SIM7200

User Manual

Rev 1

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1. A revision history

The file number	The version number	Artificial person / The modifier	Proposed/revised date	Change the reason	Change the content
	V1.0		2021-10-16	The initial release	No

2. Product introduction

The UHF high-power module SIM7200 is a high-performance UHF RFID read-write module developed by the technology team of Xinliangzhan based on the new generation of IMPINJ RF chip E710. It is specially designed to meet the requirements of high-performance RFID handheld devices, mobile or portable RFID devices. The SIM7200 module provides one MMCX antenna interface, supporting up to 33 dBm RF output. This module has the characteristics of low power consumption, small size and high sensitivity. Combined with the advanced multi tag algorithm of Xinliangzhan, it is a priority for RFID mobile devices.

3. Product features

New generation E710 RF chip

Impinj new generation E710 UHF RF reader chip is adopted, which has high sensitivity, wide reading range, low power consumption and strong performance.

Super tag reading performance

The tag reading speed is fast, the reading is stable, the multi tag anti-collision ability is strong, and the reading distance is long. When using the 4dBi four wall spiral antenna, the reading distance is more than 9 meters, and the multi tag reading speed is fast, up to 900 pieces/second.

Lower power consumption

It can work normally in the 3.6V low voltage mode. The maximum power output power consumption is 6.5W, and the standby power consumption is only 0.25W. The excellent low power consumption design makes the product have a longer service life.

Multiple monitoring functions and excellent stability

The module supports label RSSI detection, antenna connection status detection, and working temperature detection. Multiple data detection is more convenient for users to use efficiently; The module can work stably in the ambient temperature of -20℃ to+65℃, and supports stable operation in the ambient humidity of 5% - 95%. It has high efficiency and stable performance and can be applied to a variety of harsh working environments.

4. Electrical characteristics

parameter	conditions	min	type	max	unit
Frequency					
Frequency range	According Customization	840		960	MHz
Frequency step value	According Customization		250/500		KHz
output					
output power		5		33	dBm
Output power accuracy			+/- 1		dB
Flatness of output power			+/- 0.2		dB
Channel isolation			32		dB
label					
Reception sensitivity	Profile1		-81		dBm
Inventory label peak speed			900		tag/s
Label cache	96 bit EPC		1000	1200	tag
Logic level					
VIL，Input Low Voltage		-0.5		0.8	V
VIH，Input High Voltage		2		Vdd+0.5	V
Temperature range					
Storage temperature		-40		85	℃
Working temperature		-20		65	℃
The input power					
The power supply voltage		3.6	5.0	5.25	V
Can make model			40		mA
Standby mode			50		mA
Read the card model	Pout=30dBm, 50 Ω Load		1300		mA

The current will vary depending on the load antenna.

Absolute maximum rated parameter

parameter	rating
power supply voltage	+5V
Digital I/O Voltage to GND	3.3V
Working temperature	-20～+65℃
Storage temperature	-40～+85℃

5. Pin configuration and function description

5.1 Definition of FPC connector

The serial number	define
1	VCC(+3.6 - 5V)
2	VCC(+3.6 - 5V)
3	GND
4	GND
5	EN module power enable: LOW(POWER DOWN) HIGH&DISCONNECT(ACTIVE)
6	Digital Output 2 （GPIO OUT2）

7	Digital Input 1 （GPIO IN1）
8	Digital Input 2 （GPIO IN2）
9	RXD (DATA INPUT, TTL level)
10	TXD (DATA OUTPUT, TTL level)
11	RST (LOW ACTIVE, Please hang in the air if not used)
12	Digital Output 1 （GPIO OUT1）

5.2 Definition of bottom welding point

The serial number	define
1	GND
2	GND
3	VCC(+3.6 - 5V)
4	VCC(+3.6 - 5V)
5	EN module power enable: LOW(POWER DOWN) HIGH&DISCONNECT(ACTIVE)
6	RXD (DATA INPUT, TTL level)
7	TXD (DATA OUTPUT, TTL level)
8	RST (LOW ACTIVE, Please hang in the air if not used)
9	Digital Output 1 （GPIO OUT1）

6. The application of information

The input power

It is recommended to filter the VCC port with a capacitance of 100~470uF to reduce the traction to the power supply caused by the quick opening and closing of the power amplifier during RF transmission. 0.1uF/100pF capacitors filter out power supply ripple in different frequency bands.

