NU2105 I^{2}C Controlled Single Cell High Efficiency 8-A Switched Cap Fast Charger

Feature

- 97.5% Efficient at 2:1 charge mode, 99.2% Efficient at 1:1 charge mode
- Switched Cap Architecture Optimized for 50% Duty Cycle.
  - Input Voltage is 2x Battery Voltage (3.5 V to 4.65v)
  - Output Current is 2x of Input Current (Up to 4.5 A)
  - Reduces Power Loss Across the Cable
- Support charge pump 2:1 and 1:1 charge mode
- Integrated Programmable Protection Features for Safe Operation
  - Input Over-Voltage Protection (BUS_OVP)
  - Input Over-Current Protection (BUS_OCP) with Adjustable Alarm
  - Input Over-Voltage with External OVP FET (VAC_OVP up to 17V)
  - Battery Over-Voltage Protection (BAT_OVP) with Adjustable Alarm
  - Output Over-Voltage (VOUT_OVP)
  - Input Over-Current Protection (BUS_OCP) with Adjustable Alarm
  - IBAT Over-Current Protection (BAT_OCP) with Adjustable Alarm
  - Battery Temperature Monitoring
  - Connector Temperature Monitoring
- Programmable Settings for System Optimization
  - Optional VBATERG and IBATERG Regulation for System Load and Wall

    Adapter Transients
  - STAT, FLAG, and MASK options for Interrupts
  - ADC Readings and Configuration
- Integrated 12-Bit Effective Analog-to-Digital Converter (ADC)
  - 0.5% BUS Voltage
  - 0.5% VOUT Voltage
  - 0.5% BAT voltage with Differential Sensing

  - 1.5% BAT Current at 6 A with External RSENSE
  - 1% BAT Temperature
  - 1% BUS Temperature
  - 4°C Die Temperature

Applications

- Smart Phone
- Tablet PC

Descriptions

The NU2105 is a 97.5% efficient, 8-A battery charging solution using a switched cap architecture. This architecture and the integrated FETs are optimized to enable a 50% duty cycle, allowing the cable current to be half the current delivered to the battery, reducing the losses over the charging cable as well as limiting the temperature rise in the application.

PART NUMBER	PACKAGE	BODY SIZE (NOM)
NU2105	WLCSP (56)	2.80mm×3.20mm

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