

Project No: BW18

Date: 2019.06.10

Rev: V1.0

Acknowledgment

Client's name: _____

Model: BW18

B&T Item No.: _____

Description: BW18 802.11 b/g/n Wi-Fi Module

Factory signature:

Edition	Review	Approve
Yiji Xie		

Client acknowledges the signature:

Check	Review	Approve

Contact:

Shenzhen R&D address: Room 408, Block C, Huafeng Smart Innovation Port, Gushu 2nd Road, Xixiang, Baoan District, Shenzhen.		
Factory address: 3rd Floor, Building A, Dongfang Industrial Park, Nanlang Town, Zhongshan.		
Tel: 0755-29162996、0760-88580932 Fax: 0760-89961414		
Website: http://www.tech-now.com		
Business Contact:	Tel:	Email:
Technical Contact:	Tel:	Email:
Quality Contact:	Tel:	Email:

Specifications

BW18 802.11 b/g/n Wi-Fi Module

BW18

Version: V1.0



Document development/revision/revocation resume

Vision	Data	Revised content	Edition	Approve
V1.0	2019.06.16	First Edition	Yiji Xie	

1. Product Overview

BW18 module is a Wi-Fi/Bluetooth data transmission module with Espressif ESP32 as the core and it is suitable for small home electrical applications. This module does not require SMD package, and only the 4 PIN connection can realize the data interaction of the MCU end transparently transmitted to the cloud through WIFI. This relatively independent module does not affect the design of the main board circuit but only leads to UART lines, which is very practical for designers with space structure requirements. The benefits that it only needs wiring, provided a lot of convenience for production installation or troubleshooting.

BW18 module supports 5V power supply and designers does not need to consider whether it is compatible with the 5V MCU. BW18 module adopt both on-board antenna and IPEX external antenna. It is very flexible to switch in complex application network scene. Customers can choose more suitable antenna scheme according to actual demand. Build-in 4M FLASH PSRAM.

BW18 module can be widely used in various IoT situations and it is the ideal solution for IoT, which is suitable for home automation, industrial wireless control, baby monitor, wireless position sensing equipment, wireless positioning system communication and other IoT applications.

Software features:

Through AT instructions to set Bluetooth connection, users can develop their own, can support Android/IOS control, WeChat Mini Program control; through AT command to set up WiFi MQTT cloud, can docking Ali cloud, Tencent cloud, Amazon cloud and so on.

2. Characteristics

Wireless part

Items	Description
WIFI+BT	<ul style="list-style-type: none"> ● 802.11b/g/n Wi-Fi + BT SoC module ● Use low power dual-core 32-bit CPU, application processor ● Main frequency up to 240MHz, operating capacity up to 600 DMIPS ● Built-in 520 KB SRAM ● Support UART interface ● Uses dual positioning holes and single UART interface output ● Support OpenOCD debug interface ● Support multiple sleep modes ● Embedded Lwip and FreeRTOS ● Support STA/AP/STA+AP work model ● Support Smart Config/AirKiss one-click distribution network ● Common AT command can be used easy and quick ● Support serial port local upgrade and remote firmware upgrade(FOTA) ● Through AT instructions set up wifi MQTT cloud, can docking Ali cloud, Tencent cloud, Amazon cloud and so on;

Security part

Items	Description
CPU	● ESP32
Outside interface	● UART
Security mechanisms	● WPA/WPA2
Type of encryption	● WEP/TKIP/AES
Upgrade firmware	● UART Download/OTA (through internet)
Software development	● Support SDK, for fast programming
Network protocol	● IPv4、TCP/UDP/HTTP/MQTT
User configuration	● AT+ instruction list, Cloud servers

