Faster high-power wireless charging & better user experience for consumer and industrial applications

The STWLC98 is a highly integrated wireless power receiver capable of delivering an output power up to 70 W. The device is Qi 1.3 compatible and supports the proprietary ST Super Charge (STSC) protocol for fast charging. This highly efficient chip enables designers to implement contactless and ultrafast charging for high power applications such as industrial tools and autonomous mobile robots.

**KEY FEATURES AND BENEFITS**
- Qi 1.3 compatible
- Up to 70 W output power
- Above 97% rectifier efficiency
- Up to 15 W output power in Tx mode (coil dependent)
- ST Super Charge (STSC) protocol for fast charging
- ARC (adaptive rectifier configuration) mode for enhanced spatial freedom
- Accurate foreign object detection (FOD)
- On-chip thermal management and protections
- Optimized device size in WLCSP90 package

**KEY APPLICATIONS**
- Smartphones
- Tablets
- Laptops
- Power banks
- Vacuum cleaners
- Cordless power tools
- Autonomous mobile robots
- Portable medical devices
- Drones

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Market leading high-power solution

Qi Wireless charging
The STWLC98 receiver IC supports the Qi 1.3 15 W Extended Power Profile (EPP) specifications for inductive communication protocol. It can also function as a 15W transmitter depending on the coil and enables reverse power transfer for device-to-device charging.

High efficiency
The STWLC98 shows excellent rectifier efficiency performance (>97%) thanks to the integrated low-loss synchronous rectifier and the low drop-out linear regulator. Both elements are dynamically managed by the 32-bit digital core MCU to optimize efficiency by adjusting the operating point.

Spatial freedom
ST’s proprietary adaptive rectifier configuration (ARC) mode enhances the ping-up and spatial freedom of the system in both horizontal and vertical directions without any change in hardware or coil optimization. Enabling ARC mode transforms the whole surface of the transmitter as usable charging area which increases the ping-up distance by up to 50% in all directions.

Fast charging
The STWLC98 supports the proprietary ST Super Charge (STSC) protocol that enables faster charging up to a maximum power-transfer rate of 70 W. With STSC enabled, the STWLC98 charges today’s high-end smartphones with high-capacity batteries in just under 30 minutes, enhancing customer experience.

Enhanced protection
With built-in protection features, the STWLC98 has overvoltage, overcurrent and over-temperature detection circuits to prevent the chip from overheating or exceeding the Absolute Maximum Ratings (AMR) condition. Additional safety features include foreign object detection (FOD) which leverages current-sense IP, and robust communication between transmitter and receiver.

Accelerate your design-in with these solutions

Supporting tools and software

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Note: (*) Evaluation board will be available Q1’2024

For technical documentation, samples and online ordering, visit us at www.st.com/wirelesspower