

SC8905 High Efficiency, Synchronous, Bi-Directional Buck-Boost Charger Converter with Four Integrated MOSFET

1 Descriptions

SC8905 is a synchronous buck-boost charger converter which also supports reverse discharging operation. Four switches are integrated to simplify the system design. SC8905 employs current-mode control and can support very wide input and output voltage range. It can support applications from 2.7V to 22V VBUS range. It is able to effectively manage charging for 2~4 cell batteries no matter input/output voltage is higher, lower or equal to battery voltage. When system needs to discharge from battery, the IC will deliver desired output from the battery.

Through its I2C interface, user can set the charging / discharging mode easily, and program the charging current, VINREG voltage, reversed output voltage adjustment, current limits, switching frequency and other parameters flexibly. Charging voltage and current limit can be adjusted by external resistor.

SC8905 supports internal current limit, under voltage protection, over voltage protection, output short protection and over temperature protections to ensure safety under abnormal conditions.

The IC is in a 21 pin 4x4 QFN package.

3 Applications

- Power Bank
- USB Power Delivery
- Battery Chargers

2 Features

- Buck-Boost Battery Charger for 2 to 4 Cell Batteries 4.2V/4.35V/4.4V for 2s and 3s, 4.2V/4.35V for 4s
- Charging Management: Trickle Charging, CC Charging, CV Charging, Charging Termination, Auto Recharge
- Buck-Boost Reverse Discharging Mode
- Integrated Switches, 10 mΩ for Q1/4, 20 mΩ for Q2/3
- Wide VBAT Range: 2.7 V to 22 V, 25V sustainable
- Wide VBUS Range: 2.7 V to 22 V, 25V sustainable
- High Efficiency Buck-Boost Conversion
- I2C Interface
- Dynamic Output Voltage Control
- Output Voltage Cable Drop Compensation
- Adjustable Switching Frequency
- Programmable Current Limit
- Current Monitor
- NTC Battery Temperature Protection
- Under Voltage Protection, Over Voltage Protection, Over Current Protection
- Short Protection and Thermal Shutdown Protection
- QFN-21 4 x 4 Package

4 Device Information

Part Number	Package	Dimension
SC8905QFER	21 pin QFN	4.0mm x 4.0mm x 0.75mm