BDTM1321

Wi-Fi Audio Module Data Sheet

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Date	Version	Description	Author
2015-09-23	V1.0	**n** First Release	
2015-12-28	V1.01	**n** Add module size and pin description detail	

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1. INTRODUCTION

The Wireless Audio Product delivers an hardware (BDTM1321 Wi-Fi module), software and service solution (uPlay/uFind) to device manufacturers who want their customers to play their digital music from their phone, from the cloud and remotely from their homes, to easily stream that content to branded players in the home over any Wi-Fi network, or anywhere in the world.

The Wireless Audio platform offers

- The turnkey BDTM1321 Module delivers a complete whole-home audio solution for embedded audio devices and adapters.
- Smartphone SDK for Android and iOS for accessing and controlling connected devices.

uPlay: The engine software agent on device is fully DLNA-compliant and Airplay-compliant. It sets up streams as commanded from the handset controller app, such as QQ music, Baidu Music,
KuGou Music, and other stream audio player. The uPlay engine operates as the primary controller and manages the connection between the source and sink.
uFind: The engine software agent on device manages service providing , and provides the interface of configuration, such as party mode configuration, audio channel configuration, and etc.
uFind Controller. The controller application is most commonly run from a smart phone or tablet, running Android or iOS. It automatically connects the uFind engine on devices.

The BDTM1321 Module is a cost-effective, turnkey hardware and software solution designed to deliver whole home audio features and functionality to the consumer electronics industry. The features:

- Connectivity Hardware:

Based on industry-leading Qualcomm Atheros, Inc. Wi-Fi® technology, the BDTM 1321 is a cost-effective, audio module designed to deliver an end-to-end whole-home audio technology package to the consumer electronics industry.

- Dual-band Capability:

Two Stream Channels

1.2 Features

- ü UPnP/DLNA
- ü Airplay
- ü Remote control protocol
- ü Audio channel control
- ü Party Mode – Multi-device audio synchronization
  Multi Device controls and synchronizes audio (Party Mode) throughout the home across multiple uPlay/uFind-powered speakers and audio devices.
- ü Audio Format Support: MP3 (up to 320KHz sampling), AAC, APE, OGG, WAV, FLAC, ALAC
- ü User-configurable friendly device name
- ü App-controlled firmware updates
- ü Fetch/stream popular Internet audio Channels:
  QQ Music, Baidu Music, KuGou Music, and other stream player.
- ü Controller apps for Android 2.2 and later, and iOS 7 and later

