



Ningbo xiaojiang Internet of Things Technology Co., Ltd

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# XJ-W1A Module Datasheet

V1.0.1

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## 1 summary

XJ-W1A is a Wi-Fi reference design module based on embedded Wi-Fi SoC chip (W600). Stamp hole interface, PCB on-board antenna, small size, easy to develop, rich interface. The module is suitable for intelligent household appliances, smart home, wireless audio and video, intelligent toys, medical monitoring, industrial control and other Internet of things applications. This specification specifies the physical characteristics, technical specifications, communication protocols, product functions, performance, stability, environmental adaptability and security of the module.

## 2 characteristic

### 2.1 Interface

- Stamp hole interface, spacing 2.0mm
- 2 UART interfaces to support RTS/CTS, baud rate range 1200bps~2Mbps
- 1 high-speed SPI device controller, working clock range 0-50 MHz
- Integrated PWM controller, maximum output frequency 20MHz, maximum input frequency 20MHz
- IntegratedI<sup>2</sup>Ccontroller
- IntegratedI<sup>2</sup>Scontroller
- IntegratedGPIO controller

### 2.2 wireless

- Support for GB15629.11-2006, IEEE802.11 b/g/e/i/d/k/r/s/w/n wireless standards
- Support frequency range:2.4~2.4835 GHz
- Support Wi-Fi WMM/WMM-PS/WPA/WPA2/WPS
- Support Wi-Fi Direct
- Support EDCA channel access mode
- Support for20/40Mbandwidth working mode
- Support STBC、GreenField、Short-GI、Support for reverse transmission
- Support RIFSframe interval
- Support AMPDU、AMSDU
- Support IEEE802.11n MCS 0~7、MCS32Physical layer transmission rate shift, highest transmission rate to 150Mbps
- 2/5.5/11 MbpsSupport for Short Preamble when sending rate



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- Support HT-immediate Compressed Block Ack、Normal Ack、No Ackresponse mode
- Support CTS to self
- Support STA/AP/AP+STAfunction
- in a bss network a plurality of multicast networks are support, and the encryption mode of each multicast network is different, a maximum of 32 multicast networks and network access STA encryption can be supported
- When BSS network support is used as AP, the sum of support sites and groups is 32, and 16 sites are supported in IBSS networks

### 2.3 else

- Support user programmable GPIO control
- Support AT instruction protocol based on ASCII coding (UART interface)
- Support for a wide range of network protocols:TCP/UDP/ICMP/DHCP/DNS/HTTP
- Support DHCP Server、DNS Server
- Support for extensible WEB servers
- Support firmware online upgrade.

## 3 Size of product

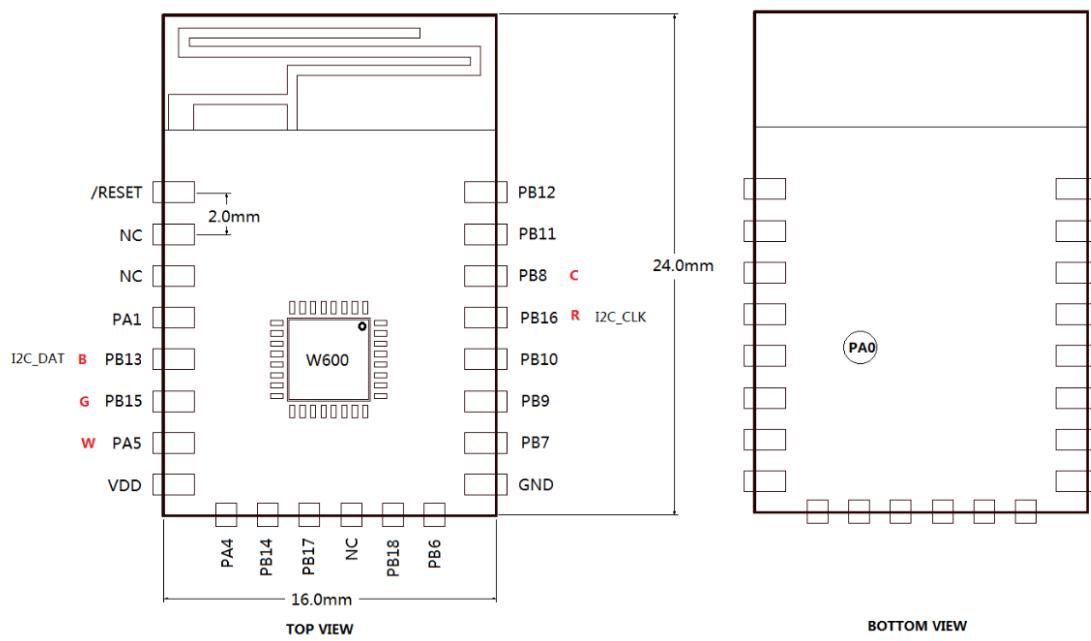
**Table 3 / 1 list of product specifications**

