

Industry's First Single-Chip 12 V WPC-Compliant Transmitter for A6-type Coils

FEATURES

- Conforms with WPC Specification version 1.1
- Manages all three coils in the A6 configuration without user supervision
- Operates from 12 V ($\pm 5\%$) supplies
- Multi-mode (multi-protocol) capability with dynamic switching
- Half-Bridge DC-AC inverter integrated onboard
- Demodulates and decodes communication packets from WPC-compliant receivers
- Implements closed-loop power transfer control
- Optional 2-way communication security and encryption to 64-bit
- Master/Slave I²C interface
- Compact 6mm x 6mm 48-lead TQFN package

SAFETY FEATURES

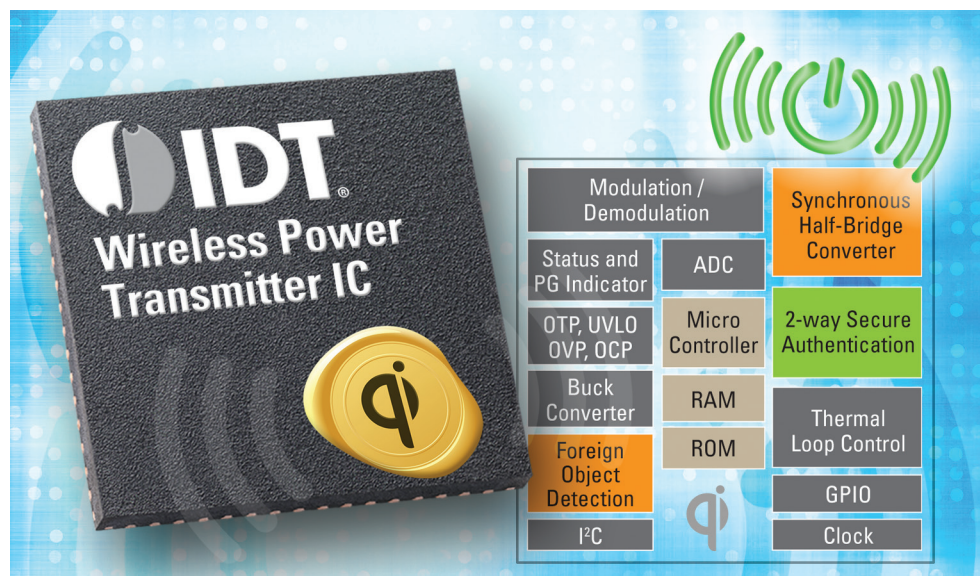
- Over-current and over-temperature protection
- Programmable Foreign Object Detection (FOD)
- Power good and fault condition detection with LED indicator outputs

TARGET WIRELESS POWER APPS

- Charging mats or pads
- Public Facilities – Shops, Libraries, Airports, Schools
- Office Furniture
- Personal Computer Docks
- Portable Instruments
- Medical Devices

VALUE ADDED BEYOND WPC “Qi”

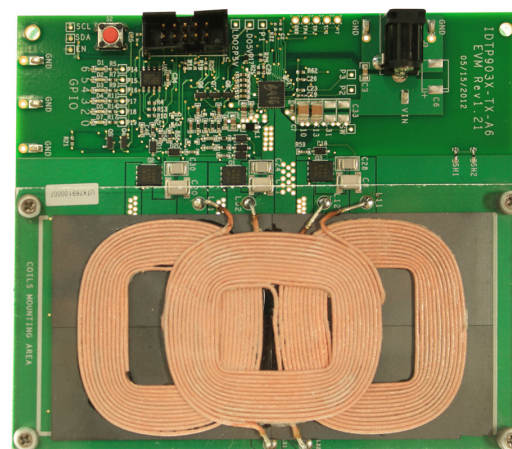
- Delivers industry-leading power to receiver (5W to WPC-compliant receivers, more when using IDTP9020 Receiver)
- Optional, proprietary Back-Channel communication provides additional levels of encryption and security
- Manages power transfer fault conditions automatically and controls status indicator LEDs



The IDTP9036 is a highly-integrated single-chip WPC1.1-compliant wireless power transmitter IC for power transmitter design A6. The device operates with a 12V ($\pm 5\%$) adaptor, and supplies an integrated half-bridge inverter for DC/AC conversion. It controls the transferred power by modulating the switching frequency of the half-bridge inverter from 115kHz to 205kHz at a fixed 50% duty cycle as specified by the WPC specification for an “A6” 3-coil transmitter. It contains logic circuits required to demodulate and decode WPC-compliant message packets sent by the mobile device to adjust the transferred power.

The IDTP9036 manages all 3 coils in the WPC TX-A6 configuration, performing detection and charging control without user supervision. It also features a proprietary back-channel communication mode compatible with other IDT Wireless Power products which provides additional secure authentication capabilities, in addition to implementing the WPC-specified device identification communication sequence and closed-loop control protocol, which constantly adjusts transmitted power.

EVALUATION BOARD



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