



Specification

Product name : WIFI module

Product model: C-8031U

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1. Product overview:

C-8031U is a wireless communication module with BK 7231M_QFN32 embedded low power WIFI to serial port. It is suitable for smart homes and can provide network services for household appliances in an easy way. The module has simple hardware interface and clear protocol, which can facilitate customers to integrate the module into household appliances at the fastest speed. The chip used in this module is the IEEE 802.11n SoC with the highest integration in the industry. It supports IEEE802.11b/g/n wireless standard, supports wireless work in STA/AP/Direct/Repeater mode, supports on-chip FLASH, supports transparent download, and has the characteristics of low cost and low power consumption. Very suitable for smart home, Internet of things, industrial control and other low flow control and data acquisition applications.

2. Application area:

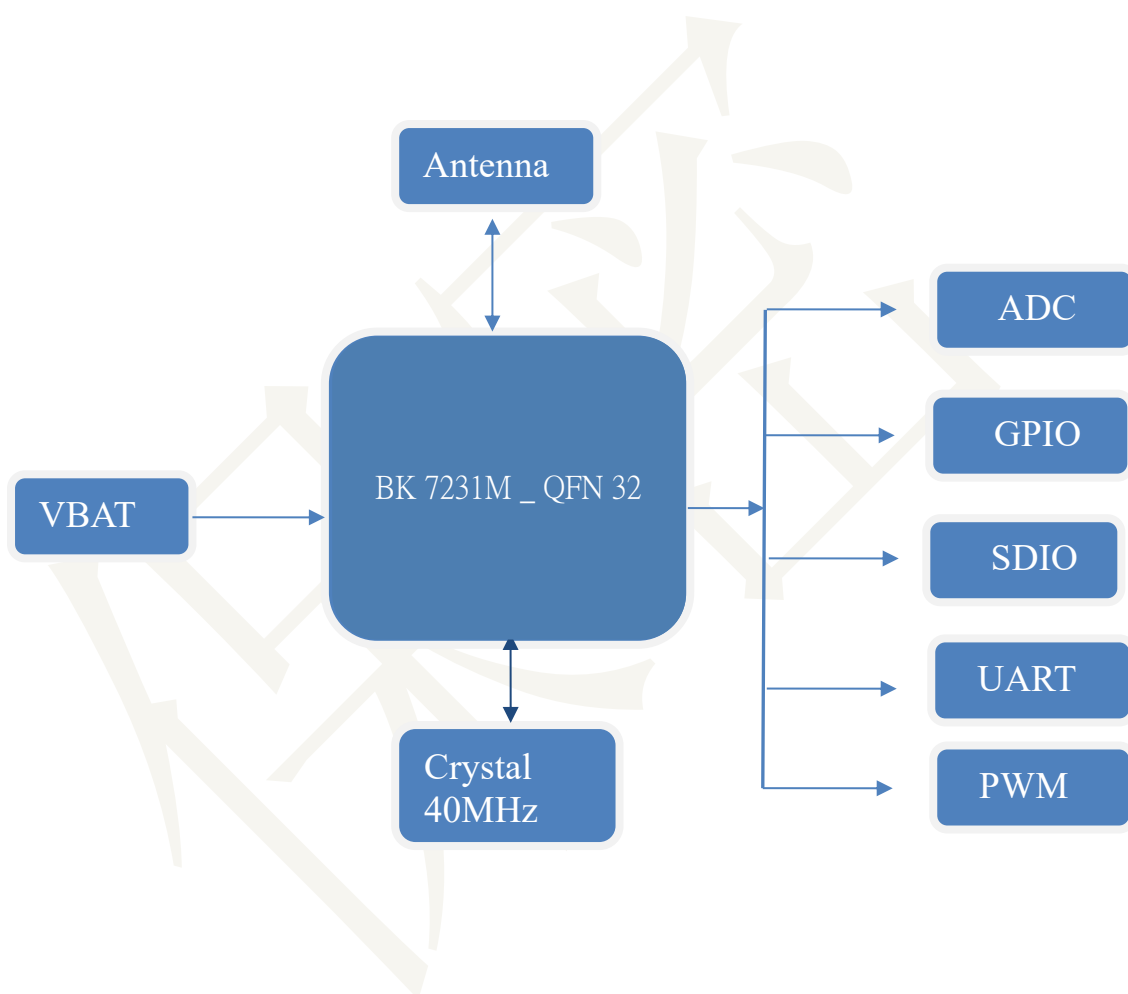
- ※ Internet of Things
- ※ smart home
- ※ industrial control
- ※ smart socket
- ※ network devices

