1. General Description

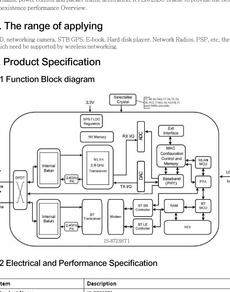
IS-8723BT1 is a highly integrated single-chip 802.11n Wireless LAN (WLAN) USB 2.0 Multi-Function network interface controller with integrated Bluetooth 2.1/3.0/4.0 controller. It combines a WLAN MAC, a 1T1R capable WLAN baseband, and RF in a single chip. The RTL8723BU provides a complete solution for a high-performance integrated wireless and Bluetooth device. The integration provides better coordination between 802.11 and Bluetooth, and with sophisticated dynamic power control and packet traffic arbitration, RTL8723BU is able to provide the best coexistence performance Overview.

2. The range of applying

MID, networking camera, STB GPS, E-book, Hard disk player, Network Radios, PSP, etc, the 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	IS-8723BT1
Major Chipset	RTL8723BU
Host Interface	USB2.0

Standard	WiFi: IEEE 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~2.483GHz
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: BDPSK, 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	Wi Fi: 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.
Product Dimension(L*W*H)	12*13.4*1.6mm (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℃ to +70℃
Storage temperature	-55℃ to +125℃

3.3 DC Characteristic

Terms	Contents
Specification : IEEE802.11b	
Mode	DSSS / CCK

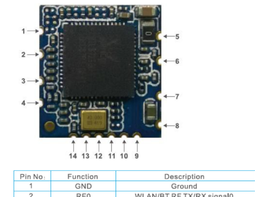
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5, 11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	225	255	255	mA
Rx mode	134	135	135	mA
Sleep mode	95	96	97	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412 – 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	190	225	290	mA
Rx mode	133	135	135	mA
Sleep mode	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
Rx mode	133	134	135	mA
Sleep mode	95	96	97	mA

3.4 RF Characteristic

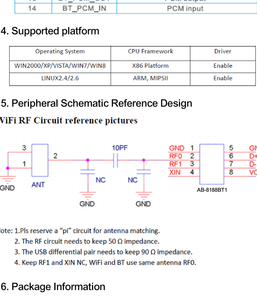
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	16.9	16.7	16.84	-24.23	-23.88	-23.69	-92	-92	-92
	11	17.2	16.95	16.89	-23.4	-24.13	-23.59	-85	-85	-85
11g	6	14.5	14.26	14.35	-28.7	-28.96	-28.54	-86	-86	-86
	54	14.2	14.13	14.69	-28.4	-28.58	-29.5	-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

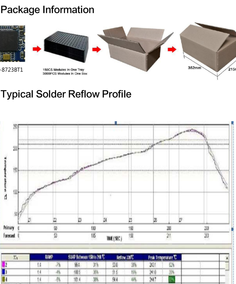
TOP **Bottom**



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

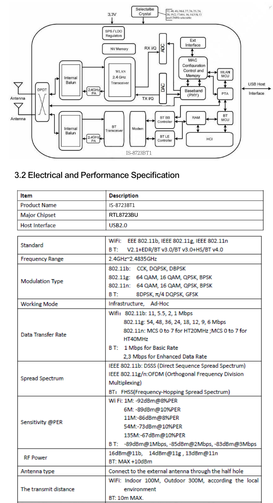
4. Supported platform

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 Ω impedance.
3. The USB differential pair needs to keep 90 Ω impedance.
4. Keep RF1 and XIN NC, WiFi and BT use same antenna RF0.

6. Package Information

7. Typical Solder Reflow Profile