

Qi-compliant dual mode wireless power receiver for up to 15W applications



Features

- Up to 15 W output power
- Up to 5W output power in Tx mode
- Qi 1.3 inductive wireless standard communication protocol compliant
- High efficiency (98% typical) synchronous rectifier operating up to 800 kHz
- Low drop-out linear regulator with output current limit and input voltage control loop
- Adaptive Rectifier Configuration (ARC) Mode for enhanced spatial freedom
- 4 V to 12 V programmable output voltage
- Above 85% overall system efficiency
- 32-bit, 64 MHz ARM Cortex M0+ core with 32kB RRAM, 16 kB SRAM, 64kB ROM
- 10-bit A/D Converter
- Configurable GPIOs
- Up to 1Mhz I2C Slave interface
- Multi-level ASK modulator, Enhanced FSK demodulator
- Output Over-Voltage clamping protection
- Accurate voltage/current measurement for Foreign Object Detection (FOD)
- On-chip thermal management and protections
- Flip chip 40 bumps (2.12mm x 3.32mm)

Product status link

[STWLC38](#)

Product summary

Order code	STWLC38JRM
Package	WLCSP40
Packing	Tape and reel

Application

- Smartphones
- Wearables, Hearables
- True Wireless Stereo (TWS)
- Asset tracking devices
- Medical and healthcare equipment

Description

The STWLC38 is a highly integrated wireless power receiver solution suitable for applications up to 15W.

The chip has been designed to support Qi 1.3 specifications for inductive communication protocol, Base Power Profile and Extended Power Profile (BPP, 5W max, EPP 15W max).

The STWLC38 shows excellent efficiency performance thanks to the integrated low-loss synchronous rectifier and the low drop-out linear regulator: both elements are dynamically managed by the digital core to minimize the overall power dissipation over a wide range of output load conditions.

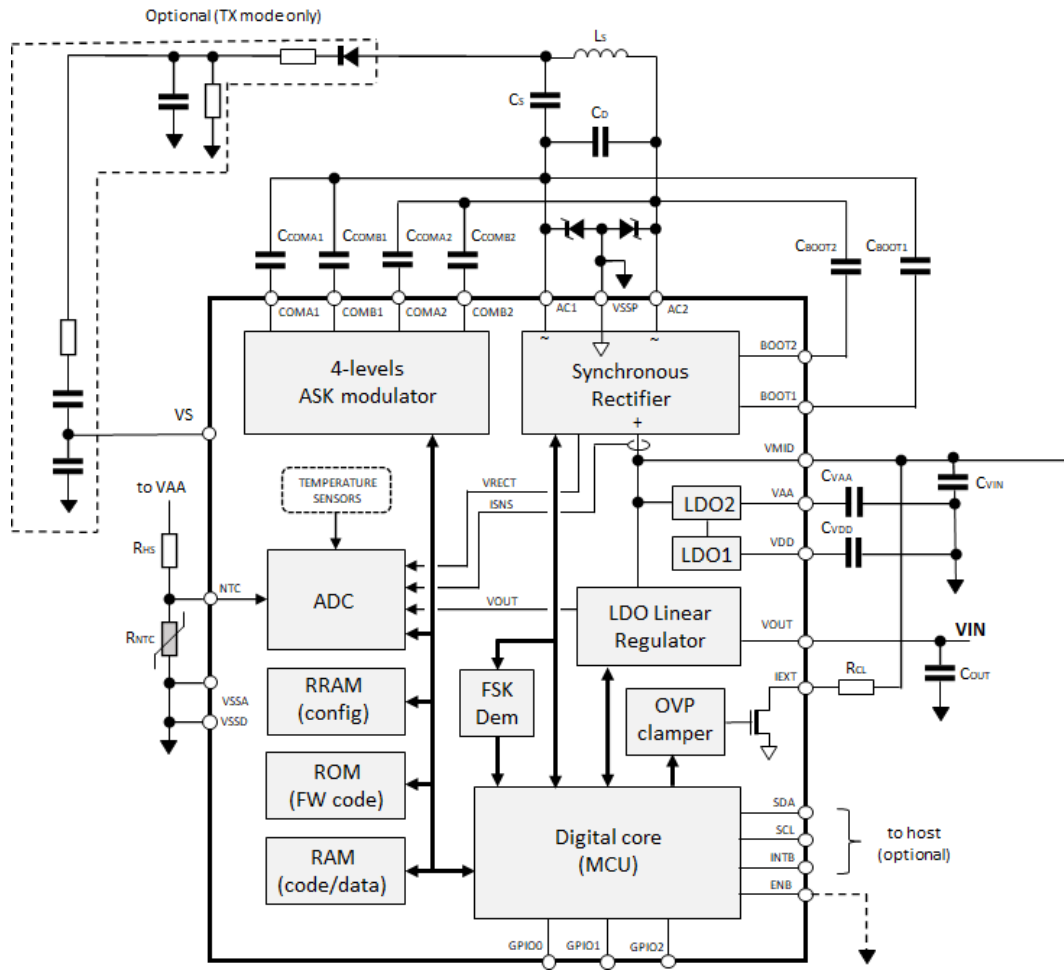
STWLC38 features embedded RRAM (Resistive RAM) non-volatile memory to enable I2C interface customization and support of proprietary communication and charging protocols

Additional firmware patching also improves the application flexibility of STWLC38.

STWLC38 is also capable of operating in Tx mode to transmit power to charge other devices, the output power can be up to 5W depending on the coil used.

The STWLC38 is housed in a Chip-Scale Package to fit real-estate sensitive applications like wearable devices.

1 Typical Application Diagram



Revision history

Table 1. Document revision history

Date	Version	Changes
24-Nov-2021	1	Initial release.
16-Jun-2022	2	Updated order code.

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