Freescale Wireless Charging ICs

WPR1516
Medium Power Wireless Charger Receiver
15W WPC Compliant Solution

Overview
The WPR1516 wireless charging receiver IC family and reference designs extend Freescale’s wireless charging portfolio to support up to 15W charging power. This new level of performance supports larger form factors, such as the latest smart phones and tablet devices that require faster charging times. This family adheres to the Wireless Power Consortium (WPC) and Medium Power Working Group (MPWG) specification and has the potential to support other future standards. With such a high level of integration, the WPR1516 IC will drive smaller PCB form factor designs and offers the possibility for applications to do thermal design based on the application requirement.

The WPR1516 IC is based on the ARM® Cortex®-M0+ core and includes FSK and CNC features allowing for easy development of bi-directional communication architecture between a transmitter and receiver. A PGA handles small signal which can easily detect the power loss of the system to achieve system-level foreign object detection (FOD). A USB/Adaptor switcher sets the priority between wired and wireless charging.

The WPC1516 IC is offered in both QFN and WLCSP package options ideal for both industrial and consumer applications.

Wireless Charging Target Applications
- Smart Phones
- Tablets
- Walkie Talkies
- Portable Scanners
- Power Tools
- Portable Instruments
- Portable Medical Devices

WPR1516 Wireless Charging Receiver IC Block Diagram
Development Tools

Ecosystem of Wireless Charging

Freescale is a member of the Wireless Power Consortium (WPC), providing access to essential specifications and IPs within the WPC organization. Freescale has a wireless charging development roadmap for Type A and Type B transmitter and receiver reference solutions, and also supports customized solutions according to differentiated customer requirements. The medium power wireless receiver and transmitter reference designs contain optimized software and are directly supported from the Freescale technical solution team.

Integrated Development Environment (IDE)

IAR Embedded Workbench and Keil MDK

WPR1500-LDO (40 x 40 mm)

Supports 5V/3A output following the WPC “Qi” specification. With only rectifier and LDO MOSFET outside WPR1516 for system thermal design. Most optimized BOM cost.

WPR1500-BUCK (40 x 40 mm)

Output with Buck architecture which approves 5V/3A following WPC “Qi” specification, and with capability to support other output voltage and current for various battery configuration.

WPR1500-LDO Wireless Charging Receiver Reference Platform Block Diagram

WPR1500-BUCK Wireless Charging Receiver Reference Platform Block Diagram

For more information visit freescale.com/wirelesscharging