3. Application

Home appliances

Home automation

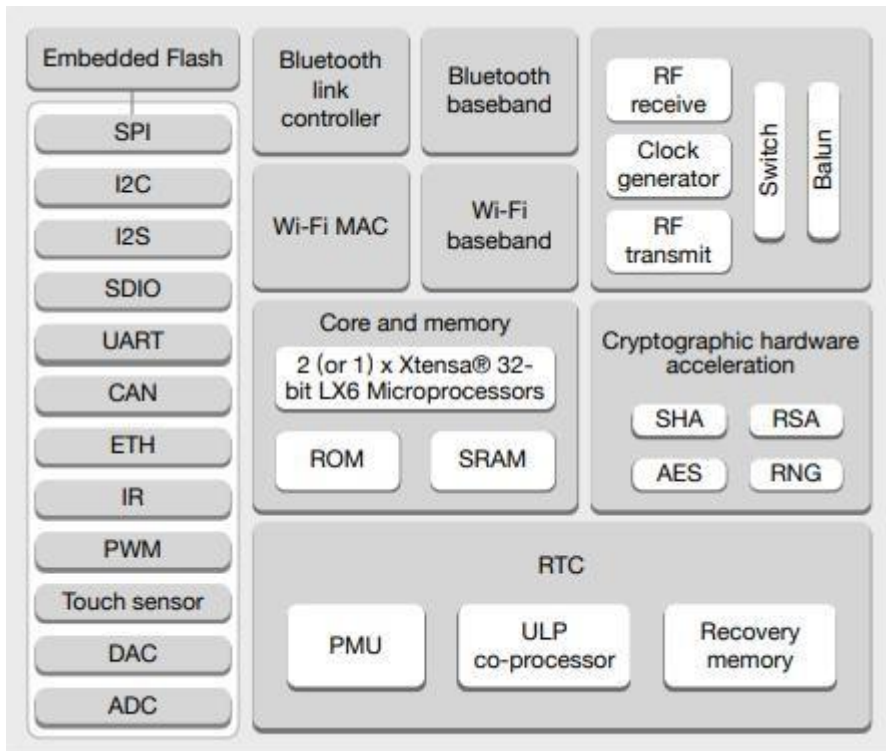
Intelligent socket, intelligent lamp

Industry wireless control

4. Main parameters

Hardware Features	
Model	BW18
Package	Double positioning hole (aperture 1.6mm)
Antenna Type	PCB Antenna/IPEX
Major Chipset	ESP32
Power Supply	4.5V ~ 16V
Power consumption	350mA@5V
Dimension	41*28*8.9 (±0.2) mm
WIFI Wireless Features	
Wireless Standards	IEEE 802.11 b/g/n/e/i
Frequency Range	2400 ~ 2483.5MHz
Work Mode	AP, Station, AP/Client
Transmit power	802.11b: 17±2 dBm (@11Mbps)
	802.11g: 14±2 dBm (@54Mbps)
	802.11n: 13±2 dBm (@MCS7)
Receive sensitivity	CCK, 1 Mbps : -90dBm
	CCK, 11 Mbps: -85dBm
	6 Mbps (1/2 BPSK): -88dBm
	54 Mbps (3/4 64-QAM): -70dBm
	MCS7 (65 Mbps, 72.2 Mbps): -67dBm
Bluetooth Wireless Features	
Wireless Standards	Bluetooth BR/EDR and standard BLE 4.2
Others	
Environment	Operating Temperature: -20°C~70°C
	Storage Temperature: -40°C~125°C
	Operating Humidity: 10%~90% (non-condensing)
	Storage Humidity: 5%~90% (non-condensing)

5. Block Diagram



6. 电气参数

1) DC Characteristics

Power consumption (typical values)	5V power supply: 350mA	
ESD Protection (electrostatic protection)	2000	V

