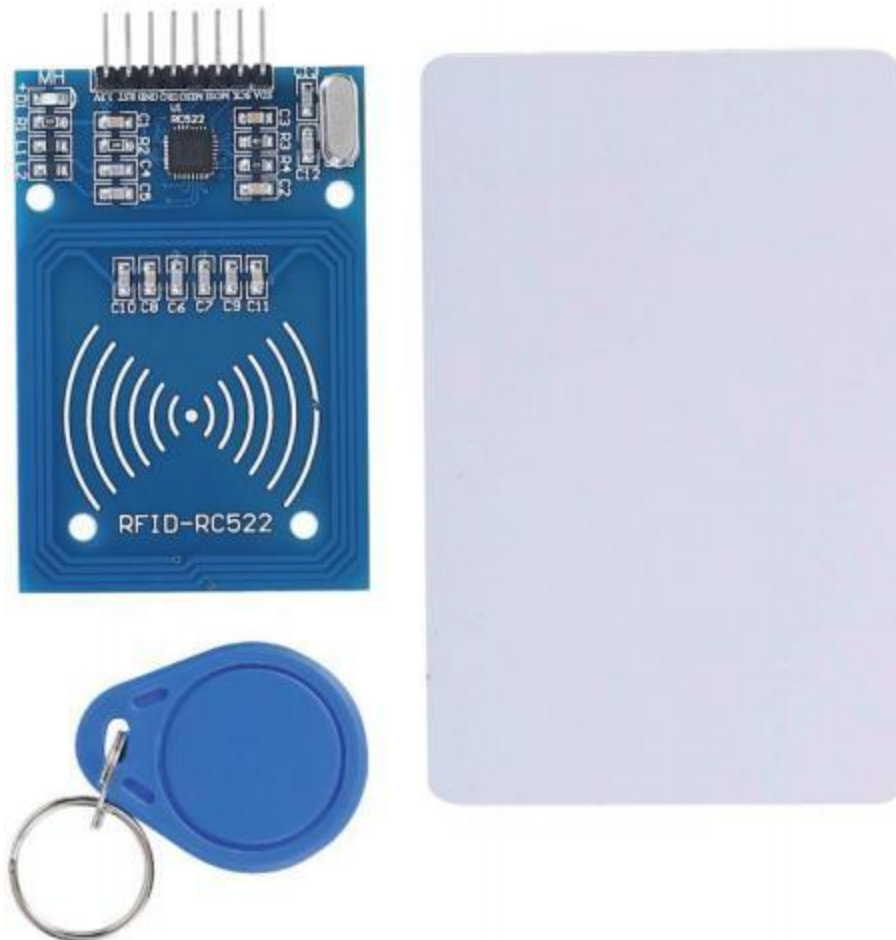


MFRC522 Module (ASIN: B07KGBJ9VG)

Introduction



MFRC522 is a kind of integrated read and write card chip. It is commonly used in the radio at 13.56MHz. Launched by the NXP Company, it is a low-voltage, low-cost, and small-sized non-contact card chip, a best choice of intelligent instrument and portable handheld device.

The MF RC522 uses advanced modulation and demodulation concept which fully presented in all types of 13.56MHz passive contactless communication methods and protocols. In addition, it supports rapid CRYPTO1 encryption algorithm to verify MIFARE products. MFRC522 also supports MIFARE series of high-speed non-contact communication, with a two-way data transmission rate up to 424kbit/s. As a new member of the 13.56MHz highly integrated reader card series, MF RC522 is much similar to the existing MF RC500 and MF RC530 but there also exists great differences. It communicates with the host machine via the serial manner which needs less wiring. You can choose between SPI, I2C and serial UART mode (similar to

RS232), which helps reduce the connection, save PCB board space (smaller size), and reduce cost.

