

NFC & MIFARE & ISO14443A & ISO14443B IC CARD MODULE

# JMY5041 IC Card Reader

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## User's manual

(Revision 1.02)

**Jinmuyu Electronics Co. LTD**

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Please read this manual carefully before using. If any problem, please mail to: [Jinmuyu@vip.sina.com](mailto:Jinmuyu@vip.sina.com)



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# 1 Product Introduction

JMY5041 is the second generation product based on JMY504 with UART and IIC serial port. JMY5041 has various functions and supports multi ISO/IEC standard of contactless card. The RF protocol is complex. The designer combined some frequent used command of RF card and then user could operate the cards with full function by sending simple command to the module.

The impedance between RF module and antenna was tuned by impedance analyzer. And then the module has excellent performance and stability.

The module and antenna is split design. 4 wires are linked the antenna and module. Normally the wire should be less than 200mm, or it will affect the module's performance and stability.

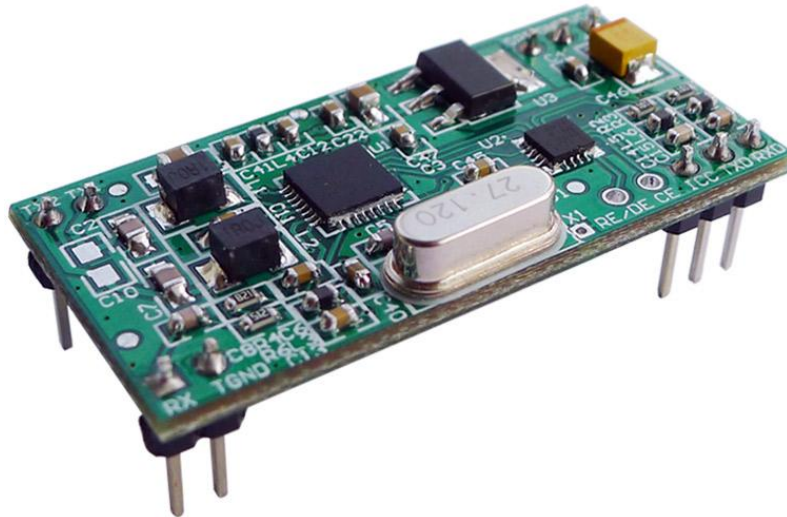
## 2 Characteristics

- PCD model: NXP CV520、PN512
- Working frequency: 13.56MHz
- Anti collision ability: Full function anti collision; be able to process multi-cards; be able to set operate single card only.
- Auto detecting card: Supported, default OFF. The default state can be set.
- Power supply: DC 5V ( $\pm 0.5V$ )
- Interface: IIC & UART (selected by SPS pin, recommend to use IIC)
- Communication rate: IIC: Max.200Kbps  
UART: 19200bps / 9600bps / 38400bps / 57600bps / 115200bps
- Max. command length: JCP02 252 Bytes;  
JCP03 510 Bytes.  
JCP04 253 Bytes;  
JCP05 510 Bytes;
- Interface level: 3.3V (TTL level; 5V tolerance)
- Power consumption: 50mA
- Operating distance: 100mm (depending on card and antenna design)
- Dimension: 21mm\*42mm
- Weight: About 15g
- ISP: Supported
- Operating temperature: -25 to +85 °C
- Storage temperature: -40 to +125 °C
- RoHS: Compliant



