800mA Li-ion Battery Linear Charger

General Description

FH4065 is a complete constant-current/constant voltage linear charger for single cell lithium-ion batteries. Furthermore the FH4065 is specifically designed to work within USB power specifications.

No external sense resistor is needed and no blocking diode is required due to the internal PMOSFET architecture .Thermal feedback regulates the charge current to limit the die temperature during high power operation or high ambient temperature .The charge voltage is fixed at 4.20V,and the charge current can be programmed externally with a single resistor. The FH4065 automatically terminates the charge cycle when the charge current drops to 1/10th the programmed value after the final float voltage is reached.

When the input supply (wall adapter or USB supply) is removed the FH4065 automatically enters a low current state dropping the battery drain current to less than 2.0μA.The FH4065 can be put into shutdown mode reducing the supply current to 55μA.

Other features include charge current monitor, undervoltage lockout, automatic recharge and a status.

Features

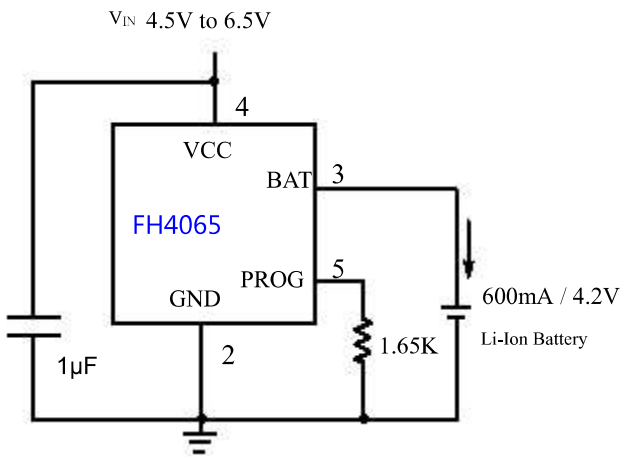
- Protection of battery cell reverse connection
- No MOSFET sense resistor or blocking diode required
- Complete Linear Charger in Thin-SOT Package for Single Cell Lithium-ion Batteries
- Constant-Current/Constant-Voltage operation with thermal regulation to maximize Rate Without risk of overheating.
- Preset 4.2V charge voltage with ±1% accuracy
- Automatic Recharge
- Charges Single Cell Li-Ion Batteries Directly from USB Port
- C/10 charge termination
- 55μA supply current in shutdown
- 2.9V trickle current charge threshold
- Soft-Start limits inrush current
- Charge Status Output Pin
- Available in SOT-23-5L Package

Applications

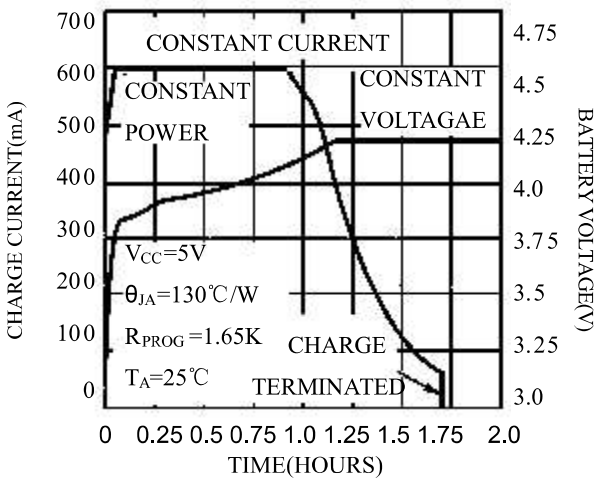
- Cellular Telephones, PDAs, MP3 Players
- Charging Docks and Cradles
- Bluetooth Applications

Typical Application

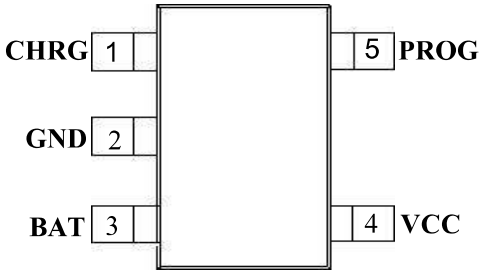
600mA **Single Cell Li-Ion Charger**



Typical charge cycle(750mAh batter)



