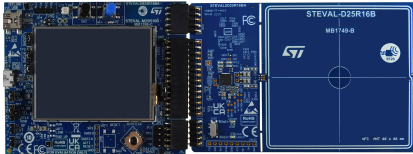


Discovery kit for the ST25R3916B high performance NFC universal device and EMVCo reader



Features

- ISO 18092 (NFCIP-1) active and passive initiator and target modes
- NFC Forum NFC-A, NFC-B, NFC-F and NFC-V reader
- ISO 14443A, ISO 14443B and ISO15693 reader
- FeliCa™ reader
- Support for all five NFC forum tag types in reader mode
- NFC forum type 3 tag (NFC-F) host card emulation
- NFC forum type 4A tag (NFC-A) host card emulation
- Stream modes to implement other standard and custom protocols
- Integrated inductive sensing system for low power detection of tag presence using phase or amplitude measurement
- High output power
- User selectable and automatic gain control
- Serial peripheral interface (SPI) up to 10 Mb/s
- I²C with up to 400 kbit/s in fast-mode, 1 Mb/s in fast-mode plus

Product summary

Discovery kit for the ST25R3916B high performance NFC universal device and EMVCo reader	STEVAL-25R3916B
NFC reader for payment, consumer and industrial	ST25R3916B-AQWT
Applications	NFC

Description

The **STEVAL-25R3916B** kit allows the user to evaluate the features and capabilities of the ST25R devices, which are a series of high performance HF readers.

The kit comes with application notes, software applications, drivers, bill of materials (BOM), board schematics, Gerber files, and firmware schematics. These documents are downloadable from www.st.com.

The **STEVAL-25R3916B** consists of two boards: STEVAL-M25R16B and STEVAL-D25R16B.

The STEVAL-M25R16B is a microprocessor motherboard, which embeds a 32-bit Arm® Cortex™-M4 CPU with an FPU high-performance microcontroller. This board is powered through the USB bus. It is based on an STM32L476 microcontroller and includes: an ST-LINK embedded debug tool interface, a 2.4" TFT LCD, LEDs, push buttons (reset and user), a mini USB debug connector, an user-dedicated micro USB connector, features for ST NFC TAG boards not used with the ST25R HF reader series.

The STEVAL-D25R3916B is a daughter board, which embeds the **ST25R3916** highly integrated HF reader/NFC initiator/NFC target IC with an antenna etched on the PCB and the related VHBR tuning circuit.

1 Schematic diagrams

Figure 1. STEVAL-ST25R3916B main board circuit schematic (1 of 10)

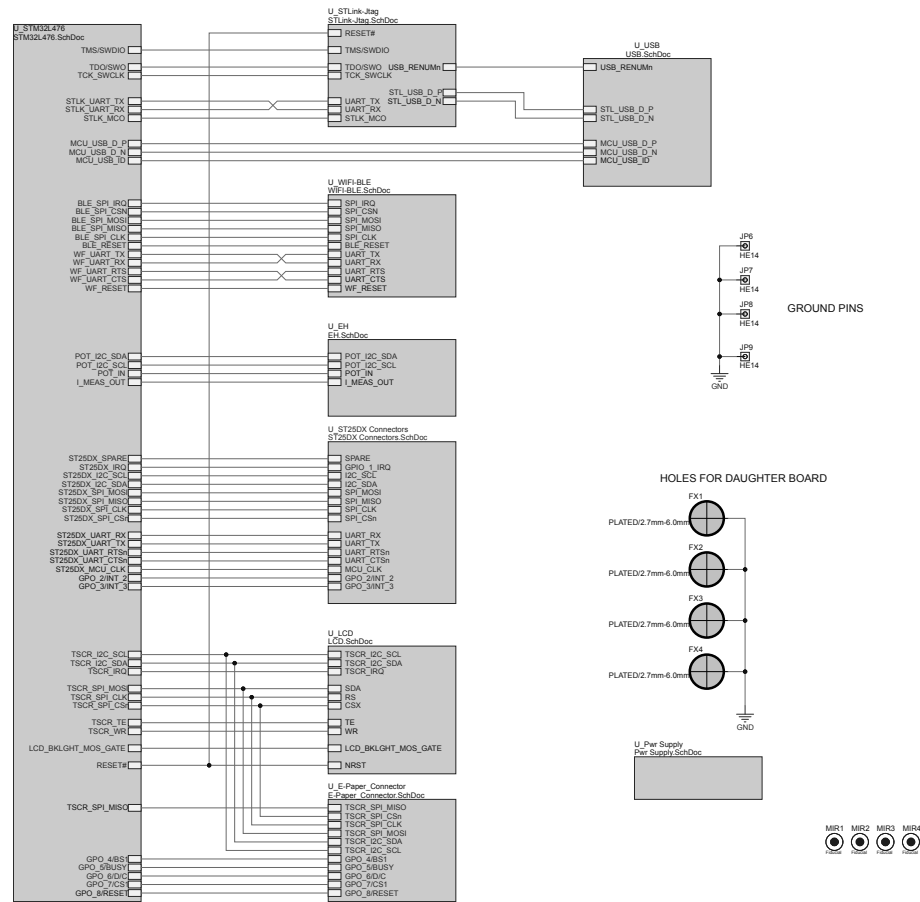


Figure 2. STEVAL-ST25R3916B main board circuit schematic (2 of 10)

