



SC8913 High Efficiency, Synchronous, Bi-directional Buck Charger Converter with Integrated MOSFETs and I2C Interface

1 Description

SC8913 is a synchronous buck charger converter with reverse boost discharging function. It integrates power MOSFETs and supports very wide input and output voltage range, suitable for applications of 1 to 4-cell Li-ion battery.

In charging mode, it steps down the input voltage and effectively charging the batteries as long as the input voltage is higher than battery voltage. SC8913 supports trickle charging, constant current (CC) charging and constant voltage (CV) charging management functions automatically. In discharging mode (reverse boost mode), SC8913 is able to output a boosted voltage up to 26V effectively.

The SC8913 features I2C interface, so the user can easily set the charging/discharging mode and program the input current limit, output current limit and output voltage through I2C. It also supports DP/DM handshaking, the adapter insert detection function, load insert detection function, small current detection. Meantime, it offers a PMOS gate driver for external power path control, an open drain output for general purpose, and also a 10-bit ADC resource. The user can control all these functions through I2C. All these features help simplify the system design and reduce the BOM.

The SC8913 supports under voltage lockout, over voltage protection, over current protection, short circuit warning and over temperature protections to ensure safety under different abnormal conditions.

SC8913 adopts 40 pin QFN 6x6 package.

3 Applications

- Power Bank
- Li-ion Battery Charger
- Fast Charge
- Smart USB Sockets

2 Features

- Charging management for 1 to 4 battery in series, including trickle charging, CC charging, CV charging and charging termination function
- Reverse boost mode operation
- Integrated power MOSFET
- Wide input voltage range (charging mode): VBAT to 26 V
- Wide reverse output range (boost mode) : VBAT to 26 V
- I2C Programmable charge current and voltage
- I2C Programmable discharging output voltage
- I2C Programmable input / output current limit
- High efficient buck/boost operation
- DP/DM fast charge handshaking for charging port
- Adjustable frequency from 150KHz to 450KHz
- 10-bit ADC resources
- Charging status indication
- Event detections, including automatic adapter insert and automatic load insert detection
- Power path control
- Under voltage protection and over current protection
- Short circuit indication and thermal shutdown protection
- QFN-40 package

4 Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC8913QDHR	40 pin QFN	6mm x 6mm x 0.75mm