

NFC card reader expansion board based on ST25R100 for STM32 Nucleos



Features

- On-board NFC card reader IC: [ST25R100](#)
- 47 mm x 34 mm, four turns, 13.56 MHz inductive antenna etched on PCB and associated tuning circuit
- Six general-purpose LEDs
- ISO 14443A and ISO14443B
- ISO 15693
- Possibility of driving two antennas in single-ended configuration
- Equipped with Arduino UNO R3 connector
- Free comprehensive development firmware library compatible with [STM32Cube](#) and samples for [ST25R100](#)
- Scalable solution for multiple board cascade
- FCC certified
- RoHS and WEEE compliant

Description

The [X-NUCLEO-NFC09A1](#) NFC card reader expansion board is based on the [ST25R100](#) device.

The expansion board is configured to support ISO14443A/B, ISO15693.

The [ST25R100](#) manages frame coding and decoding in reader mode for standard applications, such as NFC, proximity, and vicinity HF RFID standards. It supports ISO/IEC 14443 type A/B and ISO/IEC 15693 RF communication protocols as well as the detection, reading and writing of NFC Forum type 1, 2, 4, and 5 tags.

It embeds a low power wake-up system capable of detecting an approaching tag. It also features a low power RC oscillator and wake-up timer to wake up the device automatically after a selected time period and check for a tag presence.

Product summary	
NFC card reader expansion board based on ST25R100 for STM32 and STM8 Nucleos	X-NUCLEO-NFC09A1
High-performance NFC universal device and EMVCo reader	ST25R100
High-performance HF reader/NFC initiator IC software expansion for STM32Cube	X-CUBE-NFC9
Applications	Wireless Connectivity

1 Schematic diagrams

Figure 1. X-NUCLEO-NFC09A1 circuit schematic (1 of 3)

