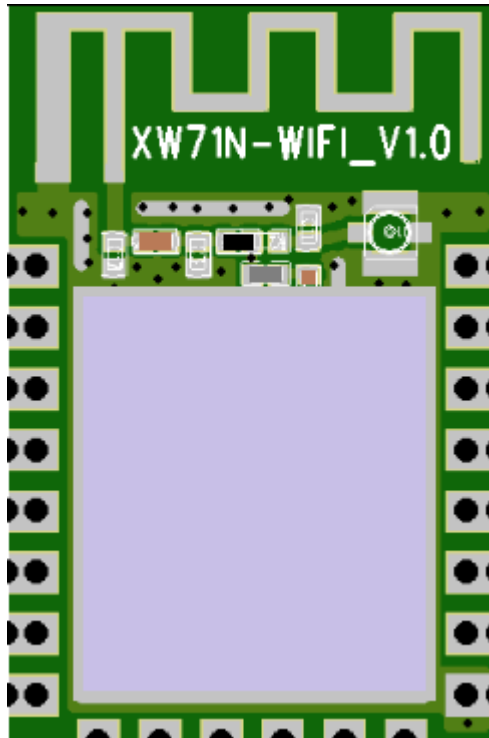


XW71N-WiFi Module User Manual



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1. Product overview

The XW71N WiFi module is a complete BLE5.1+ WiFi network solution that can operate independently or as a slave to other host MCUs. The module can be booted directly from the built-in Flash when equipped with external applications and acting as the only application processor in the device; it also contains a low-power ARM-CM4 MCU, 1T1R WLAN, up to 120MHz, built-in 256K SRAM, 2Mbyte flash and rich peripheral resources.

The XW71N WiFi module supports the IEEE 802.11 b/g/n protocol standard, BLE5.1, supports lightweight TCP/IP protocol stacks, and supports STA, AP, AP+STA modes. Users can use the module to add networking capabilities to existing devices or build stand-alone network controllers.

Provide customers with complete hardware and software reference programs to shorten your product development cycle and save costs for you.

1.1 Product features

- Supports the 802.11 b/g/n/BLE5.1 standard protocol
- Built-in lightweight TCP/IP protocol stack
- Built-in TR switch, Balun, LNA, PA, and integrated on-board antenna (compatible with external antennas)
- MCU up to 120M clock frequency +256KB SRAM
- Built-in 2Mbit Flash
- Support remote firmware OTA upgrade, can be initiated through mobile APP, AT command to start the upgrade
- Support STA, AP, AP + STA working mode
- Support WEP/TKIP/WPA/WPA2 security protocol
- Supports 802.11e and the WMM/WMM PS protocol
- Support Smart Link intelligent networking function
- Supports HT20
- Supports 6-way hardware PWM
- Maximum +16dBm output power in Wi-Fi 802.11b mode
- Bluetooth maximum output power +6dBm
- The voltage range is 2.4V to 3.6VDC, and it is recommended to operate from a single 3.3V 500mA supply
- On-board antenna, compatible with external antennas
- Size: 24m*16m*2.8mm

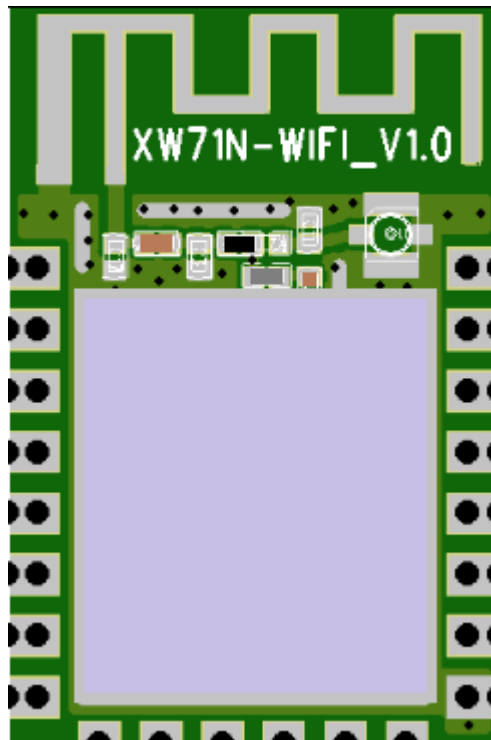
1.2 Application products

■ Smart home appliances ■ Smart sockets、lamp ■ Health products ■ WIFI to serial port products

