SIM3600

User Manual

Rev 1

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Directory

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		2022-3-24	The initial release	No

2. Product introduction

The ultra small RFID module sim3600 is a cost-effective ultra-high frequency RFID reading and writing module developed by the technology team of SIMLINK innovation and exhibition based on Impinj's new generation of RF chip E310. The shape is only the size of a coin. It is designed to meet the needs of high-performance RFID handheld devices and mobile portable devices. Sim3600 module has the characteristics of low power consumption, small size, good RF performance, and advanced anti-interference design, which makes it the preferred choice of low-cost mobile devices.

3. Product features

New generation E310 RF chip

Impinj new generation E310 UHF RF reader chip is adopted, which has high sensitivity, wide reading range, low power consumption and strong performance.

Low power design

Ultra low power design.

Patch design

The stamp hole mode is adopted for easy installation.

Small size

The overall size of the module is only 21mm*21mm*3.4mm, which is equivalent to the size of a coin. The compact size is suitable for a variety of installation scenarios.

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

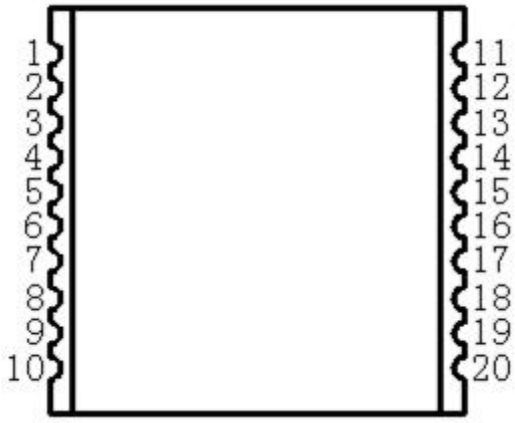
output					
output power		5		27	dBm
Output power accuracy			+/- 1		dB
Flatness of output power			+/- 0.2		dB
label					
Reception sensitivity	Profile1		-68		dBm
Inventory label peak speed			300		tag/s
Label cache	96 bit EPC		1000		tag
Logic level					
VIL，Input Low Voltage		-0.5		0.8	V
VIH，Input High Voltage		2		Vdd+0.5	V
Temperature range					
Storage temperature		-40		85	℃
Working temperature		-20		55	℃
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=27dBm, 50 Ω Load		600		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 ~ +55℃
Storage temperature	-40 ~ +85℃

5. Pin configuration and function description



The serial number	define
1	VCC(+3.6 - 5V)
2	GND
3	EN module power enable (low voltage power failure, high voltage or suspended power on enable)
4	Digital Output 2 （GPIO OUT2）
5	Digital Input 1 （GPIO IN 1）
6	Digital Input 2 （GPIO IN 2）
7	RXD (DATA INPUT, TTL 电平)
8	TXD (DATA OUTPUT, TTL 电平)
9	Rst (low enable reset, no need to hang in the air)
10	Digital Output 1 （GPIO OUT1）
11	Module 3.3V output (current not more than 10mA)
12	NC
13	Swclk SWD burn interface clock line
14	Swdio SWD burning interface data line
15	GPIO5(RFU)
16	GPIO6(RFU)
17	GND
18	GND
19	ANT
20	GND

6. The application of information

The input power

It is recommended to use 47~100uf tantalum capacitors to filter the VCC port, so as to reduce the traction on the power supply caused by the rapid opening and closing of the power amplifier during RF transmission. The 0.1uf/100pf capacitor filters out the power supply ripple of different frequency bands respectively.

Due to the large current when the module works at full power, when the handheld device is directly powered by the battery, the module may not work stably when the battery is low, 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 rec ommended to be less than 1.5. A better antenna standing wave ratio can get better card reading effect.

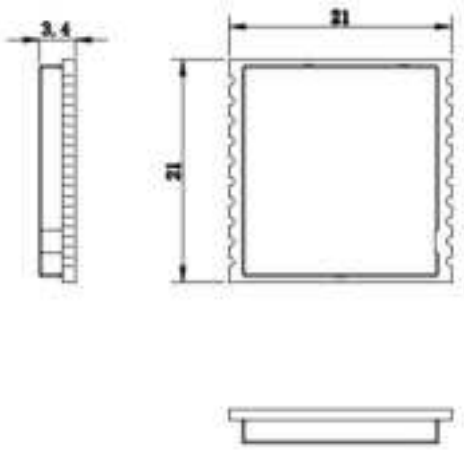
Communication interface (rxd/txd)

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

7. Physical properties

Product size：21mm*21mm*3.4mm

weight：2.5g



8 Peripheral Design Requirement

8.1 List of applicable FCC rules:

FCC Part15 Subpart C, Section 15.247

FCC regulatory information

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.
Warning: changes or modifications not expressly approved by the party responsible for compliance
could void the user's authority to operate the equipment.
End Device Labelling
Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains FCC ID: 2AQ9M-SIM3600E" any similar wording that expresses the same meaning may be used.
RF Exposure Compliance
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

8.2 Additional testing Part 15 Subpart B disclaimer

The grantee should include a statement that the modular transmitter is only FCC authorized for the specific rule parts (i.e.，FCC transmitter rules) listed on the grant，and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification .If the grantee markets their product as being Part 15 Subpart B compliant(when it also contains unintentional - radiator digital circuit y)， then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed .

2.2
List of applicable FCC rules：FCC Part15 Subpart C, Section 15.247.
2.3
Usage: The sample module is used in customized products, such as handheld computers and all-in-one computers.
2.4
Because the module has shielding cover,it is a unrestricted module.
2.5
The antenna is not on the sample and needs to be added externally. Customers can connect the external antenna from the antenna pin of the module to the antenna adapter of the housing according to their own needs.
2.6
RF exposure considerations This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2.7Antenna Type:Ceramic Antenna
Antenna Gain(Peak): 3dbi
2.8
The final end product must be labeled in a visible area with the following: "2AQ9M-SIM3600E"
2.9
Operation Frequency: 902.75~927.25MHz
Number of Channel: 50 Channels

Modulation: ASK
Host manufacturer must perfom test of radiated & conducted emission and spurious emission,etc according to the actual test modes for a stand-alone modular transmitter in a host.Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.
2.10Additional testing Part15SubpartB disclaimer
The grantee should include a statement that the modular transmitter is only FCC authorized forthe specific rule parts (i.e.， FCC transmitter rules)listedonthegrant， and that the host productmanufacturer is responsible for compliance to any other FCC rules that apply to the host notcovered by the modular transmitter grant of certification .If the grantee markets their product asbeing Part 15SubpartBcompliant(when it also contains unintentional - radiator digital circuit y)， then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed .
Federal Communication Commission Statement (FCC, U.S.)
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 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 device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference, and
this device must accept any interference received, including interference that may cause undesired operation.

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