※ ***Some features are optional for customization on demand.***

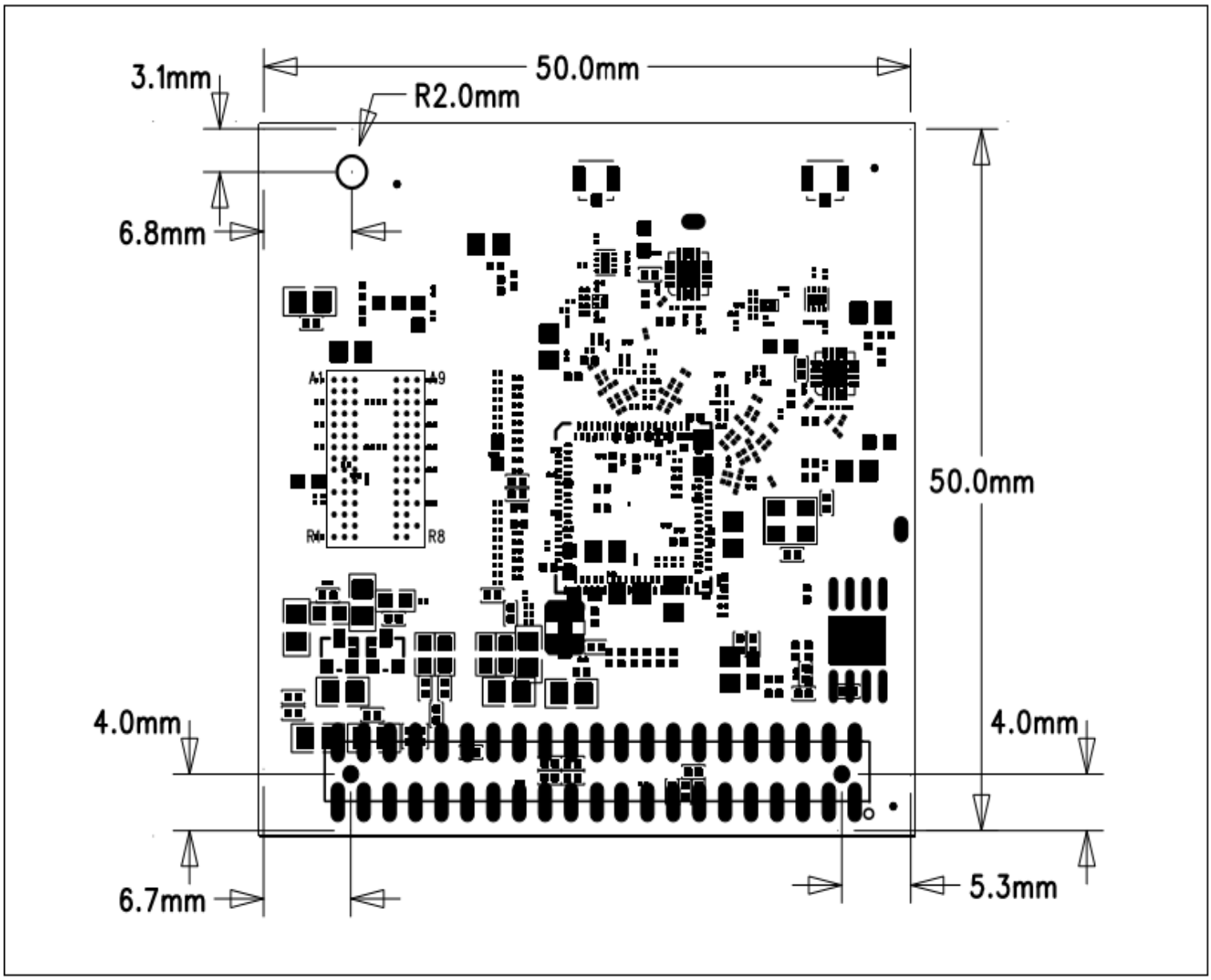
1.3 Application

- ü Wi-Fi speakers
- ü Home automation
- ü Home audio system
- ü IoT for home smart