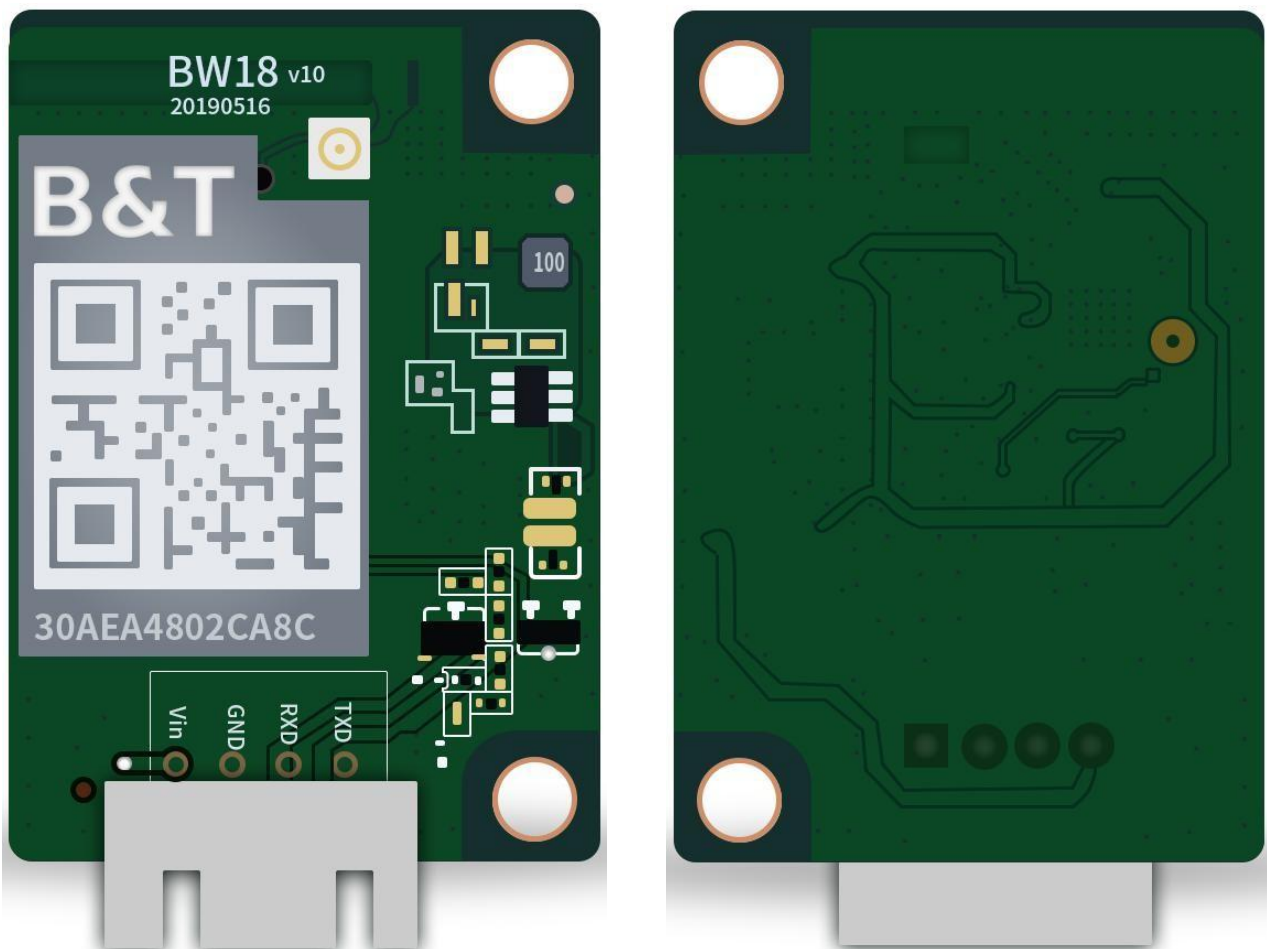
BW18 series modules are Electrostatic Sensitive Devices and require special precautions while handling.