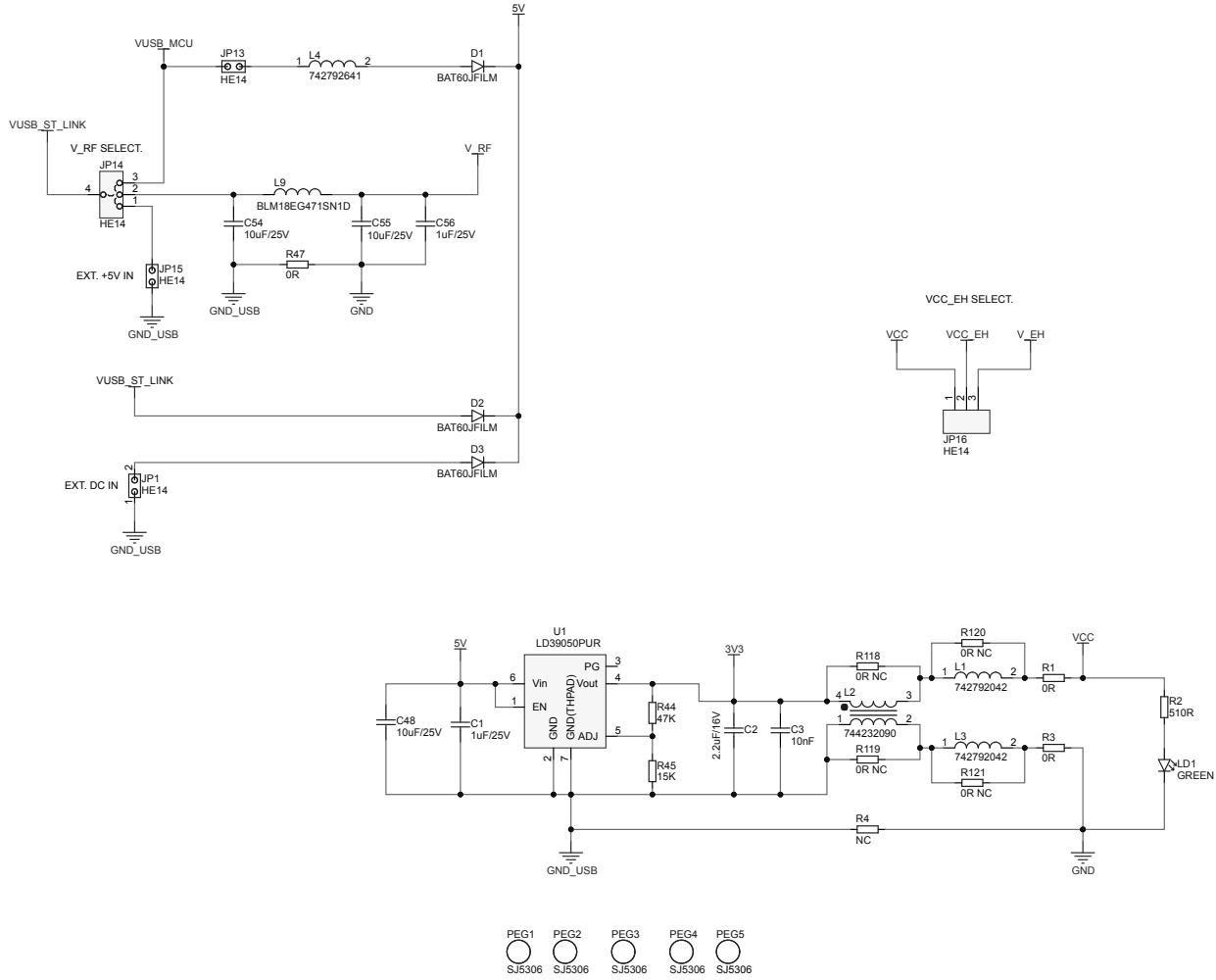


Figure 3. STEVAL-ST25R3916B main board circuit schematic (2 of 10)

