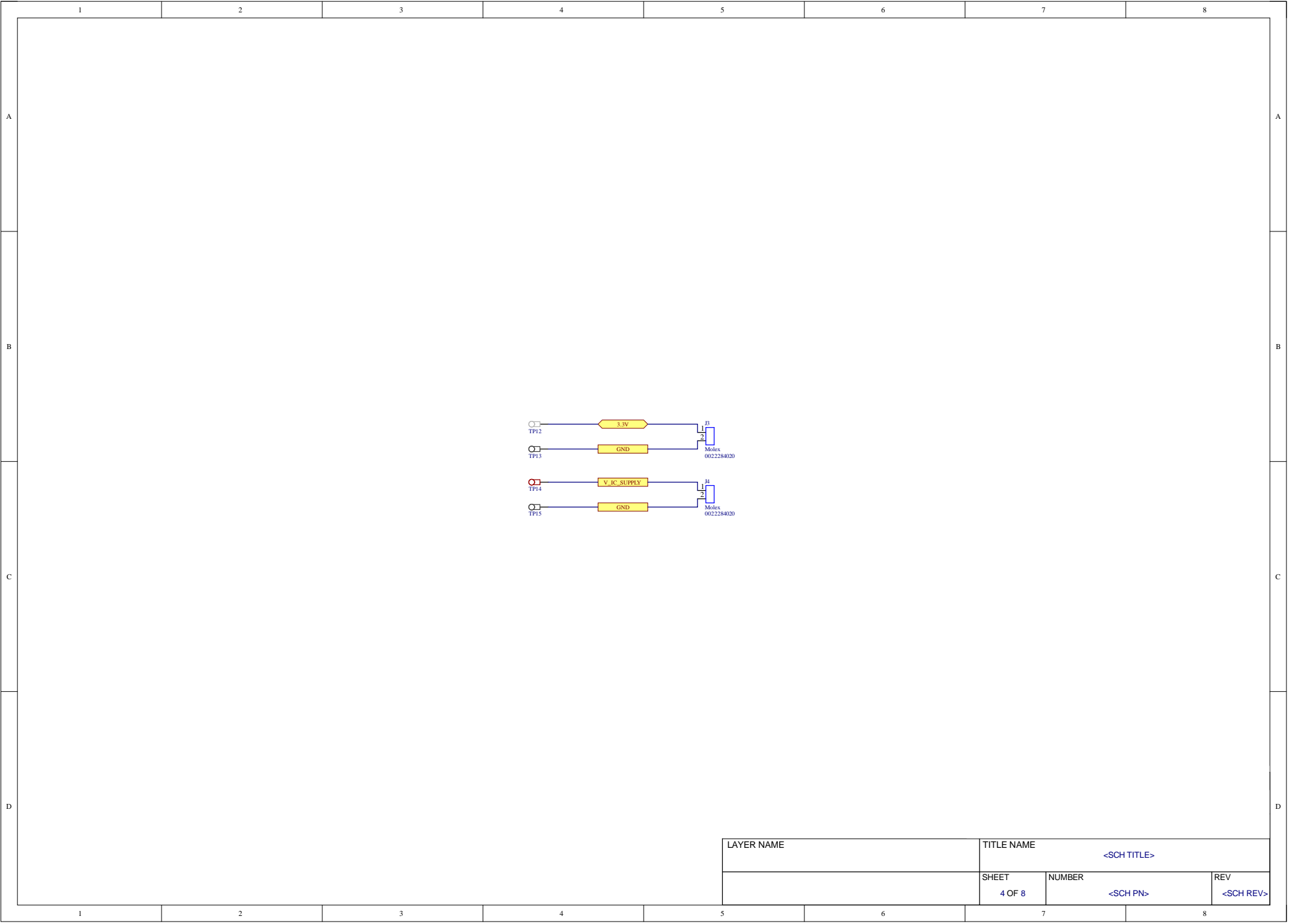
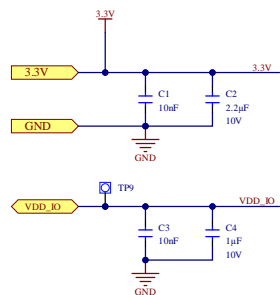


