BDTM3321

Wi-Fi (IoT) Module Data Sheet

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Revision History

Date	Version	Description	Author
2015-09-04	V1.0	n First release	

CONTENT

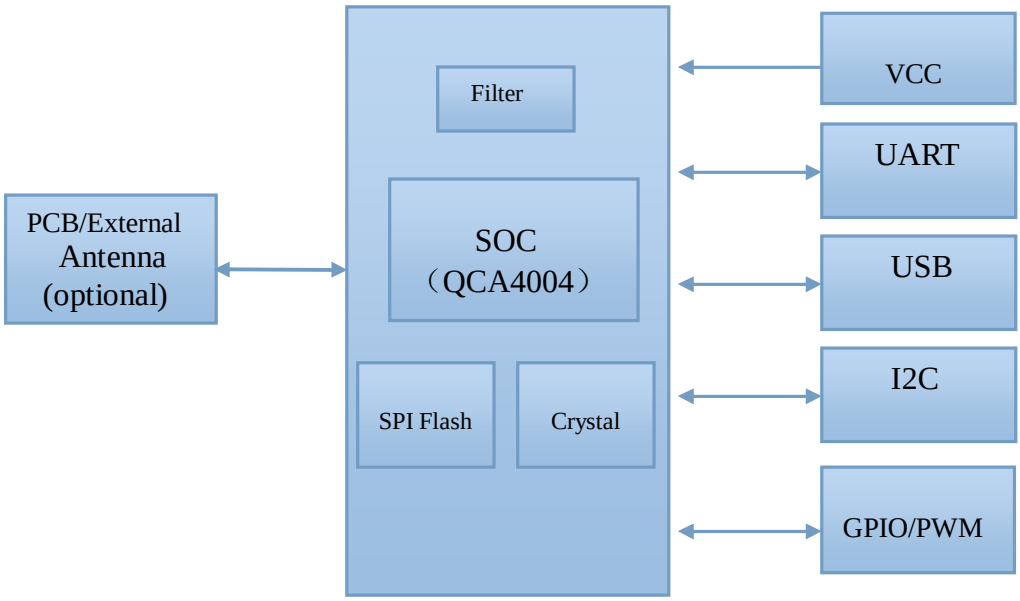
1. INTRODUCTION

The BDTM3321 Wi-Fi module is an intelligent platform for the Internet of Everything that contains a low-power Wi-Fi connectivity solution. It includes a number of TCP/IP-based connectivity protocols along with SSL, enabling a low-cost, low-complexity system to obtain full-featured internet connectivity and reliable information exchange.A UART-based host interface can be used for rapid development and deployment of simple data streams between the local device and the internet cloud.It is available for applications that require more advanced connectivity to the network.The module Wi-Fi link is a full-featured, dual-band, single stream 802.11n solution. The Wi-Fi link is highly integrated, and includes an energy efficient on-board power amplifier and LNA.For the 2.4 GHz band, RF switches are also integrated.The module Wi-Fi link is optimized for low system cost, and minimizes the number and cost of any components required to achieve a reliable Wi-Fi link. It has an integrated network processor with a large set of TCP/IP with IPv4/IPv6 based services.

The BDTM3321 Wi-Fi module includes a network processor that provides IP services and manages Wi-Fi link operations. The network processor code is loaded automatically from a ROM and an off-chip serial flash memory. The flash memory is also used to store system configuration and persistent data sets. The network processor is optimized for energy efficient communications and includes multiple power states Customers can use the integrated network processor to implement application-specific solutions. This customized code is stored on an off-chip serial flash.

The detail information of BDTM3321 module is presented in this document below.

1.1 Block Diagram



1.2 Features

- ü IEEE 802.11b/g/n, Single Stream 1x1
- ü Support 2.4 GHz (Support customize PCBA for 5GHz option)
- ü Integrated PA, LNA
- ü Low power listen mode
- ü Data rates up to 150 Mbps
- ü Full security support: WPS, WPA, WPA2, WAPI, WEP, TKIP
- ü Highly-Integrated Wi-Fi solution incorporating a single crystal, antenna, and the matching components required to complete the RF link.
- ü Integrated IPv4/IPv6 TCP/IP Stack
- ü Integrated Network services such as HTTP, DNS, FTP
- ü Patch firmware is stored and automatically loaded from a low cost serial flash memory
- ü Providing a simplified, high-speed, and scalable manufacturing test and configuration interface for QCA4004-based systems, using an integrated controller and PHY
- ü UART host interfaces allow simple interfacing to microcontrollers
- ü UART with an AT style command set
- ü Support Work As STA/AP/AP+STA/Wi-Fi Direct Mode
- ü Support Smart Link Function (APP for smart configuration)
- ü Support Wireless (OTA) and Remote Firmware Upgrade Function
- ü Support Wakeup-on-Wireless and Wakeup Local
- ü Support PCB/External Antenna Option
- ü Internal 4MB Flash Inside
- ü Single +3.3V Power Supply
- ü Smallest Size:

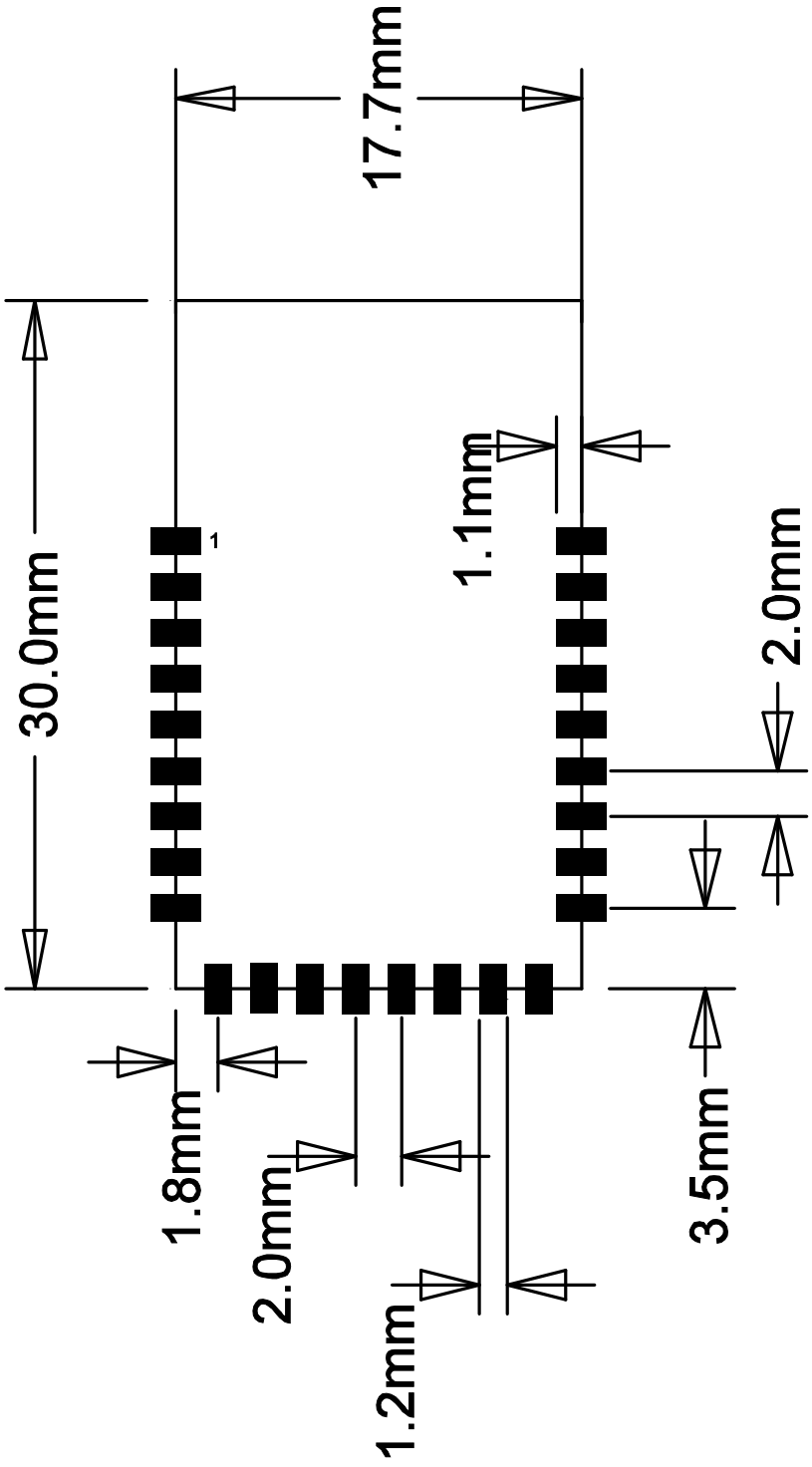
1.3 Application

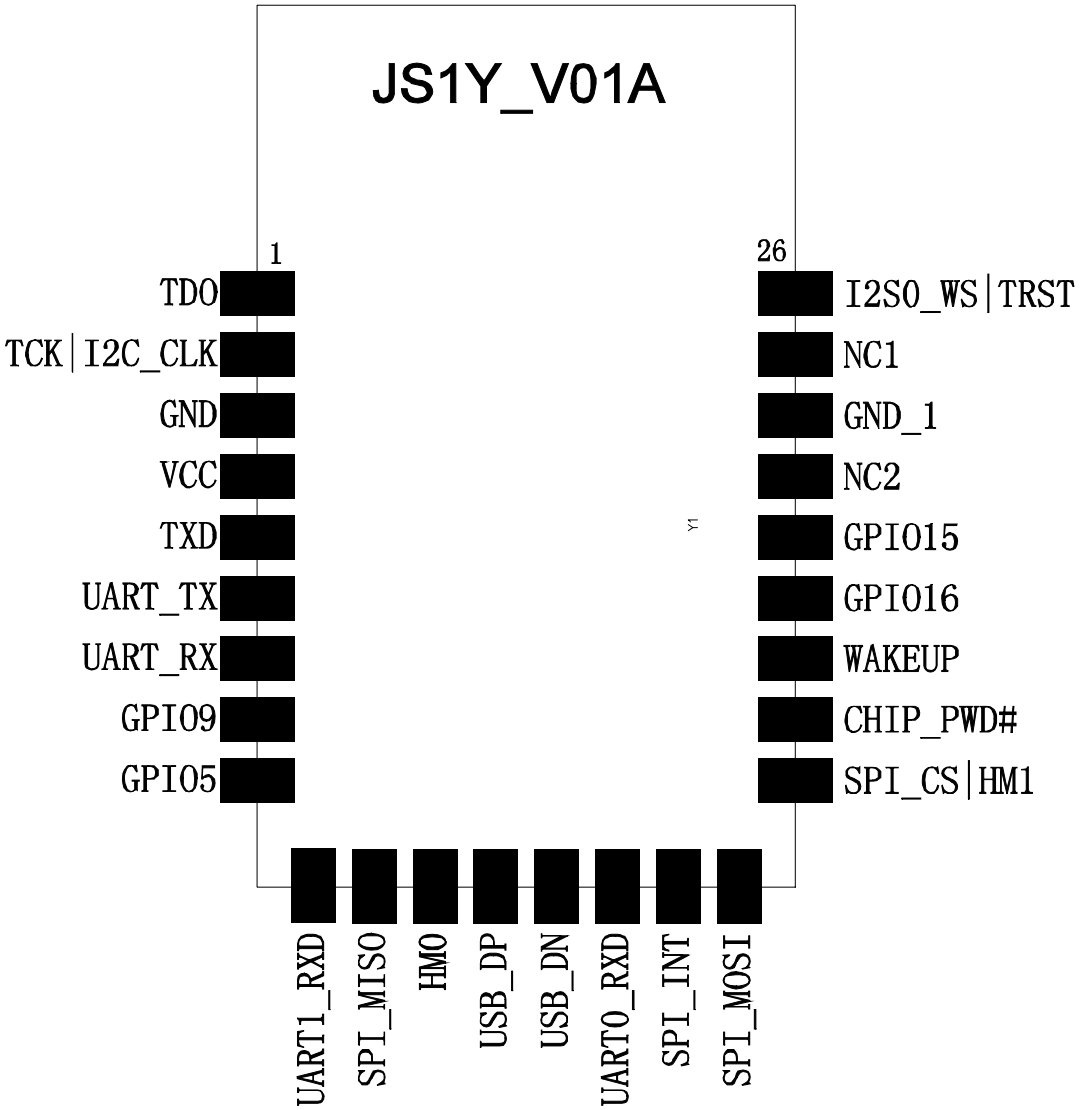
- Remote equipment monitoring
- Smart Home/Energy
- Industrial sensors and controls
- Home automation
- Medical/Healthcare devices
- Gateways