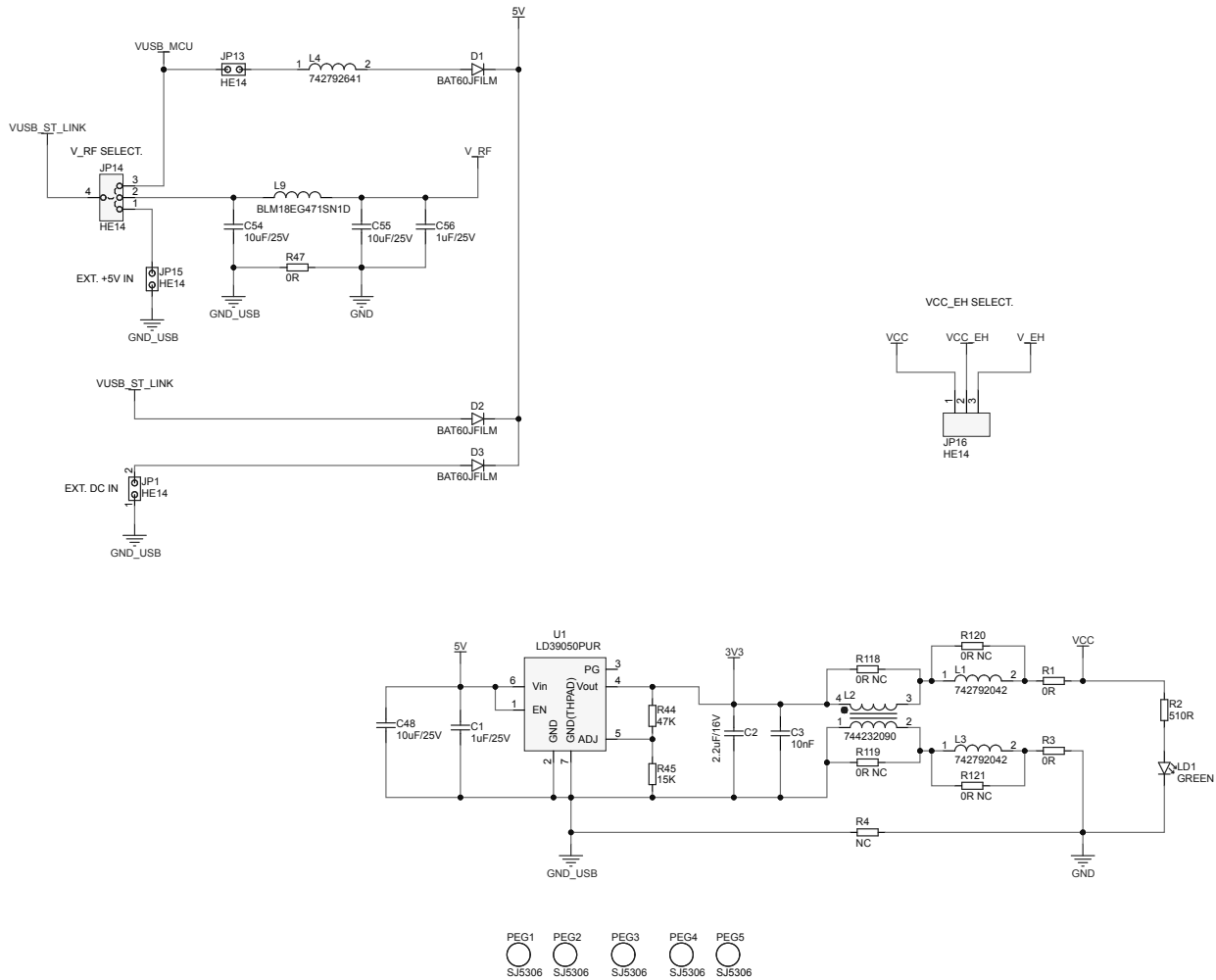




Figure 5. STEVAL-ST25R3916B main board circuit schematic (4 of 10)

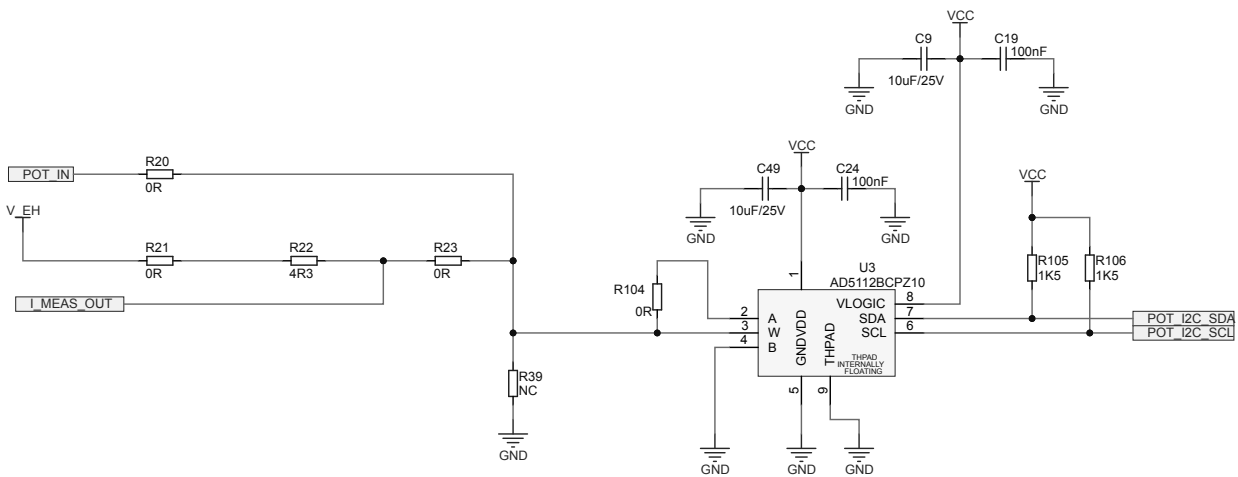


Figure 6. STEVAL-ST25R3916B main board circuit schematic (5 of 10)

