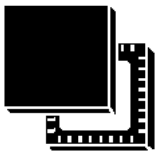
ST25R3909

ISO-14443 A/B, 13.56 MHz mid-range reader

Data brief – not recommended for new design



QFN32

Features

- Close loop adjustment of ASK modulation for accurate control of modulation depth in case of ISO-14443 B protocol
- Low power (3.5 µA) NFC target mode
- AM/PM demodulator
- Accurate RF envelope measurement (8-bit A/D converter)
- High output power at 3.3 V power supply:
  - Up to 700 mW in case regulator is externally shorted
  - Up to 500 mW in case of differential output when antenna trimming is used
  - Up to 125 mW in case of single ended output when antenna trimming is used
- Squelch for gain reduction, to compensate for noise generated by transponder processing
- Transparent mode
- Amplitude and phase measurement
- Supporting 13.56 MHz and 27.12 MHz quartz oscillators with fast start-up
- Supply voltage range from 2.4 to 3.6 V
- Wide temperature range: -40 ºC to 85 ºC
- Package: 32-pin QFN32, 5 mm x 5 mm

Description

The ST25R3909 is a high performance 13.56 MHz RFID reader, with two differential, low impedance (1.5 Ohm) antenna drivers.

These drivers are unmatched, allowing the ST25R3909 to deliver up to eight times the output power of a standard HF reader IC using the same power supply voltage, and reducing in half the power consumption at the same output power.

The ST25R3909 can operate already at 2.4 V, with a low power operating mode of 5 mA, making it perfectly suited for portable or battery-powered applications.

For applications where high power is required the ST25R3909 can deliver up to 700 mW, thus avoiding the need for complex external booster circuitry.

The component count and complexity of the design is further reduced through automatic modulation depth adjustment.

The analog front end (AFE) is complemented by a highly integrated data framing engine for both ISO-14443 A and B. This includes data rates up to 848 kbit/s, with all framing and synchronization tasks on board, and enables to build a complete HF RFID reader using only a low end microcontroller.

The ST25R3909 supports reader to tag and Peer to Peer communication using the NFCIP-1 active communication mode with a 106 kbps data rate. Other standard and custom protocols, such as ISO-15693 or FeliCa™ can be implemented via transparent mode. The ST25R3909 features a SPI, which enables bi-directional communication with the external microcontroller.

1 Revision history

Table 1. Document revision history

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

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