



SC8813 High Efficiency, Synchronous, Bi-directional Buck Charger Controller with I2C Interface

1 Description

SC8813 is a synchronous buck charger controller with reverse boost discharging function. It 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. SC8813 supports trickle charging, constant current (CC) charging and constant voltage (CV) charging management functions automatically. In discharging mode (reverse boost mode), SC8813 is able to output a boosted voltage up to 36V effectively.

The SC8813 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 SC8813 supports under voltage lockout, over voltage protection, over current protection, short circuit warning and over temperature protections to ensure safety under different abnormal conditions.

SC8813 adopts 32 pin QFN 4x4 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
- Wide input voltage range (charging mode): VBAT to 36 V
- Wide reverse output range (boost mode): VBAT to 36 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 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-32 package

4 Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC8813QDER	32 pin QFN	4mm x 4mm x 0.75mm