



Freescale Wireless Charging ICs

# MWCT1000CFM MWCT1200CFM MWCT1101CLH

## Maximum flexibility and uncompromising performance

### Overview

The MWCT1000CFM, MWCT1200CFM and MWCT1101CLH devices are Freescale's cutting-edge solutions for 5 W wireless charging transmitter applications.

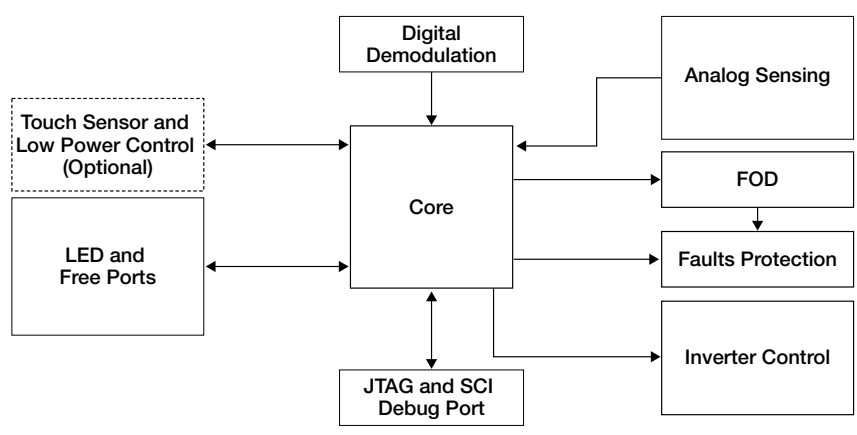
MWCT1000CFM and MWCT1200CFM are the standard offering, featuring a complete system solution to implement controller functions in a wireless charging transmitter system. MWCT1000CFM supports any industry-compliant single-coil and MWCT1200CFM is for any industry-compliant multi-coil A type 5 W topology that uses a 5VDC input source—ultimately providing maximum flexibility for customers everywhere.

MWCT1000CFM and MWCT1200CFM both use a Freescale-proprietary core architecture optimized for power-conversion applications. Using the MWCT1000CFM/MWCT1200CFM DSP core engine and high-performance peripheral blocks allows users to perform tasks such as digital demodulation and foreign object detection (FOD) with minimal CPU overhead. Additionally, the MWCT1000CFM and MWCT1200CFM provide unparalleled performance in performing the control loop function necessary for power supply regulation. This increased performance translates into higher efficiency—a value that can be immediately realized at the end product level. Higher system efficiency translates into a lower thermal footprint and lower operating temperature.

### Target Applications

- 5 W wireless charging applications
- Mobile phone chargers
- Point-of-sale terminals
- Handheld medical devices
- Mobile phone accessories such as battery banks and active phone sleeves
- PC accessories, including keyboards and mice

### MWCT1000, MWCT1200 and MWCT1101 Block Diagram



Optional



State-of-the-art software components delivered in the form of a firmware library are combined with the MWCT1000CFM and MWCT1200CFM hardware. All wireless charging solutions consist of both production-grade hardware and software. The wireless charging software is optimized firmware, providing all of the necessary functions of a wireless charging transmit controller. The firmware consists of four main blocks necessary to implement wireless charging: the protocol state machine, the communications decoding block, timer functions and the foreign object detection algorithm. Freescale provides access to these core software blocks via an API that provides maximum control to the application developer.

MWCT1101CLH is the premium device, offering additional programmability and customization options to provide maximum end product differentiation. Users are no longer confined to fixed-function solutions that provide little to no design freedom. With MWCT1101CLH, engineers can differentiate their end product and provide value-added customizations and features. It contains all of the features of the MWCT1000CFM and MWCT1200CFM but adds additional hardware resources, such as program memory and I/Os for application development.

## Features

Features	Benefits
Compliant with latest Wireless Power Consortium (WPC) Qi specification	Ensures end solution meets latest industry specification
Transfer efficiency greater than 75%	Maximum energy transfer and lower thermal footprint
Meets latest FOD requirements	Ensures foreign objects are detected and provides safety function
Supports most 5 W single-coil type and multi-coil A type using a 5 V power source	Provides a broad range of magnetics support with a single solution
Low active RUN power (30mA)	Increase overall operating efficiency
Low STBY power	Low-power operating modes translate into lower power consumption during periods of inactivity
Support for current limited power sources	Operate from PC-based power sources
SPI, UART, I <sup>2</sup> C communication interfaces	Communicate to and from wireless charging IC to transfer charging information (MWCT1101CLH only)
On-chip digital demodulation	Lower system bill of materials (BOM) and greater performance
Run-time calibration	Fast and accurate system calibration, saving time and effort to optimize system performance

## Package Options

Part Number	Package	Available Flash Size	Key Features
MWCT1000CFM	32-pin QFN	NA	Complete controller solution, supports most 5 W single coil systems
MWCT1200CFM	32-pin QFN	NA	Complete controller solution, supports most 5 W multi-coil A type systems
MWCT1101CLH	64-pin LQFP	40 k	Premium controller, I <sup>2</sup> C, UART, SPI, flash memory for application programming

## Development Tools

### WCT-5W1COILTX

BOM-cost optimized single-coil 5 W reference design for any type of closely coupled inductive charging application

### WCT-5WTXMULTI

Cost optimized multi-coil A type reference design providing larger active charging area for better user experience.

### Eclipse™-based CodeWarrior Development Studio for Microcontrollers

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

### WCTGUI

Graphical user interface tool for quickly configuring and optimizing wireless charging transmitter solutions

For more information, visit [freescale.com/wirelesscharging](http://freescale.com/wirelesscharging)



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