2. GENERAL SPECIFICATION

Bluetooth Specification	
Standard	IEEE 802.11n/g/b, 1x1 SISO 2.4GHz and HT20
Interface Bus	USB,UART,I2C,GPIO,PWM…..
Frequency Band	2.412～2.484GHz
Channel No.	1-13Channel
Modulation Type	802.11 g/n: OFDM
	802.11b:CCK(11,5.5Mbps)
Transmit Power	802.11b: +16 +/-2dBm (@11Mbps)
	802.11g: +14 +/-2dBm (@54Mbps)
	802.11n: +12 +/-2dBm (@HT20)
Receiver Sensitivity	802.11b: -91 dBm (@11Mbps ,CCK)
	802.11g: -84 dBm (@54Mbps, OFDM)
	802.11n: -81 dBm (@HT20, MCS7)
RF Input Impedance	50 ohms
Network Type	STA /AP/STA+AP/Wi-Fi Direct
Security Mechanisms	WEP/WPA-PSK/WPA2-PSK
Encryption	WEP64/WEP128/TKIP/AES
Network Protocol	IPv4/IPv6,TCP/UDP/FTP/HTTP/DHCP,FTTPS,TLS/SSL, mDNS
User Configuration	AT+instruction set, Web page/ Android/ iOS Smart Link APP tools
Operating Voltage	3.3V
Operating Current	Peak [Continuous TX]: ~190mA Normal [WiFi ON/OFF, DTIM=100ms]: AP Associate: ~20mA;No-AP Associate:~21mA Wake up-on-Wireless Mode: ~10mA Deep sleep: <100uA
Environment	Operating temperature: -20℃ ~ 70℃
	Storage temperature: -55℃ ~ 125℃

3. PHYSICAL CHARACTERISTIC




JS1Y_V01A
1
TDO
TCK|I2C_CLK
GND
VCC
TXD
UART_TX
UART_RX
GPIO9
GPIO5
26
I2S0_WS|TRST
NC1
GND_1
NC2
GPIO15
GPIO16
WAKEUP
CHIP_PWD#
SPI_CS|HM1
UART1_RXD
SPI_MISO
HM0
USB_DP
USB_DN
UART0_RXD
SPI_INT
SPI_MOSI
Y1

3.1 Pin Description

Pin#	Pin Name	Pad Type	Description
1	TDO	I/O	General purpose input/output.
2	TCK|I2C_CLK	I/O	General purpose input/output. Alternate Function GPIO12
3	GND	Ground	Ground
4	VCC	Power supply	+3.3V
5	TXD	I/O	UART_TX for Debug Alternate Function GPIO11
6	UART_TX	I/O	UART_TX for external MCU Alternate Function GPIO7
7	UART_RX	I/O	UART_RX for external MCU Alternate Function GPIO8
8	PIO9	I/O	General purpose input/output.
9	PIO5	I/O	General purpose input/output.
10	UART1_RXD	I/O	General purpose input/output. Alternate Function GPIO10
11	SPI_MISO	I/O	General purpose input/output. Alternate Function GPIO4
12	HM0	I/O	General purpose input/output. Alternate Function GPIO2
13	USB_DP	IA/OA	USB D+ signal
14	USB_DN	IA/OA	USB D- signal
15	UART0_RXD	I/O	General purpose input/output. Alternate Function GPIO6
16	SPI_INT	I/O	General purpose input/output. Alternate Function GPIO3
17	SPI_MOSI	I/O	General purpose input/output. Alternate Function GPIO1
18	SPI_CS|HM1	I/O	General purpose input/output. Alternate Function GPIO0
19	CHIP_PWD#	I	Chip power-down control
20	WAKEUP	I	Wakeup control
21	GPIO16	I/O	General purpose input/output.
22	GPIO15	I/O	General purpose input/output.
23	NC2	NC	NC
24	GND_1	Ground	Ground
25	NC1	NC	NC
26	I2S0_WS|TRST	I/O	General purpose input/output. Alternate Function GPIO21

4.ELECTRICAL AND THERMAL CHARACTERISTIC

4.1 Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit
DVDD	…	3.3	3.6	V
VIO	…	3.3	3.6	V
Storage Temperature	-55		+125	°C
Operating Temperature	-20		+70	°C

4.2 Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
DVDD	3.0	3.3	3.6	V
VIO	2.97	3.3	3.63	V
Operating Temperature	-20		+70	°C