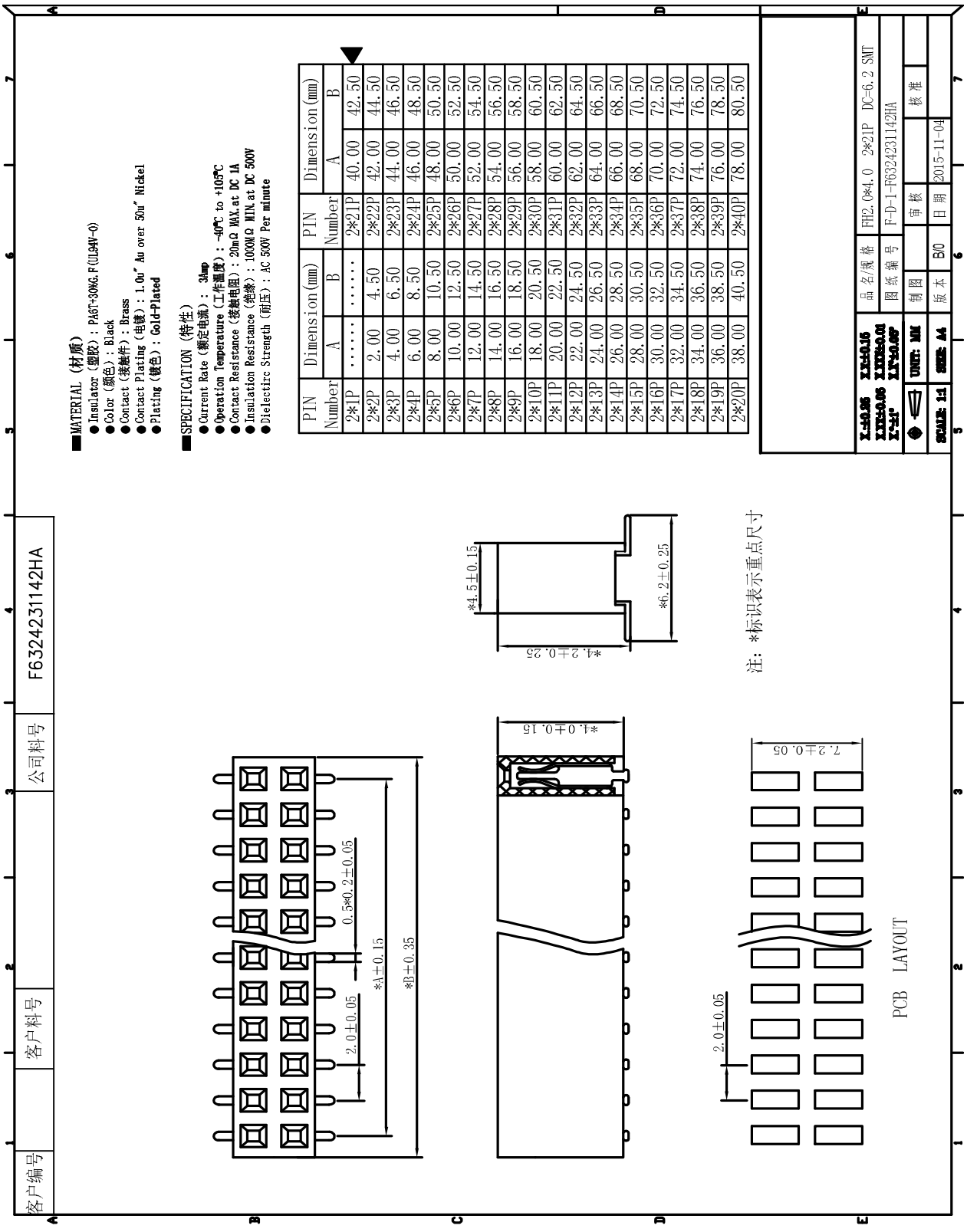
2. GENERAL SPECIFICATION

Bluetooth Specification	
Standard	IEEE 802.11a/b/g/n
Frequency band	5GHz / 2.4GHz
CPU	MIPS 74Kc core, 560MHz
RAM	16-bit DDR2 (512Mbit)
Flash memory	SPI NOR Flash (128Mbit)
Interface	I2S/I2C/UART/SPI/SPDIF
OS	Linux
RF Input Impedance	50 ohms
Operating Voltage	3.3V
Environment	Operating temperature: -20℃ ~ 70℃
	Storage temperature: -55℃ ~ 125℃

3. PHYSICAL CHARACTERISTIC



Recommended pin socket for Wi-Fi module



3.1 PIN DEFINITION

Pin#	Pin Name	Pad Type	Description
1	Ground	-	Ground
2	Ground	-	Ground
3	I2S_DIN	I	I2S to enable audio input
4	GPIO0/JTAG_TCK	I	General GPIO 2.5v TTL,JTAG clock
5	I2S_DOUT	O	I2S to enable audio output
6	GPIO1/JTAG_TDI	I	General GPIO 2.5v TTL,JTAG data input
7	I2S_LRCLK	O	I2S to enable LRClock
8	GPIO2/JTAG_TDO/SPDIF	O	General GPIO 2.5v TTL,JTAG data output
9	I2S_BCLK	O	I2S to enable BCLK
10	GPIO3/JTAG_TMS	I	General GPIO 2.5v TTL,JTAG mode select
11	I2S_MCLK	O	I2S to enable MCLK
12	Reset	I	Reset if low,input debounce so must be low for >5ms to cause a reset
13	SPI_CS1	O	SPI chip select: if no use,could be general GPIO.
14	GPIO9/UART_RXD	I	UART data in,2.5v TTL
15	SPI_CLK	O	SPI serial interface clock
16	GPIO10/UART_TXD	O	UART data out,2.5v TTL
17	SPI_MOSI	O	Data transmission from the module to an external device.If not used,can be used as GPIO.
18	SPI_MISO	I	Data transmission from an external device to the Module.If not used,can be used as GPIO.
19	I2C_SCK	I/O	Pull-up to 3.3v in mother board
20	I2C_SDA	I/O	Pull-up to 3.3v in mother board
21	USB_DN	I/O	USB D- signal,carries USB data to and from USB2.0
22	USB_DP	I/O	USB D+ signal,carries USB data to and from USB2.0

23	Ground	-	Ground
24	Ground	-	Ground
25	EMDC	-	MDIO interface,which is to connect external PHY to control
26	EMDIO		
27	RGMII_TXEN	-	RGMII interface,which is to connect external PHY to enable Ethernet
28	RGMII_RXEN		
29	RGMII_GTXCLK		
30	RGMII_GRXCLK		
31	RGMII_TXD0		
32	RGMII_RXD0		
33	RGMII_TXD1		
34	RGMII_RXD1		
35	RGMII_TXD2		
36	RGMII_RXD2		
37	RGMII_TXD3		
38	RGMII_RXD3		
39	Ground	-	Ground
40	Ground	-	Ground
41	+3.3V Power	I	Power supplay: +3.3V
42	+3.3V Power	I	Power supplay: +3.3V

4.ELECTRICAL AND THERMAL CHARACTERISTIC

4.1 Absolute Maximum Ratings

Parameter	Min	Typ	Max	Unit
+3.3V	..	3.3	4.0	V
Storage Temperature	-55		+125	°C
Operating Temperature	-40		+85	°C

4.2 Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
+3.3V	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		220		mA
+3.3V Rating Current RX		208		mA

5. PACKAGING INFORMATION

Wi-Fi Audio Module: BDTM1321

Size: 50.8mm * 50.8mm * 9mm