

# SC8934 High Efficiency, Synchronous, Bi-directional Buck Charger Converter with Integrated MOSFETs and I2C Interface

## 1 Description

SC8934 is a synchronous buck charger with reverse boost discharging function. It integrates two N-channel MOSFETs with ultra-low RDS\_ON and can support up to 12V high efficiency charging and discharging operation.

In charging mode, it steps down the input voltage to effectively charge the single cell battery. SC8934 supports trickle charging, constant current (CC) charging and constant voltage (CV) charging management functions automatically. When working in discharging mode (reverse boost mode), it can support up to 12V output and achieve up to 95% efficiency with 3.7V battery voltage for 9V2A output load.

The SC8934 features I2C interface, so the user can easily control the charging/discharging mode, and program the charging current, charging voltage, output voltage, and output current limits through I2C. It also monitors the VBUS status of up to three USB ports and provides three NMOS gate drivers to control the power path independently.

The SC8934 integrates one DPDM interface. With the control of MCU, it can realize fast charge function.

The IC also provides IMON pin, through which the MCU can monitor the VBUS / VBAT voltage, IBUS / IBAT current and the current of each port in real time. The NTC function guarantees the battery operation safety. All these features help simplify the system design and reduce the BOM.

The SC8934 supports under voltage protection, over voltage protection, over current protection, short circuit protection and over temperature protections to ensure safety under different abnormal conditions.

SC8934 adopts 32 pin 4mm x 4mm QFN package.

## 3 Applications

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

## 2 Features

- Charging management, including trickle charging, CC charging, CV charging and charging termination function
- Wide VBUS voltage operation range up to 13.5V
- Programmable battery voltage from 4.1V to 4.5V
- Programmable switching frequency from 300 to 750Khz
- Integrated MOSFET with ultra-low RDS\_ON
- Support 3V VBAT to 12V 2A output with 92% efficiency
- Programmable VINREG voltage
- Programmable current limit with 25mA/step
- Programmable output voltage with 10mV/step
- Programmable cable drop compensation
- Insert detection for up to three USB ports
- Integrate N-Gate drivers for up to three USB ports
- DR/DM interface to implement fast charge handshake
- Voltage and current monitor through IMON pin
- Kevin sense for port current monitor
- Supports pass-through operation
- Charging status indication
- Chip enable control by /CE pin
- Support NTC function
- Under voltage protection and over voltage protection
- Over current protection, short circuit indication and thermal shutdown protection
- QFN-32 4x4 package

## 4 Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC8934QFER	32 pin QFN	4.0mm x 4.0mm x 0.75mm