BL-R8723BT1
Product Specification
WiFi & BT Combo Module

Version: 0.1

Customer			
Date			
Model Name	**BL-R8723BT1**		
Part NO.			
Blink Approve Field			
ENGINEER	**QC**	**SALES**	
Customer Approve Field			
ENGINEER	**QC**	**MANUFACTORY**	**PURCHASING**

1. General Description

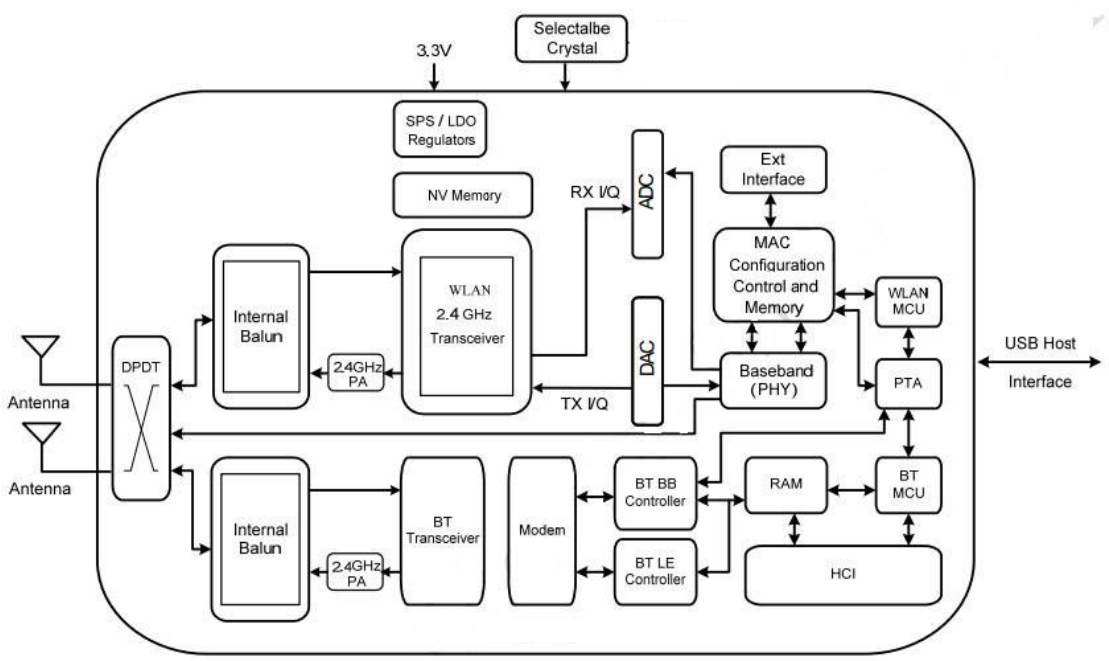
BL-R8723BT1 is a highly integrated single-chip 802.11n Wireless LAN (WLAN)USB 2.0Multi-Function network interface controller with integratedBluetooth 2.1/3.0/4.0 controller. It combines a WLAN MAC, a 1T1R capableWLAN baseband, and RF in s single chip. The RTL8723BU provides a completesolution for a high-performance integrated wireless and Bluetooth device.The integration provides better coordination between 802.11 andBluetooth, and with sophisticated dynamic power control and packet trafficarbitration, RTL8723BU is able to provide the best coexistence performanceOverview.

2. The range of applying

MID, networking camera, STB, GPS, Desk-Top Pc ;Note-book ;TV; Blue-ray Disk; Set-top box, Hard disk player, Network Radios, PSP and other device which need be supported by wireless networking.

