IDT Wireless Power Receiver

WPC Compliant

Single-chip wireless power receiver solution

Multilingual (Multi-Mode)

Multi-mode (multi-protocol) capability with dynamic switching

OTHER FEATURES

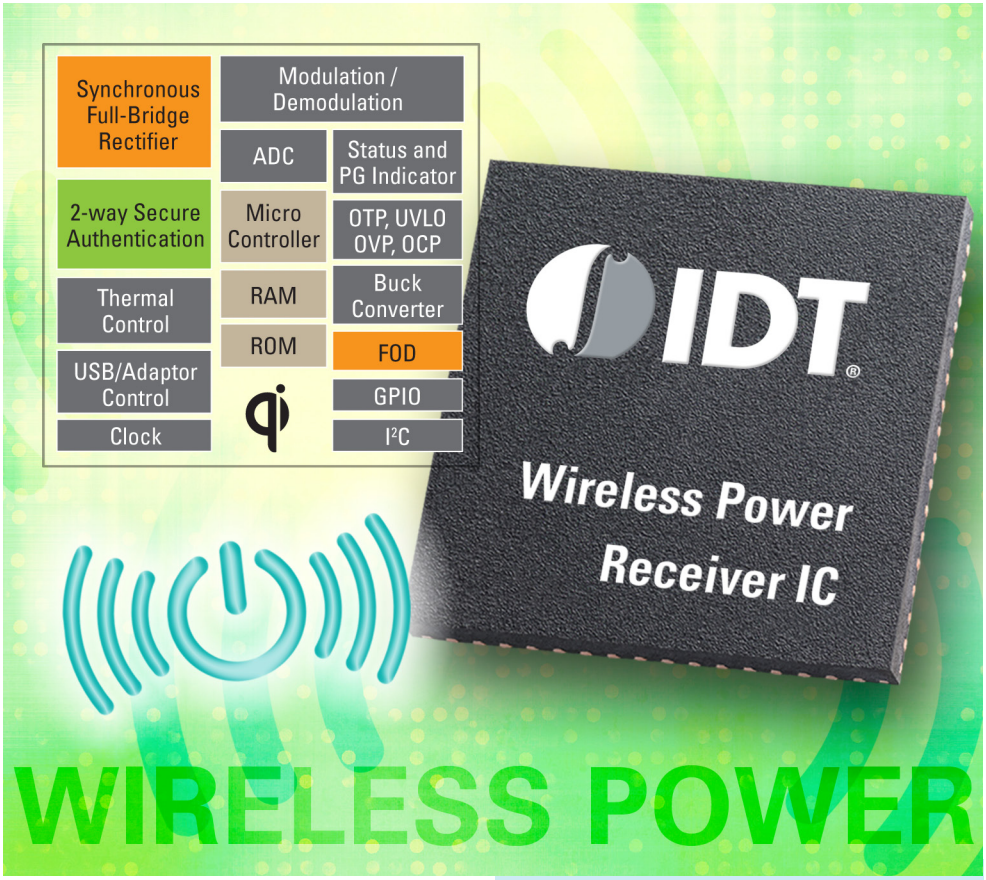
- Up to 5W power delivery
- Integrated synchronous full-bridge rectifier
- Integrated synchronous buck converter
- Embedded MCU, ROM, RAM, and ADC
- Integrated USB adaptor switches for USB charging
- Supports proprietary power transmission protocols in addition to Qi with dynamic switching capability
- Closed-loop power transfer control between base station and mobile device
- Proprietary base to mobile communication for authentication
- Programmable option for added security and encryption up to 64 bit for 2-way authentication
- Thermal loop control
- Compatible with all WPC receiver coils including proprietary and PCB based coils
- Power good status pin
- Open drain coupling LED indicator outputs
- I²C interface
- Packages 4.86mm x 4.65mm WLCSP, or 7mm x 7mm QFN

SAFETY FEATURES

- Advanced multi-layered Foreign Object Detection (FOD)
- Over Temperature/Voltage/Current protection
- GPIOs for various status/alarm indication
- Thermal loop control

TARGET WIRELESS POWER APPS

- Smartphones and handsets
- Bluetooth devices
- Game controllers, remote controls
- PC peripherals and storage devices
- Tools, medical instruments, fitness accessories
- Cameras and other consumer electronics



IDTP9020 is a highly integrated single-chip, WPC-compliant wireless power receiver IC. The device receives an AC power signal from compatible wireless transmitters and converts it into a regulated 5V output voltage, which can be used to power devices or supply the charger input in mobile applications. The IDTP9020 integrates a high-efficiency synchronous full bridge rectifier, high efficiency synchronous buck converter, and control circuits used to modulate the load to transmit WPC compliant message packets to the transmitter station to optimize power delivery. In WPC mode, power delivery is limited to 5W in accordance with the Qi specification.

VALUE ADDED BEYOND WPC "QI"

- Supports back channel communication
  – Receiver communicates with Transmitter
- 2-way secure authentication
- On-Board microcontroller and high performance ADC for complex calculations
- GPIOs for various status/alarms indication
- Up to 7.5W power transfer in proprietary mode

IDTP9020 may be operated in alternative modes where additional proprietary functions such as advanced multi layered Foreign Object Detection (FOD), 2-way secure authentication, and higher-efficiency control algorithms may be employed.

PB_IDTP9020_REVA0812

WIRELESS POWER

BY IDT

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Transmitter (TX) IDTP9030 Receiver (RX) IDTP9020