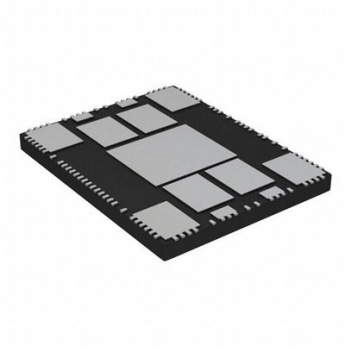
ST25R3920-AQWT

NFC/RFID Read/Write 212MHz to 848MHz Automotive 32-Pin VFQFPN EP T/R

Manufacturer:	STMicroelectronics, Inc
Package/Case:	VFQFPN32
Product Type:	RF Integrated Circuits
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active



Images are for reference only

Inquiry

General Description

The ST25R3920 is an automotive grade high performance NFC universal device supporting NFC initiator, NFC target, NFC reader, and NFC card emulation modes.

Designed for CCC (car connectivity consortium) digital key applications, the ST25R3920 enables fast product development for car access/start applications in areas like door handle or center console, and enables additional functionality, like pairing or NFC card protection combined with a Qi charger. Being very robust and noise tolerant while at the same time reducing electromagnetic emission, the device works even under harsh conditions, enabling an easier certification.

The device includes an advanced analog front end (AFE) and a highly integrated data framing system for ISO18092 passive and active initiator, ISO 18092 passive and active target, NFC-A/B (ISO14443A/B) reader including higher bit rates, NFC-F (FeliCa) reader, NFC-V (ISO15693) reader up to 53 kbps, and NFC-A / NFC-F card emulation.

Special stream and transparent modes of the AFE and framing system can be used to implement other custom protocols in reader or card emulation modes.

The ST25R3920 features high RF power with dynamic power output to directly drive antennas at high efficiency, achieving large interaction distance even with small antenna sizes common in door handles. The device include additional features, making it incomparable for low power applications. It offers low power card detection by performing a measurement of the amplitude or phase of the antenna signal while reducing power consumption to a minimum. Additionally, it contains a low power capacitive sensor to detect the presence of a card without switching on the reader field.

The ST25R3920 is designed to operate from a wide power supply range (2.6 to 5.5 V from -40 °C to +105 °C, 2.4 to 5.5 V from -20 °C to +105 °C), and a wide peripheral IO voltage range (from 1.65 to 5.5 V).

Due to this combination of high RF output power, low power modes, wide supply rangeand AEC-Q100 grade 2 qualification, the device is perfectly suited for automotive applications.

Key Features

AEC-Q100 qualified

Operating modes

Reader/writer

Card emulation

Active and passive peer to peer

Reader/writer

Card emulation

Active and passive peer to peer

RF communication

EMVCo 3.0 analog and digital compliant

NFC-A / ISO14443A up to 848 kbit/s

NFC-B / ISO14443B up to 848 kbit/s

NFC-F / FeliCa up to 424 kbit/s

NFC-V / ISO15693 up to 53 kb/s

NFC-A / ISO14443A and NFC-F / FeliCa card emulation

Active and passive peer to peer initiator and target modes, up to 424 kbit/s

Low level modes to implement MIFARE Classic compliant or other custom protocols

EMVCo 3.0 analog and digital compliant

NFC-A / ISO14443A up to 848 kbit/s

NFC-B / ISO14443B up to 848 kbit/s

NFC-F / FeliCa up to 424 kbit/s

NFC-V / ISO15693 up to 53 kb/s

NFC-A / ISO14443A and NFC-F / FeliCa card emulation

Active and passive peer to peer initiator and target modes, up to 424 kbit/s

Low level modes to implement MIFARE Classic compliant or other custom protocols

Key features

Dynamic power output (DPO) controls the field strength to stay within given limits

Active wave shaping (AWS) reduces over-and under-shoots

Noise suppression receiver (NSR) allows reception in noisy environment

Automatic antenna tuning (AAT) via variable capacitor

Integrated EMVCo 3.0 compliant EMD handling

Automatic gain control and squelch feature to maximize SNR

Low power capacitive and inductive card detection

Low power NFC active and passive target modes

Adjustable ASK modulation depth, from 5 to 40%

Integrated regulators to boost system PSRR

AM/PM and I/Q demodulator with baseband channel summation or automatic channel selection

Possibility to drive two independent single ended antennas

Measurement of antenna voltage amplitude and phase, RSSI, on-chip supply and regulated voltages

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External communication interfaces

512-byte FIFO

Serial peripheral interface (SPI) up to 5 Mbit/s

I2C with up to 400 kbit/s in Fast-mode, 1 Mbit/s in Fast-mode Plus, and 3.4 Mbit/s in High-speed mode

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Electrical characteristics

Wide supply voltage and ambient temperature range (2.6 to 5.5 V from -40 °C to +105 °C, 2.4 to 5.5 V from -20 °C to +105 °C)

Wide peripheral communication supply range, from 1.65 to 5.5 V

Quartz oscillator capable of operating with 27.12 MHz crystal with fast start-up

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Wide peripheral communication supply range, from 1.65 to 5.5 V

Quartz oscillator capable of operating with 27.12 MHz crystal with fast start-up

Recommended For You

STA5620	**ST25RU3993-BQFT**	**ST25R95-VMD5T**
STMicroelectronics, Inc	STMicroelectronics, Inc	STMicroelectronics, Inc
QFN	QFN48	QFN32

STA8090FG

STMicroelectronics, Inc

BGA

STA8088GA

STMicroelectronics, Inc

QFN

ST95HF-VMD5T

STMicroelectronics, Inc

QFN32

ST25DV16K-JFR6D3

STMicroelectronics, Inc

12UFDFPN

ST25DV04K-IER6C3

STMicroelectronics, Inc

DNF8

STA8089GA

STMicroelectronics, Inc

QFN

STA8088FG

STMicroelectronics, Inc

VFQFPN56

ST25DV04K-IER6S3

STMicroelectronics, Inc

SOP8

SMA661ASTR

STMicroelectronics, Inc

SOT666

ST25R3916-AQWT

STMicroelectronics, Inc

QFN32

STM32WB55CGU7

STMicroelectronics, Inc

UFQFN48

ST25DV04K-JFR6D3

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