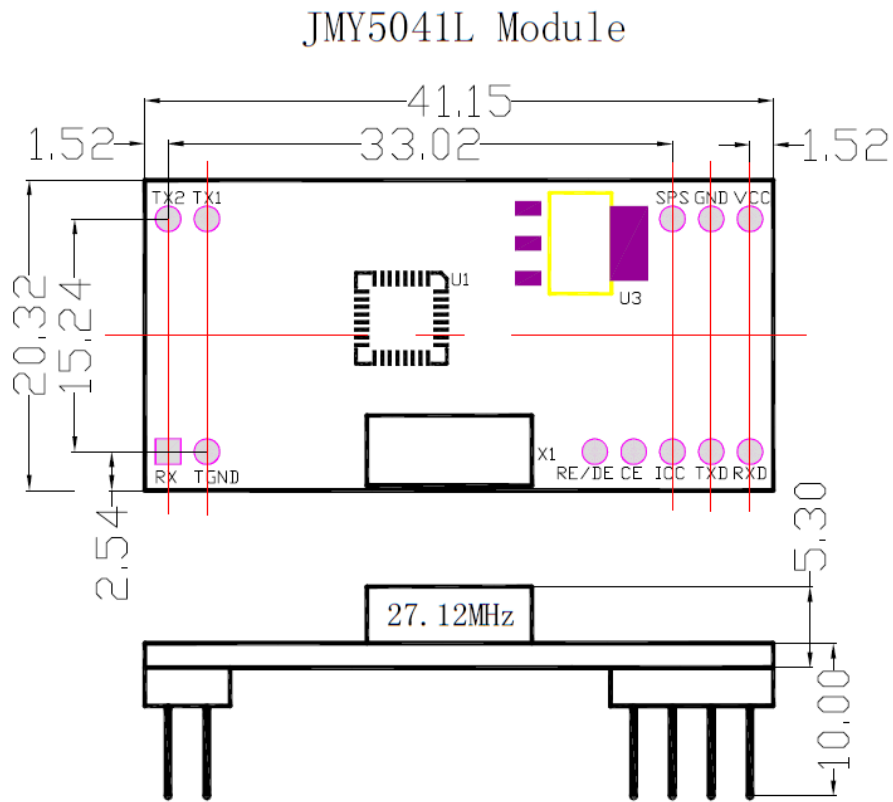
## 3 Physical Parameter and Pin Outs

### 3.1 Photo





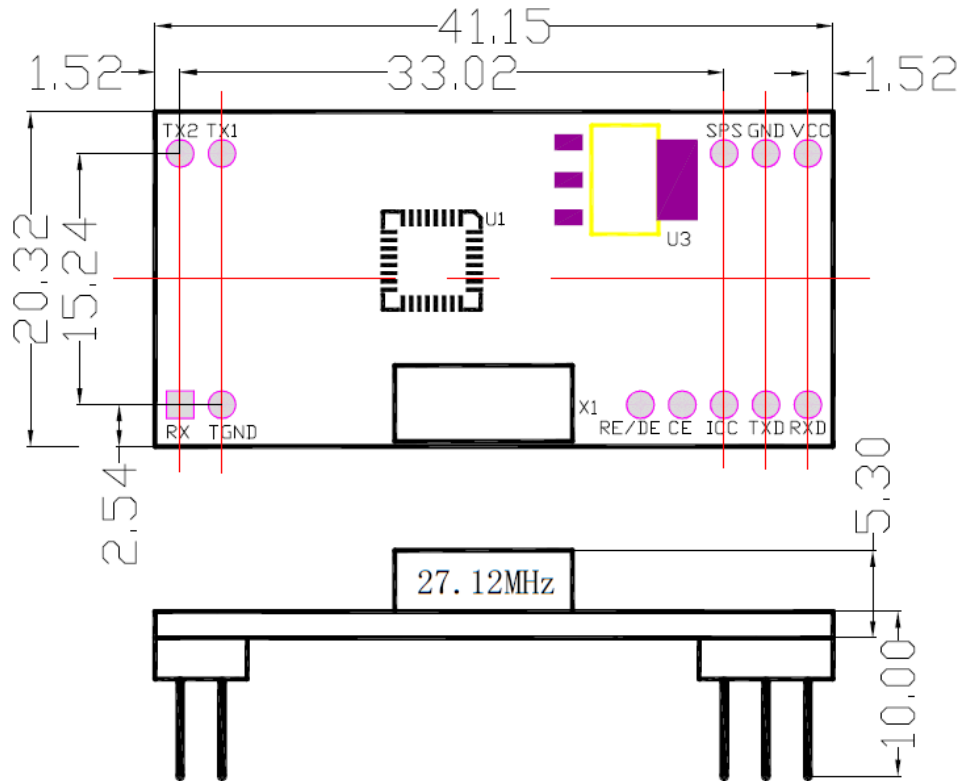
## 3.2 Dimension



Notice: L means Low power.



## JMY5041X Module



Notice: X means NXP CV520 or PN512.

