High Efficiency, High Integration Wireless Power Receiver and Transmitter

1 Features

- Integrated 30V High-efficiency Synchronous Rectifier.
- Integrated MLDO[1] to Provide Regulated Output Programmable VOUT from 3.5V to 20V with 8mV resolution.
- Low Dropout of output main LDO.
- Integrated Full Bridge Inverter and PWM Controller for transmitter.
- 1.8V and 1.2V Reference Voltage Output.
- V5V Power Supply Path Management: Internal LDO or External VDD.
- Robust and Quick-responsive OVP, OCP, OTP, OPP and SCP.
- High Accuracy Current Sense, Accuracy is ±2%.
- 10 Channel, 14bit ADC.
- Integrated 8MHz 32Bit MCU Core.
- 400kHz I²C Interface.
- In-system Programmability.
- Build-in Bi-directional Communications: ASK/FSK Modulation and ASK/FSK Demodulation.
- Integrated Q Factor Measurement.
- Programmable FOD Gain and Offset.
- INT Output.
- 54-WCSP 3.932 x 2.822mm, 0.4mm pitch.

2 Applications

- WPC 15W EPP Compliant Receiver with Maximum 50W Received Power.
- WPC 5W BPP Compliant Transmitter with Maximum 10W Transmit Power.
- Smartphones, Power Bank.
- Medical, Industrial and Consumer Equipment.

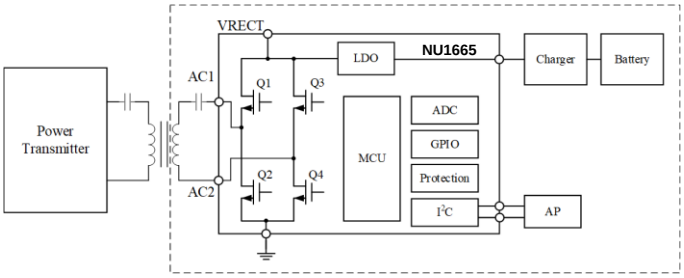
3 Descriptions

NU1665 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. NU1665 can conduct bi-directional communication with a transmitter system through ASK and FSK. The communication is compliant with WPC.

NU1665 can also be operated as a transmitter (Tx) to charge another receiver. Only a few external components are needed and maximum 10W power can be transferred.

NU1665'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.

NU1665 also includes standard protection functions such as input under-voltage lockout, short-circuit protection, over-voltage protection, over-current protection, over-power protection and over-temperature protection. These protections further enhance the reliability of the system solution.



Simplified Application Diagram

[1]. MLDO means output Main LDO