4.3 DC Characteristic

Rating	Min	Typ	Max	Unit
VCC	3.13	3.30	3.46	V
3.3V Rating Current TX		190		mA
3.3V Rating Current RX		150		mA

5.WLAN Radio Specifications

5.1 Receive Mode

Parameter	Condition	Min	Typ	Max	Unit
RF frequency range	2.4GHz---IEEE 802.11b/g/n	2412		2484	MHz
Rx Sensitivity at chip output	2.4GHz---IEEE 802.11b/g/n		-80		dBm

5.2 Transmit Mode

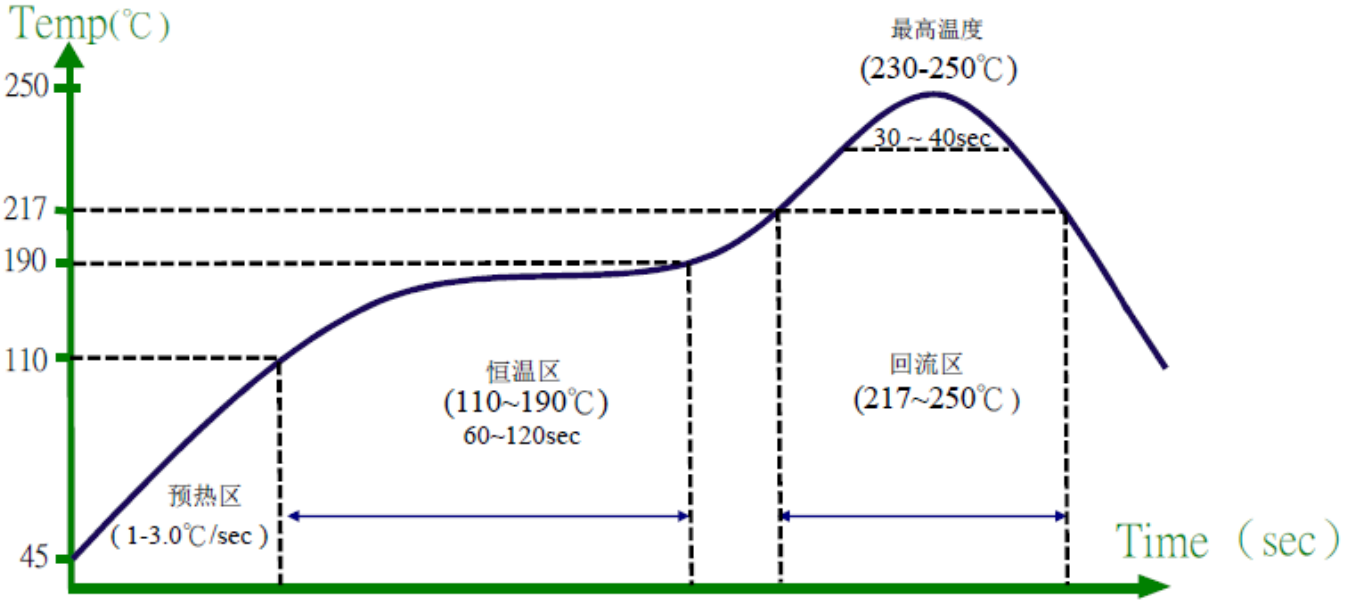
Parameter	Condition	Min	Typ	Max	Unit
RF frequency range	2.4 GHz---IEEE 802.11n/g/b	2412		2484	MHz
Tx output power at chip output	2.4 GHz---IEEE 802.11n/g/b		19		dBm

5.3 Synthesizer Characteristics

Parameter	Condition	Min	Typ	Max	Unit
Center channel frequency	Center frequency at 5 MHz spacing	2412	-	2484	MHz
Reference oscillator frequency	+/- 20ppm	-	40	-	MHz
Frequency step size (at RF)	----	-	1	-	MHz

6. REFLOW PROFILE

Reflow number of times: ≤ 2times



温度范围与要求

1. 预热区:60-90℃以下,升温率1 - 3.0℃/sec
2. 恒温区: 110-190℃时间为 60 - 120sec
3. 217℃以上: 30 - 90sec
4. 230℃ - 250℃ 时间为 30 -40sec
5. 最高温度: 230℃ - 250℃.

7. PACKAGING INFORMATION

Wi-Fi (IoT) Module: BDTM3321 （with shielding cover）