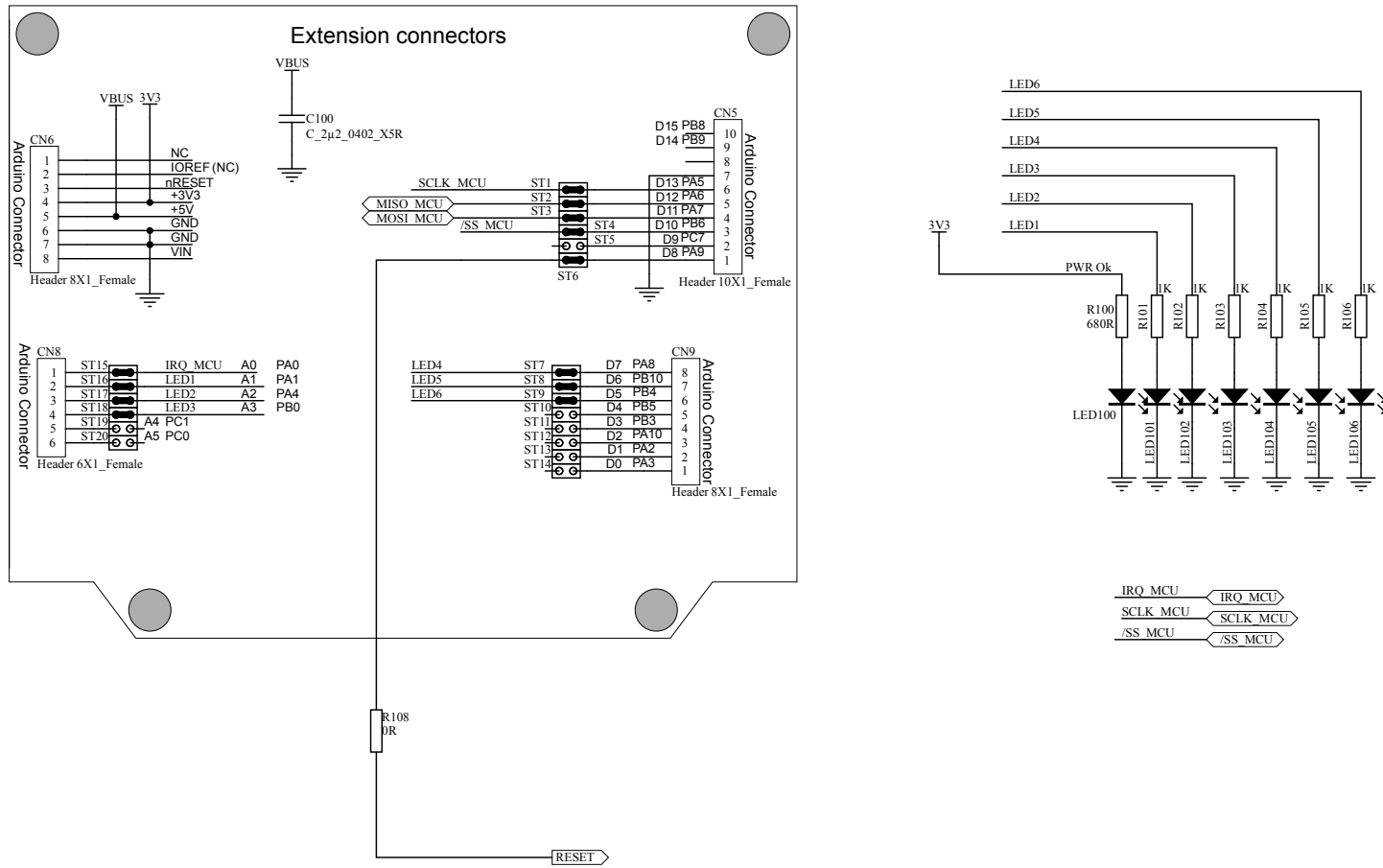


Figure 2. X-NUCLEO-NFC09A1 circuit schematic (2 of 3)

