

JHY32-WROOM-32UModule

Datasheet

目录

Module Overview	2
Overview.....	2
Product Features	3
Subject of Application.....	3
Electrical Characteristics.....	3
Basic electrical parameters.....	3
Wi-FiRF Characteristics	4
Wi-Fi RF Standards.....	4
Receiver Characteristics.....	4
Current Consumption Depending on RF Modes.....	5
Pin Description	5
Strapping Pins	7
Reflow Profile	7
Physical Dimensions	9
FCC WARNING	10

Module Overview

Overview

JHY32-WROOM-32U is a universal Wi-Fi+BT+BLE MCU module, with the industry's competitive package size and ultra-low energy consumption technology, designed for mobile devices and Internet of Things applications, users can connect their physical devices to Wi-Fi and Bluetooth wireless network, network communication, networking functions .

Product Features

- ESP32-D0WD-V3 embedded, Xtensa® dual-core 32-bit LX6 microprocessor, up to 240 MHz
- Installed 8MB SPI FLASH And 520K SRAM
- Support 802.11 b/g/n
- Support Bluetooth V4.2 BR/EDR and Bluetooth LE specification
- Support Enrich Socket AT
- Support UART、SPI、IIC、SDIO、GPIO Interface
- Support OTA
- Low Power
- 3.3V Single Power

Subject of Application

- Smart Plug
- Home Automation
- Mest Net
- Smart light
- Baby monitor
- Sensor network
- Wireless Location Sensing Device
- Security ID tag
- Wireless Positioning System Signal

Electrical Characteristics

Basic electrical parameters

Symbol	Parameter	Min	Typ	Max	Typ
VDD33	Power supply voltage	3.0	3.3	3.6	V
I _{VDD}	Power supply current	0.5	-	-	A
T	Power supply temperature	-40	-	85	°C
Humidity	Humidity condition	—	85	—	%RH
C _{IN}	Pin capacitance	-	2	-	pF
V _{IH}	High-level input voltage	0.7	-	V _D	V
V _{IL}	Low-level input voltage	-	-	0.2	V
I _{IH}	High-level input current	-	-	50	nA
I _{IL}	Low-level input current	-	-	50	nA
V _{OH}	High-level output voltage	0.8	-	-	V
V _{OL}	Low-level output voltage	-	-	0.1	V

Wi-Fi RF Characteristics

Wi-Fi RF Standards

Name		Description
Center frequency range of operating channel		2412~2462MHz
Wi-Fi wireless standard		IEEE802.11b/g/n
antenna	20MHz	11b: 1,2,5.5,11Mbps 11g: 6,9,12,18,24,36,48,54Mbps 11n:MCS0-7,72.2Mbps(Max)
	40MHz	11n:MCS0-7,150Mbps(Max)

Receiver Characteristics

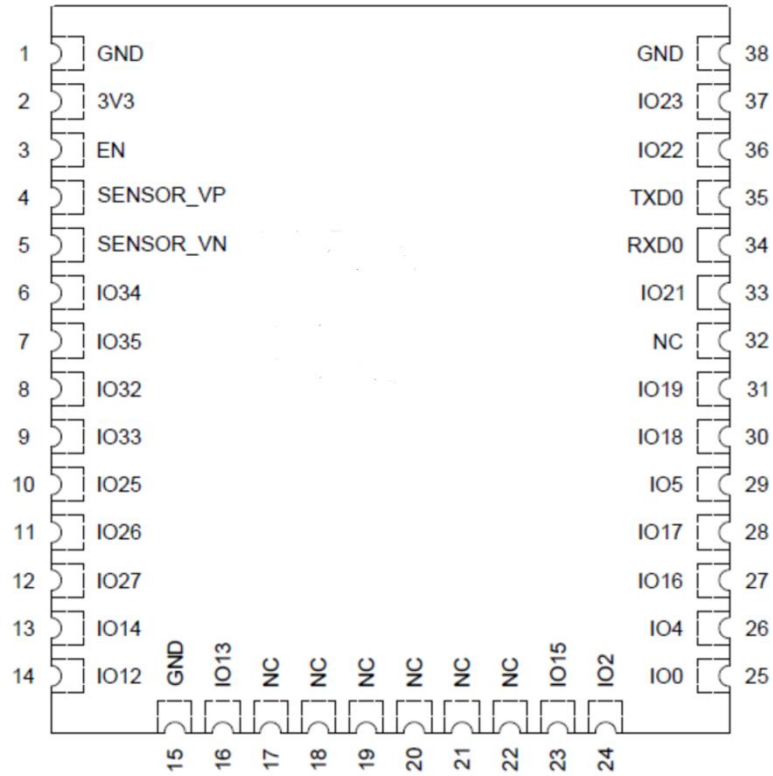
Parameter	Rate	Typ	Unit
RXSensitivity	1Mbps	-97	dBm
	2Mbps	-94	
	5.5Mbps	-92	
	11Mbps	-88	
	6Mbps	-93	
	9Mbps	-91	
	12Mbps	-89	
	18Mbps	-87	
	24Mbps	-84	
	36Mbps	-80	
	48Mbps	-77	
	54Mbps	-75	
	11n,HT20,MCS0	-92	
	11n,HT20,MCS1	-88	
	11n,HT20,MCS2	-86	
	11n,HT20,MCS3	-83	
	11n,HT20,MCS4	-80	
	11n,HT20,MCS5	-76	
	11n,HT20,MCS6	-74	
	11n,HT20,MCS7	-72	
11n,HT40,MCS0	-89		
11n,HT40,MCS1	-85		

