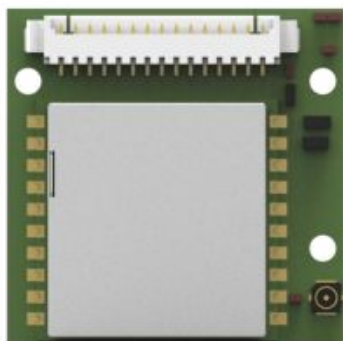


SIM3600V3

UHF RFID 超高频读写模块 硬件使用手册 Rev 1



**With the English version following
the Chinese version.**

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1.修订记录

文件编号	版本号	拟制人/ 修改人	拟制/修改日 期	更改理由	更改内容
	V1.0		2022-12-13	初始版本	无

2. 产品介绍

RFID 模块 SIM3600V3, 是芯联创展技术团队基于 IMPINJ 全新的新一代射频芯片 E310 研发的高性价比超高频 RFID 读写模块。是专为满足高性能 RFID 近距离读写器和便携移动终端设计的。SIM3600V3 模块功耗低、体积小、RF 性能好的特点, 以及先进的抗干扰设计使其成为低成本移动设备的优先选择。

3. 产品特点

全新一代 E310 射频芯片

采用 IMPINJ 全新一代 E310 超高频射频读写器芯片, 灵敏度高, 读取范围广, 功耗低, 性能强大。

超强的标签读取性能

读取标签速度快, 读取稳定, 多标签防冲撞能力强, 读取距离远, 使用 2.5dBi 陶瓷天线时, 读取距离大于 3 米, 多标签读取速度快, 可达 300 张/秒。

功耗更低

可以在 3.6V 低电压模式下正常工作, 最大功率输出时功耗为 3.25W, 待机功耗仅为 0.75W, 优异的低功耗设计, 使得产品使用寿命更长。

支持监测功能和出色的稳定性

模块支持标签 RSSI 检测; 模块可在 -25℃ 到 +65℃ 的环境温度下稳定工作, 支持在 5%-95% 的环境湿度中稳定工作, 高效稳定的性能, 可以适用于多种恶劣工作环境。

4. 电气特性

参数	条件	最小值	典型值	最大值	单位
频率					
频率范围	According Customization	860		960	MHz
频率步进值	According Customization		250/500		KHz
输出					
输出功率		5		27	dBm
输出功率精度			+/- 1(TBD)		dB
输出功率平坦度			+/- 1(TBD)		dB
标签					
接收灵敏度	RF MODE13		-73		dBm
盘存标签峰值速度			300		tag/s
标签缓存区	96 bit EPC		1000		tag
逻辑电平					
VIL, Input Low Voltage		-0.5		0.8	V
VIH, Input High Voltage		2		Vdd+0.5	V
温度范围					
存储温度		-40		85	°C
工作温度		-20		55	°C
输入电源					
供电电压		3.6		5.0	V
待机模式			150		mA
读卡模式	Pout=27dBm, 50 Ω Load		650		mA

电流会因负载天线不同而有所变化。

绝对最大额定参数

参数	额定值
供电电压	+5.25V
Digital I/O Voltage to GND	3.3V
工作温度	-20 ~ +55°C
存储温度	-40 ~ +85°C

5. 引脚配置及功能说明

连接器定义:

序号	定义
1	GND
2	GND
3	VCC +5V $\pm$ 0.25V
4	VCC +5V $\pm$ 0.25V
5	GPIO1 (OUT1)
6	GPIO2 (OUT2)
7	GPIO3 (IN1)
8	GPIO4 (IN2)
9	RXD (DATA INPUT, TTL 电平)
10	TXD (DATA OUTPUT, TTL 电平)
11	NC
12	NC
13	NC
14	EN (高电平或者悬空使能模块上电, 电平应当大于 VCC-0.3V)
15	nRST (复位, 低电平复位)

6. 应用信息

输入电源

VCC端口建议使用47~100uF的钽电容来滤波, 以减少射频发射时功放的快速开启和关闭对电源的牵引。0.1uF/100pF电容分别滤出不同频段的电源纹波。

由于模块满功率工作时电流较大, 手持设备直接电池供电时可能会出现电池低电量时模块不能稳定工作, 所以建议最好把VCC升压到5V。

使能/复位

EN使能, 内置上拉电阻(100K)到VCC, 高电平或悬空时模块上电, 接低电平时模块掉电(低电平应当小于0.4V, 高电平应当大于0.9V小于VCC)。

RST复位, 内置上拉电阻到3.3V, 接低电平时复位。

GPIO接口

输入:

