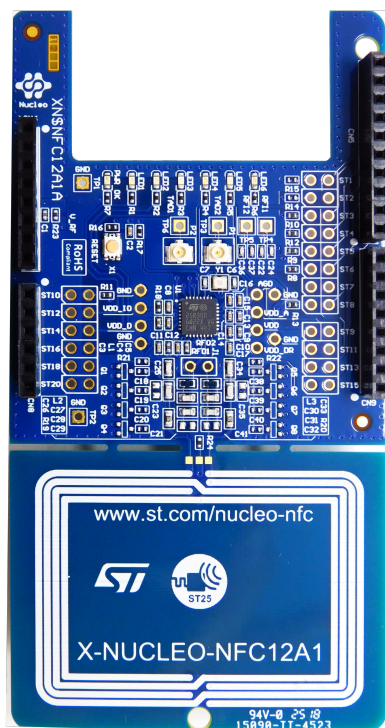


NFC card reader expansion board based on ST25R300 for STM32 Nucleos



Features

- On-board NFC card reader and host card emulation IC: [ST25R300](#)
- NFC Forum NFC-A, NFC-B, NFC-F and NFC-V poller
- NFC Forum NFC-A, NFC-F listener
- 13.56 MHz inductive antenna, 47 mm x 34 mm, four turns, etched on PCB and associated tuning circuit
- Possibility of driving two antennas in single-ended configuration
- Six general-purpose LEDs
- Equipped with Arduino UNO R3 connector
- Free comprehensive development firmware library compatible with [STM32Cube](#) and samples for [ST25R300](#)
- FCC certified
- RoHS and WEEE compliant

Description

The X-NUCLEO-NFC12A1 NFC card reader expansion board is based on the ST25R300 device.

The expansion board is configured to support all five NFC Forum tag types in reader mode.

The [ST25R300](#) manages frame coding and decoding in reader mode for standard applications.

It supports ISO/IEC 14443 type A/B and ISO/IEC 15693 (single subcarrier only) and ISO/IEC 18092 communication protocols as well as the detection, reading and writing of NFC Forum type 1, 2, 3, 4, and 5 tags.

Integrated HF reader/NFC initiator/NFC target IC with an antenna etched on the PCB and the related tuning circuit.

Product summary	
NFC card reader expansion board based on ST25R300 for STM32 Nucleos	X-NUCLEO-NFC12A1
High-end NFC reader for NFC charging, payment and consumer applications	ST25R300-AQET
High-performance HF reader/NFC initiator IC software expansion for STM32Cube	X-CUBE-NFC12
Applications	Wireless Connectivity

1 Schematic diagrams

Figure 1. X-NUCLEO-NFC12A1 circuit schematic (1 of 3)