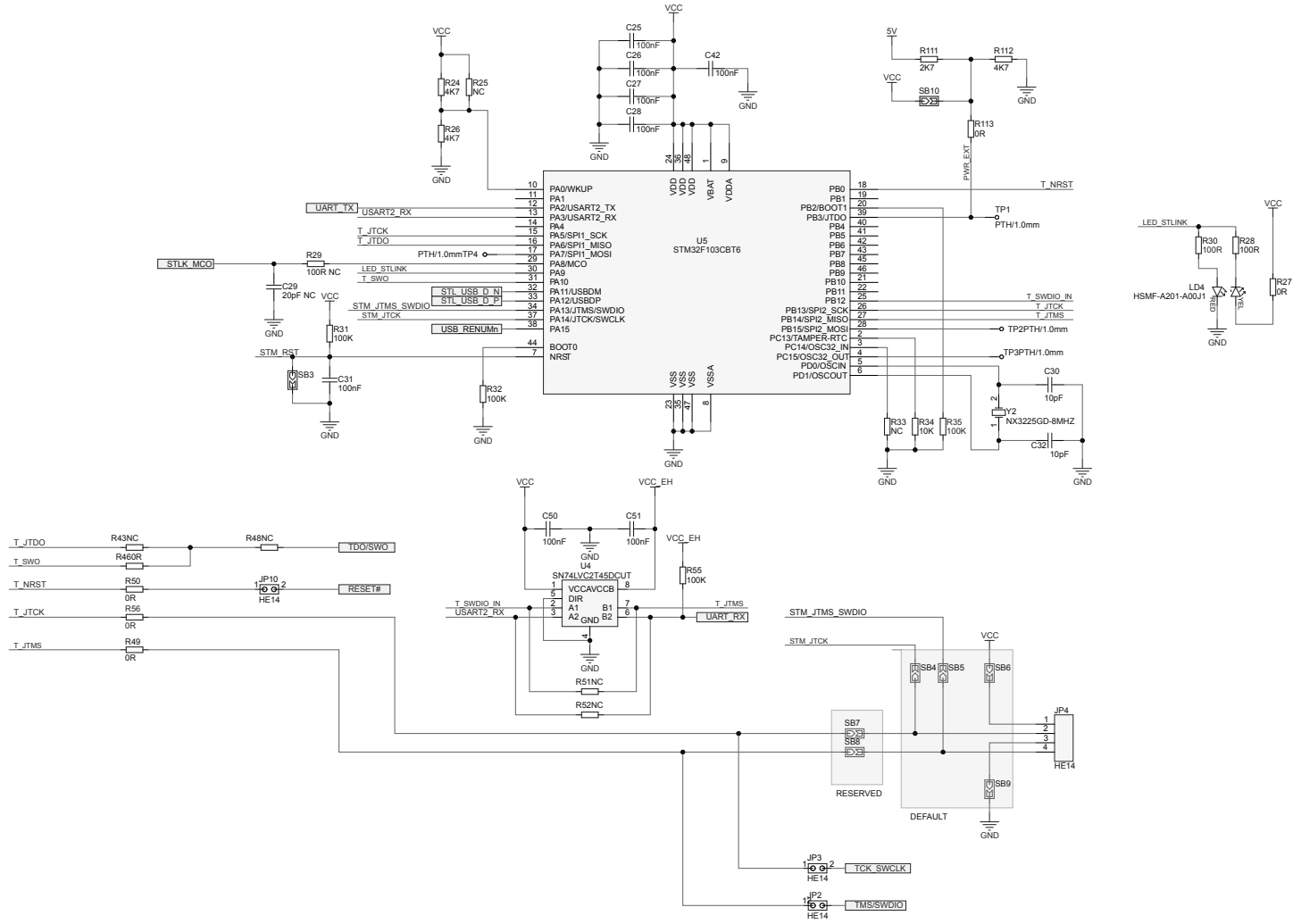


Figure 7. STEVAL-ST25R3916B main board circuit schematic (6 of 10)

