



I2C Controlled 5A Buck-Boost Charger for 1~2 Cell Battery with NVDC and OTG Function

1 Descriptions

SC8982 is a highly integrated buck-boost charger optimized for 1~2 cell Li-ion and Li-polymer batteries. It integrates 4 switching power MOSFETs for the buck-boost operation, and can support up to 22V input voltage, so can be used to effectively manage the charging process no matter adapter voltage is higher, lower or equal to battery voltage. The IC can also discharge the cells and delivers desired output up to 21V. The IC also integrates the battery FET to support the NVDC (Narrow VDC) power path management. It provides a high-density battery charging solution for the smart phone, tablet and other portable devices and supports the USB type-C PD (Power Delivery) charging easily.

The IC integrates a 10-bit ADC so user can monitor the voltage and current for both inputs, system output and also the battery easily. Through its I2C interface, user can set the charging / discharging mode easily, and program the charging current, charging voltage, system voltage, reserve output voltage, current limits and other parameters flexibly.

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

The IC is in a 30-pin 4mm x 5mm QFN package.

2 Features

- Wide V_{BAT} Range: up to 9.6V, 15V sustainable
- Wide V_{BUS} Range: 3.6V to 22 V, 30V sustainable
- Integrated all Switching MOSFETs for Buck-Boost Operation and a BATFET for NVDC Control

3 Applications

- Smart Phone, Tablet and Ultra-book
- Mobile Printer and ePOS
- Wireless Speaker and Digital Camera
- Drone and Portable Medical Devices

- Charging Management for 1~2 Cell Battery
- Support Trickle Charge, CC Charge, CV Charge and Charge Termination
 - $\pm 0.4\%$ Charge Voltage Accuracy
 - $\pm 5\%$ Charge Current Accuracy
 - $\pm 5\%$ Input Current Accuracy
- High Efficiency Optimized for 5V/4.1A Input to Charge 2-Cell Battery
- Charging Current up to 5A with 25mA Resolution
- Support Dynamic Power Management with up to 21V VINDPM and up to 4.1A IINDPM
- Support ICO (Input Current Optimization) to Avoid Overloading Adapters
- Support NVDC Power Path Management
- Buck-Boost Reverse Discharging Mode to Power up USB Port from Battery
- 3V to 21V OTG Output Voltage with 20mV Resolution
- Up to 4.1A OTG Output Current with 25mA Resolution
- Hiccup Mode for OTG UVP Protection
- 750kHz / 950kHz / 1.15MHz/ 1.35MHz Programmable Switching Frequency
- Selectable PFM Operation for Light Load Condition
- 10-bit ADC Resources for Voltage / Current / Temperature Monitor
- Charging Status Indication
- Low Battery Quiescent Current
- Support Thermal Regulation and Thermal Shutdown
- Support Input / System / Battery Over-Voltage Protection
- Support Input / Battery Over-Current Protection
- Support Charging Safety Timer
- 30-pin 4mm x 5mm QFN package

4 Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC8982QFMR	30 pin QFN	4mm x 5mm x 0.75mm