

High performance HF reader / NFC initiator with 1 W supporting VHBR and AAT

Data brief - not recommended for new design



QFN32

Features

- ISO 18092 (NFCIP-1) Active P2P
- ISO14443A, ISO14443B and FeliCa™
- Supports VHBR (3.4 Mbit/s PICC to PCD framing, 6.8 Mbit/s AFE and PCD to PICC framing)
- Capacitive sensing - Wake-up
- Automatic antenna tuning system providing tuning of antenna LC tank
- Automatic modulation index adjustment
- AM and PM (I/Q) demodulator channels with automatic selection
- Up to 1 W in case of differential output
- User selectable and automatic gain control
- Transparent and Stream modes to implement MIFARE™ Classic compliant or other custom protocols
- Possibility of driving two antennas in single ended mode
- Oscillator input capable of operating with 13.56 MHz or 27.12 MHz crystal with fast start-up
- 6 Mbit/s SPI with 96 bytes FIFO
- Wide supply voltage range from 2.4 V to 5.5 V
- Wide temperature range: -40 °C to 125 °C
- QFN32, 5 mm x 5 mm package

Description

The ST25R3911 is a highly integrated HF reader / NFC initiator IC, including the analog front end (AFE) and a highly integrated data framing system for ISO 18092 (NFCIP-1) initiator, ISO 18092 (NFCIP-1) active target, ISO 14443A and B reader (including high bit rates) and FeliCa™ reader. Implementation of other standard and custom protocols like MIFARE™ Classic is possible using the AFE and implementing framing in the external microcontroller (Stream and Transparent modes).

The ST25R3911 is positioned perfectly for the infrastructure side of the NFC system, where users need optimal RF performance and flexibility combined with low power.

Thanks to Automatic Antenna Tuning technology the device is optimized for applications with directly driven antennas. The ST25R3911 is alone in the domain of HF reader ICs as it contains two differential low impedance (1 Ohm) antenna drivers.

The ST25R3911 includes several features that make it very suited for low power applications. It contains a low power capacitive sensor that can be used to detect the presence of a card without switching on the reader field. The presence of a card can also be detected by performing a measurement of amplitude or phase of signal on antenna LC tank, and comparing it to the stored reference. It also contains a low power RC oscillator and wake-up timer that can be used to wake up the system after a defined time period, and to check for the presence of a tag using one or more low power detection techniques (capacitive, phase or amplitude).

The ST25R3911 is designed to operate from a wide (2.4 V to 5.5 V) power supply range; peripheral interface IO pins support power supply range from 1.65 V to 5.5 V.

1 Revision history

Table 1. Document revision history

Date	Revision	Changes
21-Nov-2016	1	Initial release.



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