

High Efficiency, Synchronous 5A Buck Charger for 1 cell Li-ion Battery with NVDC Power Path Management

1 DESCRIPTION

The SC89890H is a 1.5MHz highly integrated switch-mode buck charger for 1 cell Li-ion battery applications and NVDC system power path management, which separate the system load and charge current, also the system can power up with deep depletion battery. System can get the power from VBUS, VBAT or both. It supports 3.9-13.5V input voltage, up to 5A charging current and provide battery charge management functions including trickle charge, constant current charge, constant voltage charge, charge termination, auto recharge and charging status indication.

The SC89890H supports flexible charge current option, and the user can program the current freely through external resistor for different applications. With the charger management function, the IC can be used to charge 1 cell Li-ion battery.

The SC89890H supports USB OTG with up to 2.4A output with PFM/PWM mode. Meanwhile, the SC89890H supports USB Input and High Voltage fast charge Adapters, auto detect USB BC1.2, SDP, CDP, DCP.

The SC89890H supports input current and voltage limit, input under voltage and over voltage protections, internal cycle by cycle current limit, battery short circuit protection, and output over voltage protection. It also offers charging safety timer and over temperature protection to ensure safety under different abnormal conditions.

The SC89890H integrated all MOSFETs, current sensing, loop compensation and I2C interface.

The SC89890H is available in QFN(24)-4*4 package.

3 APPLICATIONS

- Smart Phones
- Portable Internet Devices and Accessory

2 FEATURES

- Integrated Synchronous Buck Charger
- Integrated NVDC Power Path Management
- Charging Management (Trickle Charge / Constant Current Charge / Constant Voltage Charge / Charge Termination)
- Integrated I2C interface
- I2C Programmable Constant Charge Current, $\pm 5\%$ @1.5A-5A accuracy
- I2C Programmable Constant Voltage, $\pm 0.5\%$ accuracy
- I2C Programmable Charge Safety Timer
- Support OTG discharging function and I2C Programmable Output Voltage: 3.9V~5.4V with up to 2.4A current
- Support Shipping mode, Low battery leakage current
- Charge Status Indication
- Integrated ADC for System Monitor
- Resistance Compensation (IRCOMP) from Charger Output to Cell Terminal and ICO Support
- NTC for Battery Protection (support JEITA standard)
- Input Under Voltage and Over Voltage Protection
- Internal Cycle by Cycle Over Current Protection
- OTG OCP/OVP/VBAT_Low Protection
- Battery Over Voltage and Short Protection
- Battery Discharging Over Current and under voltage Protection
- Thermal Regulation and Shutdown
- QFN(24)-4*4 footprint

4 DEVICE INFORMATION

Part Number	Package	Dimension
SC89890HQDLR	QFN(24)-4*4	4x4