	11n,HT40,MCS2	-83	
	11n,HT40,MCS3	-80	
	11n,HT40,MCS4	-76	
	11n,HT40,MCS5	-72	
	11n,HT40,MCS6	-71	
	11n,HT40,MCS7	-69	
RXMaximumInputLevel	11b,1Mbps	5	dBm
	11b,11Mbps	5	
	11g,6Mbps	0	
	11g,54Mbps	-8	
	11n,HT20,MCS0	0	
	11n,HT20,MCS7	-8	
	11n,HT40,MCS0	0	
AdjacentChannelRejection	11n,HT40,MCS7	-8	dB
	11b,11Mbps	35	
	11g,6Mbps	27	
	11g,54Mbps	13	
	11n,HT20,MCS0	27	
	11n,HT20,MCS7	12	
	11n, HT40, MCS0	16	
11n, HT40, MCS7	7		

Current Consumption Depending on RF Modes

Work mode	Description	Average (mA)	Peak (mA)	
Active (RF working)	TX	802.11b, 20MHz,1Mbps,@19.5dBm	239	379
		802.11g, 20MHz,54Mbps,@15dBm	190	276
		802.11n, 20MHz,MCS7,@13dBm	183	258
		802.11n, 40MHz,MCS7,@13dBm	165	211
	RX	802.11b/g/n	112	112
		802.11n, 40MHz	118	118

Pin Description



Name	No	Type	Function
GND	1	P	Ground
3V3	2	P	Power supply
EN	3	I	High: On; enables the chip Low: Off; the chip powers off Note: Do not leave the pin
SENSOR_VP	4	I	GPIO36,ADC1_CH0,RTC_GPIO0
SENSOR_VN	5	I	GPIO39,ADC1_CH3,RTC_GPIO3
IO34	6	I	GPIO34,ADC1_CH6,RTC_GPIO4
IO35	7	I	GPIO35,ADC1_CH7,RTC_GPIO5
IO32	8	I/O	GPIO32,XTAL_32K_P(32.768kHzcrystal oscillator input),ADC1_CH4,TOUCH9,
IO33	9	I/O	GPIO33,XTAL_32K_N(32.768kHzcrystal oscillator output),ADC1_CH5,TOUCH8,
IO25	10	I/O	GPIO25,DAC_1,ADC2_CH8,RTC_GPIO6,EMAC_RXD0
IO26	11	I/O	GPIO26,DAC_2,ADC2_CH9,RTC_GPIO7,EMAC_RXD1
IO27	12	I/O	GPIO27,ADC2_CH7,TOUCH7,RTC_GPIO17,EMAC_RX_DV
IO14	13	I/O	GPIO14,ADC2_CH6,TOUCH6,RTC_GPIO16,MTMS,HSPICLK, HS2_CLK,SD_CLK,EMAC_TXD2