	Heading	Parameter number	remarks
Wireless part	Support for Wi-Fi mode	IEEE802.11b/g/n	
	Radio frequency system impedance	50 Ω	
	SWR	<10dB	
	frequency range	2.4~2.4835 GHz	
	receiving sensitivity	20MHz MCS7@-71dBm; 40MHz MCS7@-68dBm; 54Mbps@-73dBm; 11Mbps@-87dBm; 1Mbps@-95dBm;	
	Physical layer data rate	802.11n MCS 0~7150Mbps	
	modulation mode	DSSS、OFDM、DBPSK、DQPSK、CCK、QAM16/64	
	output power	IEEE802.11b, DSSS 1Mbps, POUT = +17dBm;	

		IEEE802.11g, OFDM 54Mbps, POUT = +12dBm; IEEE802.11n, OFDM MCS7, POUT = +10dBm;	
Hardware part	interface type	UART、SPI、GPIO、PWM、I <sup>2</sup> C、I <sup>2</sup> S	
	interface rate	2Mbps@UART (Max) 50Mbps@SPI (Max)	
	working voltage	3.0V ~ 3.6V	
	working current	20mA ~ 110mA	
	working humidity	5%~90% (No condensation)	
	Storage temperature	-40~+125 °C	
	working temperature	-40~+85 °C	
	outline dimension	16.0mm×24.0mm	
Software part	Network type	STA/AP/AP+STA/Wi-Fi Direct	
	Authentication mode	WEP/WPA-PSK/WPA2-PSK	
	way of encryption	WEP64/WEP128/TKIP/CCMP(AES)	
	WPS function	WPS	
	Energy saving mechanism	PS-POLL/Standby	
	networking protocol	TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP	
	Interface protocol	AT+order set	

#### 4 Interface signal

The module pin arrangement and size information is shown in figure 4 / 1:





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Fig. 4 / 1 module pin arrangement and size diagram

The module pin instructions are shown in Table 4 / 1:

Table 4 / 1 Module Pin Description.

number	name	type	Default pin function	Reuse function
1	/RESET	I	RESET	Low level reset
2	NC			
3	NC			
4	PA1	I/O	Reserved	GPIOPA_1
5	PB_13	I/O	PWM_2	I <sup>2</sup> C_SCL、GPIOPB_13
6	PB_15	I/O	H_SPI_CS	PWM_4、GPIOPB_15
7	PA_5	I/O	UART0_RX	PWM_1、GPIOPA_5
8	VDD	P	3.3V	
9	PA_4	I/O	UART0_TX	GPIOPA_4
10	PB_14	I/O	H_SPI_INT	I <sup>2</sup> C_DAT、GPIOPB_14
11	PB_17	I/O	H_SPI_DI	PWM_2、GPIOPB_17
12	NC			
13	PB_18	I/O	H_SPI_DO	GPIOPB_18
14	PB_6	I/O	Reserved	GPIOPB_6
15	GND	P	GND	
16	PB_7	I/O	Reserved	GPIOPB_7
17	PB_9	I/O	UART1_CTS	GPIOPB_9
18	PB_10	I/O	UART1_RTS	GPIOPB_10
19	PB_16	I/O	H_SPI_CK	PWM_3、GPIOPB_16
20	PB_8	I/O	PWM_5	GPIOPB_8
21	PB_11	I/O	UART1_RX	I <sup>2</sup> C_SCL、GPIOPB_11



22	PB_12	I/O	UART1_TX	I <sup>2</sup> C_DAT、GPIOPB_12
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## 5 Environmental suitability

### 5.1 Low temperature working test

- Reference criteria:GB/T 2423.1-2001;
- When the ambient temperature is  $-40 \pm 1$  °C, the network card module sample can work continuously for 72 hours, and the performance and function of the network card module can be kept in good condition after the test.

