

## RFID čtečka s vestavěnou anténou

### 1. POPIS

Čtečka je osazena integrovaným obvodem MFRC522 a pro komunikaci s čipem využívá bezdrátovou komunikaci NFC.

- Komunikace přes rozhraní SPI, UART a I2C
- Podpora šifrování CRYPTO1
- Podpora čipů mifare1 S50 , S70 mifare1, MIFARE Ultralight , Mifare Pro a MIFARE DESFire.



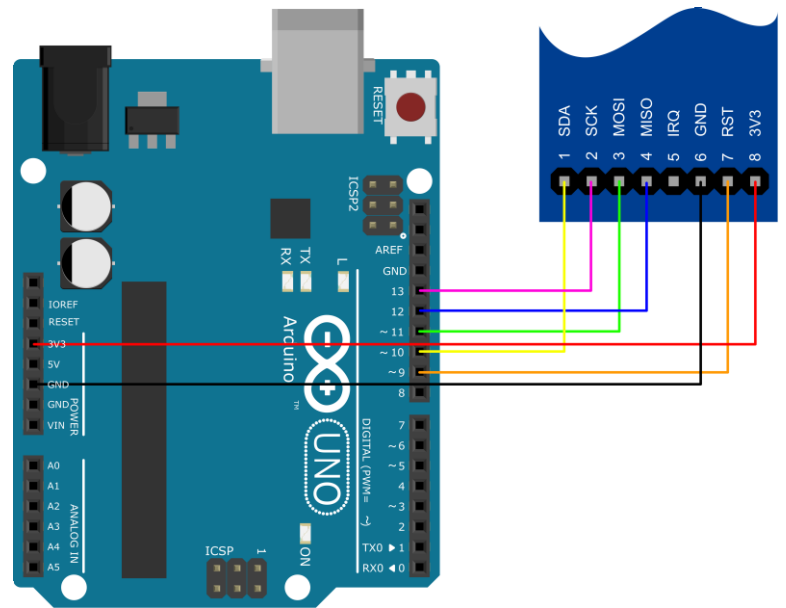
### 2. SPECIFIKACE

Symbol	Popis	Min.	Typ.	Max.	Jednotky
$U_{in}$	Napájecí napětí (stejnoseměrné)	2,5	3,3	3,6	V
$I_{in}$	Provozní proud	13	20	26	mA
$I_{idle}$	Klidový proud	10	11	13	mA
$I_{peak}$	Špičkový proud	-	-	50	mA
$f$	Komunikační frekvence	-	13,56	-	MHz
BR	Baud rate	-	-	10	Mbit/s
TR	Přenosová rychlost	-	-	424	kbit/s
$t_c$	Provozní teplota	-20	-	80	°C



### 3. Zapojení

Pin	Popis
1	SDA (synchronous data)
2	SCK (clock)
3	MOSI (master OUT, slave IN)
4	MISO (master IN, slave OUT)
5	IRQ (Interrupt request)
6	GND
7	RST (reset)
8	3V3, Napájecí napětí 3.3 V



### 4. Ukázka programu

Zdroj: <http://playground.arduino.cc/Learning/MFRC522>

```

/*
 * MFRC522 - Library to use ARDUINO RFID MODULE KIT 13.56 MHZ WITH TAGS SPI W AND R BY COOQROBOT.
 * The library file MFRC522.h has a wealth of useful info. Please read it.
 * The functions are documented in MFRC522.cpp.
 *
 * Based on code Dr.Leong ( WWW.B2CQSHOP.COM )
 * Created by Miguel Balboa (circuitito.com), Jan, 2012.
 * Rewritten by Soren Thing Andersen (access.thing.dk), fall of 2013 (Translation to English, refactored,
 * comments, anti collision, cascade levels.)
 * Released into the public domain.
 *
 * Sample program showing how to read data from a PICC using a MFRC522 reader on the Arduino SPI
 * interface.
 *----- empty_skull
 * Aggiunti pin per arduino Mega
 * add pin configuration for arduino mega
 * http://mac86project.altervista.org/
 *----- Nicola Coppola
 * Pin layout should be as follows:
 * Signal      Pin      Pin      Pin
 *             Arduino Uno  Arduino Mega  MFRC522 board
 *-----
 * Reset       9        5         RST
 * SPI SS      10       53        SDA
 * SPI MOSI    11       51        MOSI
 * SPI MISO    12       50        MISO
 * SPI SCK     13       52        SCK
 *
 * The reader can be found on eBay for around 5 dollars. Search for "mf-rc522" on ebay.com.
 */

#include <SPI.h>
#include <MFRC522.h>

#define SS_PIN 10

```

```
#define RST_PIN 9
MFRC522 mfrc522(SS_PIN, RST_PIN); // Create MFRC522 instance.

void setup() {
  Serial.begin(9600); // Initialize serial communications with the PC
  SPI.begin();       // Init SPI bus
  mfrc522.PCD_Init(); // Init MFRC522 card
  Serial.println("Scan PICC to see UID and type...");
}

void loop() {
  // Look for new cards
  if (!mfrc522.PICC_IsNewCardPresent()) {
    return;
  }

  // Select one of the cards
  if (!mfrc522.PICC_ReadCardSerial()) {
    return;
  }

  // Dump debug info about the card. PICC_HaltA() is automatically called.
  mfrc522.PICC_DumpToSerial(&(mfrc522.uid));
}
```