



NXP® wireless
charging solutions

WCT-15W1TXFF MP-A11 Qi®-compliant Reference Design for Cost-Optimized Consumer Products

The 15 W single-coil fixed-frequency reference design is a complete system solution, containing all the hardware and software components necessary to quickly implement a cost-effective, fixed-frequency wireless power solution.

TARGET APPLICATIONS

- ▶ 15 W single-coil wireless charging applications
- ▶ Mobile phone chargers
- ▶ Tablet PCs
- ▶ Wearables
- ▶ Mobile phone accessories
- ▶ Battery banks, active phone sleeves

OVERVIEW

Based on NXP's WCT10xx wireless charging IC, the WCT-15W1TXFF single-coil transmitter reference design focuses on what the market needs most—highest performance at lowest cost. The reference design provides the highest efficiency and active charging area available, while maintaining the most competitive electronic bill of materials (BOM).

FEATURES

- ▶ WCT10xx transmitter controller
- ▶ Wireless Power Consortium (WPC) Qi-compliant wireless power transmitter design
- ▶ NXP touch sensing technology or analog PING to detect a mobile device for charging while using the lowest possible standby power
- ▶ WCT101x fixed-frequency control methods (rail voltage control, phase difference control or duty cycle control)
 - Support extended power profile (EPP) for industrial and consumer power transmitter designs (WPC MP-Ax types, MP-Bx types or customization), as well as baseline power profile receivers
 - Maximize design freedom and product differentiation



NXP SUPPORT

NXP provides all the necessary hardware documentation: schematics, layout and assembly files, as well as a complete BOM. We also provide a firmware library that contains all the necessary wireless charging control blocks. Users access the library via an API which lets them interact with parameters and settings contained in the firmware, providing maximum control to the users. Customers can use a ready-to-use binary file from NXP or build an application around the firmware library.

DEVELOPMENT TOOLS

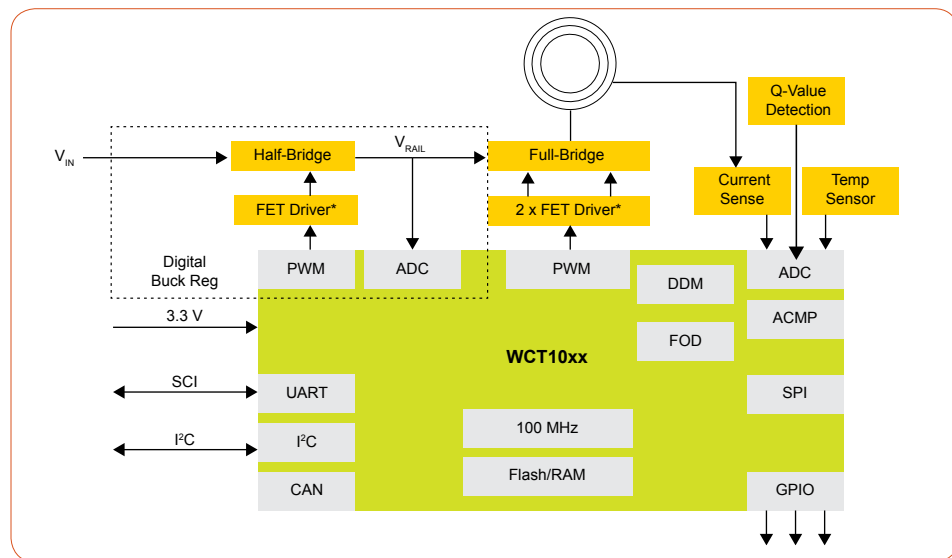
Eclipse-based CodeWarrior® Development Studio for Microcontrollers

A complete integrated development environment (IDE) provides a highly visual and automated framework to accelerate the development of the most complex embedded applications.

Easy-to-use Wireless Charging GUI

The easy-to-use FreeMASTER GUI tool has configuration, calibration and debugging functions to provide a user-friendly design experience and reduce time-to-market.

WCT-15W1TXFF MP-A11 SINGLE-COIL FIXED FREQUENCY WIRELESS POWER TRANSMITTER BLOCK DIAGRAM



WCT-15W1TXFF MP-A11 FEATURES AND BENEFITS

Features	Benefits
Compliant with the WPC Qi® specification	Ensures end solution meets latest industry specification
Transfer efficiency greater than 75%	Maximum energy transfer and lower thermal footprint
Meets Q-factor and latest FOD requirements	Ensures foreign objects are detected and provides safety function
Supports any 15 W single-coil type using a 12 V power source	Provides a broad range of magnetics support with a single solution
Low standby power	Low-power operating modes translate into lower power consumption during periods of inactivity
I ² C, UART, SPI and CAN communication interfaces	Communicate to and from wireless charging IC to transfer charging information (MWCT1011 only)
On-chip digital demodulation	Lower system BOM and greater performance
Run-time calibration	Fast and accurate system calibration, saving time and effort to optimize system performance

PACKAGE OPTIONS

Part Number	Available Flash Size	Key Features	Package
MWCT1011	40 KB	Complete controller solution, I ² C, UART, SPI, flash memory for application programming	64-pin LQFP
MWCT1013	264 KB	Premium controller solution with I ² C, UART, SPI, flash memory for application programming	64-pin LQFP

www.nxp.com/wirelesspower

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