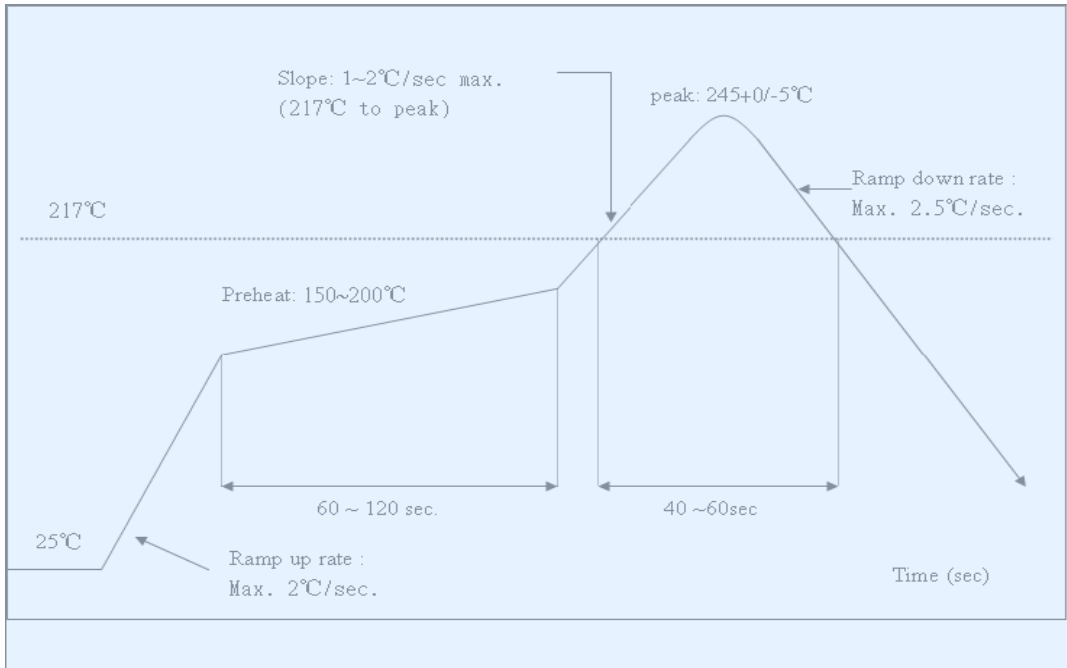
IO12	14	I/O	GPIO12,ADC2_CH5,TOUCH5,RTC_GPIO15,MTDI,HSPIQ, HS2_DATA2,SD_DATA2,EMAC_TXD3
GND	15	P	
IO13	16	I/O	GPIO13,ADC2_CH4,TOUCH4,RTC_GPIO14,MTCK,HSPID, HS2_DATA3,SD_DATA3,EMAC_RX_ER
NC	17	-	unusable
NC	18	-	unusable
NC	19	-	unusable
NC	20	-	unusable
NC	21	-	unusable
NC	22	-	unusable
IO15	23	I/O	GPIO15,ADC2_CH3,TOUCH3,MTDO,HSPICS0,RTC_GPIO13, HS2_CMD,SD_CMD,EMAC_RXD3
IO2	24	I/O	GPIO2,ADC2_CH2,TOUCH2,RTC_GPIO12,HSPIWP,HS2_DATA0, SD_DATA0
IO0	25	I/O	GPIO0,ADC2_CH1,TOUCH1,RTC_GPIO11,CLK_OUT1, EMAC_TX_CLK
IO4	26	I/O	GPIO4,ADC2_CH0,TOUCH0,RTC_GPIO10,HSPiHD,HS2_DATA1, SD_DATA1,EMAC_TX_ER
IO16	27	I/O	GPIO16,HS1_DATA4,U2RXD,EMAC_CLK_OUT
IO17	28	I/O	GPIO17,HS1_DATA5,U2TXD,EMAC_CLK_OUT_180
IO5	29	I/O	GPIO5,VSPICS0,HS1_DATA6,EMAC_RX_CLK
IO18	30	I/O	GPIO18,VSPICLK,HS1_DATA7
IO19	31	I/O	GPIO19,VSPIQ,U0CTS,EMAC_TXD0
IO21	33	I/O	GPIO21,VSPIHD,EMAC_TX_EN
RXD0	34	I/O	GPIO3,U0RXD,CLK_OUT2
TXD0	35	I/O	GPIO1,U0TXD, CLK_OUT3,EMAC_RXD2
IO22	36	I/O	GPIO22,VSPIWP,U0RTS,EMAC_TXD1
IO23	37	I/O	GPIO23, VSPID, HS1_STROBE
GND	38	P	Ground