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| LAYER NAME | | TITLE NAME | | |
| | | <SCH TITLE> | | |
| | | SHEET | NUMBER | REV |
| | | 3 OF 8 | <SCH PN> | <SCH REV> |



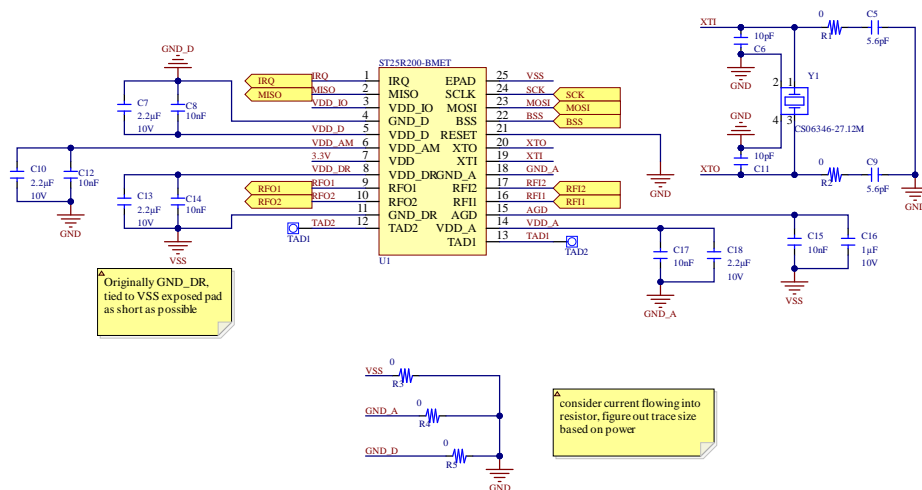
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| | | 4 OF 8 | <SCH PN> | <SCH REV> |



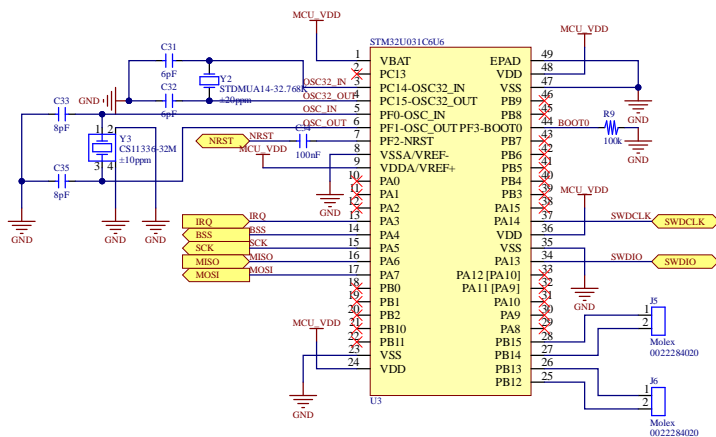
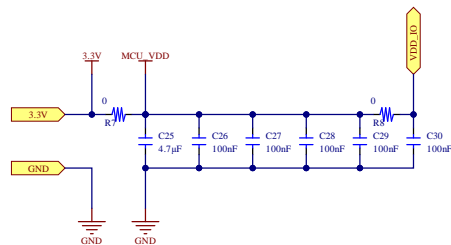
The ST25R200 communicates with a host via an SPI interface where it acts as a peripheral device, relying on the host to initiate all communication.

To notify the host of completed commands or external events that the ST25R200 signals an interrupt on the IRQ pin.

