



RTL8723A 规格书



V2.2

1. General Description

RTL8723A is a small size and low profile of WiFi+BT combo module with LGA (Land-Grid Array) footprint, board size is 12mm*12mm with module height of 1.6mm. It can be easily manufactured on SMT process and highly suitable for tablet PC, ultra book, mobile device and consumer products. It provides GSPI/SDIO interface for WiFi to connect with host processor and high speed UART interface for BT. It also has a PCM interface for audio data transmission with direct link to external audio codec via BT controller. The WiFi throughput can go up to 150Mbps in theory by using 1x1 802.11n b/g/n MIMO technology and Bluetooth can support BT2.1+EDR/BT3.0 and BT4.0.

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 Electrical and Performance Specification

Item	Description
Product Name	RTL8723A
Major Chipset	RTL8723BS
Host Interface	SDIO 1.1/ 2.0/ 3.0
Standard	WiFi: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.11d, IEEE 802.11e, IEEE 802.11h, IEEE 802.11i BT: V2.1+EDR/BT v3.0/BT v3.0+HS/BT v4.0
Frequency Range	2.4GHz~2.4835GHz

Modulation Type	Wifi: 802.11b: CCK, DQPSK, DBPSK 802.11g: 64-QAM, 16-QAM, QPSK, BPSK 802.11n: 64-QAM, 16-QAM, QPSK, BPSK BT: 8DPSK, $\pi/4$ 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 BT: 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: 135M: -68Bm@10%PER 54M: -74Bm@10%PER; 11M: -86dBm@10%PER; 6M: -89Bm@10%PER; 1M: -92dBm@10%PER BT: -89dBm@1Mbps, -85dBm@2Mbps, -83dBm@3Mbps;
RF Power(Typical)	WiFi: 16dBm@11b, 13dBm@11g, 12dBm@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)	12.0*12.0*1.6mm (LxWxH) , Tolerance: +/-0.15mm
Power supply	3.3V +/-0.2V
Power Consumption	standby mode 65mA@3.3V , TX mode 285mA@3.3V
Clock source	26MHz
Working Temperature	-10°C to +70°C
Storage temperature	-40°C to +85°C

3.2 Power Supply DC Characteristics

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	245	285	307	mA
Rxmode	64	64	65	mA



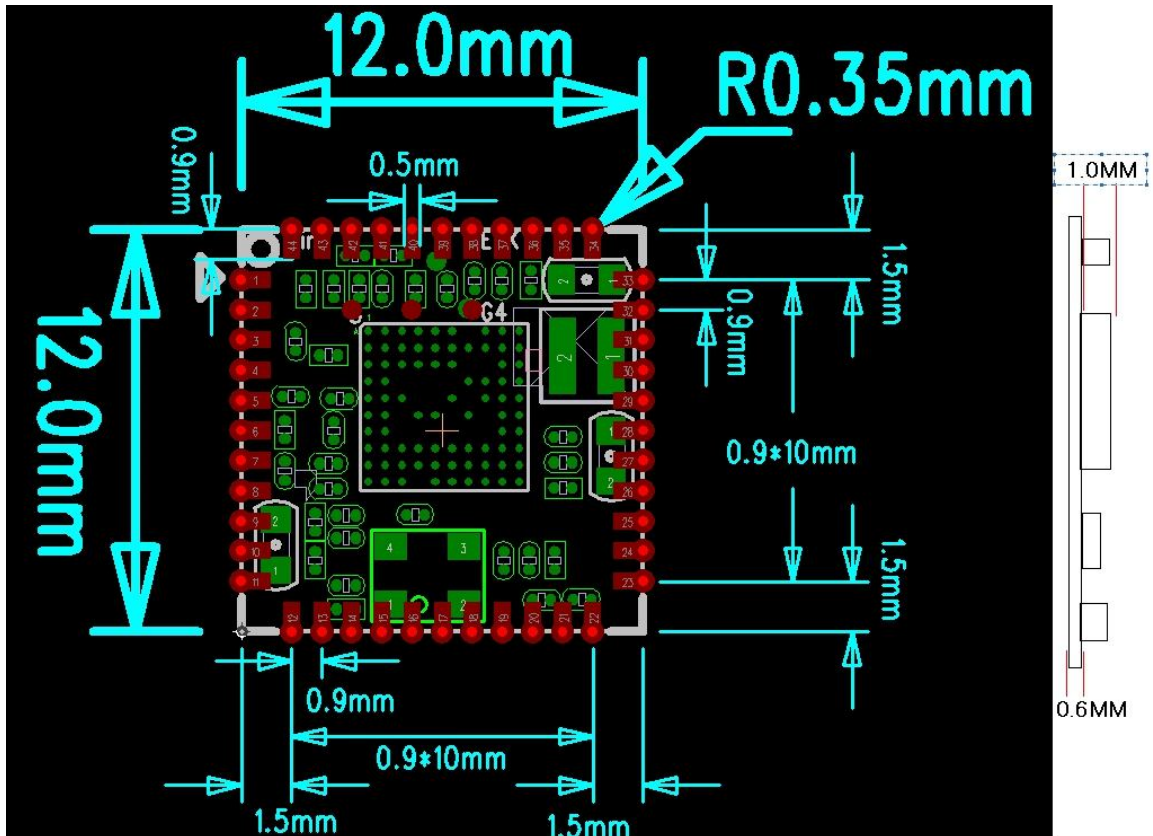
Sleepmode	63	64	65	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412- 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	160	230	270	mA
Rxmode	64	64	65	mA
Sleepmode	63	65	65	mA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412- 2484MHz			
Data rate	6.5,13, 19.5,26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	155	207	283	mA
Rxmode	68	68	69	mA
Sleepmode	67	68	69	mA

