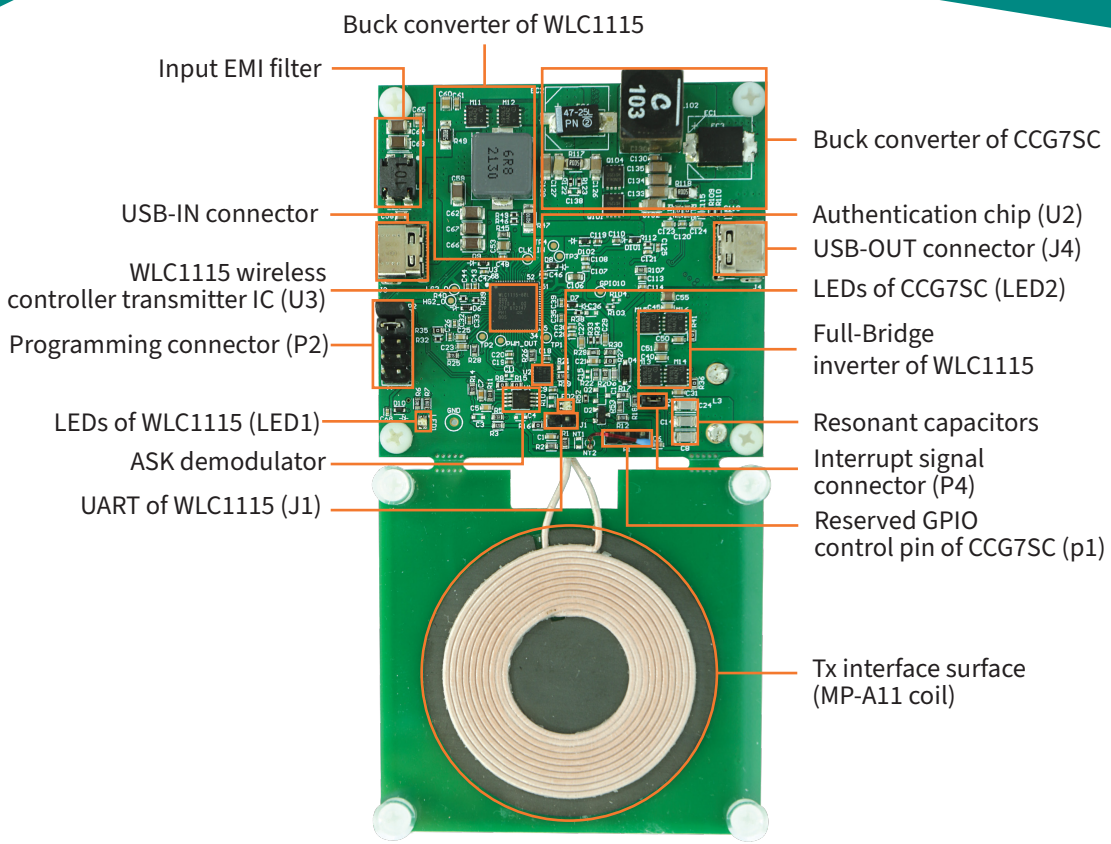
QUICK START GUIDE

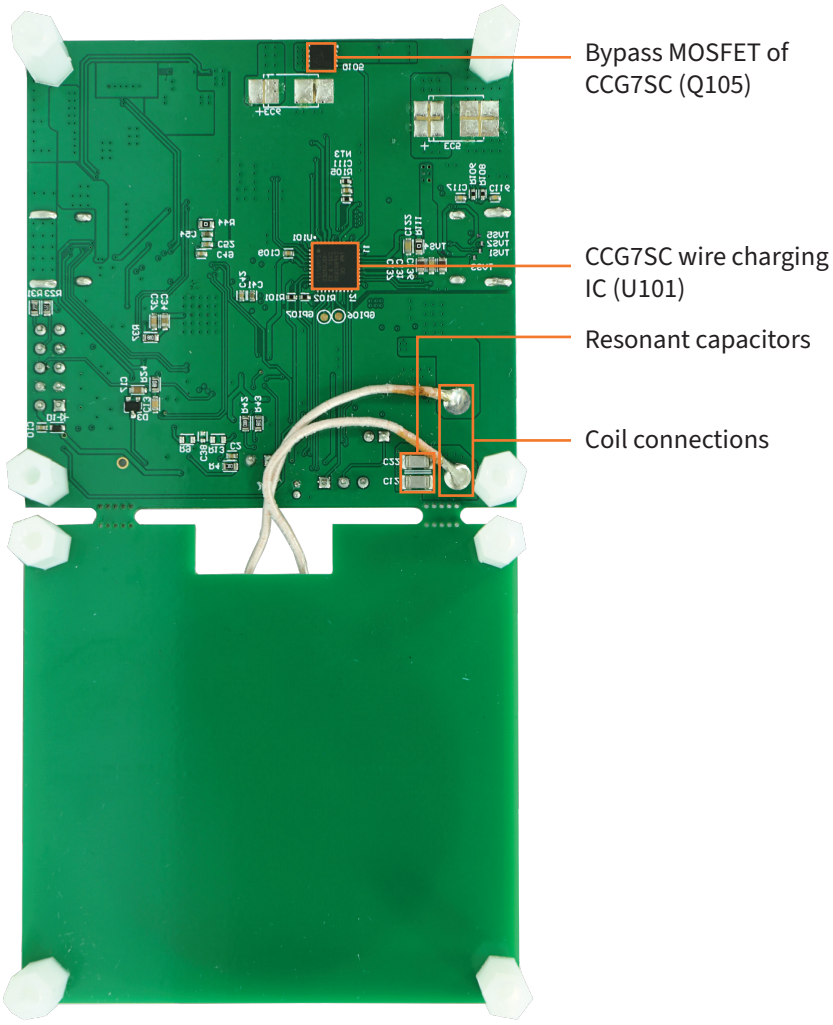
Wired and Wireless Charging Solution

REF_TX15W_PD60W_N1

This document is a quick start guide for the REF_TX15W_PD60W_N1 board. This solution combines wired and wireless charging functions in parallel or individually. This solution uses Infineon's WLC1115 wireless charging transmitter IC and the EZ-PD™ CCG7SC USB-C IC. The solution provides