3. Product Specification

3.1 Function Block diagram



3.2 Electrical and Performance Specification

Item	Description
Product Name	BL-R8723BT1
Major Chipset	RTL8273BU
Host Interface	USB2.0
Standard	WiFi: EEE 802.11b, IEEE 802.11g, IEEE 802.11n B T: V2.1+EDR/BT v3.0/BT v3.0+HS/BT v4.0
Frequency Range	2.4GHz~2.4835GHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g: 64 QAM, 16 QAM, QPSK, BPSK 802.11n: 64 QAM, 16 QAM, QPSK, BPSK B T: 8DPSK, π/4 DQPSK, GFSK
Working Mode	Infrastructure, Ad-Hoc
Data Transfer Rate	Wifi：802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: MCS 0 to 7 for HT20MHz ;MCS 0 to 7 for HT40MHz B T: 1 Mbps for Basic Rate 2,3 Mbps for Enhanced Data Rate
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing) BT：FHSS(Frequency-Hopping Spread Spectrum)
Sensitivity @PER	WiFi: 1M: -92dBm@8%PER 6M: -89dBm@10%PER 11M:-86dBm@8%PER 54M:-73dBm@10%PER 135M:-67dBm@10%PER B T: -89dBm@1Mbps, -85dBm@2Mbps, -83dBm@3Mbps
RF Power	16dBm@11b, 14dBm@11g ,13dBm@11n BT: MAX +10dBm
Antenna type	Connect to the external antenna through the half hole
The transmit distance	WiFi: Indoor 100M, Outdoor 300M, according the local environment BT: 10m MAX.
Dimension(L*W*H)	12*13.4*0.6mm (LxWxH) ;Tolerance: +-0.2mm
Power supply	3.3V +/-0.3V
Power Consumption	standby mode 95mA@3.3V , TX mode 190mA@3.3V
Clock source	40MHz
Working Temperature	0°C to +70°C
Storage temperature	-55°C to +125°C

3.3 DC Characteristic

Terms	**Contents**			
Specification : IEEE802.11b				
Mode	DSSS / CCK			
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5,11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	225	235	255	mA
Rxmode	134	135	135	mA
Sleepmode	95	96	97	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412- 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	190	225	290	mA
Rxmode	133	135	135	mA
Sleepmode	95	96	97	mA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412- 2484MHz			
Data rate	6.5,13, 19.5,26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	185	245	287	mA
Rxmode	133	134	135	mA
Sleepmode	95	96	97	mA