A RESET pin is also available to reset the device logic



| LAYER NAME | | TITLE NAME | | |
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| | | 5 OF 8 | <SCH PN> | <SCH REV> |

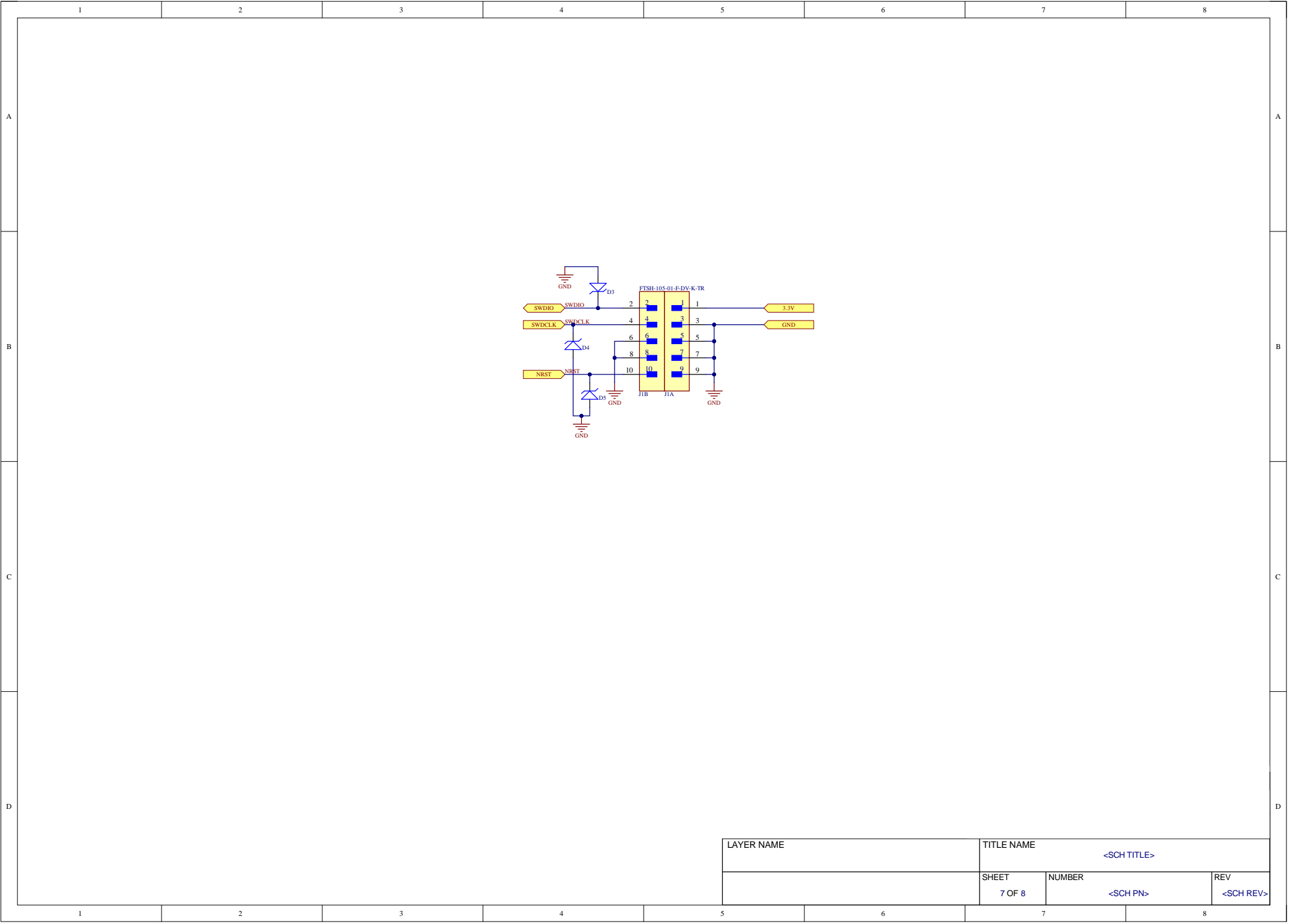


SPI Facts:
 ST25R200: up to 10 Mbit/s, tested up to 10 MHz
 STM32U0: up to 32 Mbit/s, 27 MHz* (Page 99)
 - A 3-bit prescaler gives eight master mode frequencies. The frame size is configurable from 4 bits to 16 bits