Since the current is high when the module is working at full power, the module may not work stably when the battery is low when the handheld device is powered directly by the battery, so it is recommended to boost the VCC to 5V.

Enable or reset

EN is enabled, with built-in pull-up resistance (100k) to VCC. When the module is powered on at high level or suspended, the module will be powered off when it is connected to low level (low level should be less than 0.4V, high level should be greater than 0.9V and less than VCC).

Rst reset, built-in pull-up resistance to 3.3V, reset when connected to low level.

GPIO interface

Input:

Logic low ＜ 0.8V minimum 0V

Logic high ＞2 V Maximum 3.3 V

Output:

Logic Low maximum 0.4V

Logic High has a minimum of 2.9V and a maximum of 3.3V

The maximum output current of the I/o port is 5mA.

The antenna connection

The output impedance of the antenna port is 50 ohms, and the antenna standing wave ratio is recommended to be less than 1.5. A better antenna standing wave ratio can get better card reading effect.

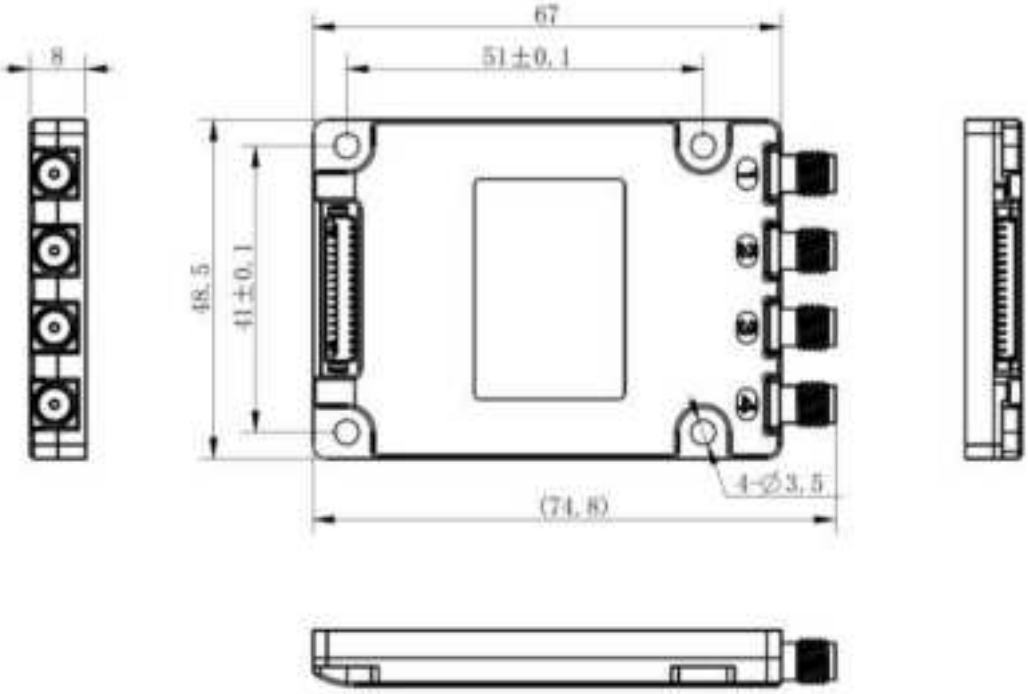
Communication interface (rxd/txd)

The communication interfaces RXD and TXD are at TTL level, and the default baud rate is 115200bps

7. Physical properties

Product size：74.8mm × 48.5mm × 8mm

weight：56g


67
51±0.1
8
48.5
41±0.1
4-∅3.5
(74.8)

FCC Warning

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 30cm between the radiator & your body.