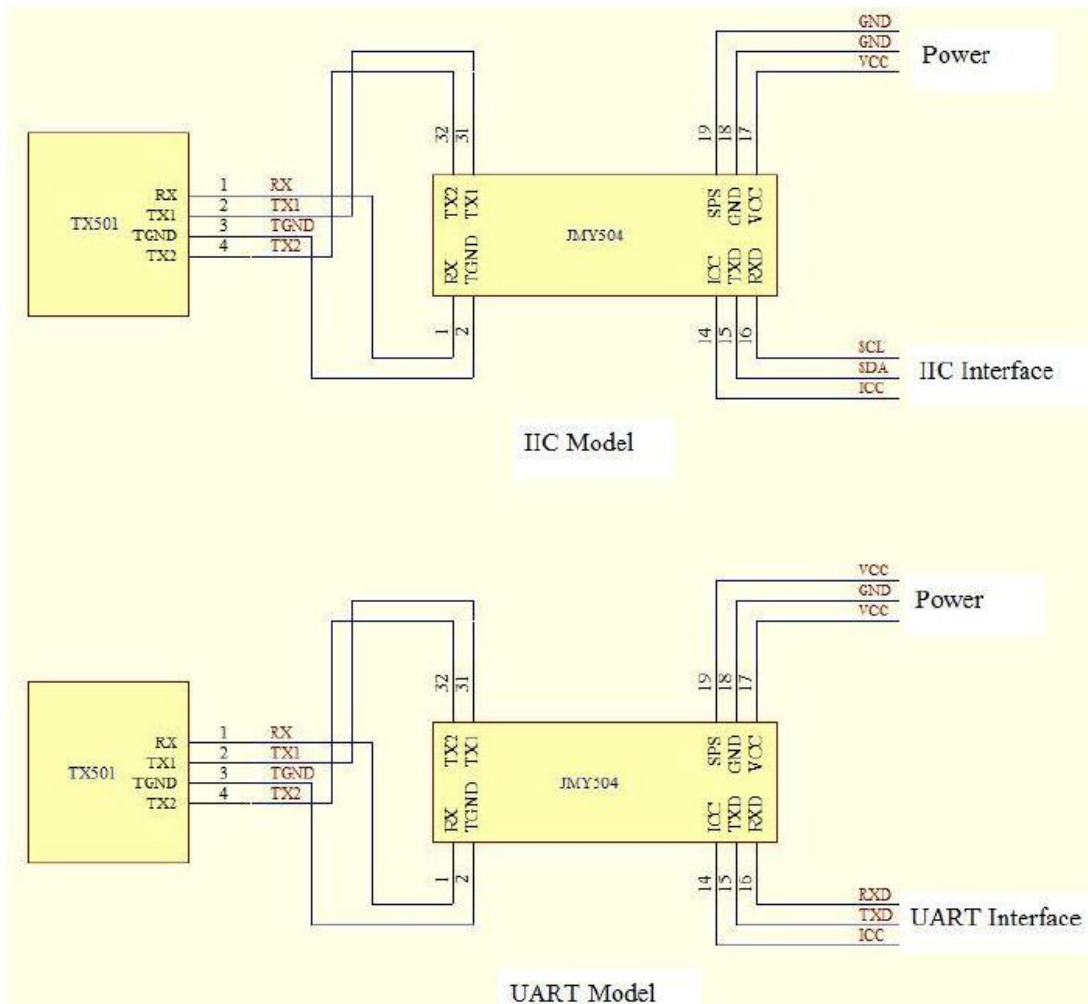


### 3.3 Pin configurations and Pin outs

PIN	Function	Type	Description
1	RX	RF Analog	Antenna receive
2	TGND	RF Analog	Antenna GND
13	RE	Output	RE/DE 485 directional control output
14	ICC	Output	Card in/out indication 0: card in; 1: card out
15	TXD/SDA	Input/output	UART TXD/IIC SDA
16	RXD/SCL	Input	UART RXD/IIC SCL
17	VCC	Power	VCC
18	GND	Power	GND
19	SPS	Input	Serial port selector 0: IIC 1: UART
31	TX1	RF Analog	Antenna output 1
32	TX2	RF Analog	Antenna output 2



### 3.4 Connection schematic







### 3.5 Antennas

Normally, as the size of TX500 series antenna may not meet the actual demands, the antenna needs to be customized, especially in some compact systems. The following information for customization is needed: 1. Dimension of the antenna PCB; 2. the position and direction of the antenna outlet and the connector; 3. the description of the antenna periphery. JINMUYU will design the most proper antenna according to the user's exact requirements.

We provide many models of antenna. There are some recommended models in the table:

Antenna model	Size of antenna	Card operating distance
TX500	70mm * 70mm	90mm
TX501	50mm * 50mm	70mm
TX502	30mm * 30mm	60mm

### 3.6 Module Function Configuration Table

	JMY5041A/L	JMY5041C
PCD	CV520	PN512
JCP02 Communication Protocol	●	●
JCP03 Communication Protocol	●	●
JCP04 Communication Protocol	●	●
JCP05 Communication Protocol	●	●
MIFARE 1K	●	●
MIFARE 4K	●	●
MIFARE Ultra Light	●	●
MIFARE Ultra Light C	●	●
MIFARE Mini	●	●
MIFARE DESfire (Step Commands)	●	●
MIFARE Plus	●	●
T=CL TYPE A		●
SR176		●
SRI512		●
SRI1K		●
SRI2K		●
SRI4K		●
SRIX4K		●
T=CL TYPE B		●
NFC Active Initiator		●
NFC Active Target		●
NFC Passive Initiator		●
NFC Passive Target		●
NFC Card		●



## 4 Communication Protocols

The physical interfaces of module are various. But the data link layer protocols are in accordance with JCP02, JCP03, JCP04 and JCP05. Please reference "JMY600 Series IC Card Module General Technical Manual".

For convenience to test the Module, we supply PC software: TransPort to users.

We have interface program source code to help users also. They are KELL projects in C51 or ASM51 format.

Please log in our website: [www.jinmuyu.com](http://www.jinmuyu.com) to download or mail to [jinmuyu@vip.sina.com](mailto:jinmuyu@vip.sina.com) to obtain the resources.