Logic low <0.8 V 最小0V

Logic high >2V 最大3.3V

输出:

Logic low 最大0.4V

Logic high 最小2.9V, 最大3.3V

I/O口最大输出电流 5mA。

天线连接

天线端口输出阻抗50欧姆, 天线驻波比建议小于1.5, 更好的天线驻波比可以得到更好的读卡效果。

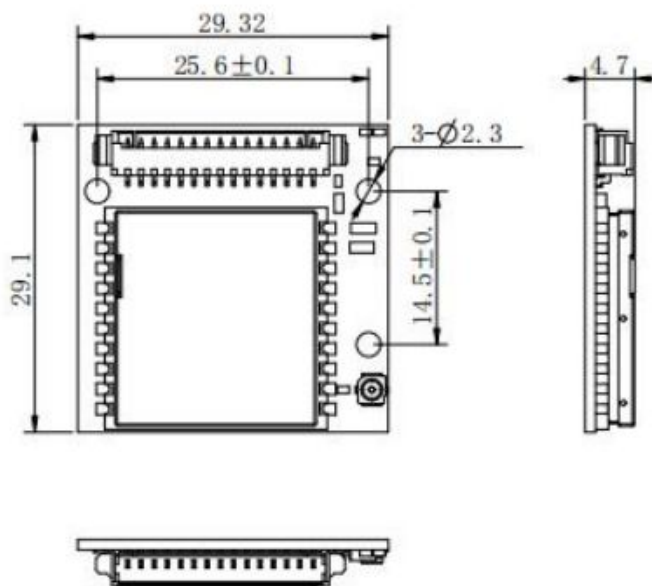
通信接口 (RXD/TXD)

通信接口RXD和TXD都是TTL电平, 默认波特率为: 115200bps

7.物理特性

产品尺寸：29.32mm*29.1mm*4.7mm

重 量：5g



尺寸单位：毫米



正面



背面

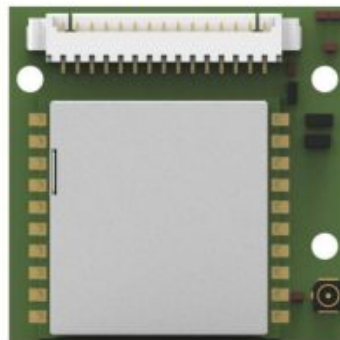


电敏感器件
遵循操作注意事项

注：Exposed Thermal Pad (裸露散热焊盘) 条件允许最好保留散热焊盘并接地以利于模块散热。

SIM3600V3

UHF RFID Module Hardware User Manual Rev 1



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1. Revision History

File Number	Version Number	Modified By	Modified Date	Revision Reason	Revision Contents
	V1.0		2021-12-13		None

2.Product description

The ultra-small RFID module SIM3600V3 is a cost-effective ultra-high frequency RFID reading and writing module developed by SILION technical team based on IMPINJ's new generation of radio frequency chip E310. The coin-sized form factor is designed to meet the requirements of high-performance RFID handhelds and mobile portables. The SIM3600V3 module has the characteristics of low power consumption, small size, good RF performance, and advanced anti-interference design. It is the first choice for low-cost mobile devices.

3.Product feature

The new generation IMPINJ E310 RF chip

Based on the new generation IMPINJ E310 UHF RF read-write chip, high sensitivity, long reading range, low power consumption, high-performance.

High 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 a 2.5dBi ceramic antenna, the reading distance is greater than 3 meters.

Multi-tag reading speed is fast, up to 300 tags/second.

Low power consumption design

It can work normally in 3.6V low voltage mode, and the power consumption is 3.25W at maximum power output, and the standby power consumption is only 0.75W. The excellent low power consumption design makes the products last longer.

Support monitoring functions and excellent stability

The module supports tag RSSI detection;The module can work stably at ambient temperatures from -25°C to +65°C.Supports stable operation in ambient humidity of 5%-95%.

Efficient and stable performance, suitable for a variety of harsh working environments.

