SiLION SIM7300E RFID Module User Manual

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User Manual

SIM7300E
User Manual Rev 1

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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

Product introduction

8-port module SIM7300E is a high-performance UHF 8-port RFID read-write module developed by the core Technology team based on IMPINJ's new-generation RF chip E710. It is designed to meet the requirements of new retail, unmanned retail, RFID smart cabinet, RFID bookshelf, and other applications that need to connect multiple antennas at the same time. The SIM7300 module provides eight SMA antenna interfaces and supports rf output up to 33dBm. It can quickly read multiple labels and is the preferred choice for equipment in asset management, unmanned retail, and new retail industries.

Product Features

IMPINJ new generation E710 ULTRA high-frequency radio reader chip, high sensitivity, wide reading range, low power consumption, strong performance.
Fast reading speed, stable reading, multi-label anti-collision ability, long reading distance, using 8dBi antenna, the reading distance is more than 12 meters, multi-label reading speed, up to 900 / second.
In High-speed 8 antenna polling mode, the polling time of each antenna can be set separately, the 8 antennas can be set with different RF output power, the reading range is wider, and more application scenarios.
Module support label RSSI detection, support antenna connection status detection, support working temperature detection, a variety of data detection is more convenient for users to use efficiently; The module can work stably in the ambient temperature of -20 to +50, support stably in the ambient humidity of 5%-95%, efficient and stable performance, can be applied to a variety of harsh working environment.

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
The flatness of output power			+/- 0.2		dB
Channel segregation			32		dB

label

Reception sensitivity			-88		dBm
Inventory label peak speed			900		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		50	℃

The input power

The power supply voltage		4.75	5.0	5.25	V
Can make model			40		mA
Standby mode			120		mA
Read the card model	Pout=33dBm, 50 Ω Load		1700		mA

The current will vary depending on the loaded antenna.
Absolute maximum rated parameter

parameter	rating
power supply voltage	+5.25V
Digital I/O Voltage to GND	3.3V
Working temperature	-20 ~ +50℃
Storage temperature	-40 ~ +85℃

The pin configuration and function description

The serial number	define
1	GND
2	GND
3	VCC +5V±0.25V
4	VCC +5V±0.25V
5	GPIO1 (OUT1)
6	GPIO2 (OUT2)
7	GPIO3 (IN1)
8	GPIO4 (IN2)
9	RDX (DATA INPUT TTLlevel)
10	TXD (DATA OUTPUT TTL level)
11	NC
12	NC
13	NC
14	SHUTDOWN(Low level enable, high-level power off, the high level should be greater than VCC-0.3V)
15	no(Reset, low-level reset)

The application of information

The input power

A tantalum capacitor of 100~470uF is recommended for the VCC port to be filtered to reduce the power traction caused by the rapid opening and closing of the power amplifier during RF transmission. The 0.1uF and 100pF capacitors filter out the power ripple in different frequency bands respectively.

Enable or reset

With built-in pull-down resistance, the module is powered on when low level is connected or suspended, and the module is powered off when a high level is connected (the high level should be greater than VCC-0.3V). NRST reset, built-in pull-up to 3.3V resistance, reset when low power.

