

Dynamic NFC/RFID tag IC expansion board based on ST25DV64KC for STM32 Nucleo



Features

- ST25DV64KC dynamic NFC/RFID tag for STM32 Nucleo
- Up to 4-Kbit memory with NDEF support
- 54 mm diameter, single-layer circular antenna
- Compatible with [STM32 Nucleo](#) boards
- Equipped with Arduino UNO R3 connector
- Self-powered or powered through the Arduino UNO R3 connectors
- Three general-purpose LEDs
- Scalable solution, capable of cascading multiple boards for larger systems
- Free comprehensive development firmware library and example for ST25DV64KC, compatible with [STM32Cube](#) firmware
- FCC and IC verified
- RoHS compliant

Description

The X-NUCLEO-NFC07A1 dynamic NFC/RFID tag IC expansion board is based on the ST25DV64KC dynamic NFC/RFID tag IC with a 64-Kbit dual interface EEPROM and fast transfer mode feature. It can be powered through the [STM32 Nucleo](#) development board or directly through the received carrier electromagnetic field.

The X-NUCLEO-NFC07A1 expansion board is compatible with the Arduino UNO R3 connector pin assignment and can easily be plugged onto any [STM32 Nucleo](#) development board. You can stack other expansion boards to evaluate different devices that work together with the dynamic NFC tag.

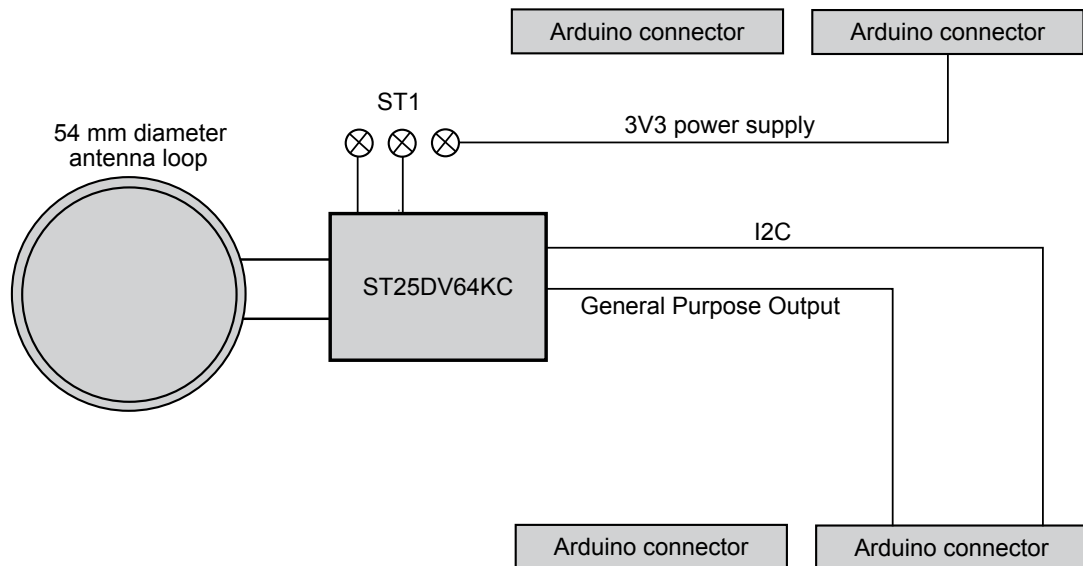
The board also features a single-layer antenna with a diameter of 54 mm and copper etched on the PCB.

Product summary	
Dynamic NFC/RFID tag IC expansion board based on ST25DV64KC for STM32 Nucleo	X-NUCLEO-NFC07A1
Dynamic NFC/RFID tag IC software expansion for STM32Cube	X-CUBE-NFC7
Dynamic NFC/RFID tag IC with 64-Kbit EEPROM and fast transfer mode capability	ST25DV64KC-IE6S3
Applications	NFC

1 Detailed description

The X-NUCLEO-NFC07A1 is based on the ST25DV64KC 64-Kbit dynamic NFC/RFID tag NFC forum type V with I²C interface, fast transfer mode, and energy harvesting.