4. Electrical Features

	Conditions	Minimum	Typical	Maximum	Unit
Frequency					
Range	According Customization	860		960	MHz
Step value	According Customization		250/500		KHz
Output					
Output power		5		27	dBm
Precision			+/- 1(TBD)		dB
Flatness			+/- 1(TBD)		dB
Tag					
Sensitivity	RF MODE13		-73		dBm
Max read rate			300		tag/s
Tag buffer	96 bit EPC		1000		tag
Logical electricity flat					
VIL, Input Low Voltage		-0.5		0.8	V
VIH, Input High Voltage		2		Vdd+0.5	V
Temperature					
Storage temp		-40		85	°C
Operation temp		-20		55	°C
Input					
Input voltage		3.6		5.0	V
Standby mode			150		mA
Card reading modde	Pout=27dBm, 50 Ω Load		650		mA

The current will vary depending on the load antenna.

Absolut Max. Rated Parameterss

characteristics	Rated value
Supply voltage	+5.25V
IO	3.3V
Operating temp	-20 ~ +55°C
Storage temo	-40 ~ +85°C

5.Pin Configuration and Function Description

Connector Definition:

Serial No.	Definition
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	RXD (DATA INPUT, TTL 电平)
10	TXD (DATA OUTPUT, TTL 电平)
11	NC
12	NC
13	NC
14	EN(High level or floating enables the module to be powered on, the level should be greater than VCC-0.3V)
15	nRST(reset, low level reset)

6. Application Information

Input power

It is recommended to use a tantalum capacitor of 47~100uF for filtering on the VCC port to reduce the traction of the power supply when the power amplifier is turned on and off quickly during RF transmission. The 1uF/100pF capacitors filter out the power ripple in different frequency bands respectively.

Due to the large current when the module is working at full power, 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/Reset

EN, built-in pull-up resistor (100K) to VCC, The module is powered on when the high electricity flat or NC, and the module is powered off when the low level is connected (Low electricity flat should be less than 0.4V, high electricity flat should be greater than 0.9V and less than VCC) .

RST reset, built-in pull-up resistor to 3.3V, connect low electricity flat reset.

GPIO Connector

Input:

Logic low <0.8 V min 0V

Logic high >2V Max 3.3V

Output:

Logic low Max 0.4V

Logic high Min 2.9V, Max3.3V

IO port max output current 5mA.

Antenna connect

The output impedance of the antenna port is 50Ω, and the antenna VSWR is recommended to be less than 1.5. A better antenna VSWR can obtain a better card reading effect.

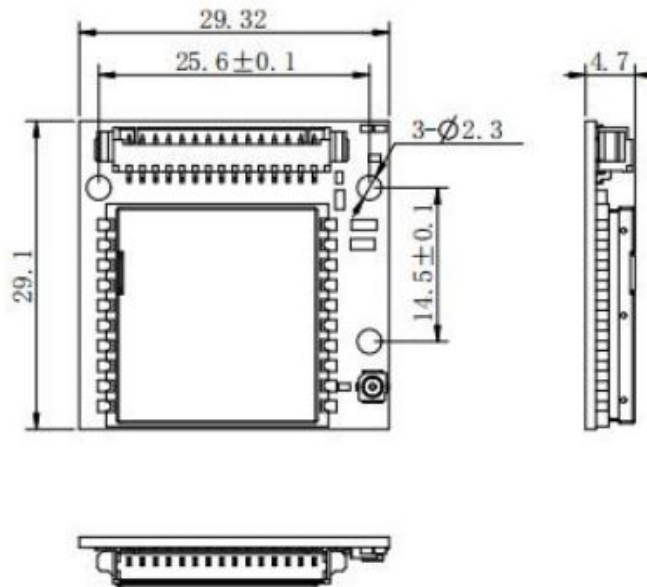
Communication Interface (RXD/TXD)

The communication interface RXD and TXD are both TTL electricity flat, default baud rate: 115200bps.

7. Physical Features

Dimension: 29.32mm*29.1mm*4.7mm

Weight: 5g



Unit: mm



Front



Back



Electrically sensitive devices
Follow operating precautions

Note: Exposed Thermal Pad
If conditions permit, please retain the heat dissipation pad and connect it to ground to facilitate module heat dissipation.