

High performance NFC universal device and EMVCo reader



Features

- Operating modes
 - Reader/writer
 - Card emulation
 - Active and passive peer to peer
- RF communication
 - 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
- Hardware 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 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, driver current, RSSI, on-chip supply and regulated voltages
 - Up to 1.6 W differential output power
- External communication interfaces
 - 512 byte FIFO
 - Serial peripheral interface (SPI) up to 10 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
- Electrical characteristics
 - Wide supply voltage range, from 2.4 to 5.5 V
 - Wide peripheral communication supply range, from 1.65 to 5.5 V
 - Wide temperature range, from -40 to +125 °C
 - Quartz oscillator capable of operating with 27.12 MHz crystal with fast start-up

Product status link

[ST25R3916](#)

Application

The ST25R3916 is suitable for a wide range of NFC and HF RFID applications, among them

- NFC Forum compliant NFC Universal Device
- EMVCo compliant contactless payment terminal
- ISO14443 and ISO15693 compliant general purpose NFC device
- FeliCa™ reader/writer
- Supports all five NFC Forum Tag types in reader mode
- Supports all common proprietary protocols, such as Kovio, CTS, B'

Description

The **ST25R3916** is a high performance NFC universal device supporting NFC initiator, NFC target, NFC reader, and NFC card emulation modes.

The **ST25R3916** includes an advanced analog front end (AFE) and a highly integrated data framing system for:

- ISO 18092 passive and active initiator, ISO18092 passive and active target
- NFC-A/B (ISO 14443A/B) reader including higher bit rates
- NFC-F (Felica™) reader
- NFC-V (ISO 15693) reader up to 53 kbps
- NFC-A and NFC-F card emulation

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

The **ST25R3916** features a high RF output power to directly drive antennas at high efficiency.

The **ST25R3916** also includes several features, which make it incomparable for low power applications. It contains a low power capacitive sensor to detect the presence of a card without switching on the reader field. Additionally, the presence of a card can still be detected by performing a measurement of the amplitude or phase of the antenna signal. It also contains a low power RC oscillator and wake-up timer to automatically wake-up the ST25R3916 after a selected time period and check for a presence of a tag using one or more techniques of low power detection of card presence (capacitive, phase or amplitude).

The **ST25R3916** is designed to operate from a wide power supply range (from 2.4 to 5.5 V), 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, and wide supply range the **ST25R3916** is perfectly suited for infrastructure NFC applications.

Revision history

Table 1. Document revision history

Date	Version	Changes
09-Nov-2018	1	Initial release.

Contents

Revision history3

List of tables

Table 1. Document revision history 3

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2018 STMicroelectronics – All rights reserved

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А