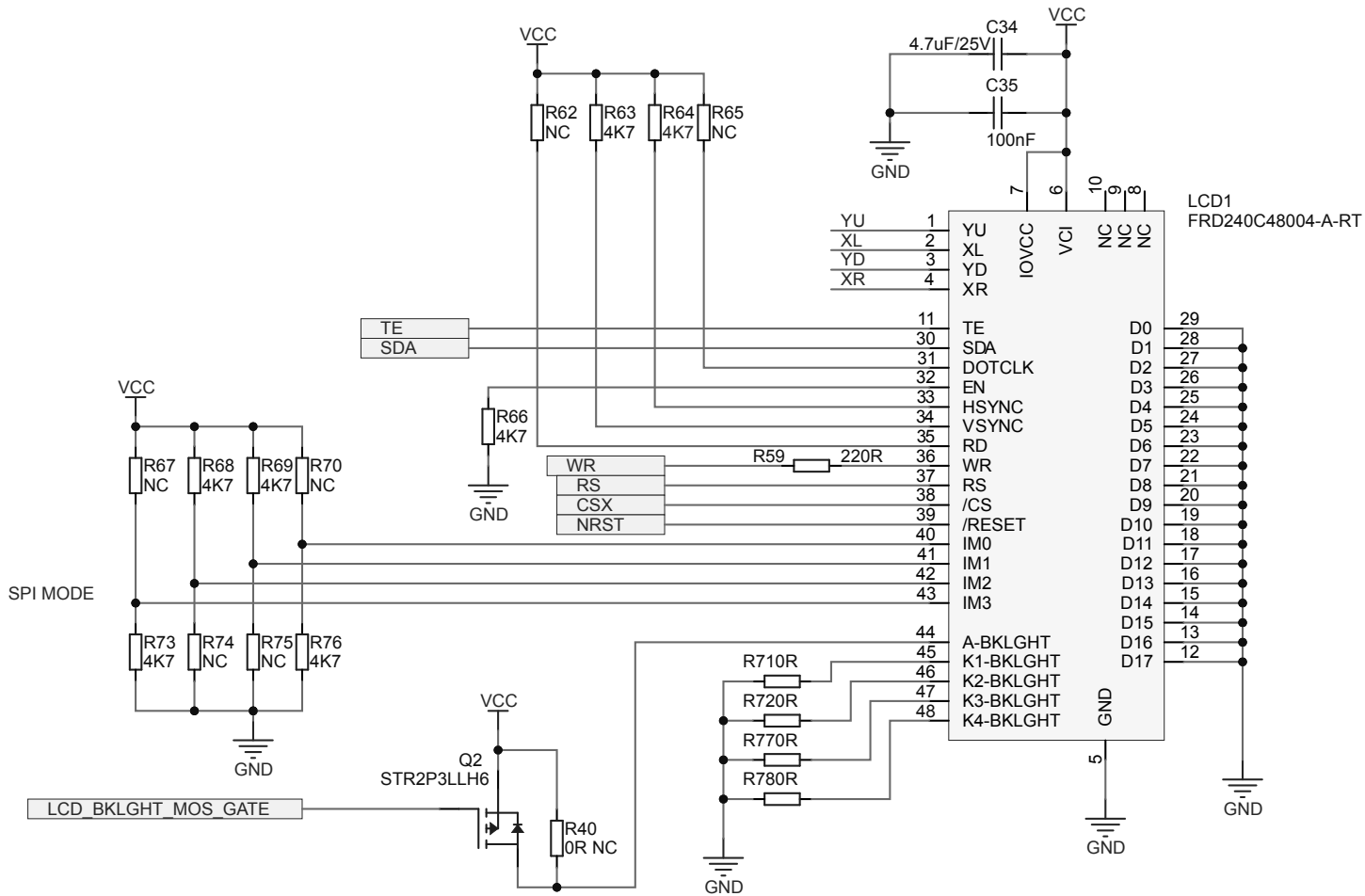


Figure 8. STEVAL-ST25R3916B main board circuit schematic (7 of 10)