■ Pin Configuration



Type: **SOT-23-5L**

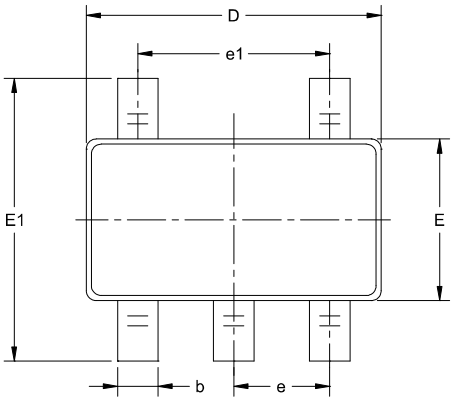
■ Pin Assignment

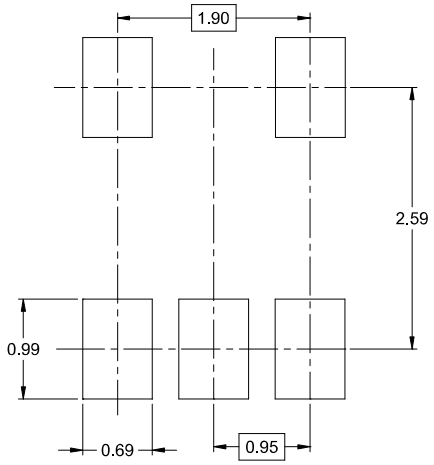
➢ **FH4065M5**

Pin Number	Symbol	Function
1	CHRG	**Open-Drain charge status output** When the battery is being charged, the $\overline{\text{CHRG}}$ pin is pulled low by an internal switch, otherwise, CHRG pin is in high impedance state.
2	GND	**Ground**
3	BAT	**Battery connection Pin** Connect the positive terminal of the battery to this pin. Dropping BAT pin's current to less than 2.0μA when IC in disable mode or in sleep mode. BAT pin provides charge current to the battery and provides regulation voltage of 4.2V.
4	VCC	**Positive input supply voltage** Provides power to the internal circuit. When V_{CC} drops to within 80mV of the BAT pin voltage, the FH4065 enters low power sleep mode, dropping I_{BAT} to less than 2.0μA.
5	PROG	**Constant Charge Current Setting and Charge Current Monitor Pin** The charge current is programmed by connecting a resistor R_{PROG} from this pin to GND. When in precharge mode, the PROG pin's voltage is regulated to 0.1V. When charging in constant-current mode this pin's voltage is regulated to 1.0V. In all modes during charging, the voltage on this pin can be used to measure the charge current using the following formula: $I_{BAT} = \frac{V_{PROG}}{R_{PROG}} * 1100$

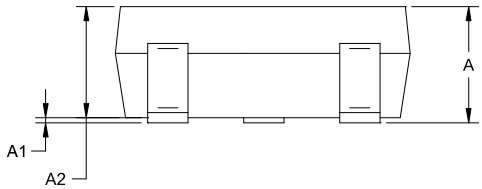
■ Packaging Information

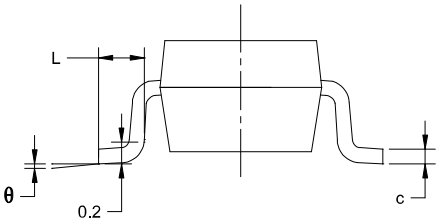
- Package Type: **SOT-23-5L** Unit:mm(inch)





RECOMMENDED LAND PATTERN(Unit: mm)





DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.9	1.45	0.0354	0.0570
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0511
B	0.2	0.5	0.0078	0.0196
C	0.09	0.26	0.0035	0.0102
D	2.7	3.10	0.1062	0.1220
E	2.2	3.2	0.0866	0.1181
E1	1.30	1.80	0.0511	0.0708
e	0.95REF		0.0374REF	
e1	1.90REF		0.0748REF	
L	0.10	0.60	0.0039	0.0236
a^0	0^0	30^0	0^0	30^0

■ Ordering Information

Part Number	Function	Package	SPQ	Top Mark
FH4065M5	C/10 Charge termination 4.20V Charge voltage	SOT-23-5L	3000PCS/Reel	* * * * *

- FH4065 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.

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