# Standalone Linear Li-Ion Battery Charger

## Features

- Constant-Current/Constant-Voltage Operation with Thermal Regulation to Maximize Charge Rate Without Risk of Overheating
- No MOSFET, Sense Resistor or Blocking Diode Required
- Complete Linear Charger in SOT Package for Single Cell Lithium-Ion Batteries
- Charges Single Cell Li-Ion Batteries Directly from USB Port
- Charge Current Monitor Output for Gas Gauging
- Automatic Recharge
- Charge Status Output Pin
- C/10 Charge Termination
- Programmable Charge Current Up to 500mA
- Preset 4.2V Charge Voltage with ±1% Accuracy
- 6.4V Input Over Voltage Protection
- 25μA Supply Current in Shutdown
- 2.9V Trickle Charge Threshold
- Soft-Start Limits Inrush Current
- Available in SOT23 Package
- RoHS Compliant and Lead (Pb) Free

## Applications

- Cellular Telephones
- Charging Docks and Cradles
- Bluetooth Application
- Wearable Application

## General Description

The RY4064 is a complete constant-current/constant-voltage linear charger for single cell lithium-ion batteries. Its SOT package and low external component count make the RY4064 ideally suited for portable applications. Furthermore, the RY4064 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 RY4064 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 RY4064 automatically enters a low current state, dropping the battery drain current to less than 2μA. The RY4064 can be put into shutdown mode, reducing the supply current to 25μA. Other features include charge current monitor, undervoltage lockout, automatic recharge, and a status pin to indicate charge termination and the presence of an input voltage.

## Typical Application Circuit

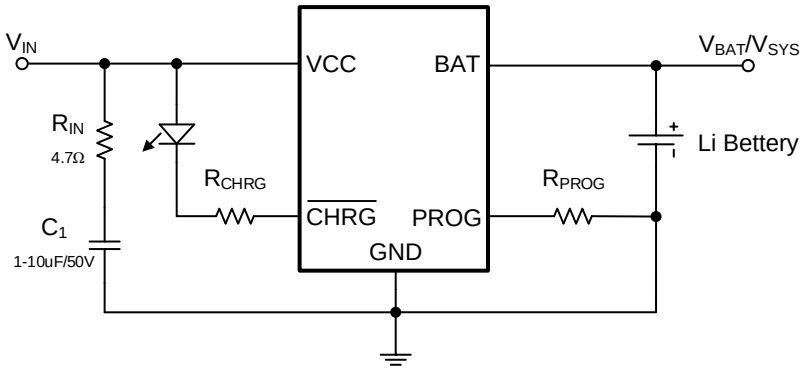


Figure 1. Typical Application Circuit