3.3 RF Characteristic

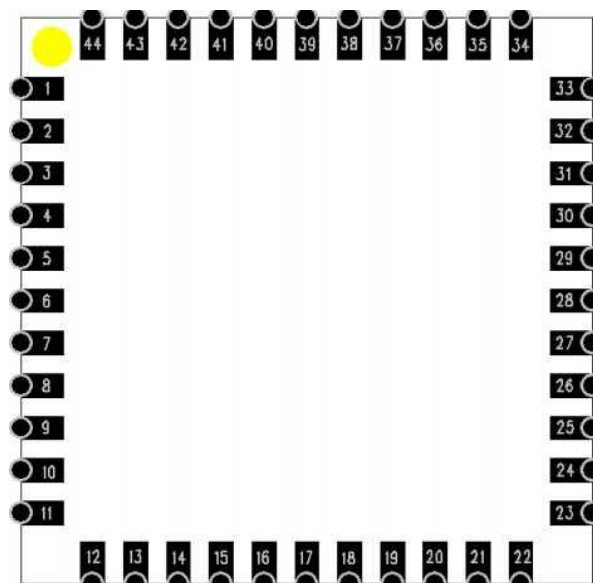
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	17.47	17.74	16.73	-26.39	-28.12	-23.81	-92	-92	-92
	11	17.62	17.41	16.68	-28.79	-27.85	-27.26	-86	-86	-86
11g	6	17.32	17.50	17.10	-21.23	-21.18	-21.19	-89	-89	-89
	54	14.19	14.05	14.22	-31.32	-31.95	-31.98	-74	-74	-74
11n HT20	MCS0	17.02	17.20	17.30	-22.99	-23.89	-24.50	-88	-88	-88
	MCS7	14.02	14.11	14.12	-31.97	-32.00	-31.89	-70	-70	-70
11n HT40	MCS0	16.59	16.40	16.02	-23.81	-24.40	-26.07	-87	-87	-87
	MCS7	13.65	13.76	13.40	-30.21	-32.02	-31.51	-68	-68	-68

3.4 Mechanical Specification

Tolerance: $\pm 0.15mm$



3.7 Product Pin Definition





Pin No:	Function	Description
1	GND	Grond
2	WIFI/BT_ANT	WIFI/BT_ANT
3	GND	Grond
4,5	NC	NC
6	BT_WAKE	HOST wake-up Bluetooth device
7	BT_HOST_WAKE	Bluetooth device to wake-up HOST
8	NC	NC
9	VABT	3.3V
10,11	NC	NC
12	WL_DSI#	Shared with GPIO9 This Pin Can Ex ternally Shutdown the RTL8723BS WLAN function when BT_DISn is Pulled Low. When this pin deasserted, SDIO interface will be disabled. This pin can also support the WLAN Ra dio-off function with host interface remaining connected.
13	WL_HOST_WAKE	WLAN to wake-up HOST
14	SD_D2	SDIO data line 2
15	SD_D3	SDIO data line 3
16	SD_CMD	SDIO command line
17	SD_CLK	SDIO CLK line
18	SD_D0	SDIO data line 0
19	SD_D1	SDIO data line 1
20	GND	Grond

