

## Standalone Linear 1A Li-Ion Battery Charger

### Description

The KF5056 is a complete constant current & constant voltage linear charger for single cell lithium-ion batteries. Its SOP/MSOP package and low external component count make the KF5056 ideally suited for portable applications. Furthermore, the KF5056 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 MOSFET 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 4.2V, and the charge current can be programmed externally with a single resistor. The KF5056 automatically terminates the charge cycle when the charge current drops to 1/10<sup>th</sup> the programmed value after the final float voltage is reached.

When the input supply (wall adapter or USB supply) is removed, the KF5056 automatically enters a low current state, dropping the battery drain current to less than 2uA. The KF5056 can be put into shutdown mode, reducing the supply current to 50uA.

Other features include Battery temperature monitor, under-voltage lockout, automatic recharge and two status pins to indicate charge and charge termination.

### Applications

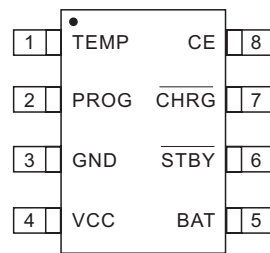
- Cellular Telephones, PDAs, MP3 /MP4 Players
- Charging Docks and Cradles
- Bluetooth 、GPS Applications

### Features

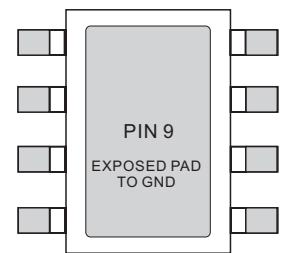
- Programmable Charge Current Up to 1000mA
- No MOSFET, Sense Resistor or Blocking Diode Required
- Complete Linear Charger in SOP/MSOP Package for single Cell Lithium-Ion Batteries
- Constant-Current/Constant-Voltage Operation with Thermal Regulation to Maximize Charge Rate Without Risk of Overheating
- Charges Single Cell Li-Ion Batteries Directly from USB Port
- Preset 4.2V Charge Voltage with  $\pm 1\%$  Accuracy
- Charge Current Monitor Output for Gas Gauging
- Automatic Recharge
- Charge state pairs of output, no battery and fault status display
- C/10 Charge Termination
- 50uA Supply Current in Shutdown
- 2.9V Trickle Charge Threshold
- Soft-Start Limits Inrush Current
- Battery temperature monitoring function
- Available in SOP8-PP/ MSOP8-PP Package

### Package

- SOP8-PP/MSOP8-PP

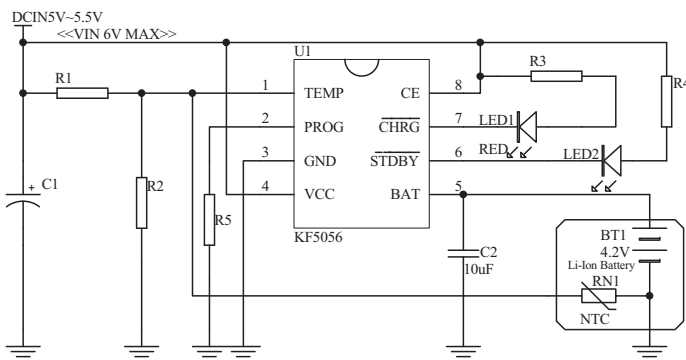


SOP8 Top View



SOP8 Bottom View

### Typical Application Circuit



### Pin Assignment

KF5056

Pin Number	Pin Name	Function
1	TEMP	Battery temperature detection.
2	PROG	Charge Current Program.
3	GND	Ground.
4	VCC	Positive Input Supply Voltage DC 5~5.5V.
5	BAT	Charge Current Output.
6	STBY	completion of battery charging instructions side.
7	CHRG	Charge status indicator.
8	CE	Chip enable input. High input level.