The ST25R200 communicates with a host via an SPI interface where it acts as a peripheral device, relying on the host to initiate all communication.
 To notify the host of completed commands or external events that the ST25R200 signals an interrupt on the IRQ pin.
 A RESET pin is also available to reset the device logic

USART on pins PA9/PA10, PC10/PC11, or PA2/PA3
 I2C-bus on pins PB6/PB7 or PB10/PB11
 SPI on pins PA4/PA5/PA6/PA7 or PB12/PB13/PB14/PB15

| LAYER NAME | | TITLE NAME | | |
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| | | <SCH TITLE> | | |
| | | SHEET | NUMBER | REV |
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Target

ST25R200

Config

differential

Antenna parameters

Antenna inductance

2400 [nH]

DC resistance

5100 [mOhm]

Parallel resistance

8800 [Ohm]

Self resonance

4.68e+7 [Hz]

Damping resistor

☒ Serial

☐ Parallel

Matching inputs

Preset

EMC Inductor

270 [nH]

DC Resistance

520 [mOhm]

EMC filter

20000 [kHz]

Target matching Z

17 [Ohm]

Target Q

25 factor

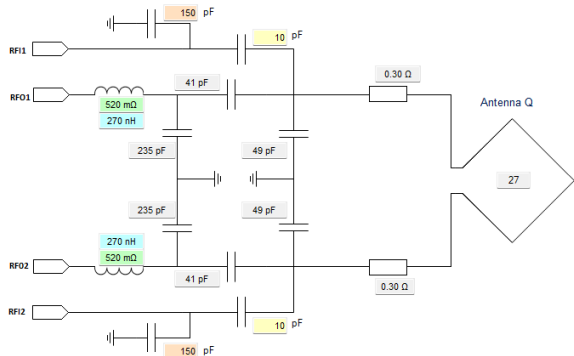
Cable parameters

Characteristic impedance Z0

50 [Ohm]

Cable length

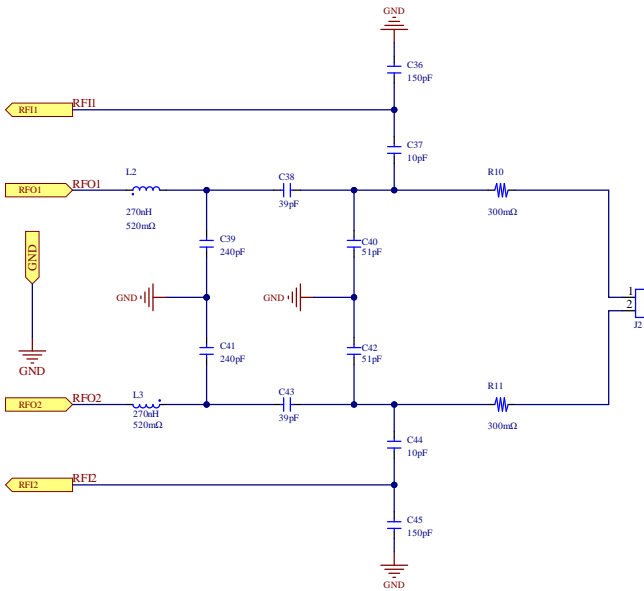
0.5 [m]



The calculation of the maximum allowable Q factor for Type-A with a data rate of 106 Kbit/s is based on the bandwidth - time product, and a on a definition of the Q factor resulting in the following equation:
 $B \cdot T \geq 1$; $Q = f_{work} / B \rightarrow Q \leq f_{work} \cdot T \rightarrow Q \leq 13.56 \text{ MHz} \cdot 3 \mu\text{s} = 41$

