

Dual Cell High Efficiency 10-A Forward 2:1 Converter and Reverse 1:2 Charger with Load-Switch Function

1 Descriptions

SC8510 is a 99.5% efficiency, 10-A battery discharging (forward 2:1 conversion) and 4-A charging (reverse 1:2 conversion) solution using a switched capacitor architecture. The switched cap architecture and the integrated FETs are optimized to enable a 50% cycle. SC8510 supports designers to migrate current 1S system to 2S battery configuration in following two ways. As a converter, SC8510 works as a voltage divider and can be inserted between main buck-boost charger VSYS output and other loads working under 1S-equivalent voltage. As an integration of converter and charger, SC8510 can be inserted between 2S Li+ battery pack and main buck charger VBAT output, which helps designers to preserve the downstream power architecture of 1S battery system.

SC8510 is also integrated with load-switch function used to cut off system power. It can be configured to implement reset and shipping mode function.

SC8510 adopts 42-pin CSP 2.5mm X 2.9mm package.

2 Applications

- Smartphones
- Tablet PCs

3 Device Information

Part Number	Package	Dimension
SC8510CFFR	CSP42	2.5mmx2.9mm

4 Features

- Bi-directional switched capacitor converter
 - ✓ Forward 2:1 conversion
 - ✓ Reverse 1:2 conversion
- Load switch controller
 - ✓ Reset mode
 - ✓ Shipping mode
- Dual-phase charger pump
 - ✓ 10A output current capability in forward direction
 - ✓ 4A output current capability in reverse direction
 - ✓ Up to 99.5% efficiency
- 3-way charge pump switch protection
 - ✓ V2X_UVLO protection before switch
 - ✓ V1X_SCP protection before switch
 - ✓ CFLY short protection before switch
- 6-way system protection
 - ✓ VAC_OVP
 - ✓ V2X_OVP
 - ✓ V1X_OVP
 - ✓ FWD_OCP
 - ✓ RVS_OCP
 - ✓ TSHUT
- 2-way system alarm
 - ✓ TDIE_100_ALM
 - ✓ TDIE_120_ALM