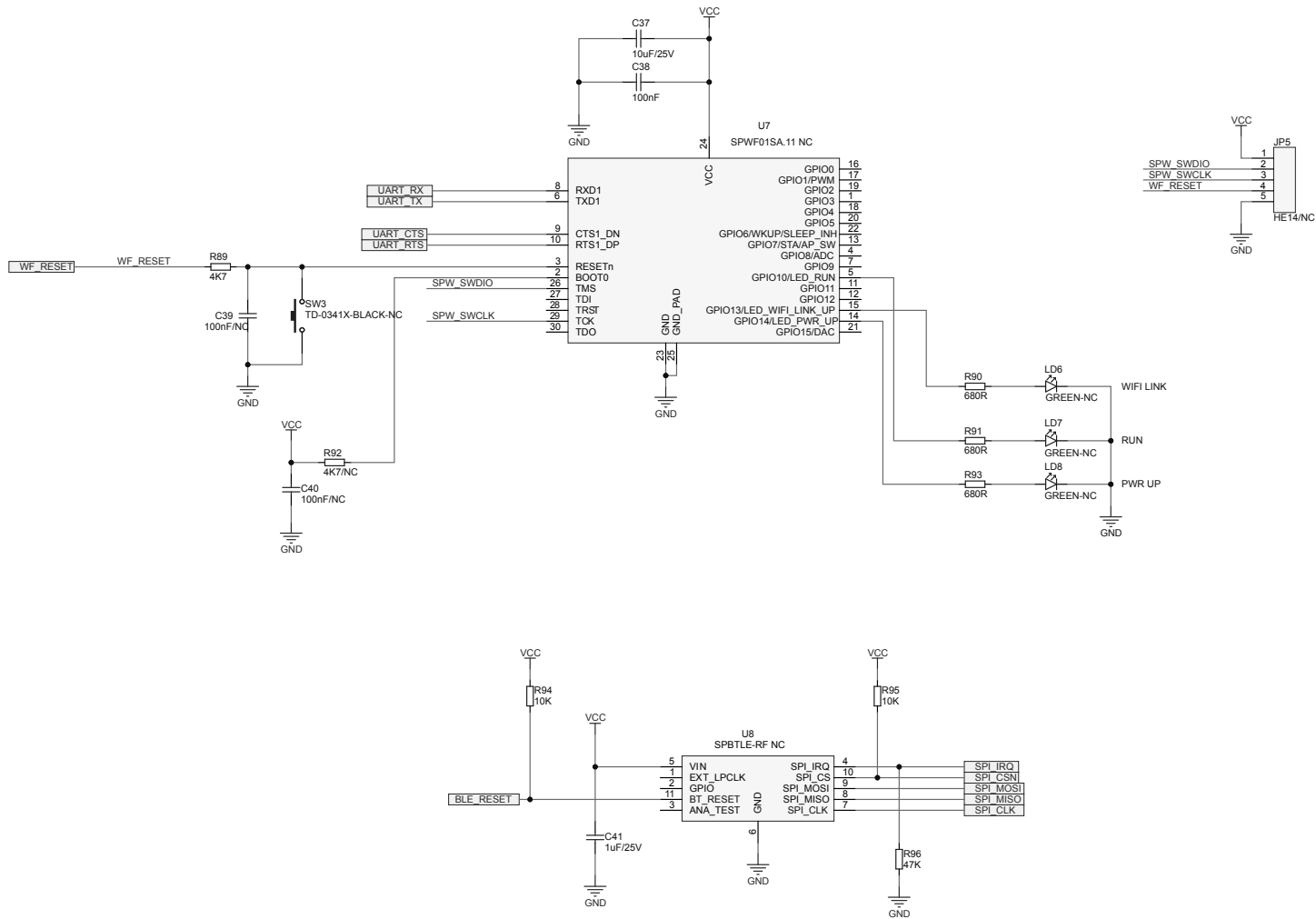


Figure 9. STEVAL-ST25R3916B main board circuit schematic (8 of 10)

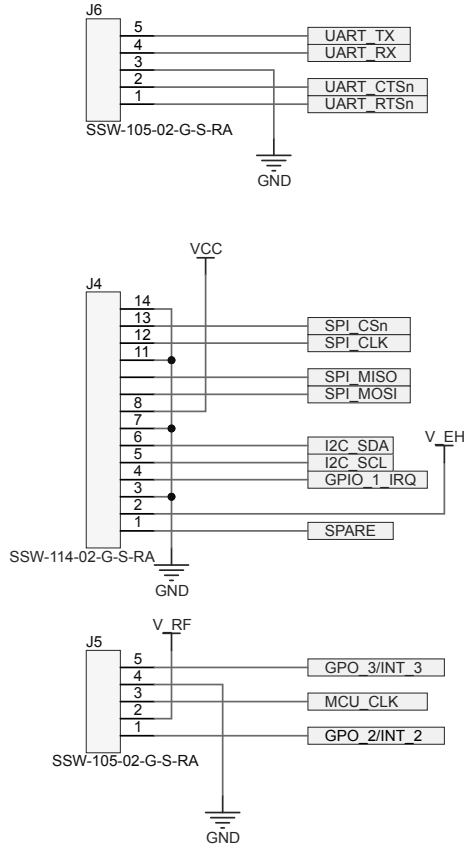


Figure 11. STEVAL-ST25R3916B main board circuit schematic (10 of 10)

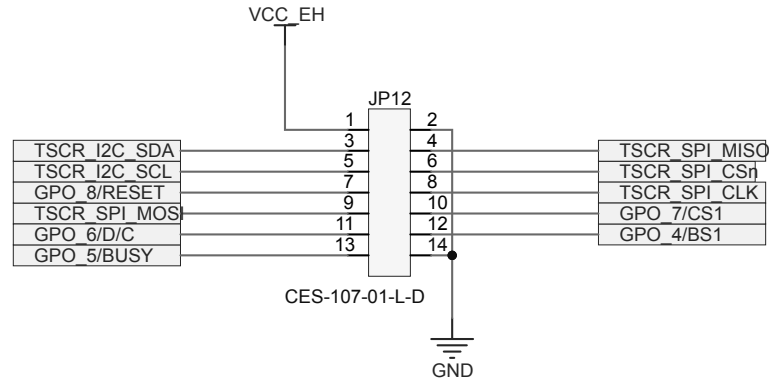


Figure 12. STEVAL-ST25R3916B reader expansion board circuit schematic (1 of 3)

