

## ***A Very High Efficiency Switched Capacitor 9A Charger with 13-bit ADC for Fast Charging***

### ***Features***

- Max 9A Switched Capacitor Charger
  - . Selectable Fixed Switching Frequency / Variable Switching Frequency with Maximum Frequency Limit
  - . High Efficiency up to 98%
- 6V to 10.5V VBUS Input Voltage Range
- Charging Path Control
  - . Input Current Limit
  - . Battery Voltage Regulation
- Reverse Bypass and Reverse Boost mode with over-current protection
- A 13-bit ADC for  $V_{BUS}$ ,  $V_{BAT}$ ,  $V_{OUT}$ ,  $I_{BUS}$ ,  $V_{THEM}$  and die temperature
- Programmable Parameters via I<sup>2</sup>C
  - .  $I_{BUS}$  Input Current Limit
  - .  $V_{BAT}$  Output Voltage Regulation
  - . Die Thermal Regulation
  - .  $V_{BUS}$  OVP Threshold
  - .  $V_{BAT}$  OVP Threshold
  - .  $V_{OUT}$  OVP Threshold with Alarm
  - . Relative OVP Threshold
  - . THEM Over-Temperature Protection Threshold
  - . Die Thermal Shutdown Alarm Threshold
- Protections
  - . VBUS, VOUT and VBAT OVP
  - . THEM OTP
  - . Reverse Blocking
  - . Flying Capacitor SCP
  - . Relative OVP
  - . Die Thermal Shutdown
  - . Watchdog Timer
  - . Charger Timer
- 400kHz Full-Speed I<sup>2</sup>C Interface
- 89-Bump, 3.76mm x 4.07mm WLCSP Package

### ***Applications***

- Mobile and Smart Phones
- Tablet
- Portable Devices

### ***Description***

The SM5440 is a highly-integrated switched capacitor charger delivering max 9A output current with a 13-bit ADC. The converter is optimized for fast charging applications with peak efficiency up to 98%.

The serial I<sup>2</sup>C interface provides full programmable options for secure and robust charging profile along with battery protection schemes.

The embedded 13-bit ADC can measure many points such as VBUS input voltage/current, VBAT output voltage, VOUT output voltage, battery temperature via THEM voltage and the die temperature.

The SM5440 is available in 3.76mm x 4.07mm, 89-Bump WLCSP package.

### ***Device Information***

Part	Package	Size
SM5440	89-Bump WLCSP	3.76mm x 4.07mm

# **SM5440**

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