



SC8812A High Efficiency, Synchronous, Bi-Directional Buck-Boost Charger Controller with I2C Interface

1 Description

SC8812A is a synchronous buck-boost charger controller which can support reverse discharging operation. It can support up to 26V battery voltage, so can be used to effectively manage the charging process for 1~4 cell Li-ion batteries no matter adapter voltage is higher, lower or equal to battery voltage. When a system needs to generate an output from the battery, SC8812A can also discharge the cells and delivers desired output up to 36V.

Through its I2C interface, user can set the charging / discharging mode easily, and program the charging current, charging voltage, reserve output voltage, current limits, switching frequency and other parameters flexibly. Besides that, SC8812A supports fast charging handshake. It also integrates 10-bit ADC, so user can read the VBUS / VBAT voltage and current in real time, simplifying the system design.

SC8812A supports internal current limit, over voltage protection, output short protection and over temperature protections to ensure safety under abnormal conditions.

The SC8812A is in a 32 pin 4x4 QFN package.

3 Applications

- Power Bank with Fast Charge Function
- USB Power Delivery
- Type C Hub
- Industrial Power Supplies

2 Features

- Buck-Boost Battery Charger for 1 to 4 Cell Batteries
- Charging Management including Trickle Charge, CC Charge, CV Charge and Charge Termination
- Buck-Boost Reverse Discharging Mode
- Wide V_{BAT} Range: 2.7 V to 26 V, 40V sustainable
- Wide V_{BUS} Range: 2.7 V to 36 V, 40V sustainable
- I2C Programmable Charging Current and Voltage
- I2C Programmable Discharging Output Voltage
- I2C Programmable Input / Output Current Limit
- I2C Programmable Switching Frequency
- High Efficiency Buck-Boost Conversion
- DP/DM Handshake for Fast Charging
- 10-bit ADC Resources
- Charging Status Indication
- Event Detections, including Automatic Adapter Insert and Automatic Load Insert Detection
- Power Path Control
- Under Voltage Protection, Over Voltage Protection, Over Current Protection, Short Circuit Protection and Thermal Shutdown Protection
- QFN-32 Package

4 Device Information

| Part Number | Package | Dimension |
|-------------|------------|------------------------|
| SC8812AQDER | 32 pin QFN | 4.0mm x 4.0mm x 0.75mm |