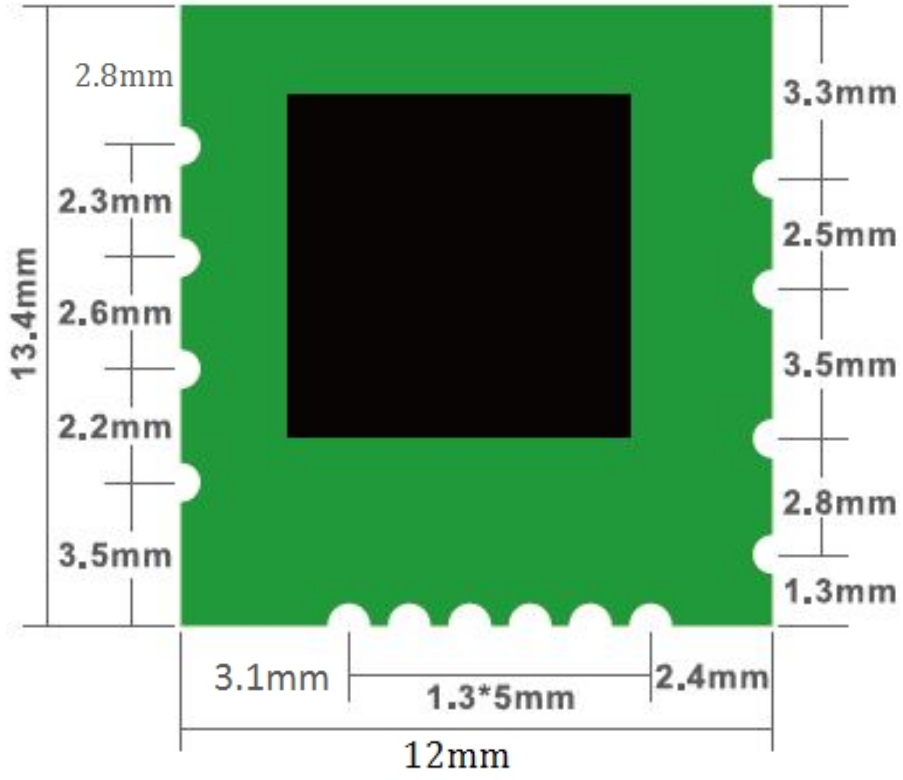
3.4 RF Characteristic

Mode	**Rate(Mbps)**	**Power(dBm)**			**EVM(dB)**			**Sensitivity(dBm)**		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	16.9	16.7	16.84	-24.23	-23.88	-23.69	-92	-92	-92
	11	17.2	16.95	16.89	-23.4	-24.13	-23.59	-85	-85	-85
11g	6	14.5	14.26	14.35	-28.7	-28.96	-28.54	-86	-86	-86
	54	14.2	14.13	14.69	-28.4	-28.58	-29.5	-71	-71	-71
11n HT20	MCS0	13.6	13.5	13.7	-28.7	-29.3	-28.6	-84	-84	-84
	MCS7	13.7	13.5	13.6	-28.3	-28.5	-29.2	-66	-66	-66
11n HT40	MCS0	13.8	13.9	13.4	-28.4	-28.9	-29.5	-85	-85	-85
	MCS7	13.2	13.5	13.8	-28.7	-29.5	-28.5	-66	-66	-66

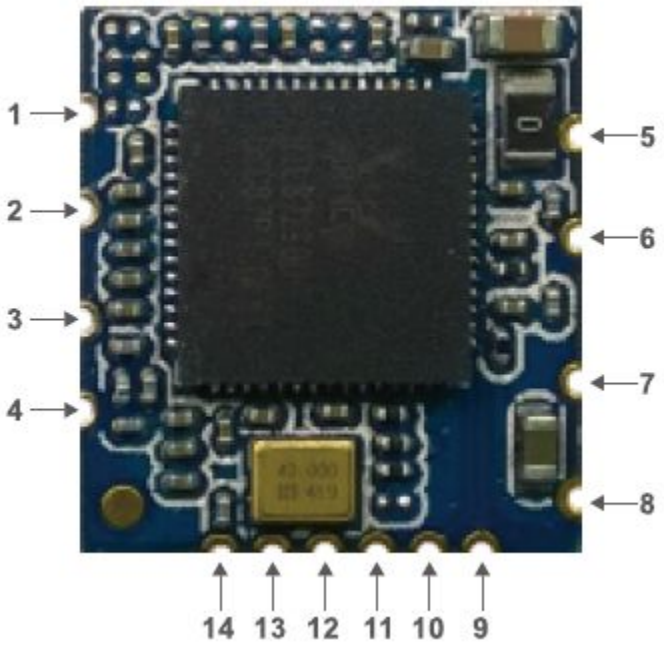
3.5 Product Photo



3.6 Mechanical Specification



3.7 Product Pin Definition



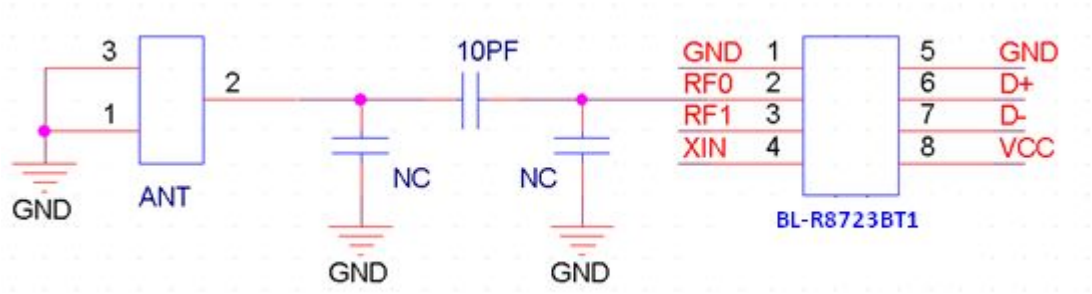
Pin No:	Function	Description
1	GND	Ground
2	RF0	WLAN/BT RF TX/RX signal0
3	RF1	WLAN/BT RF TX/RX signal port 1
4	XIN	40MHz crystal reference clock input
5	GND	Ground
6	D+	High-Speed USB D+ Signal
7	D-	High-Speed USB D- Signal
8	VCC33	VDD3.3V for Digital IO
9	SUSPEND	Host wakeup pin
10	WO_WLAN	Host wakeup pin
11	BT_PCM_CLK	PCM clock
12	BT_PCM_SYNC	PCM sync
13	BT_PCM_OUT	PCM output
14	BT_PCM_IN	PCM input

4. Supported platform

Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7/WIN8	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable

5. Peripheral Schematic Reference Design

WiFi RF Circuit reference pictures



Note: 1.Pls reserve a “pi” circuit for antenna matching.

