

NU2116A A I²C Controlled Single Cell High Efficiency 6-A Switched Cap Fast Charger

1 Feature

- 98.0% Efficient at 2:1 charge mode, 99.1% Efficient at 1:1 charge mode
- Switched Cap Architecture Optimized for 50% Duty Cycle.
 - Input Voltage is 2x Battery Voltage (3.0 V to 4.65 V)
 - Output Current is 2x of Input Current (Up to 3.5 A)
 - Reduces Power Loss Across the Cable
- Support forward 2:1 and 1:1 charge mode
- Support reverse 1:2 and 1:1 discharge mode
- Integrated Programmable Protection Features for Safe Operation
 - Input Over-Voltage Protection (BUS_OVP)
 - Input Over-Current Protection (BUS_OCP)
 - Input Under-Current Protection (BUS_UCP)
 - VDROPOver-Voltage Protection (DROPOVP)
 - Input Over-Voltage with External OVP FET
 - Battery Over-Voltage Protection (BAT_OVP)
 - Output Over-Voltage (VOUT_OVP)
 - IBAT Over-Current Protection (BAT_OCP)
- Programmable Settings for System Optimization
 - IBUSREG, VBATERG and IBATERG Regulation integrated
 - STAT, FLAG, and MASK options for Interrupts
 - ADC Readings and Configuration
- Integrated 15-Bit Analog-to-Digital Converter (ADC)
 - ±1% BUS Voltage
 - ±4% BUS current at 2.5A(0°C to 85°C)
 - ±1% VOUT Voltage
 - ±0.5% BAT voltage with Differential Sensing
 - ±2% BAT Current at 6 A with External R_{SENSE} = 2mΩ(0°C to 85°C)
 - ±4°C Die Temperature(0°C to 85°C)

2 Applications

- Smart Phone
- Tablet PC

3 Descriptions

NU2116A is a 98.0% efficient, 6-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. The dual-phase architecture reduces the input cap requirements as well as reducing the output voltage ripple.

Device Information

PART NUMBER	PACKAGE	BODY SIZE (mm)
NU2116A	WLCSP (36)	2.72×2.72

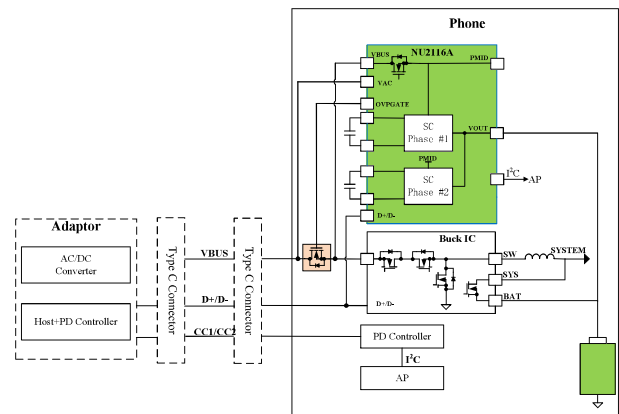


Figure 1. Simplified Application Diagram

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