

PFM Step-up Battery Charger Controller IC

General Description:

The FH5330 is a step up battery charger controller IC which operates from an input voltage of 4.0V to 28.0V. The FH5330 includes on-chip reference voltage, +5.0V voltage regulator, inductor current sensing, battery voltage monitoring and N-ch MOSFET driving blocks, etc, which makes the FH5330 easy to be used with few external components.

The FH5330 enter charging mode on power up, the external N-ch MOSFET is turned on, when the inductor current rises to the upper limit, the N-channel MOSFET is turned off, then inductor current begins to fall, the energy stored in inductor is transferred to the battery. When inductor current falls to the lower limit, the external N-channel MOSFET in turned on again, and a new cycle starts. Battery voltage is feedback to FB pin via the external resistor divider, when the voltage at FB pin reaches 1.205V(Typical), the charging is terminated, the external N-channel MOSFET remains off until the voltage at FB pin decreases to recharge threshold, The maximum switching frequency of FH5330 is 1.0MHz.

FH5330 adopts 6-pin SOT23 package.

Block Diagram:

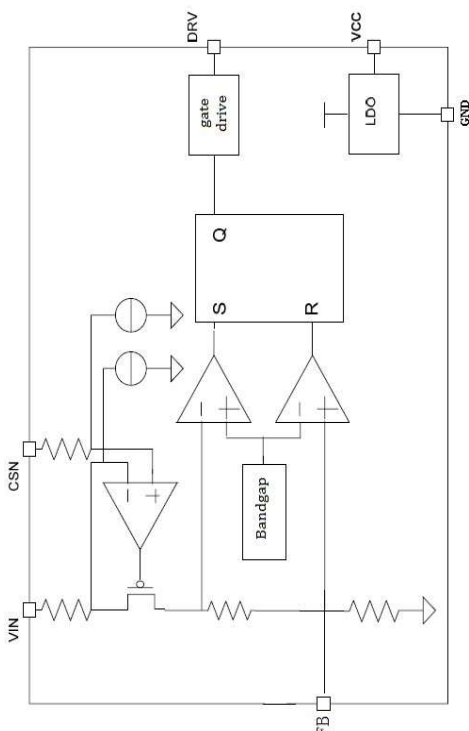


Figure 2 Block Diagram

Features:

- Input Voltage Range: 4V to 28V
- Inductor Current Sensing
- Battery Voltage Monitoring
- Up to 1.0MHz Switching Frequency
- Automatic Recharge
- Up to 25W Output Power
- On-Chip Voltage Regulator: 5V, 5mA
- Operating Temperature Range: -40°C to 85°C
- 6-Pin SOT23 Package
- Lead-free, rohs-Compliant, Halogen-free

Applications:

- Lithium ion battery charger
- LiFePO4 battery charger
- Lead-Acid battery charger
- Standalone battery charger

Typical Application Circuit:

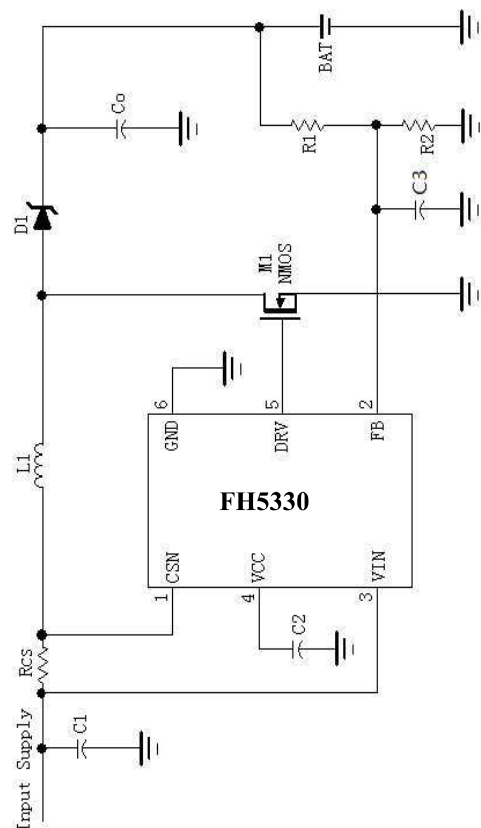
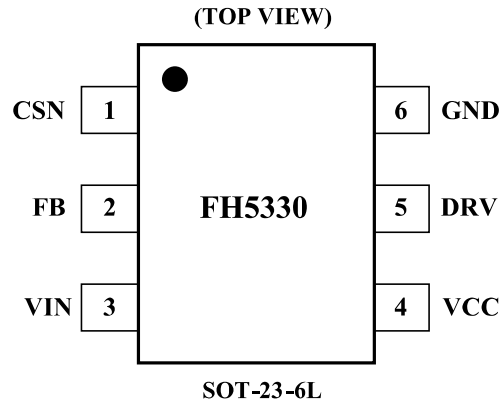