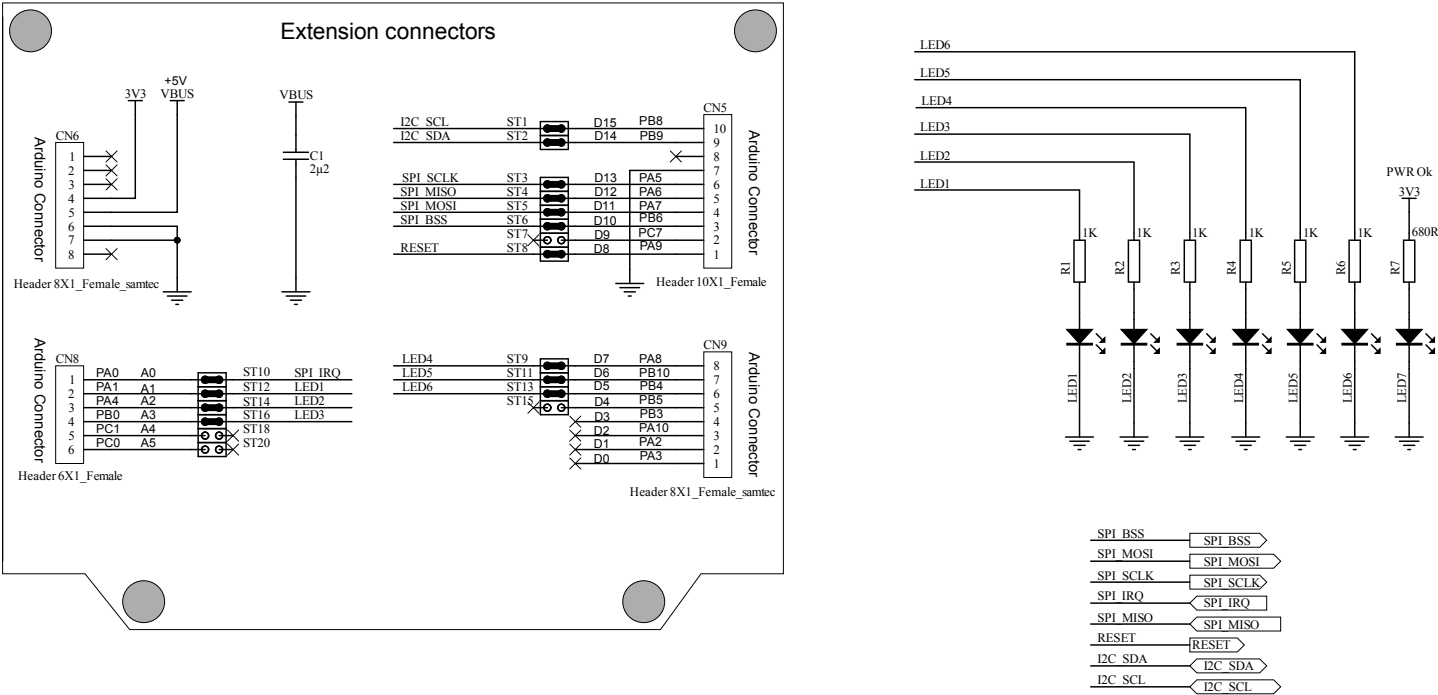


Figure 2. X-NUCLEO-NFC12A1 circuit schematic (2 of 3)