Strapping Pins

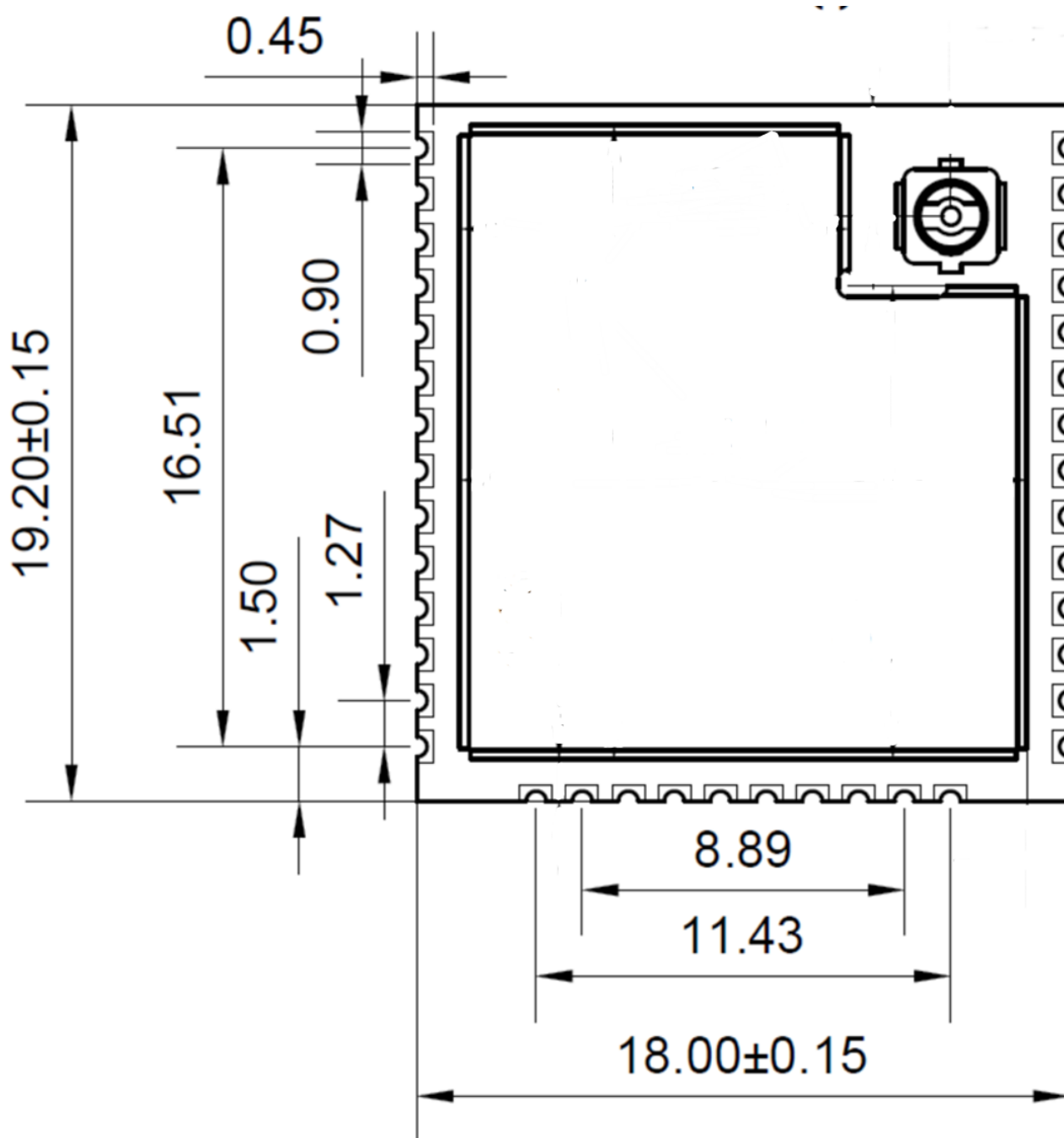
Pin	Default	SPI Boot	Download Boot
GPIO0	Pull-up	1	0
GPIO2	Pull-up	Don't-care	0

Reflow Profile

Refer to IPC/JEDEC standard; Peak Temperature : <250°C; Number of Times: ≤2 times;



Physical Dimensions



FCC WARNING

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

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Radiation Exposure Statement:

This equipment complies with FCC 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.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.

The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following:

“Contains Transmitter Module 2A3E4-JHY32U”

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCC rules

This module operates on the 2400-2483.5MHz band, and is within U.S. FCC part 15.247 standard.

2.3 Specific operational use conditions

Operating Frequency 2402MHz~2480MHz

JHY32-WROOM-32U is a universal Wi-Fi+BT+BLE MCU module, with the industry's competitive package size and ultra-low energy consumption technology, designed for mobile devices and Internet of Things applications, users can connect their physical devices to Wi-Fi and Bluetooth wireless network, network communication, networking functions. To maintain compliance with FCC RF exposure requirements, Please use the antenna provided with the product.

2.4 Limited module procedures

not applicable .Please refer to the manual for usage scenarios Single Modular Approval Request

2.5 Trace antenna designs

not applicable .without trace antenna

2.6 RF exposure considerations

RF exposure requirements are fulfilled for mobile configuration.

This equipment should be installed and operated with minimum distance between 20cm the radiator your body

The installation of the module is restricted to mobile host devices

For portable applications OEM integrators need SAR evaluation and an own FCC ID.

2.7 Antennas

The module comes with permanently attached antennas. The spurious emission requirements are fulfilled (see attached test report).

Antenna Type Rod Antenna

Antenna Gain 2 dBi

2.8 Label and compliance information

See Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748.

host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID 2A3E4-JHY32U ” with their finished product

2.9 Information on test modes and additional testing requirements

The test mode in the report is the module's maximum transmitting power emission for testing

Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

2.10 Additional testing, Part 15 Subpart B disclaimer

the modular transmitter is only FCC authorized for the specific rule parts (FCC Part15.247) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.