### 5.2 Low temperature storage test

- Reference criteria:GB/T 2423.1-2001
- When the ambient temperature is  $-40$  °C, the sample of the network card module is placed for 72 hours, and the performance and function of the network card module remain in good condition after the test.

### 5.3 High temperature working test

- Reference criteria:GB/T 2423.2-2001
- When the ambient temperature is  $85 \pm 1$  °C, the network card module sample can work continuously for 72 hours, and the performance and function of the network card module can be kept in good condition after the test.

### 5.4 High temperature storage test

- Reference criteria:GB/T 2423.2-2001
- When the ambient temperature is  $125$  °C and the sample of network card module is placed for 72 hours, the performance and function of the network card module remain in good condition after the test.

### 5.5 Shock test

- Reference criteria:GB/T 4798.5-2007
- Random vibration, vibration direction: X, Y, Z axis, displacement, frequency reference GB/T 4798.5  $\leq 2007$  5M3 grade, vibration time: 60 min per axis. For detailed test methods,

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please refer to the 5M3 level in GB/T 4798.5 / 2007

## 5.6 Environmental protection certification

- Comply with RoHS IEC62321-1:2013 standard

## 6 Module reference circuit design

The module reference circuit design is shown in Fig. 6 / 1.

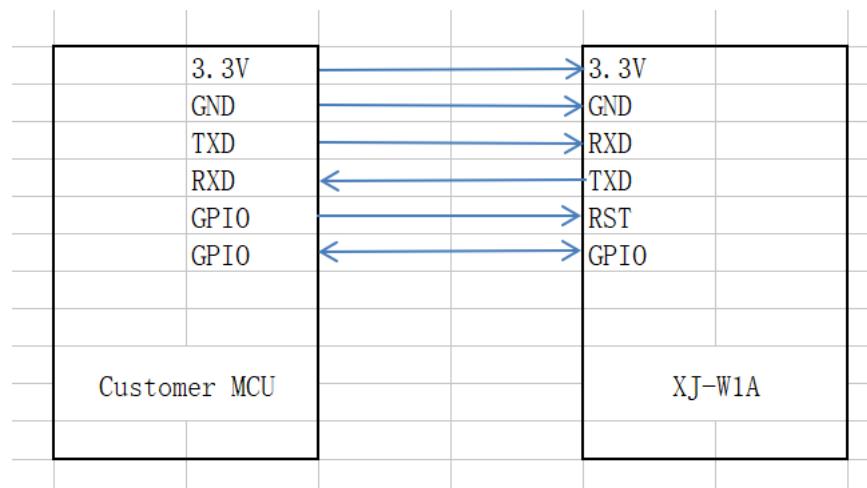


Fig. 6 / 1 XJ-W1A reference circuit design



## 7 FCC Cautions

### ➤ Labelling requirements

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.

### ➤ Information to user.

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 Revogi Innovation Co., Ltd. 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.

Note: The Grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. such modifications could void the user's authority to operate the equipment.

the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed



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**IMPORTANT NOTE:** In the event that these conditions cannot be met (for example co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

➤ Manual Information To the End User:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

➤ Modular Approval:

The XJ-W1A module is designed to comply with the FCC statement. FCC ID is 2AUPR-XJ-W1A. The host system using XJ-W1A, should have label indicated it contain modular's FCC ID 2AUPR-XJ-W1A.

➤ RF warning for Portable device:

The device has been evaluated to meet general RF exposure requirement. To maintain compliance with FCC's RF exposure guidelines, the distance must be at least 20 cm between the radiator and your body, and fully supported by the operating and installation configurations of transmitter and its antenna(s).