



500mA Linear Charger for Single-Cell Li-ion Battery with Power Path Management

1 Descriptions

The SC7288 is a highly integrated, single-cell, Li-ion/Li-polymer battery charger with system power path management and I2C interface for space-limited portable applications. The SC7288 takes input power from either an AC adapter or a USB port to supply the system load and charge the battery simultaneously. The SC7288 provide the charge management functions including trickle charge, constant current charge, constant voltage charge, charge termination and auto-recharge.

The power path management function ensures continuous power to the system by automatically selecting the input, battery, or both to power the system. This function features a low dropout regulator from the input to the system and a 70mΩ switch from the battery to the system. Power path management separates the charging current from the system load, which allows for proper charge termination and keeps the battery in full-charge mode.

The SC7288 provides a system short-circuit protection (SCP) function by limiting the current from the input to the system and the battery to the system. This feature is especially critical for preventing the Li-ion battery from being damaged due to an excessively high current. An on-chip battery under-voltage lockout (UVLO) cuts off the path between the battery and the system if the battery voltage drops below a programmable battery UVLO threshold. This prevents the Li-ion battery from being over-discharged. An integrated I2C control interface allows the SC7288 to program the charging parameters, such as input current limit, input minimum voltage regulation, charging current, battery regulation voltage, safety timer, and battery UVLO.

3 Applications

- TWS Earbuds
- Fitness Accessories
- Smart Handheld Devices
- Smart Watches

2 Features

- Vin Over-Voltage Protection
- Integrated Linear Charger for Single-Cell Li-Ion/Polymer Batteries with I2C and Power Path Management, no external blocking diode required
- ±0.5% accuracy for VBAT Target Voltage.
- Charging Management: Trickle Charge/Constant Current Charge/Constant Voltage Charge/Charge Termination/Auto Recharge
- I2C Interface for Charging Parameters Setting and Status Reporting
- Program JEITA for Battery Protection
- PCB Over-Temperature Protection
- Input Under Voltage and Over Voltage Protection
- System Short Protection and Reset Function
- Battery Under Voltage and Over Discharge Protection
- Battery Disconnection Function (Shipping Mode)
- Thermal Regulation and Thermal Shutdown
- WCSP-12 1.55mm x 1.95mm

4 Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC7288CFFR	WCSP-12	1.55mmx1.95mm