GPIO interface

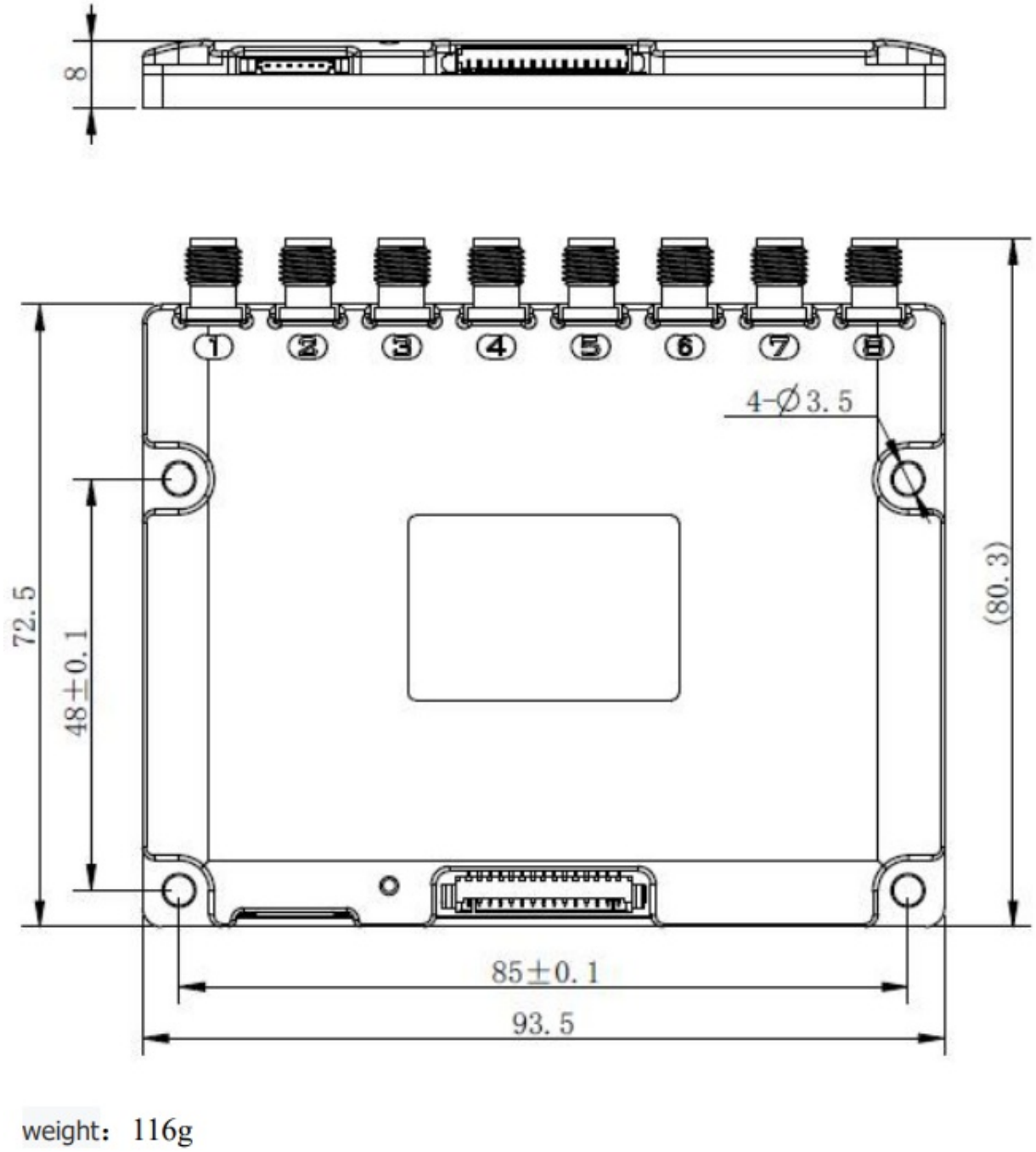
Input: Logic low < 0.8V minimum 0V Logic high > Maximum 2 V to 3.3 V Output: Logic Low maximum 0.4V Logic High has a minimum of 2.9V and a maximum of 3.3V The maximum output current of the I/o port is 5mA.

The antenna connection

The output impedance of the antenna port is 50 ohm, and the recommended standing wave ratio of the antenna is less than 1.5. A better standing wave ratio of the antenna can get a better card reading effect.
The communication interface (RDX/TXD) Communication interfaces RDX and TXD are TTL levels. The default baud rate is 115200bps

Physical properties

Product size93.5mm*80.3mm*8mm



weight： 116g

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-SIM7300E” 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 circuity) 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

Documents / Resources

	SiLION SIM7300E RFID Module [pdf] User Manual SIM7300E, 2AQ9M-SIM7300E, 2AQ9MSIM7300E, SIM7300E RFID Module, RFID Module

References

- -RFID |R2000|E710 RFID