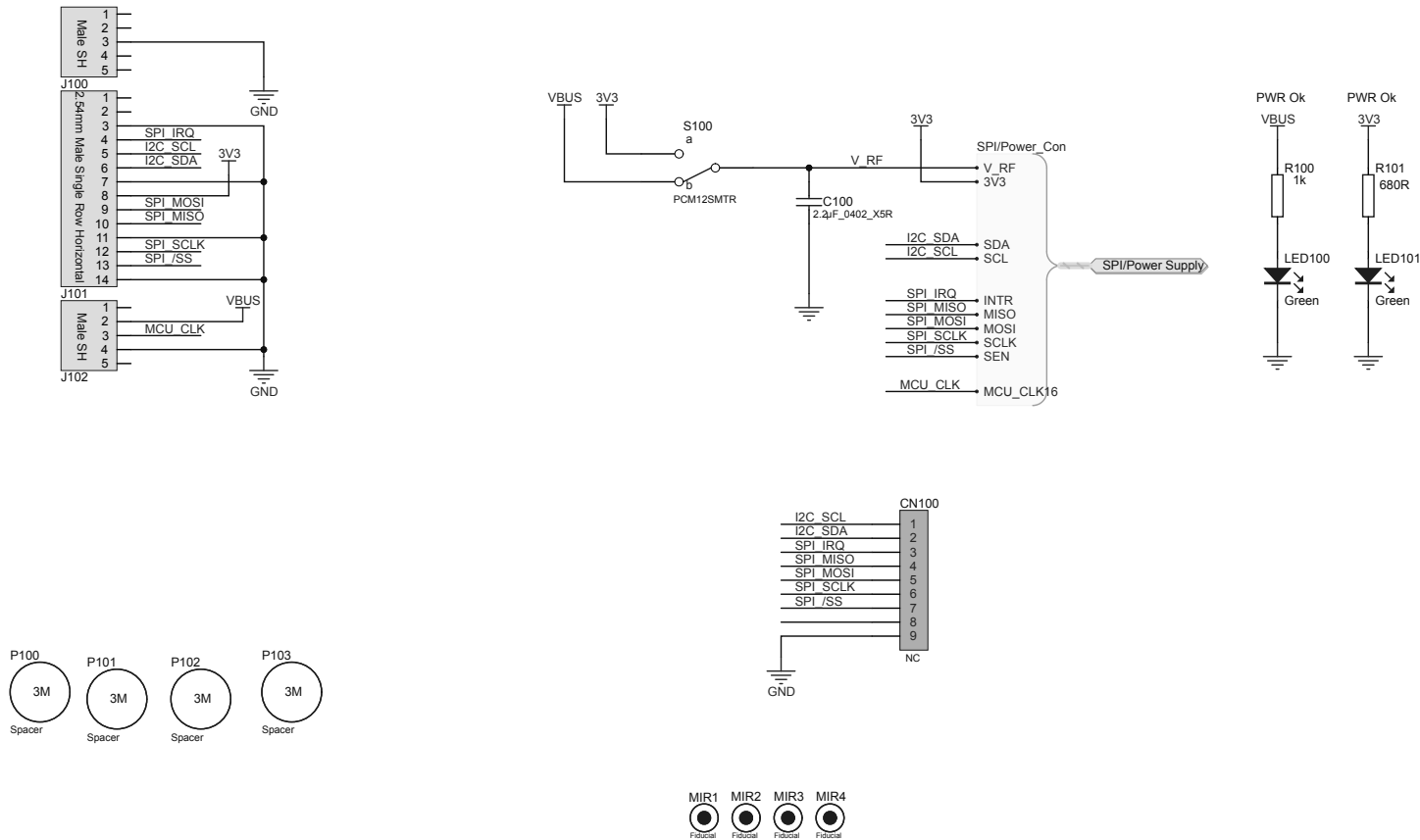


Figure 13. STEVAL-ST25R3916B reader expansion board circuit schematic (2 of 3)