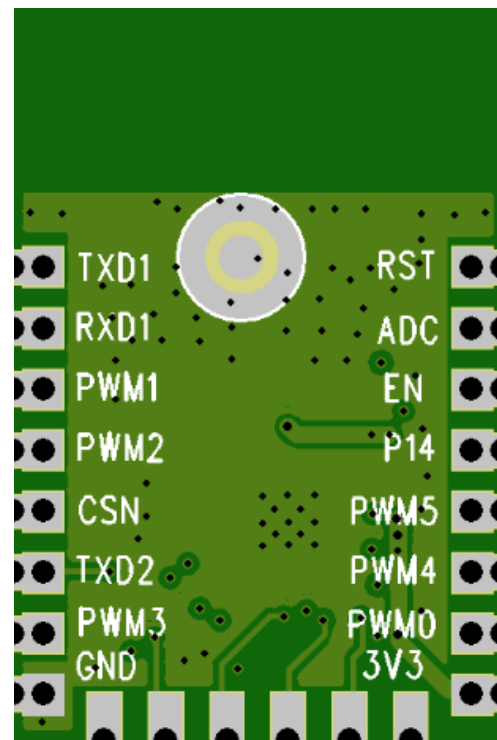
2. Product module interface

2.1 Product outline drawing

The physical size of the XW71N Wi-Fi module is 24mm*16mm*2.8mm, and the module has a built-in 2dBi PCB on-board antenna.



Front

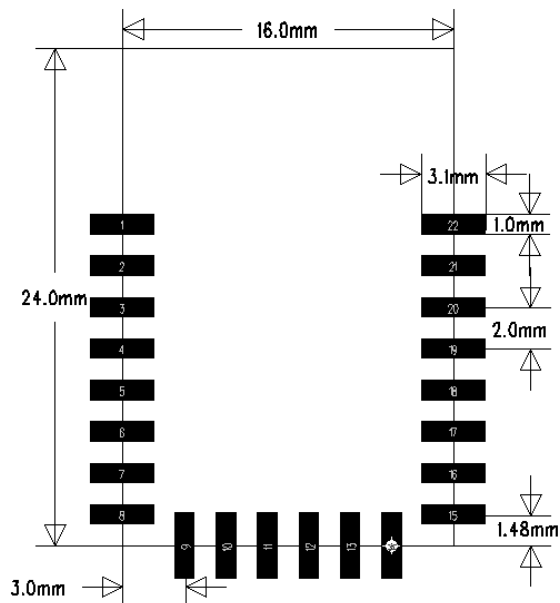


Opposite

Product shape

2.2 Product package dimension drawing

XW71-WiFi

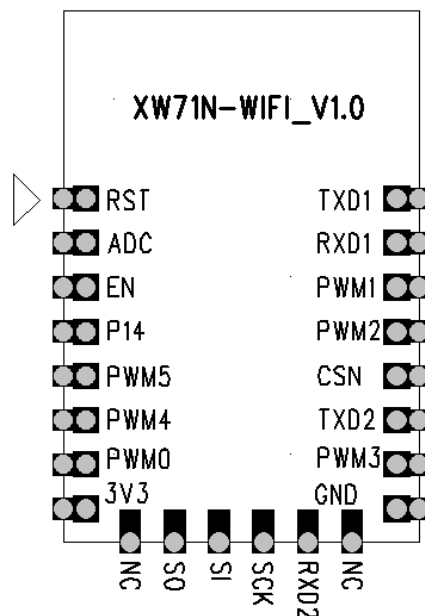


Package dimension

Module model	Long (mm)	Wide (mm)	High (mm)	PADsize (mm)	Pin spacing (mm)	thickness (mm)
XW71N-WIFI	24	26	2.8±0.2	3.1X1.0	2.0	0.8

2.3Pin definition

The XW71N-WIFI module connects a total of 22 interfaces, of which GPIO has 16.



XW71N pin schematic

Table 2.3 Pin function definitions

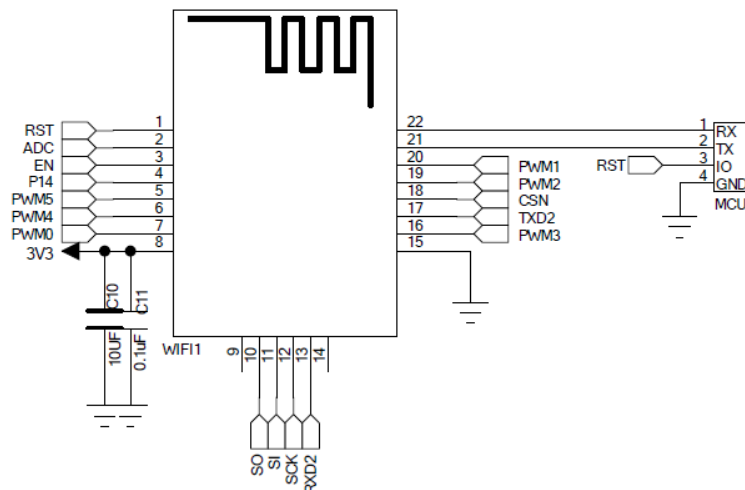
Number	Pin	Function description
1	RST	Reset pin (active low)
2	ADC3	General IO, ADC3