ST25R100 HF Reader

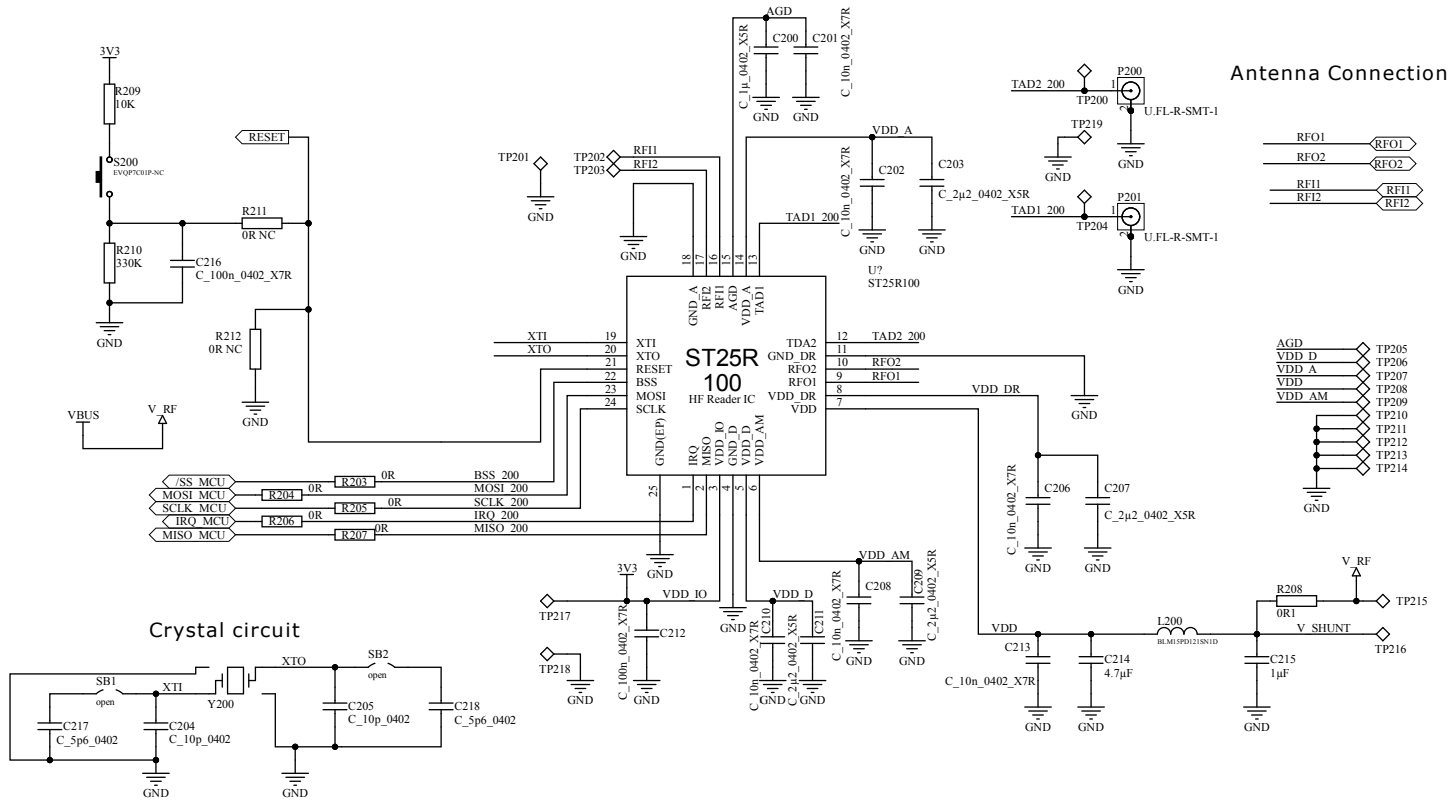
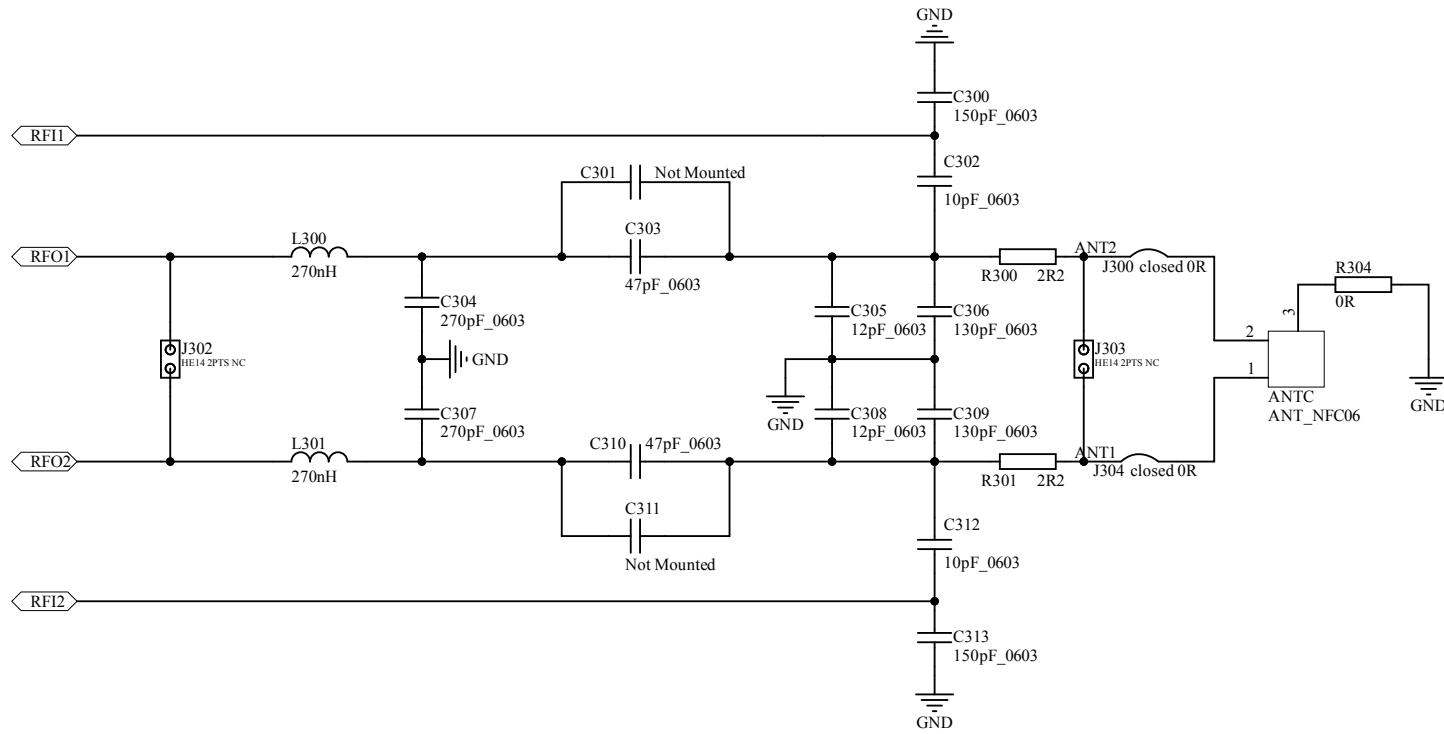


Figure 3. X-NUCLEO-NFC09A1 circuit schematic (3 of 3)

Antenna Circuit incl. EMI Filter and Matching



2 Board versions

Table 1. X-NUCLEO-NFC09A1 versions

PCB version	Schematic diagrams	Bill of materials
X\$NUCLEO-NFC09A1 ⁽¹⁾	X\$NUCLEO-NFC09A1 schematic diagrams	X\$NUCLEO-NFC09A1 bill of materials

1. This code identifies the X-NUCLEO-NFC09A1 expansion board first version. It is printed on the board PCB.

Revision history

Table 2. Document revision history

Date	Revision	Changes
10-Jul-2024	1	Initial release.

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