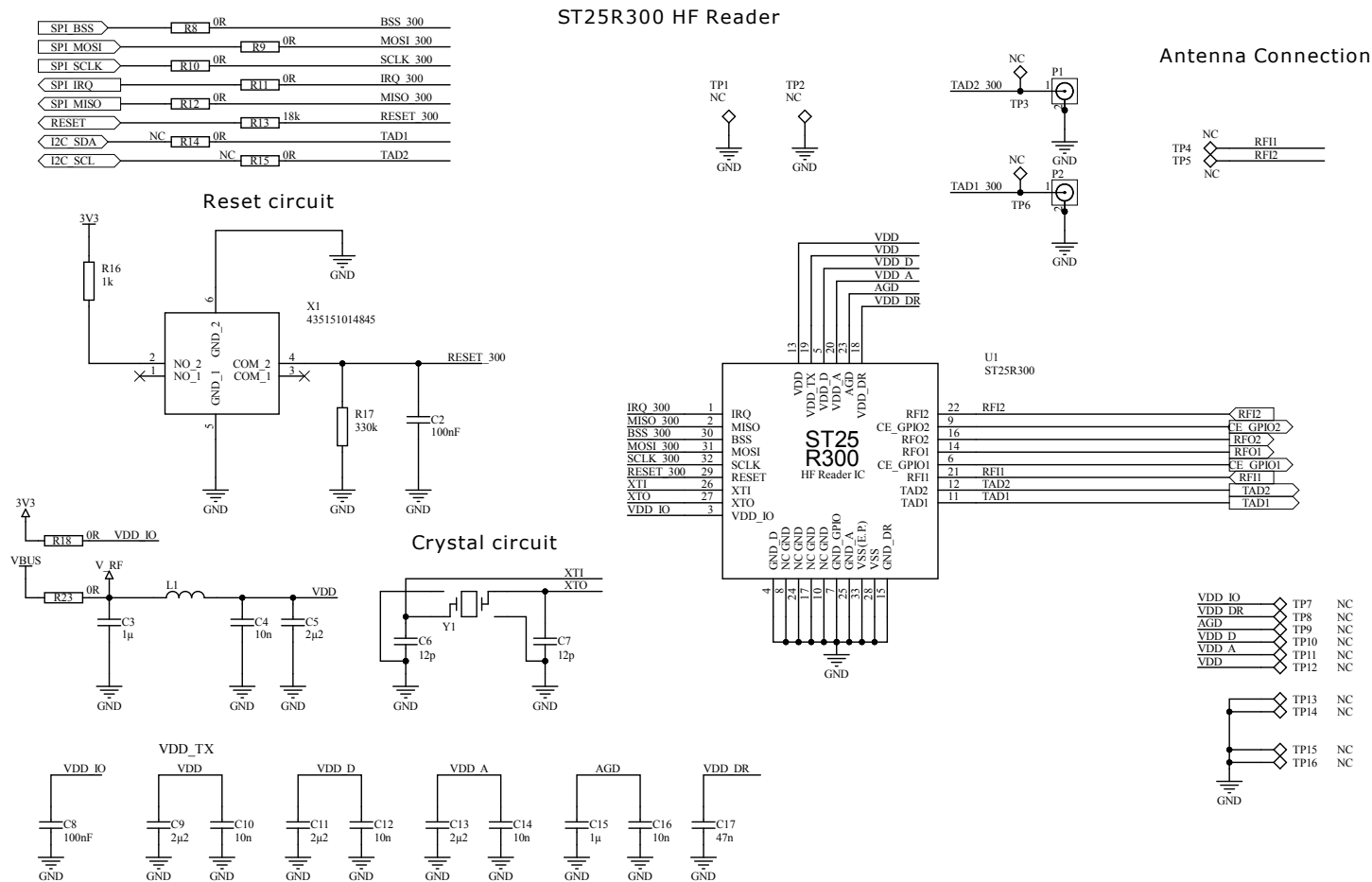
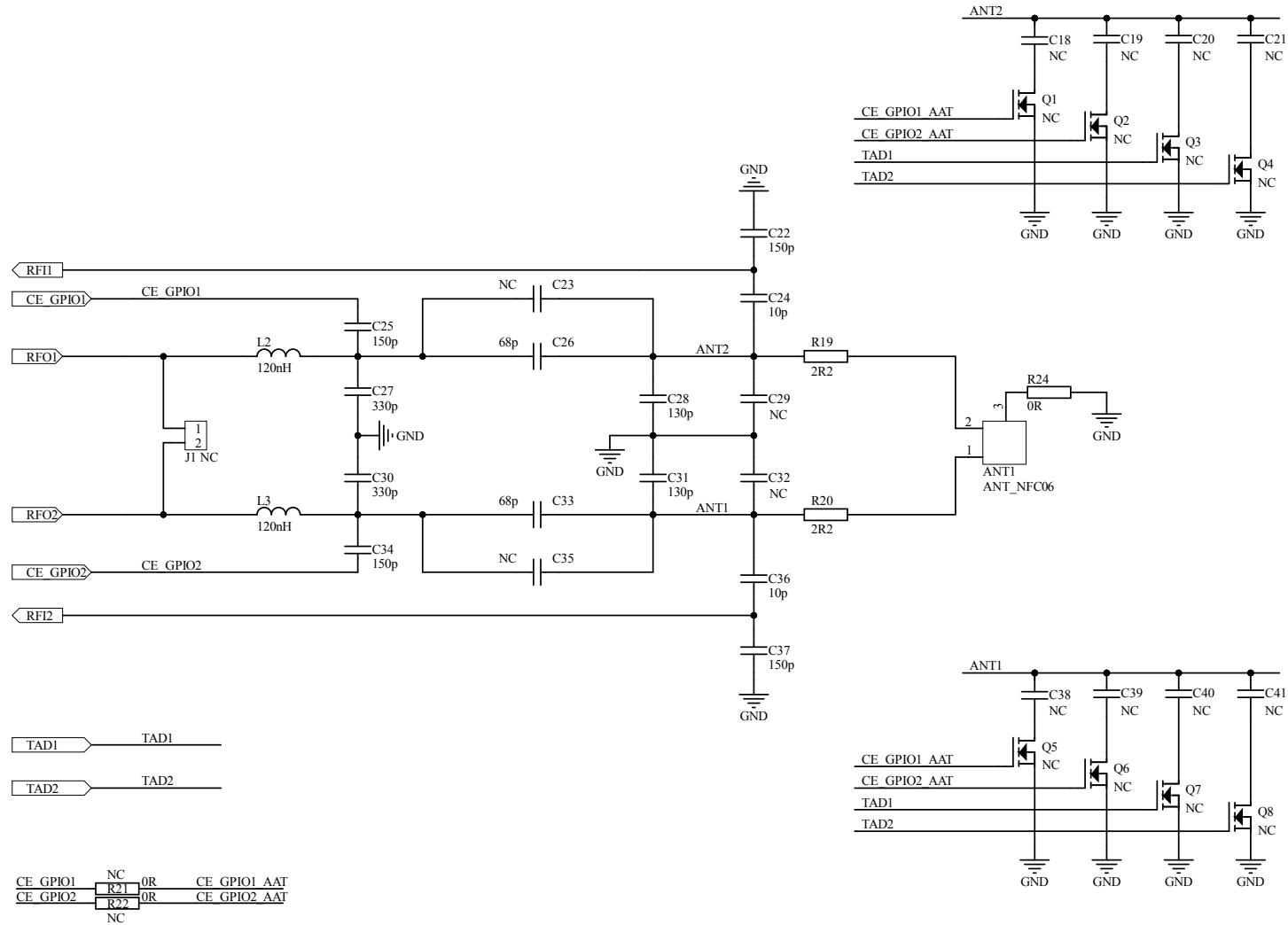


Figure 3. X-NUCLEO-NFC12A1 circuit schematic (3 of 3)



2 Board versions

Table 1. X-NUCLEO-NFC12A1 versions

PCB version	Schematic diagrams	Bill of materials
XN\$NFC12A1A ⁽¹⁾	XN\$NFC12A1A schematic diagrams	XN\$NFC12A1A bill of materials

1. This code identifies the X-NUCLEO-NFC12A1 expansion board first version. It is printed on the board PCB.

Revision history

Table 2. Document revision history

Date	Revision	Changes
05-Mar-2025	1	Initial release.
25-Jun-2025	2	Updated cover image.

IMPORTANT NOTICE – 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 acknowledgment.

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. For additional information about ST trademarks, refer to www.st.com/trademarks. 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.

© 2025 STMicroelectronics – All rights reserved