Specifications

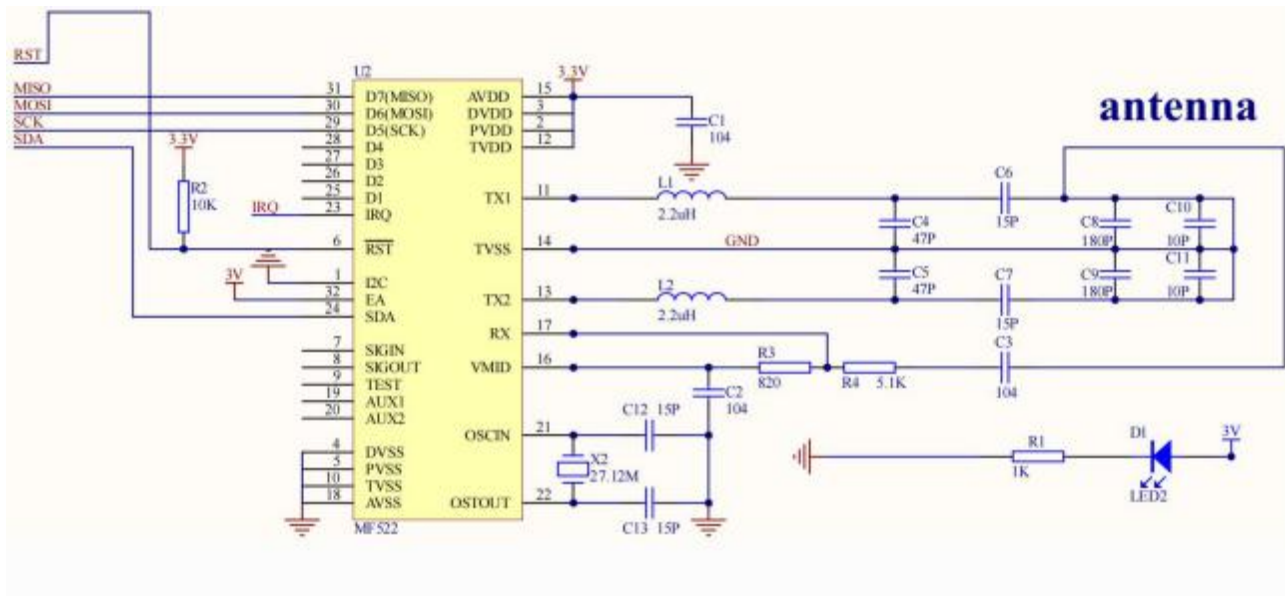
- Operating current :13-26mA/DC 3.3V
- Idle current :10-13mA/DC 3.3V
- Sleep current: <80uA
- Peak current: <30mA
- Operating Frequency: 13.56MHz
- Read Range: 0 ~ 35mm (mifare1 card)
- Size: 40mm×60mm
- Environmental Operating temperature: -20-80 degrees Celsius
- Environmental Storage Temperature: -40-85 degrees Celsius
- Relative humidity: relative humidity 5% -95%
- Module interfaces SPI: Data transfer rate maximum 10Mbit/s
- Supported card types: Mifare1 S50, Mifare1 S70, MIFARE Ultralight, Mifare Pro, and MIFARE DESFire.

Block Diagram

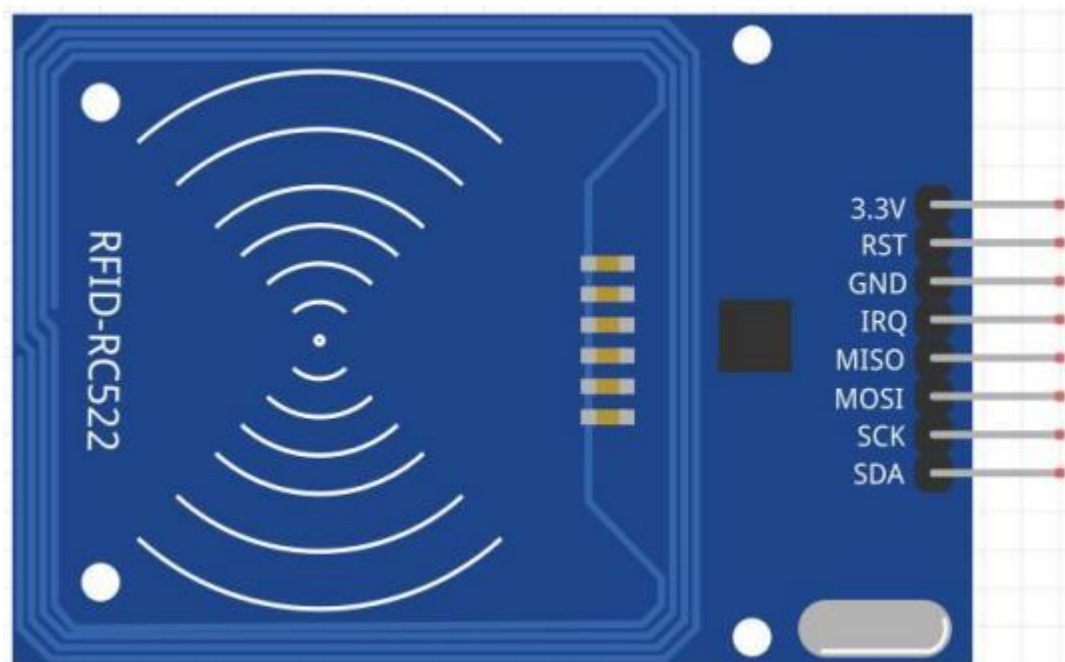
Host communicate with the module, with SPI, UART or I2C. Give the module command and read/write RFID card at 13.56MHz frequency.



Schematic



Pinning Information



- **3V3:** power supply
- **RST:** reset and power-down input.

power-down: enabled when LOW; internal current sinks are switched off, the oscillator is inhibited and the input pins are disconnected from the outside world.

reset: enabled by a positive edge.

- **GND:** ground

- **IRQ:** Interrupt warning pin, triggered by this pin when the RFID tag is close to the device.
- **MISO:** SPI master in, slave out. Valid when SPI (serial peripheral interface) is on. This pin is the serial clock when using the I2C protocol interface, and the serial data output when using the UART protocol interface.
- **MOSI:** SPI master out, slave in.
- **SCK:** SPI serial clock input.
- **SDA:** When SPI is activated, this pin is the input signal; when it is I2C protocol interface, it is the serial data line input/output; when it is UART, it is the serial input port.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction