NU1652: High Efficiency, High Integration Wireless Power Receiver and Transmitter

1 Features

- Integrated 38V High-efficiency Synchronous Rectifier.
- Integrated LDO to Provide Regulated Output Programmable VOUT from 3.5V to 30V with 8mV resolution.
- Low Dropout of LDO.
- Integrated Full Bridge Inverter and PWM Controller for transmitter.
- 1.8V Reference Voltage Output.
- V5V0 Power Supply Path Management: Internal LDO or External VDD.
- Ultra-Low Quiescent Current in SLEEP mode: < 15uA.
- Robust and Quick-responsive OVP, OCP, OTP, OPP and SCP.
- High Accuracy Current Sense, Accuracy is 0.05%.
- 8 Channel, 15bit ADC.
- Integrated 16MHz 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.
- 72-WCSP 3.24mm x 3.64mm, 0.4mm pitch.

2 Applications

- WPC 15W EPP Compliant Receiver with Maximum 70W Received Power.
- WPC 5W BPP Compliant Transmitter with Maximum 15W Transmit Power.
- Smartphones, Power Bank.
- Medical, Industrial and Consumer Equipment.

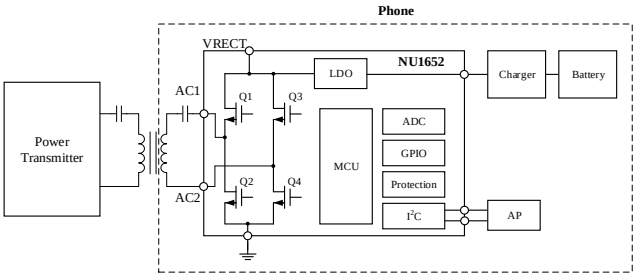
3 Descriptions

NU1652 is a highly integrated and efficient wireless power receiver and suitable for up to 70W output power application. It integrates a synchronous rectifier and a programable low drop-out regulator. The regulator can provide a wide range regulated voltage. NU1652 can conduct bi-directional communication with a transmitter system through ASK and FSK. The communication is compliant with WPC.

NU1652 can also be operated as a transmitter (Tx) to charge another receiver. Only a few external components are needed and maximum 15W power can be transferred.

NU1652'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.

NU1652 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