Figure 1 Typical Application Circuit

Pin Assignment



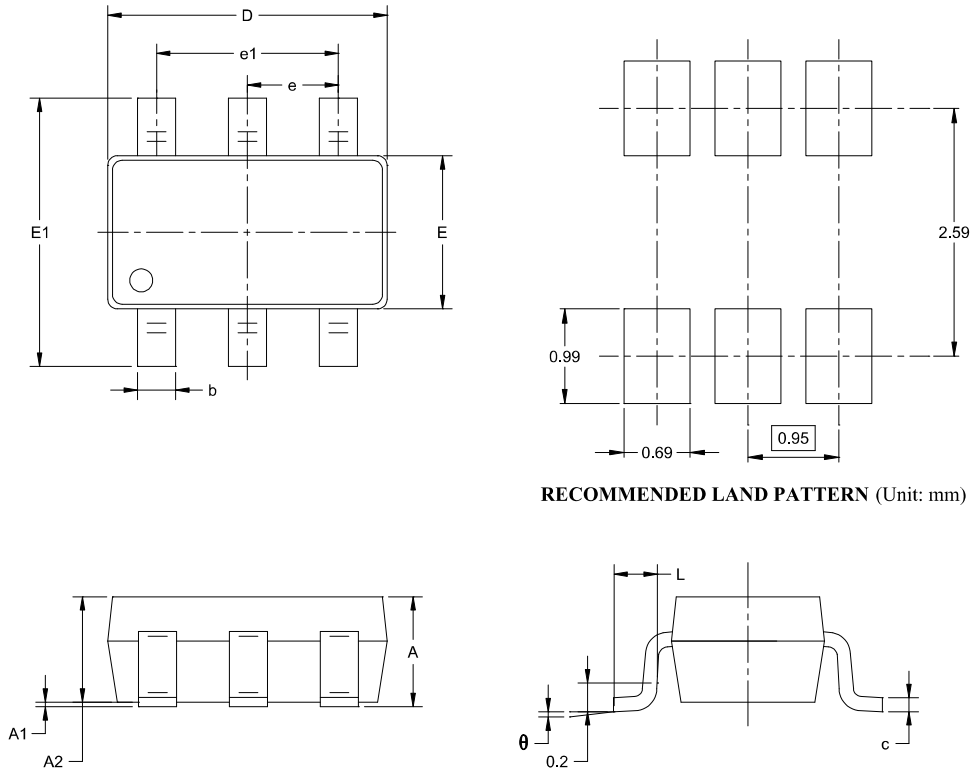
Pin Description

No.	Name	Description
1	CSN	Negative Input of Inductor Current Sense. A current sense resistor R_{CS} between VIN and CSN is needed to sense the inductor current. In normal operation, (VIN – CSN) is between 120mV and 150mV(Typical).
2	FB	Battery Voltage Feedback Input. Generally, FB pin should be connected to an external resistor divider to monitor the battery voltage. When the voltage at FB pin rises to 1.205V (Typical), the FH5330 enters termination mode, and enters charge mode again if the voltage at FB pin falls below 1.155V(Typical).
3	VIN	The Positive Terminal of Input Supply. In addition to powering the internal circuits, VIN pin also serves as the positive terminal of inductor current sense.
4	VCC	+5V Regulator Output. Connect a 4.7uF or 10uF capacitor from VCC to GND, the maximum output current is 5mA.
5	DRV	Gate Drive Output for External MOSFET. Connect to the gate of an external N-channel MOSFET.
6	GND	Ground(GND).

Package Information

Package Outline Dimensions

SOT-23-6L



RECOMMENDED LAND PATTERN (Unit: mm)

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	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Ordering Information

Part No.	Package Type	Pack	Operating Temperature Range
FH5330M6	SOT-23-6L	Tape and Reel, 3000/Reel	-40°C to 85°C