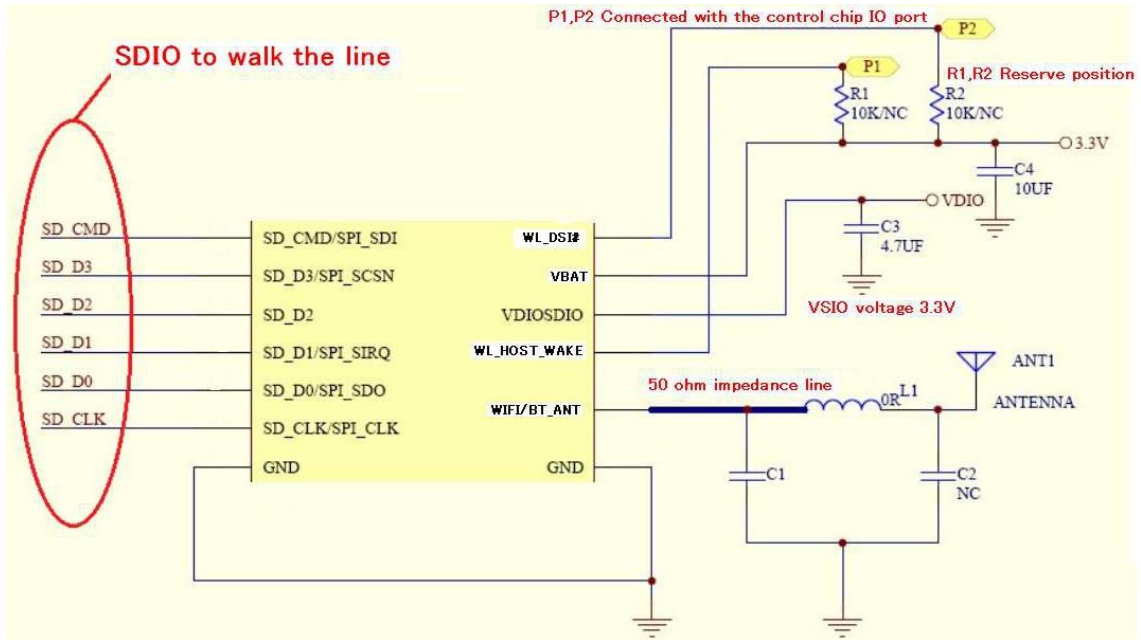


21	NC	NC
22	VDD_IO	1.8V / 3.3V
23	NC	NC
24	SUSCLK_IN	Shared with GPIO6. External 32K or RTC clock input with 1.8V ~ 3.3V swing. This clock source is configured by BT and WL FW, respectively.
25	PCM_DOUT	PCM Data output
26	PCM_CLK	PCM Clock
27	PCM_DIN	PCM data input
28	PCM_SYNC	PCM sync signal
29,30	NC	NC
31	GND	Grond
32	NC	NC
33	GND	Grond
34	BT_DIS#	General Purpose Input/Output Pin
35	NC	NC
36	GND	Grond
37,38,39,40,41	NC	NC
42	UART_OUT	HOST Data output
43	UART_IN	HOST Data input
44	UART_CTS	HOST_CTS

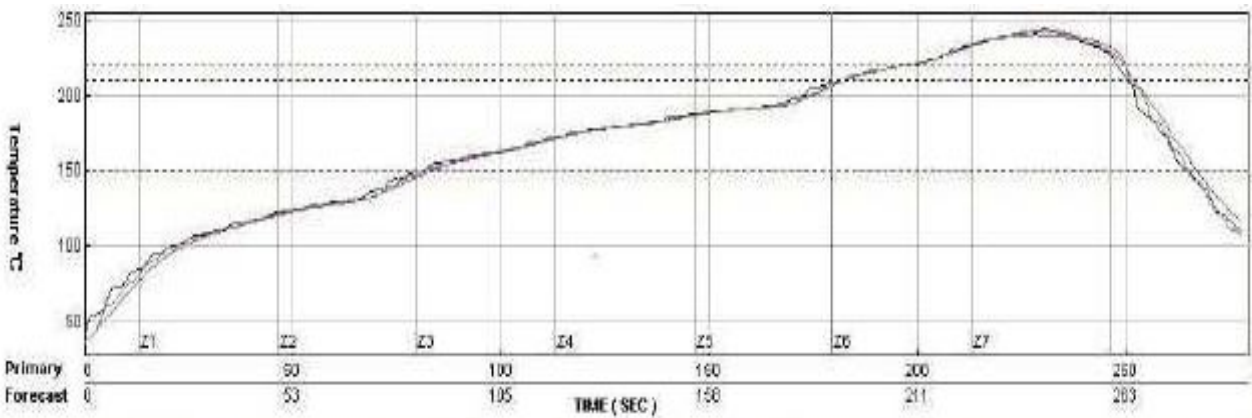
4. Supported platform

Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable
WINCE5.0/6.0	ARM ,MIPSII	Enable

5. Peripheral Schematic Reference Design



6. Typical Solder Reflow Profile



TCs	RAMP	SOAP Between 150 to 240 °C	Reflow 220°C	Peak Temperature °C				
2	1.4	-7%	99.4	31%	53.8	38%	243.1	82%
3	1.4	-4%	100.5	35%	51.5	15%	241.0	20%
4	1.4	-5%	101.4	38%	54.4	44%	244.7	83%
Different in Temp	0.04		1.99		2.92		3.65	
P.2	1.4	-7%	99.4	31%	53.8	38%	243.1	82%
P.3	1.4	-4%	100.5	35%	51.5	15%	241.0	20%
P.4	1.4	-5%	101.4	38%	54.4	44%	244.7	83%
Different in Temp	0.04		1.99		2.92		3.65	



7. Precautions for use

1. Pls handle the module under ESD protection.
2. Reflow soldering shall be done according to the solder reflow profile. Peak temperature 245°C.
3. Products require baking before mounting if humidity indicator cards reads >30% temp <30 degree C, humidity < 70% RH, over 96 hours.
Baking condition: 125 degree C, 12 hours
Baking times: 1 time
4. Storage Condition: 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. Humidity indicator cards must be blue, <30%.