Figure 1. Functional block diagram



The ST25DV64KC is an NFC type V/RFID tag IC with a dual-interface 64-kBit electrically erasable programmable read-only memory (EEPROM) that also features an I²C interface. It can be powered either from an external power supply or directly by the received carrier electromagnetic field. The tag features an event-configurable interruption output and supports multi-interruption:

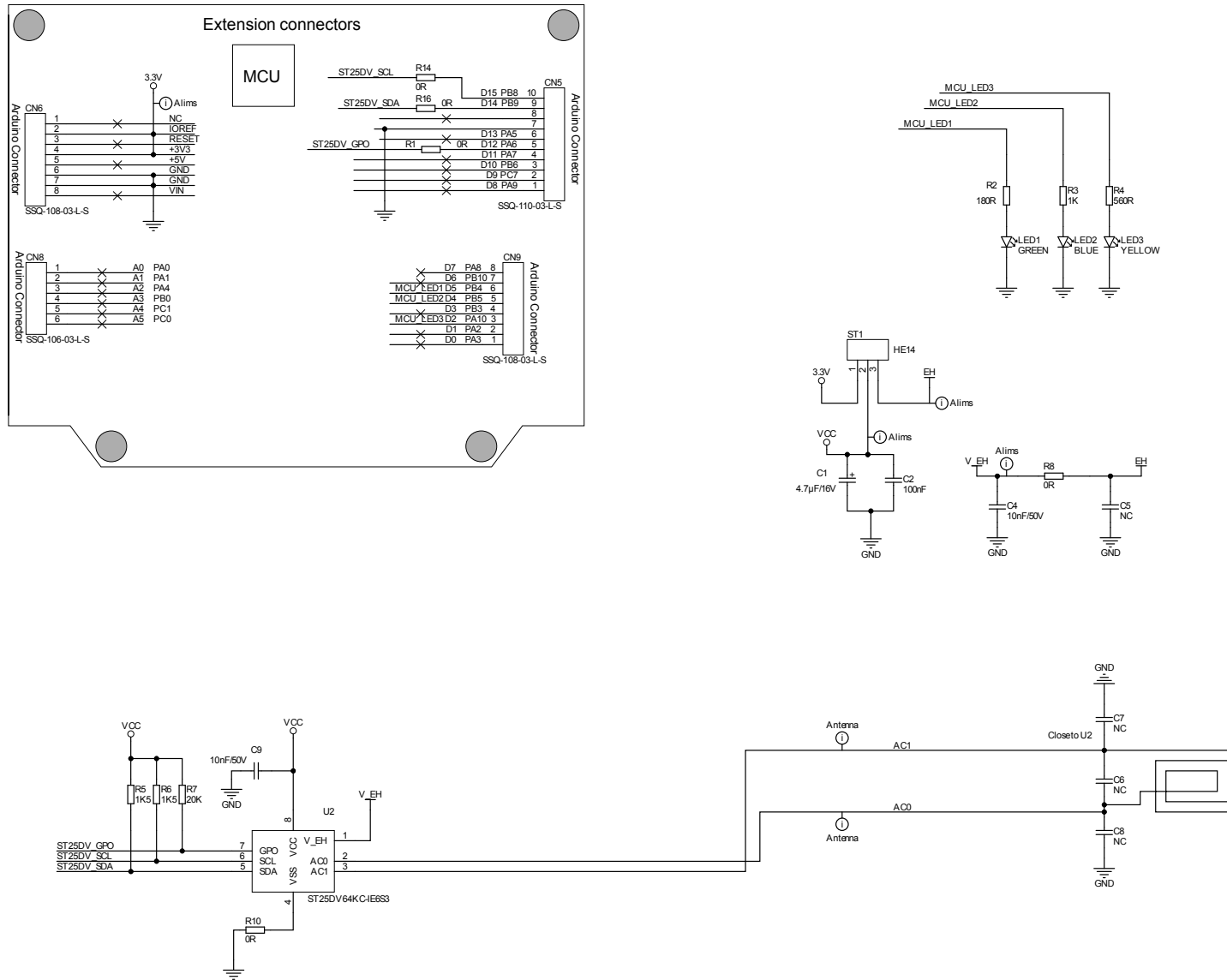
- Field change
- RF busy
- Mail box filled
- E² update
- RF user interrupt
- RF user set/reset

The ST25DV64KC also features an energy harvesting mode. When activated, the ST25DV64KC delivers a voltage on the V_{OUT} analog pin. In case the RF field strength is not sufficient or when the energy harvesting mode is disabled, the V_{OUT} pin goes into high-Z state. The energy harvesting mode is then automatically stopped.

The X-NUCLEO-NFC07A1 is compatible with the Arduino UNO R3 connector pin assignment. It interfaces with the STM32 microcontroller via the I²C pins.

2 Schematic diagrams

Figure 2. X-NUCLEO-NFC07A1 circuit schematic



3 Board versions

Table 1. X-NUCLEO-NFC07A1 versions

Finished good	Schematic diagrams	Bill of materials
X\$NUCLEO-NFC07A1 ⁽¹⁾	X\$NUCLEO-NFC07A1 schematic diagrams	X\$NUCLEO-NFC07A1 bill of materials

1. This code identifies the X-NUCLEO-NFC07A1 evaluation board first version.

Revision history

Table 2. Document revision history

Date	Revision	Changes
19-Jan-2022	1	Initial release.

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