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## Standalone Linear Li-Ion Battery Charger with Thermal Regulation

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### FEATURES

- Charges Single Cell Li-Ion Batteries Directly from USB Port
- Programmable Charge Current Up to 800mA
- No MOSFET, Sense Resistor or Blocking Diode Required
- Complete Linear Charger in SOT23-5 or ESOP8 Package for Single Cell Lithium-Ion Batteries
- Constant-Current/Constant-Voltage Operation with Thermal Regulation to Maximize Charge Rate Without Risk of Overheating
- Preset 4.2V Charge Voltage with  $\pm 1\%$  Accuracy

### APPLICATION

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

### GENERAL DESCRIPTION

The PT6102 is a highly integrated Li-ion battery linear charging management device targeted at space limited portable applications. The PT6102 offers an integrated MOSFET and current sensor, reverse blocking protection, high accuracy current and voltage regulation, charge status indication, and charge termination in a SOT23 or ESOP8 package. The PT6102 has low external component count. The PT6102 can also work within USB power specifications.

The PT6102 charges a battery in three phases: trickle charging, constant current, and constant voltage. No external sense resistor is needed, and no blocking diode is required due to the internal MOSFET architecture. The thermal feedback regulates the charging current to limit the chip temperature during high power operation or high ambient temperature to maximize the charge rate without risk of overheating. The charge voltage is fixed at 4.2V, and the charge current can be programmed externally with a single resistor. The PT6102 automatically terminates the charge cycle when the charge current drops to 1/10 the programmed value after the final float voltage is reached. The PT6102 automatically re-starts the charge if the battery voltage falls below an internal threshold.

## TYPICAL APPLICATIONS

