

# NU1679 High Efficiency and Highly Integrated Wireless Power Receiver and Transmitter

## 1 Features

- Integrated 30V High-efficiency Synchronous Rectifier
- Integrated LDO to Provide Regulated Output, Programmable VOUT from 3.5V to 22V with 10mV resolution
- Low Dropout of LDO
- Integrated Full Bridge Inverter and PWM Controller for Transmitter
- Integrated V5V0 LDO and 1.5V LDO for Analog and Digital Power Supplies
- Capless 1.8V LDO and 1.2V LDO for GPIO Output
- Robust and Quickly Responsive OVP, OCP, OTP, and SCP Protections
- Highly Accurate Current Sense and Voltage Sense
- 12 Channel, 14-bit ADC
- Integrated 32-bit MCU Core
- 400kHz I2C Interface
- In-System Programmability
- Build-in Bi-directional Communications: ASK/FSK Modulation and ASK/FSK Demodulation
- Enhanced ILOAD ASK Modulation for MPP
- Integrated High-side Gate Driver for MPP
- Integrated Q Factor and LC Resonant Frequency Measurement
- Integrated Ping Detect Function, Cloak Ping Function for MPP and Sleep Q Detection Function
- Default Full/Half Bridge Selection via FB\_nEN
- Programmable FOD Gain and Offset
- INT Output
- 54-WCSP, 0.4mm Pitch

## 2 Applications

- WPC v1.3 Compliant Receiver with Maximum 80W Receiver Output Power
- WPC v2.1 MPP Compliant Receiver
- WPC 5W BPP Compliant Transmitter with the Maximum 10W Transmitter Power
- Smartphones, Pad, and Smartwatch

- Medical, Industrial and Consumer Equipment

## 3 Descriptions

NU1679 is a highly integrated and efficient wireless power receiver and suitable for up to 80W output power application. It integrates a synchronous rectifier and a programmable low drop-out regulator. The regulator can provide a wide range regulated voltage. NU1679 can conduct bi-directional communication with a transmitter system through ASK and FSK. The communication is compliant with WPC.

NU1679 can also be operated as a transmitter (Tx) to charge another receiver.

NU1679's flexibility is provided by an on-chip 32-bit 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.

NU1679 includes standard protections such as input under-voltage lockout, short-circuit protection, over-voltage protection, over-current protection, and over-temperature protection.

### Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
NU1679	WLCSP	3.913mm x 2.993mm

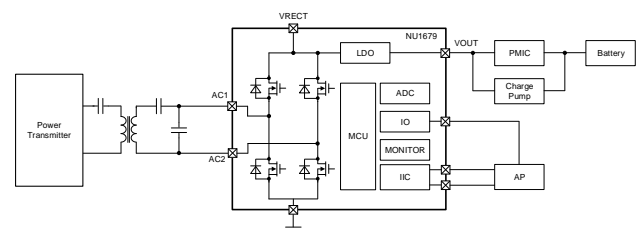


Figure 1. Simplified Application Diagram