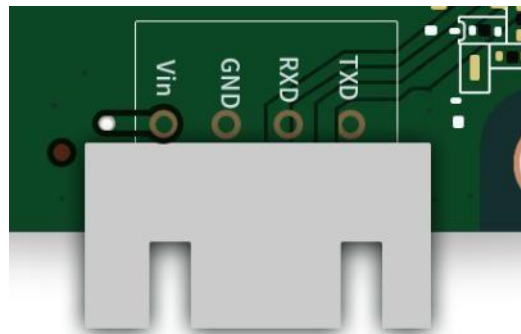
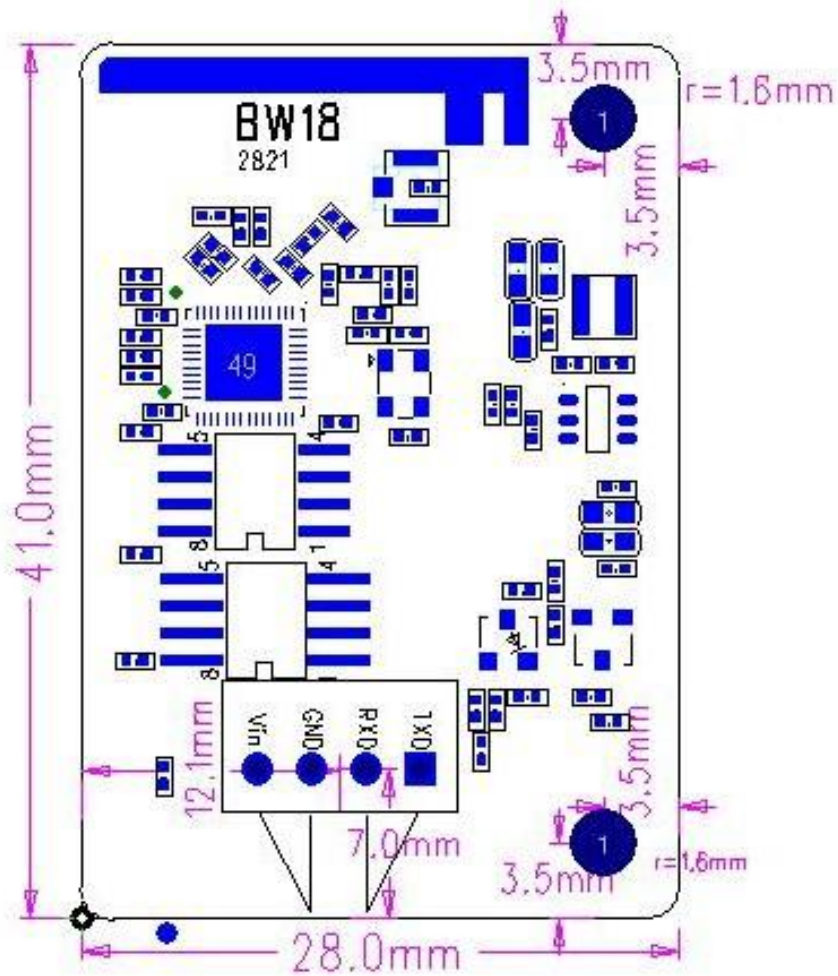


ESD precautions:

The BW18 module are electrostatic sensitive devices (ESD) and require special ESD precautions typically applied to ESD sensitive components. Proper ESD handling and packaging procedures must be applied throughout the processing, handling, transportation and operation of any application that incorporates the BW18 module. Don't touch the module by hand or solder with non-anti-static soldering iron to avoid damage to the module.

