High Efficiency, High Integration Wireless Power Receiver with Direct Battery Charging and Transmitter

1 Features

- Integrated 19V High-efficiency Synchronous Rectifier.
- Integrated LDO to Provide Regulated Output Programmable VOUT from 3.5V to 12V with 5mV resolution.
- Low Dropout of LDO.
- Integrated Full Bridge Inverter and PWM Controller for transmitter.
- Integrated Back-to-back Load Switch for Direct battery charging.
- Integrated VAC detection and ACDRV pull-down control for automatic switching between wireless charging and wired-cable charging.
- Integrated V5V0 LDO and 1.8V LDO for analog and digital power supplies.
- Capless 1.2V LDO for GPIO output.
- Robust and Quick-responsive OVP, OCP, OCL, OTP, SCP and Back-to-Back load switch related protections.
- High Accuracy Current Sense and Voltage Sense
- 12 Channel, 14bit ADC.
- Integrated 32Bit MCU Core.
- 400kHz I²C Interface.
- In-system Programmability.
- Build-in Bi-directional Communications: ASK/FSK Modulation and ASK/FSK Demodulation.
- Programmable FOD Gain and Offset.
- INT Output.
- 52-WCSP 4.06x 2.97mm, 0.45mm pitch.

2 Applications

- WPC v1.3 Compliant Receiver with Maximum 50W Receiver output Power.
- WPC 5W BPP Compliant Transmitter for Receiver power output with Maximum 10W Transmitter power input
- Smartphones, Power Bank.
- Medical, Industrial and Consumer Equipment.

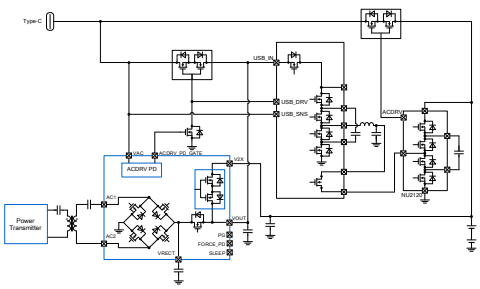
3 Descriptions

NU1669 is a highly integrated and efficient wireless power receiver and suitable for up to 50W output power application. It integrates a synchronous rectifier and a programable low drop-out regulator. The regulator can provide a wide range regulated voltage. NU1669 can conduct bi-directional communication with a transmitter system through ASK and FSK. The communication is compliant with WPC.

NU1669 can also be operated as a transmitter (Tx) to charge another receiver.

NU1669's flexibility is provided by an on-chip 32Bit MCU which can customize and optimize the device for various applications and custom needs. The programmability includes output power, bidirectional communication scheme, system protection, status reporting and error reporting.

NU1669 protection includes standard such as input under-voltage lockout, short-circuit protection, over-voltage protection, over-current protection, and over-temperature protection. Back-to-Back load switch related protections are also integrated.



Simplified Application Diagram