XW71-WiFi

3	EN	General IO, Compatible with other module design docking
4	P14	General IO,
5	PWM5	General IO, PWM5
6	PWM4	General IO, PWM4
7	PWM0	General IO, PWM0
8	3V3	Module total power input, Voltage2.8V~3.6V , Recommend3.3V 500mA
9	NC	-
10	OS	General IO, SPI Burn the mouth , not available
11	SI	General IO, SPI Burn the mouth , Not recommended
12	SCK	General IO, SPI Burn the mouth ,Not recommended
13	RXD2	General IO, UART2_RXD(Used to print module internal information)
14	NC	-
15	GND	Module grounding pins
16	PWM3	General IO, PWM3
17	TXD2	General IO, UART2_TXD(Used to print module internal information)
18	CSN	General IO, SPI Burn the mouth , Not recommended
19	PWM2	General IO, PWM2
20	PWM1	General IO, PWM1
21	RXD1	General IO, UART1_RXD (Communicate with MCU)
22	TXD1	General IO, UART1_TXD (Communicate with MCU)

3. Hardware design

3.1 Minimal system



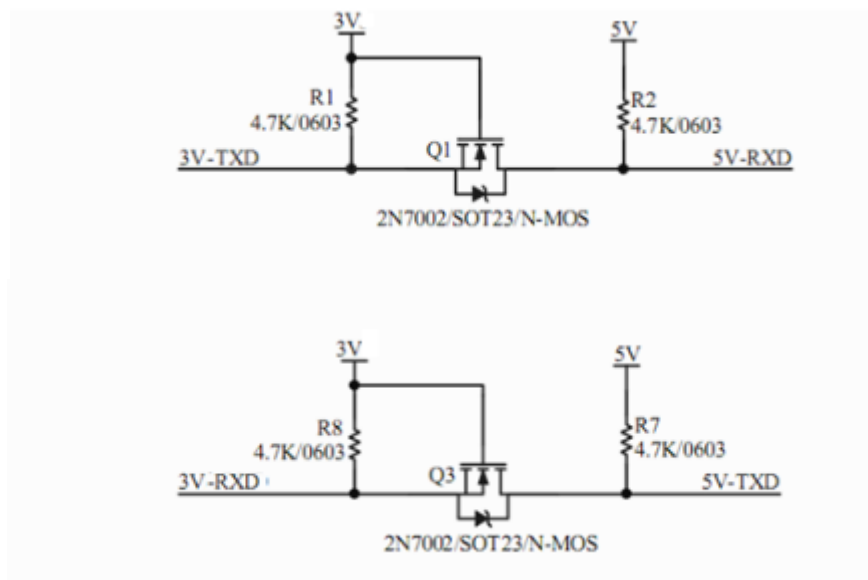
XW71-WiFi

XW71N-WIFI module minimum system diagram

Explain:

1. The module does not need additional components, only need to supply the module to work normally, the supply voltage is recommended 3.3V, the supply current is greater than 500mA;GPIO Maximum drive current is 8mA;
2. 1-pin RST, low active, there is a 10K pull-up resistor inside the module, which requires external MCU IO control;
3. The module's UART1 is connected to the external MCU's TXD, and the module's TXD is connected to the RXD of the external MCU;
4. Module online upgrade, just connect the UART2 port, and then pull the RST down more than 15ms and then release it, or it can be reset by software;

