

Consumer, Industrial

Freescale Multi-Coil A Type Wireless Charging Reference Design

WPC Compliant Solution

Overview

The 5WTXMULTI is a 5 W multi-coil wireless charging transmitter reference design extending Freescale's wireless power portfolio. The Freescale 5 W multi-coil transmitter supports a larger active charging area enabling a better user experience when compared to a guided position. This solution also achieves better cost efficiency, keeping the total bill of materials cost competitive which is ideal for consumer applications such as for use with smart phones. The reference platform conforms to the WPC (Wireless Power Consortium) LPWG (Low Power Working Group) specification and has the capability to support other future standards as well.

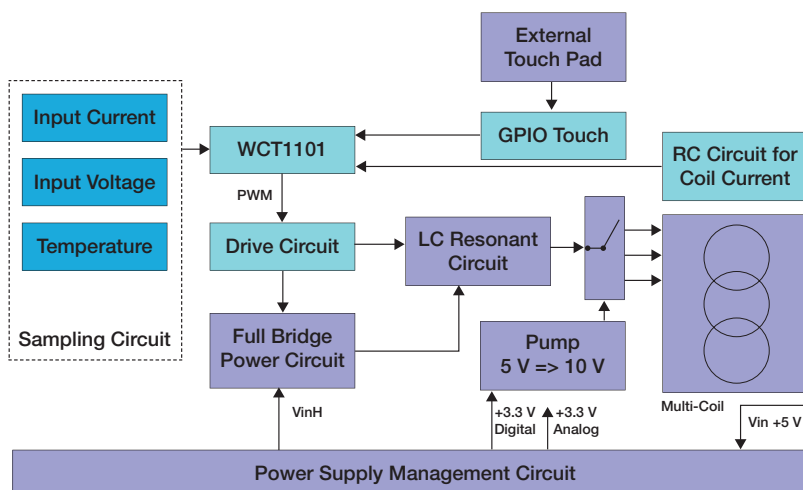
The 5WTXMULTI is based on the WCT1101/WCT1200 controller IC and features rich I/O modules achieving low power consumption. It processes communication signals and controls power transfer start/stop, the coil switched circuit and the full bridge PWM inverter for output power.

Offering QFN and LQFP package options provides an alternative choice for both industrial and consumer applications and helps ease manufacturing as well as saving PCB space.

Target Applications

- Smart Phone
- Tablet
- Walkie Talkie
- Portable Scanner
- Power Tools
- Portable Instrument
- Portable Medical

WCT-5WTXMULTI Wireless Charging Transmitter Block Diagram





Ecosystem of Wireless Charging

Freescall is a member of the Wireless Power Consortium (WPC) which provides access to essential specifications and IP under the WPC organization. Freescall maintains a compelling product roadmap for wireless charging applications, including Type A and Type B transmitters as well as receiver solutions available for customer reference. Professional technical support and training are available for these solutions as well as customized solutions according to differentiated customer requirements.

Development Tools

- CodeWarrior v10.6
- FreeMaster
- WCT-5WTXMULTI: Qi certified solution using MWCT1101CLH IC. Large active charging area using 3-coils.

Reference Design Options

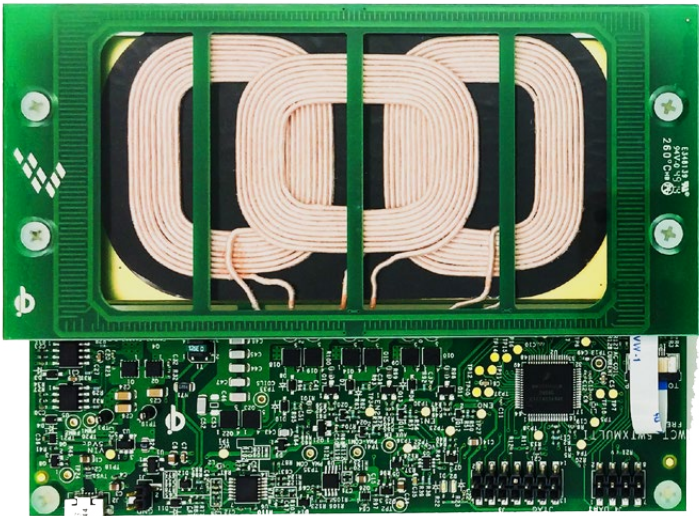
Board Part Number	Availability
WCT-5WTXMULTI	Now

WCT-5WTXMULTI Reference Design Key Features

Features	Benefits
Compliant with the Wireless Power Consortium (WPC) Qi specification	Ensures end solution meets latest industry specification
On-chip digital demodulation	Lower system bill of materials (BOM) and greater performance
Supports multiple types of Rx modulation signals (AC capacitor, AC resistor and DC resistor)	Compatible performance to charge various types of portable devices
Meets latest FOD requirements	Ensures foreign objects are detected and provides safety function
Full bridge topology with frequency modulation power control strategy	Support lower cost 5V adaptor for a lower system bill of materials (BOM) and greater performance
Low standby power	Low-power operating modes translate into lower power consumption during periods of inactivity
Multi-coil design	Achieves large charging area resulting in a better user experience for free positioning
Integrated LED	Easy indication of charging status
Input voltage/current, coil current and coil temperature sensing	Multi-protection architecture to help ensure the safety of the solution
Supports the FO detection method before power transfer	Earlier detection to avoid over heating
Unique ID provided	Helps vendor for authorization and system tracking
Open source reference solution with Freescall embedded wireless charging software libraries	Software based solution provides customer design freedom, product differentiation and access to essential Freescall IPs
FreeMaster Run-time Debugging Tool	Friendly GUI for solution configuration and calibration
Freescall technical support	Transmitter reference platform kit containing software optimization can be directly supported from local technical solution team

Package Options

Part Number	Pin Count	Package	Size	Availability
MWCT1200CFM	32	QFN	5x5x0.65	Now
MWCT1101CLH	64	LQFP	10x10x1.4	Now



WCT-5WTXMULTI Multi-Coil Wireless Charging Transmitter

For current information about Freescall products and documentations, please visit [freescall.com/wirelesscharging](https://www.freescall.com/wirelesscharging)

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