ST25R3916 NFC Initiator / HF Reader

Controller Interface

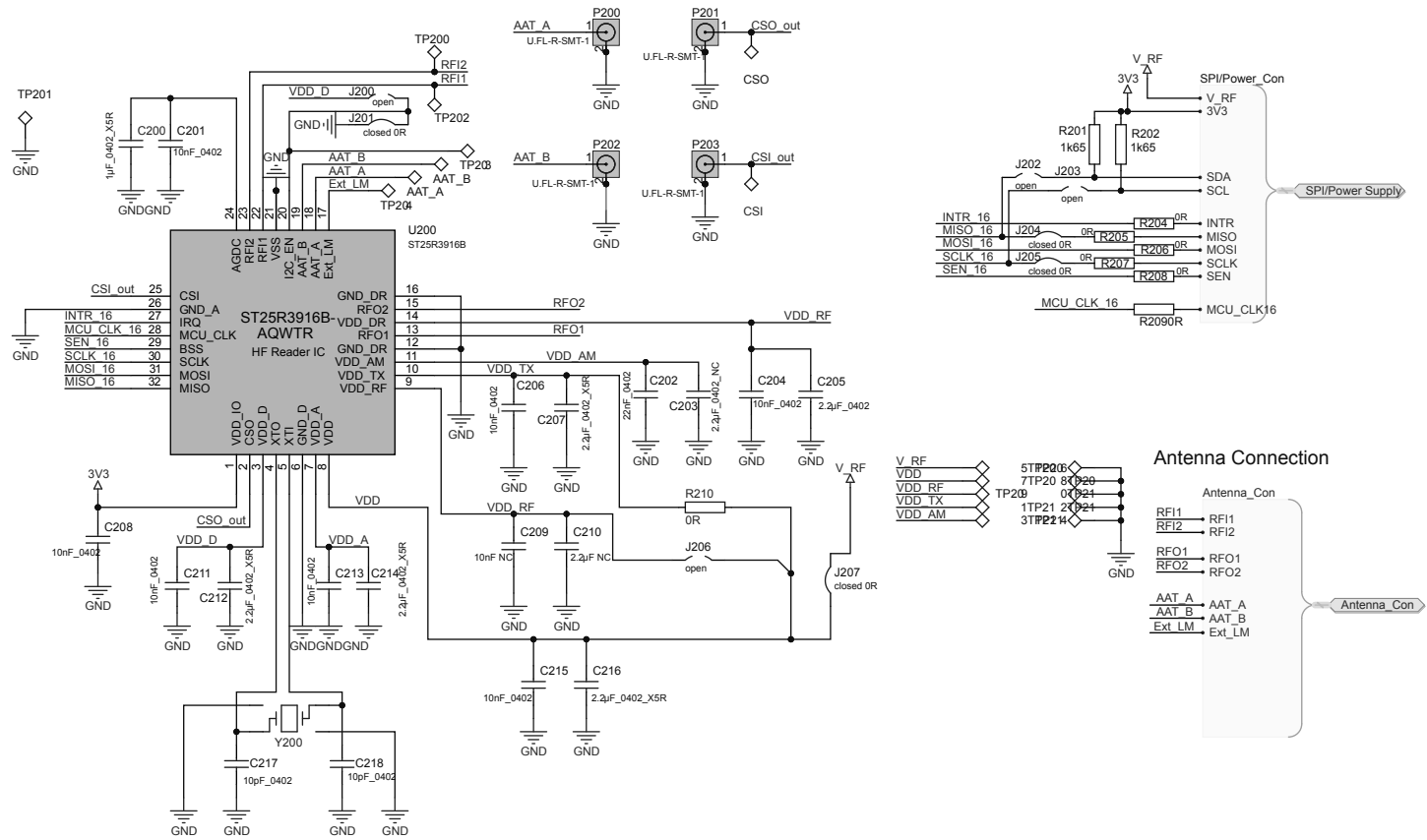
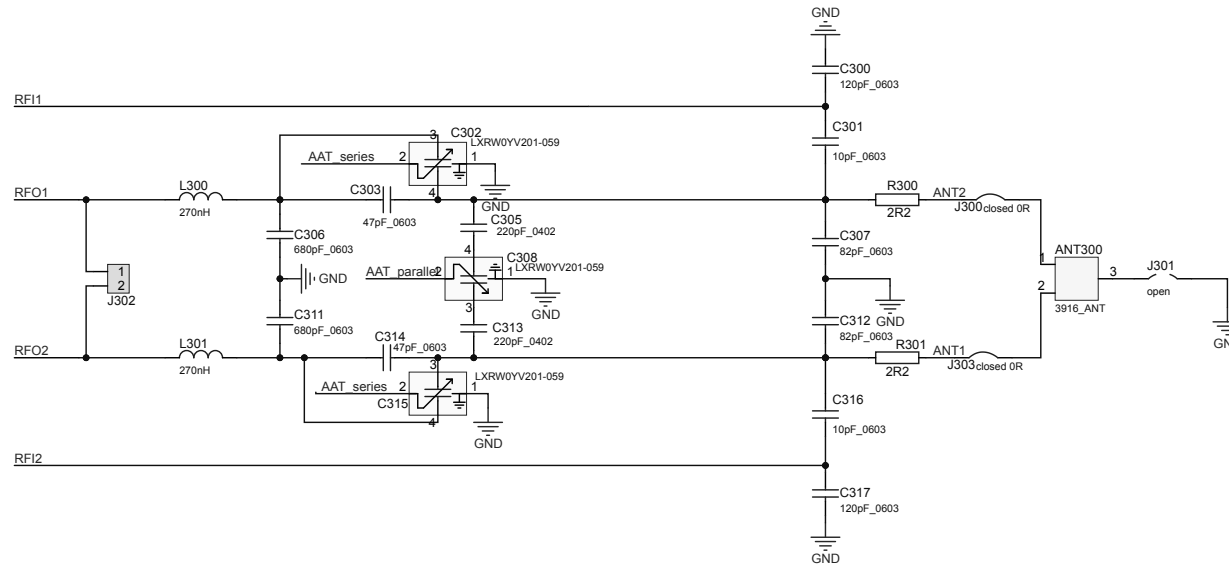
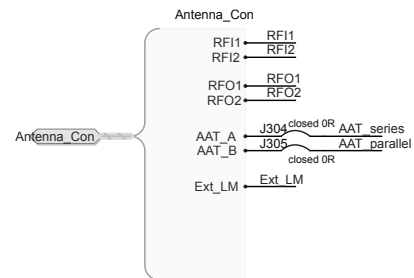


Figure 14. STEVAL-ST25R3916B reader expansion board circuit schematic (3 of 3)

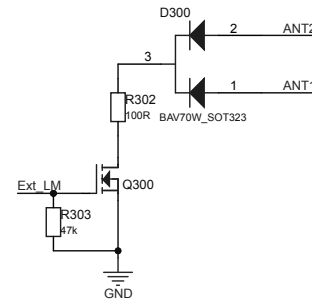
Antenna Circuit incl. EMI Filter and Matching



Antenna Connection



External Load Modulation Circuit



2 Kit versions

Table 1. STEVAL-ST25R3916B versions

PCB version	Schematic diagrams	Bill of materials
The evaluation kit with order code STEVAL-ST25R3916B contains the STEVAL\$M25R16BA main board plus the STEVAL\$D25R16BA reader expansion board ⁽¹⁾	STEVAL-ST25R3916B schematic diagrams	STEVAL-ST25R3916B bill of materials

1. These codes identify the first version of the boards contained in the kit. They are printed on the boards PCB.

Revision history

Table 2. Document revision history

Date	Revision	Changes
05-Dec-2022	1	Initial release.

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