2. The RF circuit needs to keep 50 Ωimpedance.
3. The USB differential pair needs to keep 90 Ωimpedance.
4. Keep RF1 and XIN NC, WiFi and BT use same antenna RF0.

Environmental Requirements and Specifications TP Content

1 Temperature

1.1 Operating Temperature Conditions

The product shall be capable of continuous reliable operation when operating in ambient temperature of -10℃ to +70℃.

1.2 Non-Operating Temperature Conditions

Neither subassemblies shall be damaged nor shall the operational performance be degraded when restored to the operating temperature when exposed to storage temperature in the range of -45℃ to +135℃.

2 PCB Bending

The PCB bending spec shall be keep planeness under 0.1mm for both NATER and end assembly customer.

3 Handling environment

3.1. ESD

Symbol	Ratings	Max	Unit
V_{ESD}(HBM)	Electrostatic discharge voltage (human body model)	2000	V
V_{ESD}(CDM)	Electrostatic discharge voltage (charge device model)	500	

Please handle it under ESD protection environment.

3.2. Terminals

The product is mounted with motherboard through half hole. In order to prevent poor soldering, please do not touch the pad by hand.

3.3. Falling

It will cause damage on the mounted components when the product is falling or receiving drop shock. It may cause the product mal-function.

4 Storage Condition

4.1 Moisture barrier bag before opened

Moisture barrier bag must be stored under 30 degree C, humidity under 85% RH. The calculated shelf life for the dry packed product shall be a 12 months from the bag seal date.

4.2. Moisture barrier bag open

Humidity indicator cards must be blue, <30%.

5 Baking Condition

Products require baking before mounting if

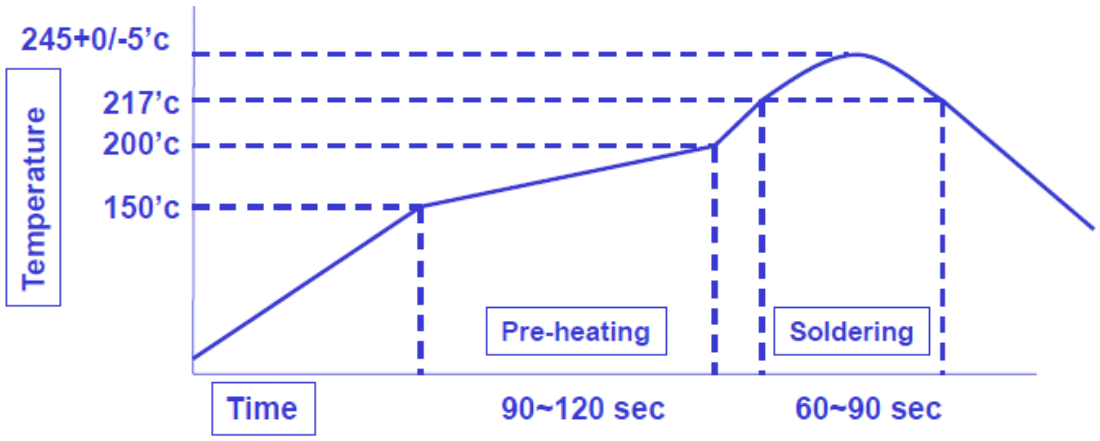
a) humidity indicator cards reads >30%

b) temp <30 degree C, humidity < 70% RH, over 96 hours

Baking condition: 90 degree C, 12-24 hours

Baking times: 1 time

6 Soldering and reflow condition



- Follow the solder paste composition to set the reflow profile
- Lead free solder paste(SAC305, SAC387 or SAC405) reflow profile setting as above :
  - Ramp up rate (to Peak temp) : < 1.2'c/sec, typically
  - Time above Liquidus(217'C) : 60~90Sec
  - Peak Temp : 245+0/-5'C
  - Ramp-down rate (Peak to RT) : 1~3'C/sec, typically