

# NU2402 I<sup>2</sup>C Controlled Single Cell High Efficiency 12-A Switched Cap Fast Charger

## 1 Feature

- High Efficiency based on Low Voltage Flying Caps(10V)
- Switched Cap Architecture Optimized for 50% Duty Cycle.
  - Input Voltage is 4x Battery Voltage (**2.7V** to 5.0V)
  - Output Current is 4x of Input Current (Up to 4.0A)
  - Reduces Power Loss Across the Cable
- Support charge pump 4:1/3:1/2:1/1:1 mode
- Support reverse 1:4/1:3/1:2/1:1 mode
- Single Input Power Path Management
  - Input Over-Voltage with External OVP FET(VAC & OVPGATE)
- Support Master and Slave Operation
- 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)
  - Battery Over-Voltage Protection (BAT\_OVP)
  - Output Over-Voltage Protection(VOUT\_OVP)
  - Complete short-circuit Protection: VAC,VBUS,PMID,VOUT,C1/2PA/B to GND;CFLY short; BST Cap short; LDO(REGN) Cap short; Fets short;
- Programmable Settings for System Optimization
  - IBUSREG, VBATREG and IBATREG Regulation integrated.
  - STAT, FLAG, and MASK options for Interrupts
  - ADC Readings and Configuration
- Integrated 15-Bit Analog-to-Digital Converter (ADC)
  - ±1% BUS Voltage
  - ±5% BUS current at 4.5A (-20°C to 85°C)
  - ±1% VOUT Voltage
  - ±0.5% BAT voltage with Differential Sensing at VBAT=4.44V(0°C to 85°C)

- ±5% BAT current at 10A (-20°C to 85°C)
- ±4°C Die Temperature

## 2 Applications

- Smart Phone
- Tablet PC

## 3 Descriptions

NU2402 is a 98.0% efficient, 12-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 1/4 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)
NU2402	WLCSP (80)	4.17×3.50

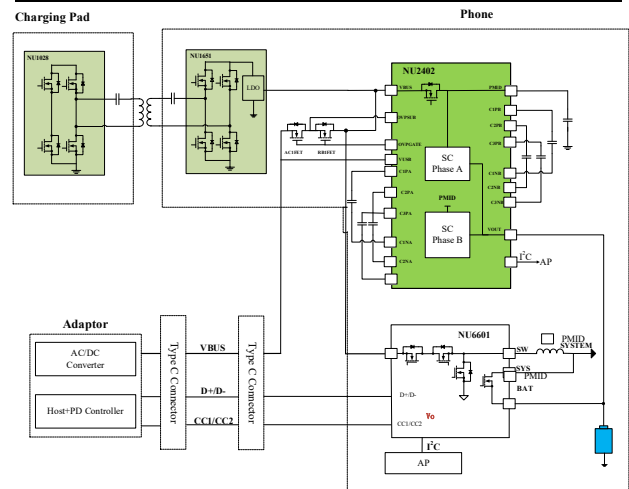


Figure 1. Simplified Application Diagram

This document contains confidential and proprietary information of NuVolta. Any information in this document is prohibited from being used, reproduced or disseminated to any third party in any form and/or through any means without the prior written consent of NuVolta. **ALL RIGHTS RESERVED.**