3. Features:

- ※Support 802.11b /g/n 1x1 protocol
- ※Supports 20/40 MHz bandwidth and STBC
- ※Support STA/AP/Direct/Repeater network mode
- ※Supports SGI, Green-Field Preamble, and A-MPDU
- ※Support WPA,WPA2,WAPI security mechanisms
- ※50 MHz SDIO interface is supported
- ※UART support
- ※On-chip FLASH, support transparent download
- ※On-chip 256 Kbyte data RAM



4. Module block diagram



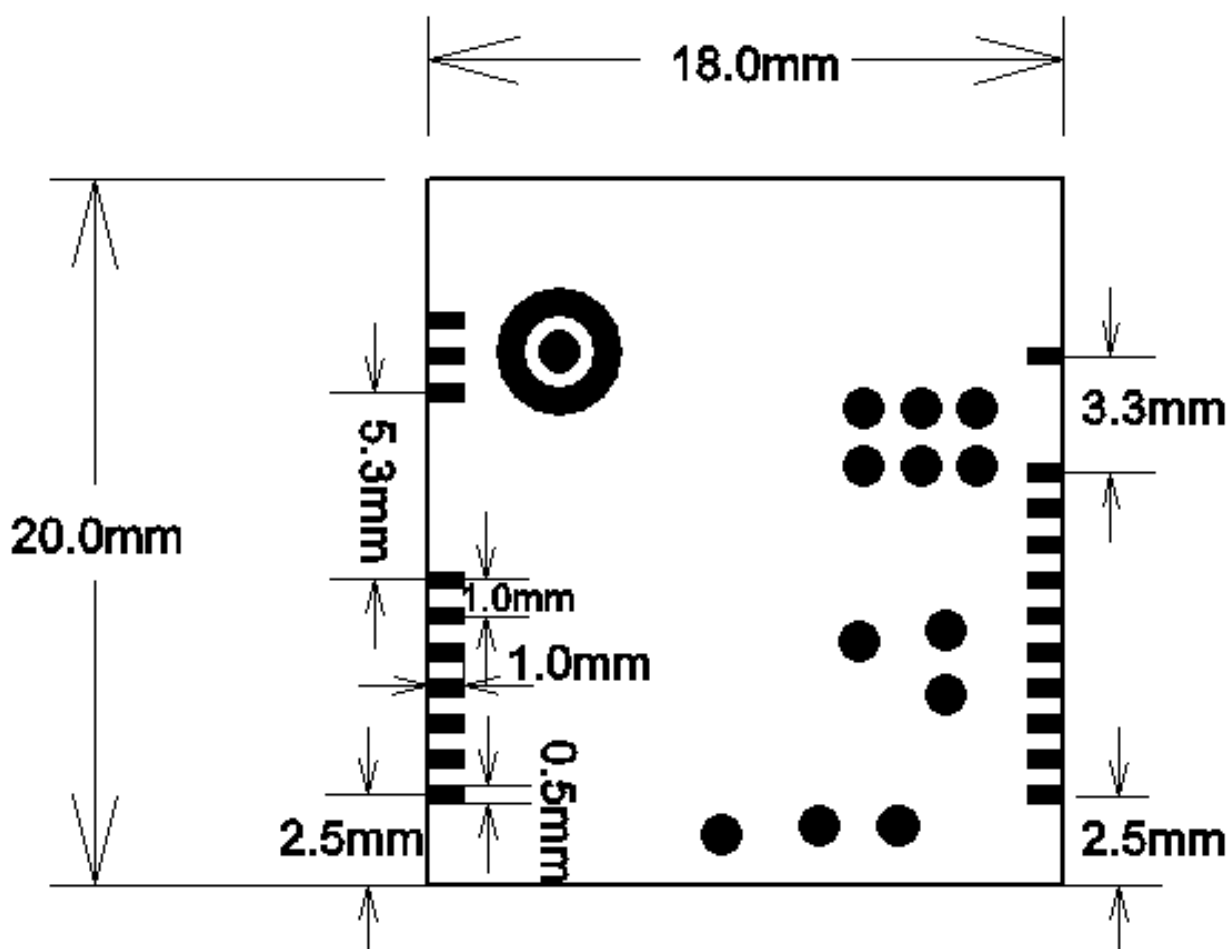
**5. performance parameter:**

Wireless parameters	Model	C-8031U
	Standard certification	XXXXXX
