ilimit	Current limit External transistor
5	AGND	Analog Ground
6	ADJ	Feed Back voltage pin
7	AVDD	IC Analog power supply pin
8	PVDD	IC power supply pin
9	LX	Power switching pin

器件概述

FH4202 是一款工作频率在 1MHz，带载能力达到 2A 以上的同步整流升压 DC-DC 转换器，其内部主要由基准电压源，振荡器，误差放大器，相位补偿电路，PFM/PWM 转换控制电路和一个可调的限流电路组成。内部集成有低导通电阻的 N 沟道 MOSFET 和 P 沟道 MOSFET。此产品适用于锂电池供电的大负载供电需求的升压系统。

封装形式

- 8-pin ESOP8

应用领域

- 便携式充电器,移动电源
- 数码相机、GPS、无线收发器
- Ipad, 笔记本电脑、智能手机, 以及便携手持设备。

电气特点

- 高效率 (效率高达 94%)
- 输入 3.3V, 输出 5V 带载 2A 的情况下效率高达 92.5%
- 输入 3.3V, 输出 5V 时可保证带载 2.5A
- 不需要外置肖特基二极管
- 振荡频率: 1.0MHz
- 基准电压值: 1.25V ($\pm 2\%$)
- 输入电压范围: 2.9V 到 4.4V
- 持续输出电流: 典型值 2.0A (输入 3.0V, 输出 5.0V 的情况下)
- 软启动功能
- 关断功能: 最大关断电流 1.0uA
- 欠压保护功能
- 限流功能: 通过改变外部 RCS 电阻值来调节限流大小
- 温度保护功能: 156°C 保护

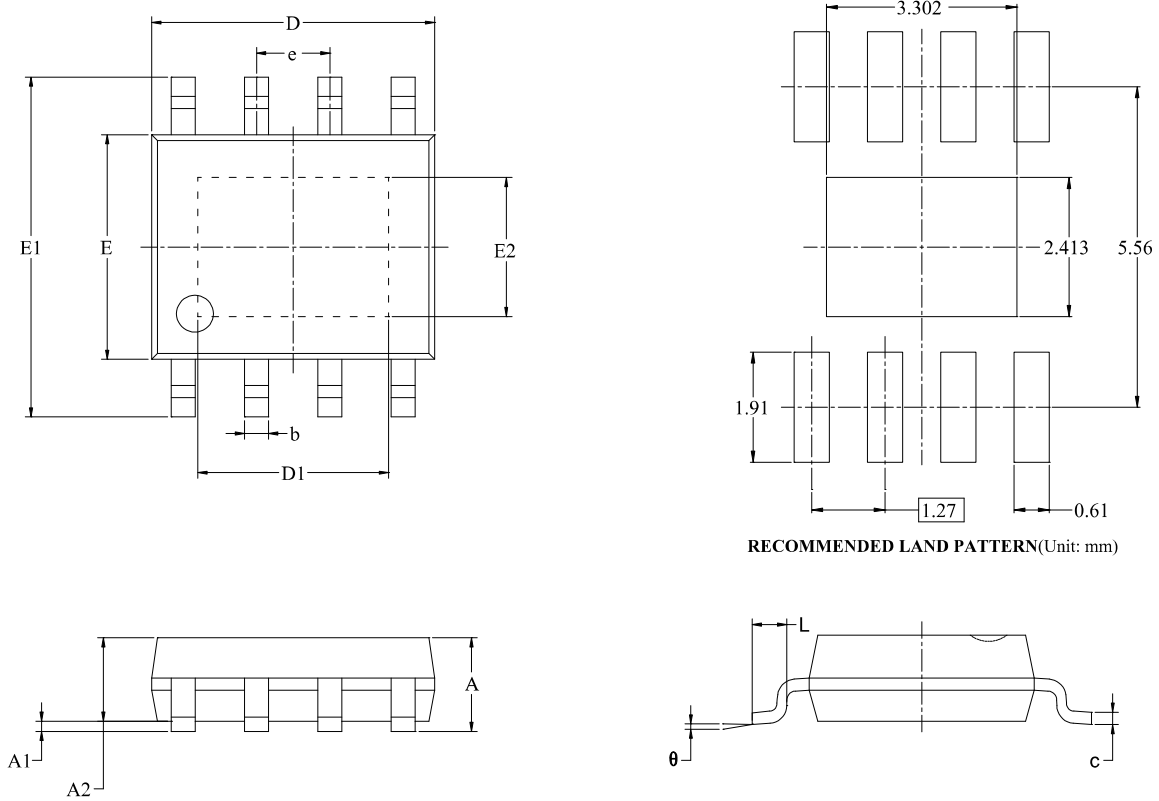
绝对最大额定值

参数	符号	范围	单位
VDD 脚电压范围	AVDD, PVDD	-0.3 ~ 6.0	V
LX 脚电压范围	V _{LX}	-0.3 ~ VDD+0.3	V
ADJ 脚电压范围	V _{ADJ}	-0.3 ~ VDD+0.3	V
EN 脚电压范围	V _{EN}	-0.3 ~ VDD+0.3	V
封装功率损耗 (ESOP8)	P _d	2000	mW
工作温度范围	T _{opr}	-40 ~ +85	°C
存储温度范围	T _{stg}	-40 ~ +125	°C

注意: 绝对最大额定值是本产品能够承受的最大物理伤害极限值, 请在任何情况下勿超出该额定值。

PACKAGE OUTLINE DIMENSIONS

Type: ESOP-8L (Exposed Pad)



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°

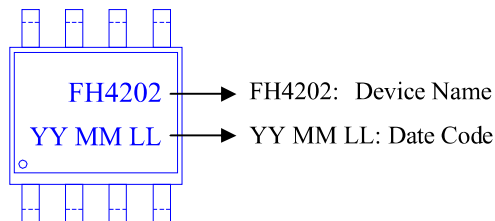
ORDERING INFORMATION

Part Number	Voltage Range	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH4202S8	2.9V ~ 4.4V	<ul style="list-style-type: none"> • Synchronous Boost(Step-Up) • Guaranteed 2.5A I_{OUT} • Frequency: 1.0MHz • Shutdown Current: 1.0uA(max.) • Efficiency: 94%(max.) • V_{FB}: 1.25V(±2%) 	-40°C to +85°C	ESOP-8L	FH4202 <u>YY MM LL</u>	3000PCS/Reel

Note:

- **FH4202** 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 Jul.2021