

Shenzhen Shaibao Technology Co., Ltd		NO. RC522-121-001	
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File Name	RC522 SPECIFICATION	Version	Effective Date
		A/3	December 18, 2020

Document Revision History

NO.	Summary of revised content	Revised version	Revised by	Revision date	Notes
1	Initial Release	A	Sheng Huili	April 27, 2017	
2	Change interface tag number	A/1	Li Zhanping	January 23, 2018	
3	Change socket specifications	A/2	He Zhiheng	March 24, 2020	
4	Update product identification instructions	A/3	He Zhiheng	December 18, 2020	

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1. Product Overview

This product RC522 is a non-contact based on a frequency of 13.56M Reader module for MIFARE ONE ® (MF1) card. It can be widely used as terminal peripherals in industrial applications such as power, telecommunications, transportation, and petrochemicals.

Main features of the product:

- ◆The communication protocol can be customized, and the default protocol is customized by Suntech;
- ◆ Supports reading and writing of Type A and MIFARE ® cards that comply with ISO14443 standards;

MIFARE appearing in this document ® is a registered trademark of NXP Corporation.

2. Interface Definition and Description

◆SPI interface

RC522 interface	Interface Function Description (Pins)
SDA	Data interface P2.7
SCK	Clock interface P2.6
MOSI	SPI interface master out slave in P2.5
MISO	SPI interface main in/out P2.1
NC	Suspended in the air
GND	Ground GND
RST	Reset signal P2.3
3.3V	Power supply 3.3V

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3. Performance Index

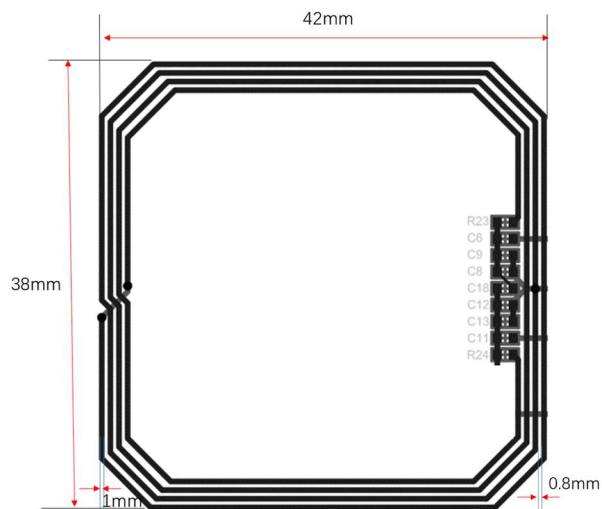
Support card types	Illustration
RF card	ISO14443 TypeA、MIFARE® ONE (MF1) card
Reading and writing RF card performance	
Reading and writing distance	About 4cm (depending on the usage environment, card, and power supply)
Reading and writing card frequency	13.56MHz±7K
Card communication rate	106 Kbps
Modulation mode	ASK
Electrical characteristics	
Working voltage	3.3V±5%
Working current	≤150mA (DC 3.3V)
Quiescent current	≤30mA (DC 3.3V)
Ambient condition	
Storage temperature	-40 ~ +75°C (No condensation)
Working temperature	-40 ~ +65°C (No condensation)

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4, Antenna characteristics

input		Unit	Remarks
$\mu 0$	1.257E-06	H/m	Vacuum permeability
a0	0.042	m	Antenna peripheral length
b0	0.038	m	Antenna peripheral width
Na	4		Number of coils
w	0.001	m	Antenna wiring width
t	0.000035	m	Antenna thickness
g	0.0008	m	Gap width between wiring
La	0.52	uH	Antenna inductance
Gain	0	dBi max	Antenna gain

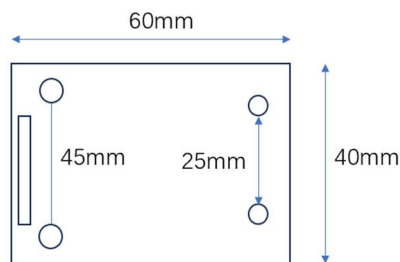
Antenna size:



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5. Installation dimensions

Installation dimensions of the card reader:



6. Installation environment requirements

This product is relatively sensitive to the environment, and metals have the effect of reflecting and shielding electromagnetic waves, which means that metals have an impact on both the product and the label. If there is metal near the workspace of this product, it will reduce the success rate of label reading. So there are certain requirements for the installation of card readers.

During installation, the coil part of this product should be away from metal. There should be no metal structural components such as iron plates or large electronic coils (such as motors or transformers) within 5cm of the coil. The distance between the four sides of the card reader coil and the metal material should be greater than 4cm.