power to a wireless power receiver and to a USB-C sink device using smart power sharing to manage power for each load. The solution manages the source PD power adapter input by adjusting the wireless and wired output power levels based on the input power source capability.



www.infineon.com/wirelesscharging-ics



1. Reference board features

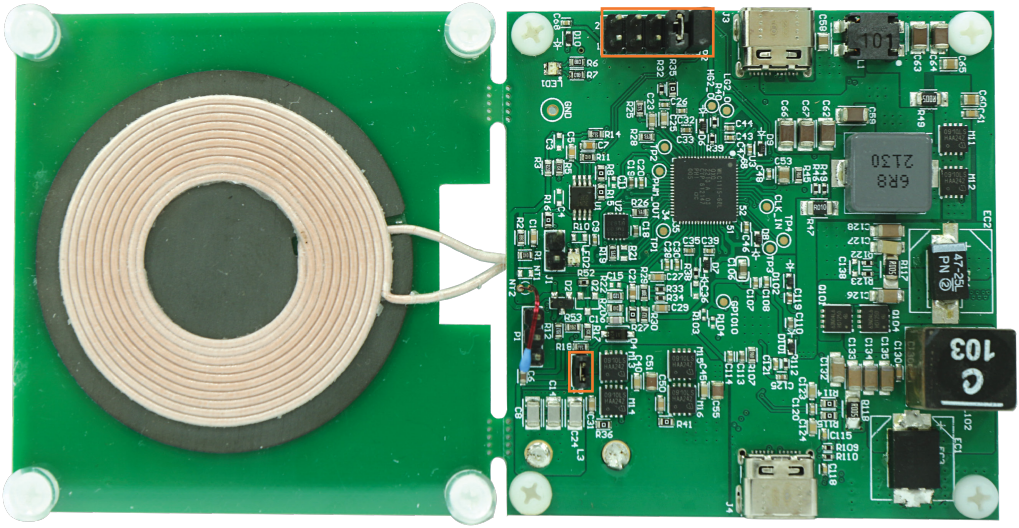
The following are the main features of the reference board:

- Wide input voltage ranges, from 9 V to 24 V.
- Wireless charging supports BPP, EPP, and up to Qi 1.3.3 compatible.
- Wire charging supports dual modes: One is PDO mode , the other is PPS mode. PDO mode supports 3 A with 5 V, 9 V, 12 V, 15 V, 20 V, and 60 W max. And PPS mode supports 3 A from 3.3 V to 16 V.
- Built-in Infineon's proprietary bypass technology and power sharing technology to maximize the power distribution and maximize power levels to each output at optimal efficiency.
- When the PDO capacity is greater than 45 W, it supports notebook charging.
- LED indicator to alert users of faults and status.

2. Before you start

Ensure that all communication pins are shorted with jumpers.

- P2 connector: pin7 is shorted to pin8 with a jumper and pin9 is shorted to pin10 with a jumper.
- P4 connector: shorted with a jumper.



3. Power Sharing Functions

This solution has Infineon's unique smart power sharing technology and bypass technology. When wireless charging and wired charging are used at the same time, smart power sharing technology is enabled to maximize power utilization.
Infineon's unique bypass mode is used to improve the efficiency of PD.
When the PDO capacity is greater than 45 W, it supports notebook charging.

No	Input power (W)	USB power input		Only PD	WLC+PD		WLC+PD	
		V	A		WLC (BPP)	PD (W)	WLC (EPP)	PD
1	27	9	3	27	10	17	18	9
2	24	12	2	24	10	14	18	6
3	36	12	3	36	10	26	18	18
4	30	15	2	30	10	20	18	12
5	45	15	3	45	10	35	18	27
6	20	20	1	20	10	10	18	2
7	40	20	2	40	10	30	18	22
8	60	20	3	60	10	50	18	42
9	100	20	5	60	10	60	18	60

4. PD power bypass function

When only PD, or the output of PD is at the same voltage as the USB-IN input the FW automatically enables unique Bypass function to improve PD efficiency.

5. System states and status LED indications

See the following table for system states of the transmitter and corresponding status LED indications on the transmitter (REF_TX15W_PD60W_N1).

5.1 LED1: System states and status LED indications for WLC1115

Transmitter system state	Transmitter status LED indication
Idle state	No LED indication
Qi Digital ping extension	Glows blue
Power delivery in progress	Glows blue
Power delivery/charge complete	No LED indication
Configuration phase failures leading to indefinite wireless power restart loop	Blinks blue
Foreign object (FO) detected	Glows red until FO is removed
Fault during power transfer	Glows red until the fault is cleared
Abrupt end of power transfer (EPT) initiated by the receiver	Blinks red

5.2 LED2 – Status of CCG7SC

The CCG7SC LED has two states of operation: solid blue light means that the PD output capacity of CCG7SC is greater than 45 W (laptop charging capable) and a solid red light means that the PD output capacity of CCG7SC is less than 45 W.

Safety information

The REF_TX15W_PD60W_N1 reference board is intended for use as an evaluation platform for hardware or software in a laboratory environment. The board is an open-system design, which does not include a shielded enclosure. Due to this reason, do not use this board near any medical equipment or RF devices. Attaching additional wiring to this product or modifying the product operation from the factory default may affect its performance and cause interference with other apparatus in the immediate vicinity. If such interference is detected, suitable mitigating measures must be taken.

The REF_TX15W_PD60W_N1 reference board contains ESD-sensitive devices. Electrostatic charges readily accumulate on the human body and any equipment, which can cause a discharge without detection. Permanent damage may occur to devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused REF_TX15W_PD60W_N1 reference boards in the protective shipping package.

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