4. Serial 5V-3V level translation reference circuit

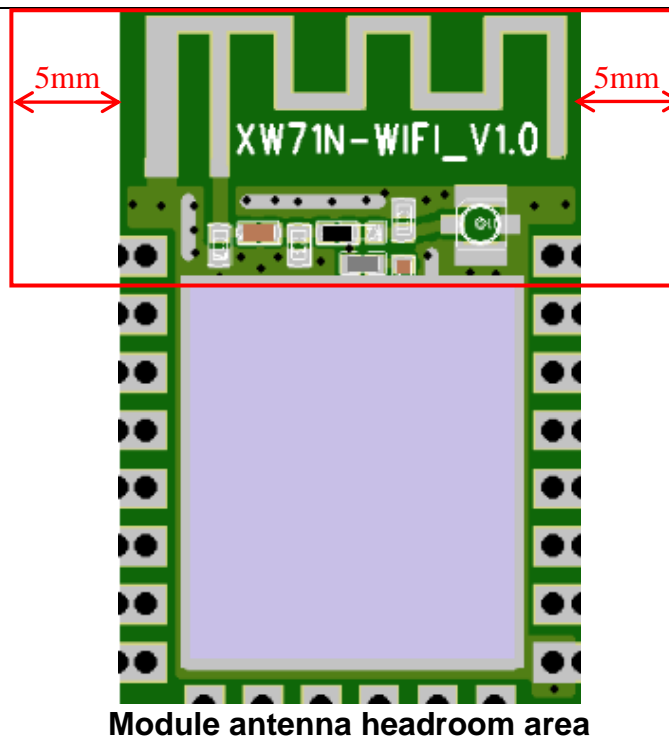


5V-3V level translation reference circuit

5. Antenna clearance area

XW71N needs to be soldered on the PCB board, in order to obtain the best RF performance, as shown in the following figure, the PCB on-board antenna below, there can be no copper, devices, traces, PCB design needs to be the corresponding area for headroom treatment.

XW71-WiFi



6. RF parameter

Parameter	MiX	Typical values	Max	Unit
Overall parameters				
Operating frequency	2412		2472	MHz
Enter the impedance		50		Ω
Transmit power				
	CH1	CH7	CH13	
Output power (802.11b@11Mbps)	16	16	16	dBm
Output power (802.11g@54Mbps)	15	15	15	dBm
Output power (802.11n@HT20,MCS7)	14	14	14	dBm
Receive sensitivity				
Sensitivity (802.11b@11Mbps,CCK)	-88	-88	-88	dBm
Sensitivity	-74	-74	-74	dBm

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(802.11g@54Mbps,OFDM)				
Sensitivity (802.11n@HT20,MCS7)	-72	-72	-72	dBm
Sensitivity (BLE 1M)	-93	-93	-93	dBm

RF Parameter table

7. Power consumption

The following power consumption data are measured data under 3.3V supply conditions.

Mode	Min	Type	Max	Unit
Transmit 802.11b, CCK 11Mbps, POUT=16dBm		270		mA
Transmit 802.11g, OFDM 54Mbps, POUT =15dBm		260		mA
Transmit 802.11n, MCS7, POUT =+14dBm		253		mA
Receive 802.11b,CCK,1Mbps		73		mA
Receive 802.11g,OFDM,54Mbps		75		mA
Receive 802.11n,HT20,MCS7		75		mA

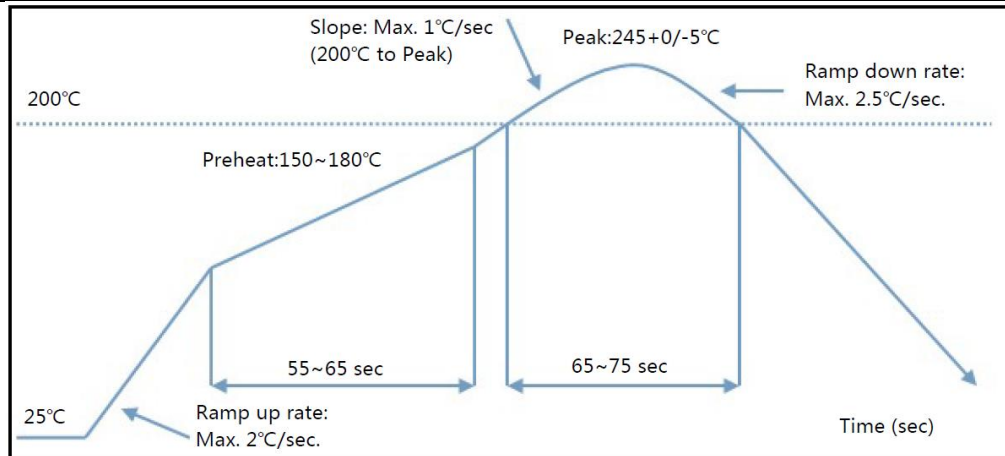
Power consumption meter

8. Furnace temperature curve

Maximum temperature: <250°C

Number of times the furnace is passed: ≤2次

XW71-WiFi



Furnace temperature curve

FCC Requirement

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

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.

Note: 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.

RF exposure considerations

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure - This device is only authorized for use in a mobile application. At least 20 cm of separation distance between the module and the user's body must be maintained at all times.

A label must be affixed to the outside of final commercial product with the following statements:
This device contains FCC ID: 2AW97-XW71N

Consistent with §2.909(a), the following text must be included within the user's manual or operator instruction guide for the final commercial product

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is only authorized for use in a mobile application. At least 20 cm of separation distance between the module and the user's body must be maintained at all times.

The final host / module combination may also need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device. The FCC Part 15 Statement shall be included in the user manual of final commercial product if applicable.

CAUTION: Any changes or modifications not expressly approved could void the user's authority to operate the equipment.