7. Package Size and Pin Definition



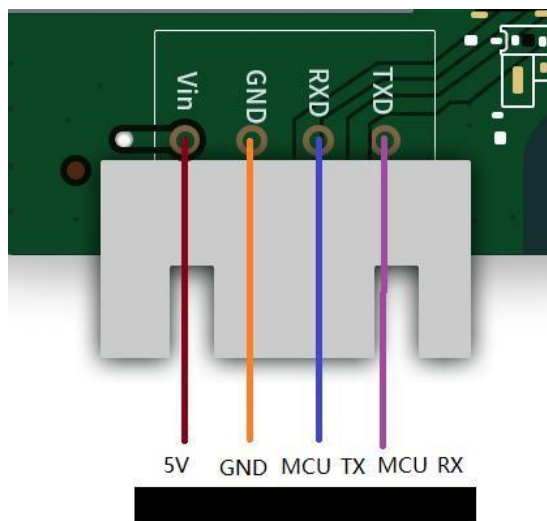
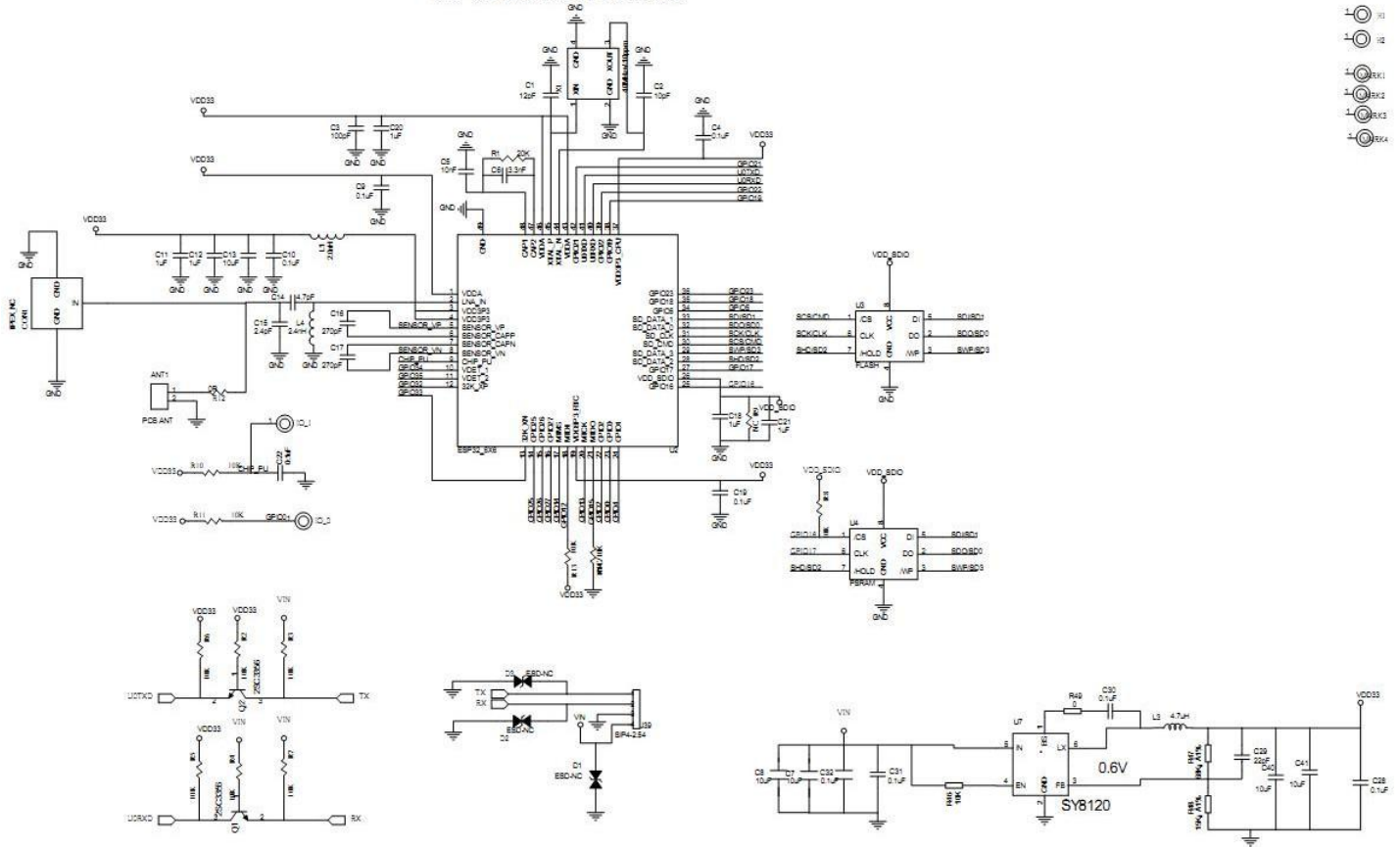


Pin No.	Definition	Description
1	TXD	UART TX
2	RXD	UART RX
3	GND	Ground pin
4	Vin	Power supply

