

Wireless Charger Reference Design For Automotive And Consumer Applications

[Microchip Technology's](#) Qi 1.3 wireless charging reference design is compliant with the recently released Qi 1.3 specification and includes everything needed to quickly develop a Qi 1.3-certified transmitter. It provides developers of wireless charging systems for automotive and consumer applications the necessary tools and support for the seamless integration and certification of new-generation product designs. The reference design fully integrates secure storage subsystem software with the wireless power microcontroller (MCU) and is a flexible solution, enabling custom topologies and foreign object detection (FOD) implementation (see the figure).

As a regular member in the Wireless Power Consortium (WPC), which sets global standards for wireless charging of mobile devices, Microchip provided expertise during development of the recently released Qi 1.3 specification. Qi 1.3 is a significant update from Qi 1.2.4 and mandates hardware-based authentication between transmitter and receiving devices for power transfer above 5 W. By adhering to the new authentication standard, designers can ensure phones receiving 15 W are receiving it from a Qi-certified authenticated transmitter to ensure safety.

To support its Qi 1.3 wireless power solution, Microchip provides the dsPIC33C family of devices to run the Qi application software and the ECC608/TA100 secure storage subsystem provisioned by Microchip as a licensed WPC Manufacturing Certificate Authority. As a total system solution, this reference design also incorporates MIC4605 and MCP14700 gate drivers, MCP16331 and MCP1725 regulators, an MCP6C02 current sense device, an ATA6563 CAN transceiver and an MCP9700 temperature sensor.

Microchip's Qi 1.3 wireless charging transmitter reference design is available for demonstrations and evaluations to qualified customers. The company will provide a license agreement to access the reference design software. Evaluation boards for these reference design is available for purchase by qualified customers through Avnet.

For pricing and additional information, contact a Microchip sales representative, authorized worldwide distributor, or visit Microchip's Wireless Power [page](#).

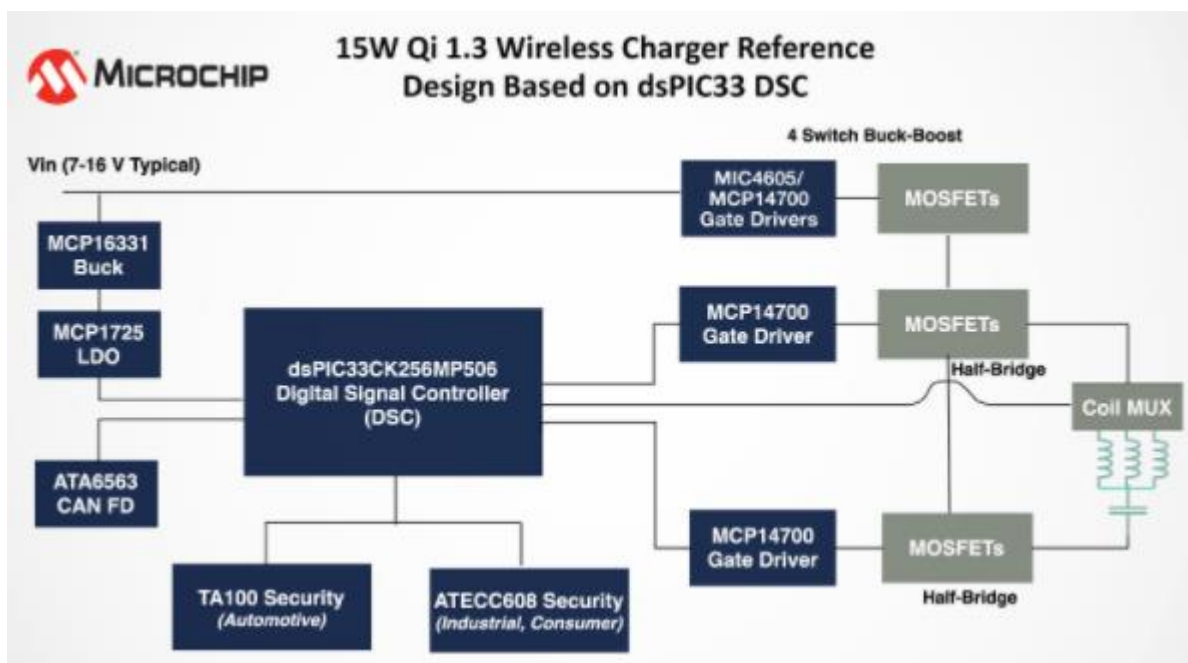


Figure. Included in Microchip's reference design solution for wireless charging systems are all required elements: Qi controller, Qi application software, provisioned authentication controller that is a WPC-approved secure storage subsystem and crypto software libraries that execute on the Qi controller. The reference design includes complete schematics, bill of materials, software and design guidelines. Microchip is partnering with Avnet to make evaluation boards for the Qi reference design available to qualified customers around the world.