	Wireless standard	802.11b/g/n,1T1R
	frequency rang	2.412GHz - 2.484GHz
	Transmitted power	HT40 MCS7 (Tpy): 10dBm
		HT20 MCS7(Tpy): 11dBm
		54 Mbps OFDM(Tpy) : 12dBm
		11 Mbps DSSS(Tpy) : 15dBm
	Adjacent channel rejection ratio	54 Mbps OFDM(Tpy): 17dB
		11 Mbps DSSS(Tpy): 41dB
Hardware parameters	Receiving sensitivity	HT20 MCS7(Tpy): < -66dBm
		54 Mbps OFDM(Tpy): < -68dBm
		11 Mbps DSSS(Tpy): < -89dBm
	Antennae	Internal/external antenna
	working voltage	3.3V
	Maximum starting current	<3.3V 350mA
	Emission operating current	120mA(output power 12dBm)
	Receiving operating current	90mA(Receiver sensitivity test)
	operating temperature	-20℃~85℃
	storage temperature	-40℃~105℃
Software parameters	WiFi transmission distance	<100m
	expansion interface	UART, GPIO, SDIO,ADC
	size	20*18*3MM
	Wireless Network Type	AP Client Mode
	security regime	WPA/WPA2/WAPI
Encryption type	Encryption type	WEP64/WEP128



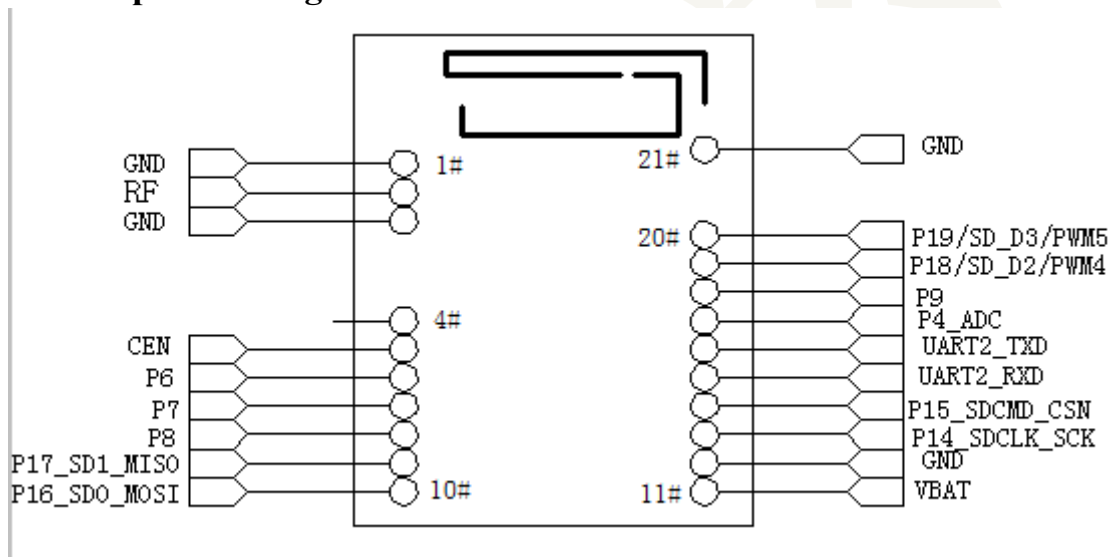
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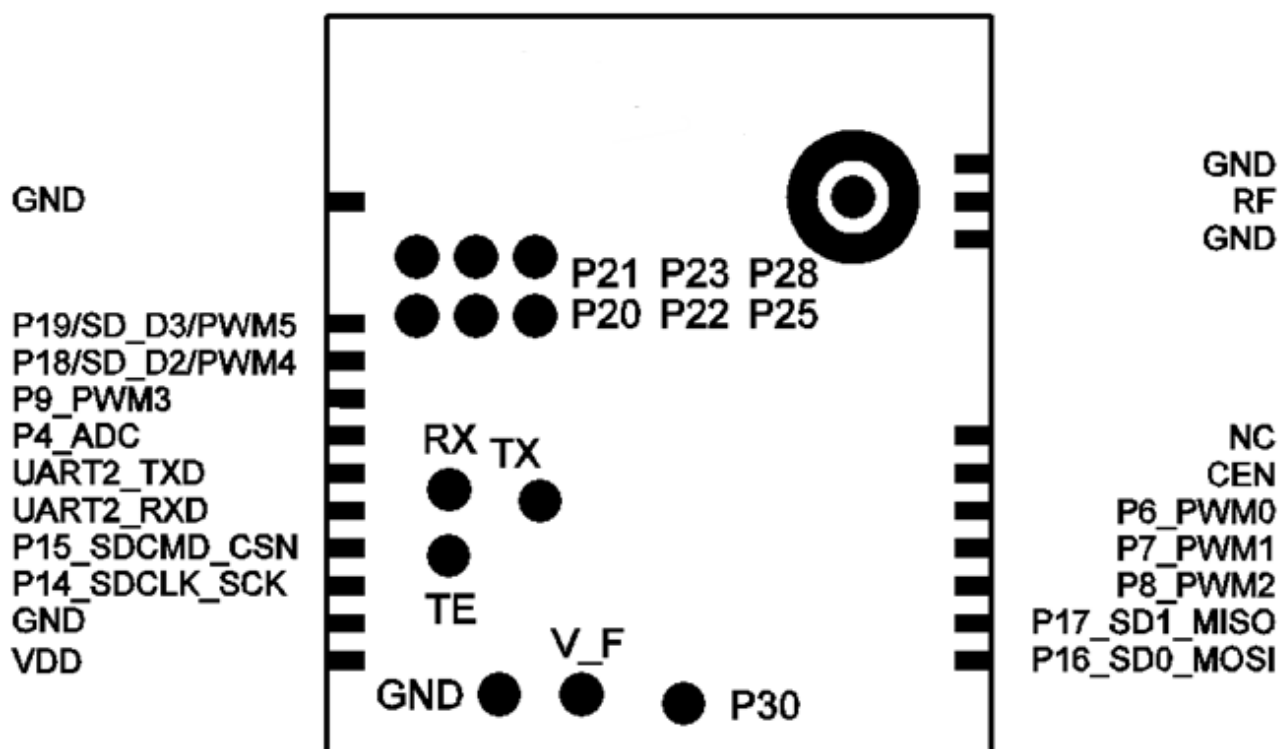
6. The size of the module graph:





7. Device pin out diagram





8. Pin definition:

Pin	Symb	I/O	Description
1	GND	GND	GND
2	RF	RF	RF
3	GND	GND	GND
4	NC	NC	NC
5	CEN	I	Reset pin
6	P6_PWM0	I/O	GPIO6_PWM0
7	P7_PWM1	I/O	GPIO7_PWM1
8	P8_PWM2	I/O	GPIO8_PWM2
9	P17_SD1_MISO	I/O	GPIO17_SD1_MISO
10	P16_SD0_MOSI	I/O	GPIO16_SD0_MOSI
11	VBAT	P	Power input(3.3V-4.2V)
12	GND	GND	GND
13	P14_SDCLK_SCK	I/O	GPIO14_SDCLK_SCK
14	P15_SDCMD_CSN	I/O	GPIO15_SDCMD_CSN

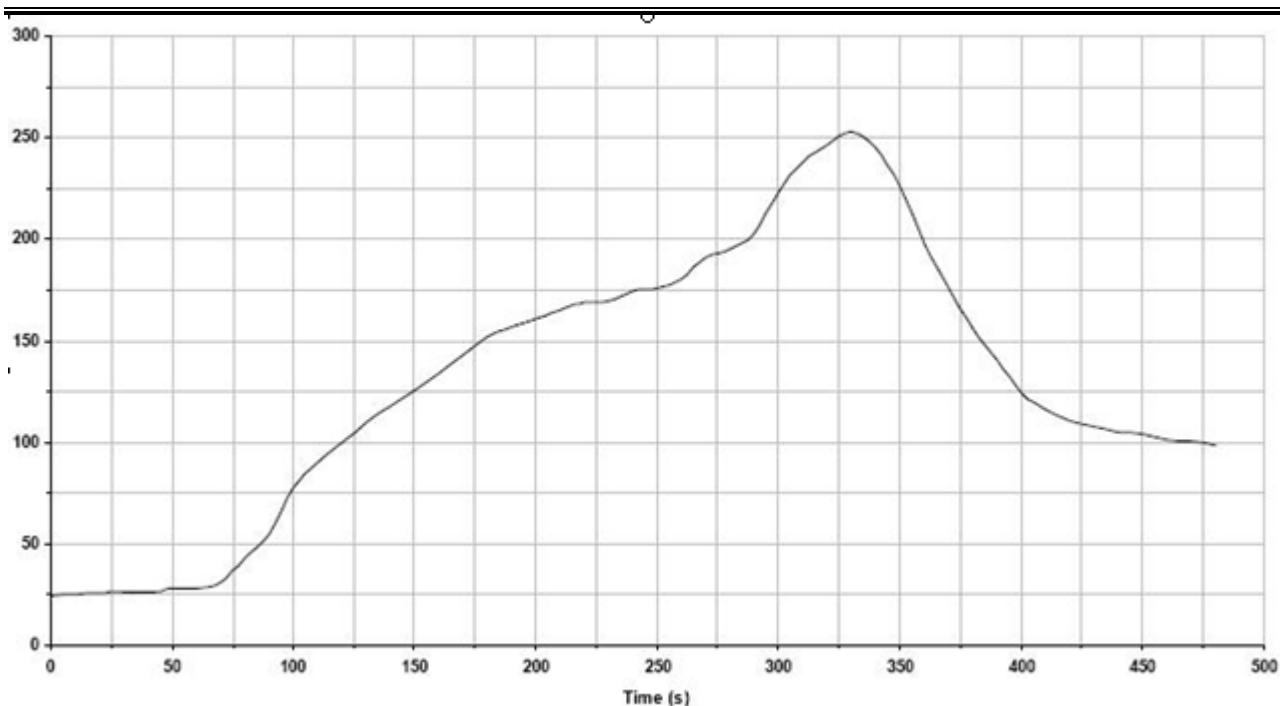


15	UART2_RXD	I/O	P1/UART2_RXD/I2C2_SDA
16	UART2_TXD	I/O	P0/UART2_TXD/I2C2_SCL
17	P4_ADC	I/O	GPIO4_ADC1
18	P9_PWM3	I/O	GPIO9_PWM3
19	P18/SD_D2/PWM4	I/O	GPIO18/SD_D2/PWM4
20	P19/SD_D3/PWM5	I/O	GPIO19/SD_D3/PWM5
21	GND	GND	GND

9. Note:

- A. Regarding the use environment of WIFI, wireless signals are easily affected by the surrounding environment, such as trees, metal and other obstacles will have a certain absorption of wireless signals, so that in practical applications, the distance of data transmission is affected to a certain extent.
- B. It is recommended not to install in a metal housing because of its shielding effect on radio frequency signals.
- C. PCB layout: because the metal will weaken the function of the antenna, when the module is laid, the floor and wiring are strictly prohibited under the module antenna, if it can be hollowed out better.

10. Recommended reflow temperature



Key features of the profile:

- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C

11. Application schematic diagram:

Reference schematic diagram for reference purposes only!

● End Product Labelling Compliance Information

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text: • Contains FCC ID:2BKIM-C-8031U • The FCC ID can be used only when all FCC compliance requirements are met.

● Information on Test Modes and Additional Testing Requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation or new FCC authorization. Host manufacturer installed this modular with single modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C, 15.209, 15.207 requirement, only if the test result comply with FCC part 15C, 15.209, 15.207 requirement, then the host can be sold legally.

● Additional testing, Part 15 Subpart B Disclaimer

This transmitter modular is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B rules requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rules requirements if applicable. As long as all conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this modular installed.

● 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. The host integrator must follow the integration instructions provided in this document and ensure that the composite system end product complies with the requirements by a technical assessment or evaluation to the rules and to KDB Publication 996369. The host integrator installing this module into their product must ensure that the final composite product complies with the requirements by a technical assessment or evaluation to the rules, including the transmitter operation and should refer to guidance in KDB Publication 996369. OEM/Host Manufacturer Responsibilities OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and RF Exposure essential requirements of the FCC rules.

● How to Make Changes - Important Note

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot 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

FCC Caution:

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.

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

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 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.

To maintain compliance with FCC 's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.