Triple-Output 650mA AMOLED Display Power Supply

1 Descriptions

The SC6006 is a triple-channel switching mode power supply which is designed to drive AMOLED displays requiring V_{ELVDD}, V_{ELVSS} and V_{AVDD}.

It integrates a boost converter for V_{ELVDD}, an inverting buck-boost converter for V_{ELVSS} and a boost converter for V_{AVDD}. The output voltage is highly precise and can be programmed by the external signal.

For the portable device applications, size, power consumption and reliability are always in the first consideration. The SC6006 uses a tiny package and it switches at a high frequency to minimize the inductor and the capacitor size. The ELVSS and AVDD rail adopts PSM to optimize efficiency in light load. Besides, synchronous rectification (each rail) is used to maximize the power efficiency. The device integrates UVLO, SCP and OTP to protect itself from abnormal situations.

The SC6006 uses innovative technology enabling excellent line and load regulation. All the output rails allow being programmed by MC pin in digital steps.

2 Applications

- AMOLED display for mobile devices

3 Features

- 2.5V to 5.0V Input Voltage Range
- Synchronous Boost Converter (ELVDD)
  - 4.6V to 5V output range (default 4.6V)
  - 0.5% Accuracy
  - Up to 650mA Output Current Capability
- Synchronous Inverting Buck-Boost Converter (ELVSS)
  - -5.4V to -1.4V output range (default -2.5V)
  - ± 30mV Accuracy
  - Up to 650mA Output Current Capability
  - PSM (Power Saving Mode) in light load
- Synchronous Boost Converter (AVDD)
  - 5.8V to 7.9V output range (default 6.1V)
  - 1% Accuracy
  - 100mA output current capability
- Input to Output, Output to Input Isolation
- Fast Discharge
- Single-wire digital interface for programming
- UVLO, SCP, OTP
- Package: 3×3×0.75mm, 16Pin QFN

4 Device Information

Part Number	Package	Dimension
SC6006QFKR	QFN16	3mm x 3mm x0.75mm