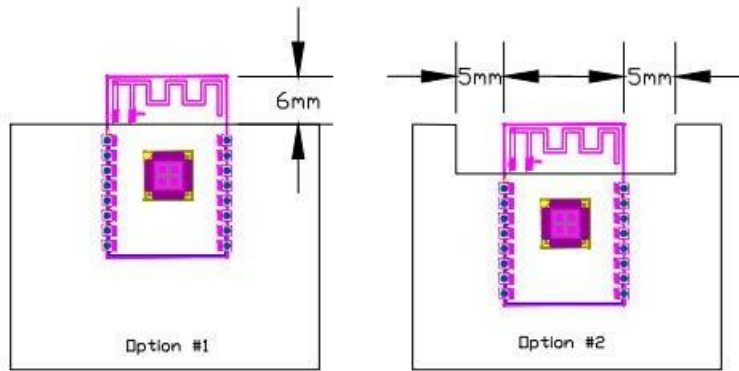
8. Reference Design

1) power reference design: current greater than 4.5 V, less than 16 V

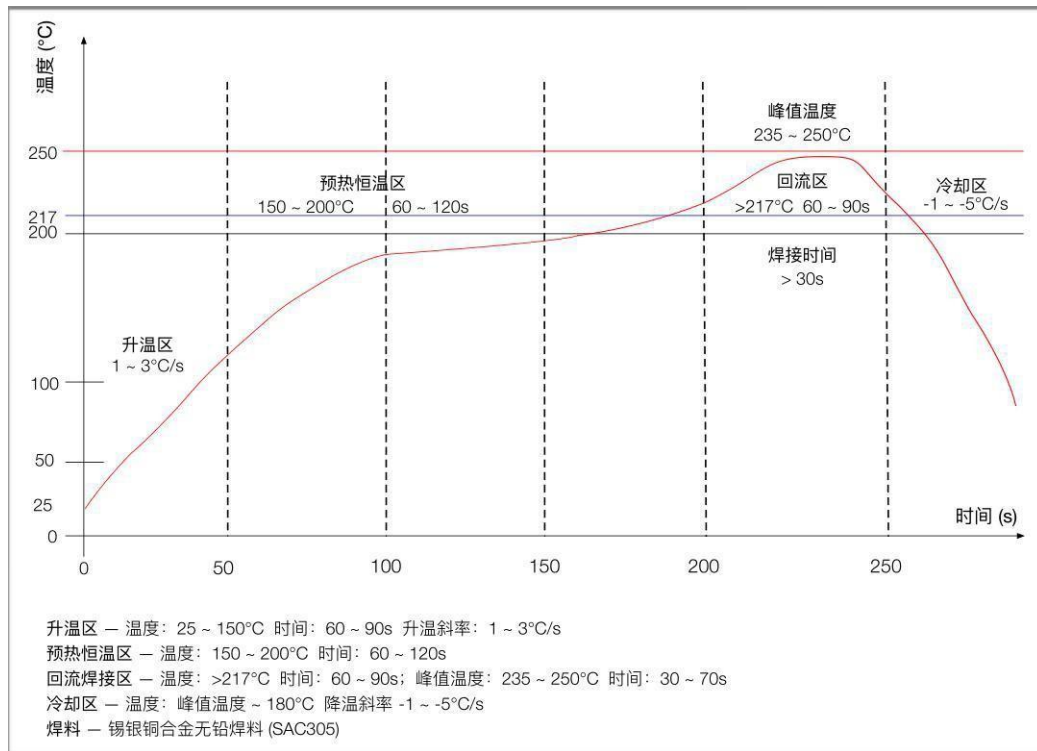
The capacitance of C1 and C2 varies with the selection of the crystal.



- 2) Module on the main board placement position (see below): 1, recommended antenna part beyond the main board edge ; 2, antenna part PCB hollowed;



9. Reflow soldering curve



Recommended reflow soldering curve

10. Packaging information

BW18 package is anti-static bag