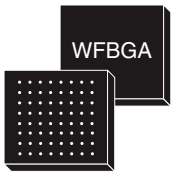
ST21NFCD

Near field communication controller

Data brief



WFBGA 64-pin (4 x 4 x 0.8 mm)

Hardware features

- ARM® Cortex®-M3 microcontroller
- eFlash for full firmware update
- Enhanced Active load modulation technology
- Enhanced TX drive up to 1.3 W
- Compatible with extremely small or metal frame antennas
- Optimized power consumption modes
- Battery voltage monitoring
- System clock
  - FracN PLL input range from 13 to 76.8 MHz
  - 27.12 MHz external crystal oscillator
- Integrated PMU
  - LDOs for internal voltages
  - 2 x LDOs for external voltages
  - Voltage detectors for supplies monitoring
  - Low power mode state machine
- Automatic Wake-Up via communication interfaces, internal timers, GPIO, RF field or tag detection
- Support of an external DC/DC converter for TX supply

RF communications

- Active and passive Peer-to-Peer
  - ISO/IEC 18092 - NFCIP-1 Initiator & Target
- Passive mode – Reader/Writer
  - NFC Forum Type 1/2/3/4/5 tags
  - ISO/IEC 15693
  - MIFARE® Classic[(a)(b)]
  - Thinfilm (ex Kovio) Barcode
- Active mode – Card Emulation
  - ISO/IEC 14443 Type A & B
  - JIS X 6319 – 4
  - MIFARE® Classic(a)(b) through SWP-CLT

External communication interfaces

- Two SWP master interfaces up to 1.695 Mbit/s
- I^2C slave interface up to 3.4 MHz
- Slave and master SPI interface (up to 13 MHz)
- HSUART interface up to 6 Mbit/s

Security features

- Secure firmware update mechanism

Electrical characteristics

- Battery voltage support from 2.4 V to 5 V
- I/O dedicated voltage level (V_{PS_IO}) from 1.62 V to 3.3 V
- Supports Class B and C operating conditions for UICC
- Ambient operating temperature -25 to + 85 °C

Applications

- Mobile devices
- Wearable devices
- SmartWatch
- Secure Connected Devices

a. MIFARE R/W mode feature availability is pending to license conditions. Please contact your local ST representative for further information.

b. MIFARE is a register trademark of NXP B.V. in the U.S and other jurisdictions, and is used under license.

For further information contact your local STMicroelectronics sales office. www.st.com

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1 Description

The ST21NFCD is a single NFC controller IC designed for integration in mobile devices and NFC compliant products. It includes NFC functions in the three operating modes: Card Emulation, Reader/Writer and Peer to Peer communication.

This product is based on an advanced ARM Cortex-M3 32-bit microcontroller running at 28 MHz.

All internal operations are synchronized by a Clock Generator module.

Two clock source options are available:

- using an external Quartz.
- using an external reference clock (in order to reduce the number of external components).

Thanks to an enhanced power switch system, the ST21NFCD manages the power supply of the device and its associated Secure Elements.

The ST21NFCD supports NCI 2.0.

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK® is an ST trademark.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jan-2017	1	Internal release.
06-Feb-2017	2	Initial public release.

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