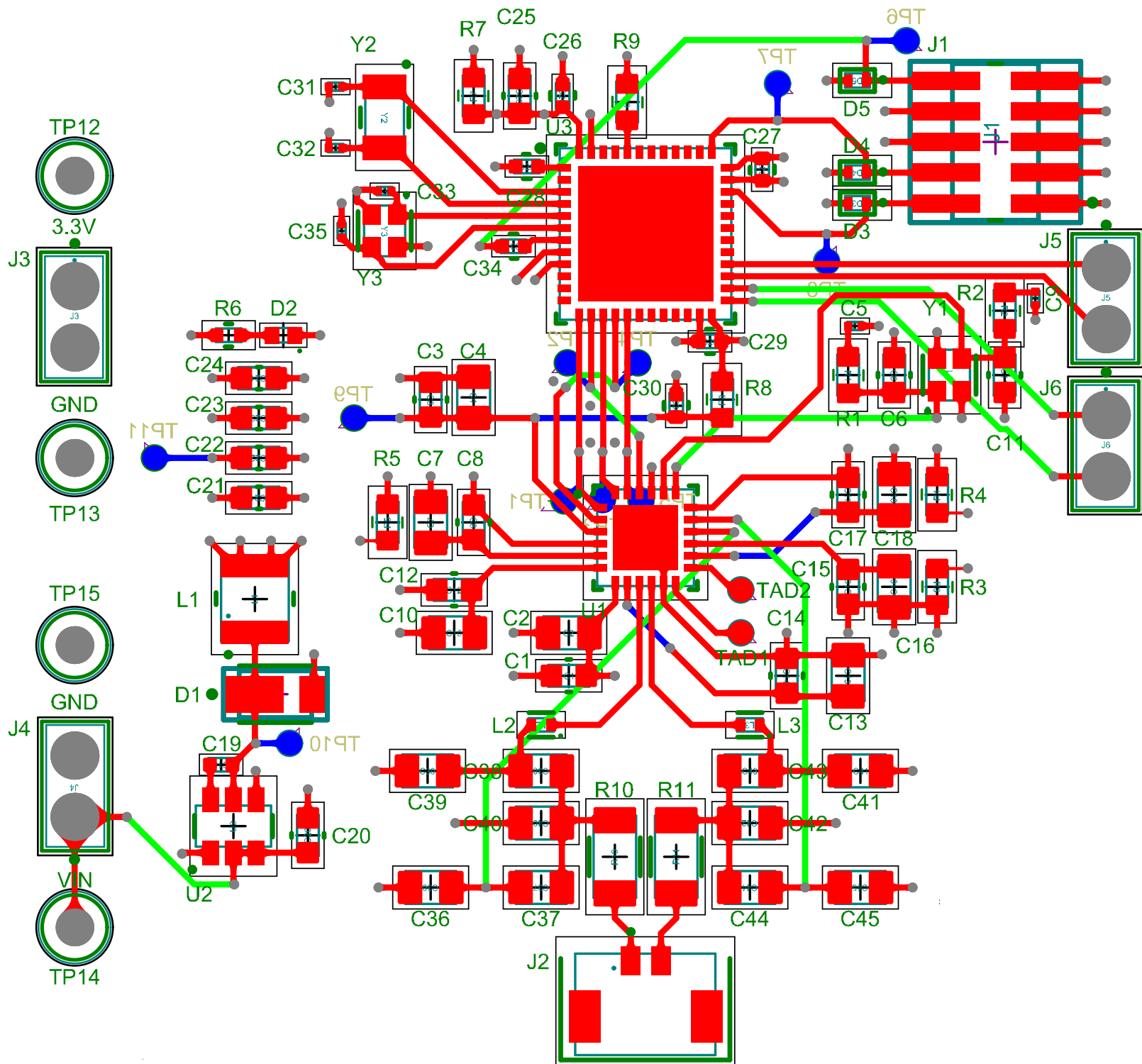
B: 3 dB bandwidth; T: rise/fall time of RF modulation envelope; fwork: operating frequency

Some capacitance values differ from antenna program due to marketplace availability



Molex connection to antenna

| LAYER NAME | | TITLE NAME | | |
|------------|--|-------------|----------|-----------|
| | | <SCH TITLE> | | |
| | | SHEET | NUMBER | REV |
| | | 8 OF 8 | <SCH PN> | <SCH REV> |



Stanley Kong
PCBA Rev. 1.0
RFID Reader