SPECIFICATIONS

Bluetooth 4.0 USB Module

QBTM421

(Motorola Bluetooth Stack)

(RoHS, CSR 8510 A06)

PCB Ant.

Ver. 1A

Date: 2011/12/05

Prepared by: Qcom Technology Inc.

Approved by:

Contents:

Device Overall Description

The QBTM421 is designed to provide Bluetooth 4.0 function on a small form factor. The Bluetooth function is based on CSR 8510 A06 Single Chip Bluetooth System, which implements the full speed class 2 Bluetooth operations with full 7 slave Piconet support. The interface of QBTM421 to host system is USB and full compliant with USB V1.1 and compatible with USB V2.0 Full Speed (12Mbits/s).

Features

- CSR 8510 A06 Single Chip Bluetooth System
- Bluetooth 4.0 support
- Class 2 Bluetooth
- Full Speed USB interface compliant with USB V1.1 and compatible with USB V2.0
- PCB Antenna

Specification Compliance

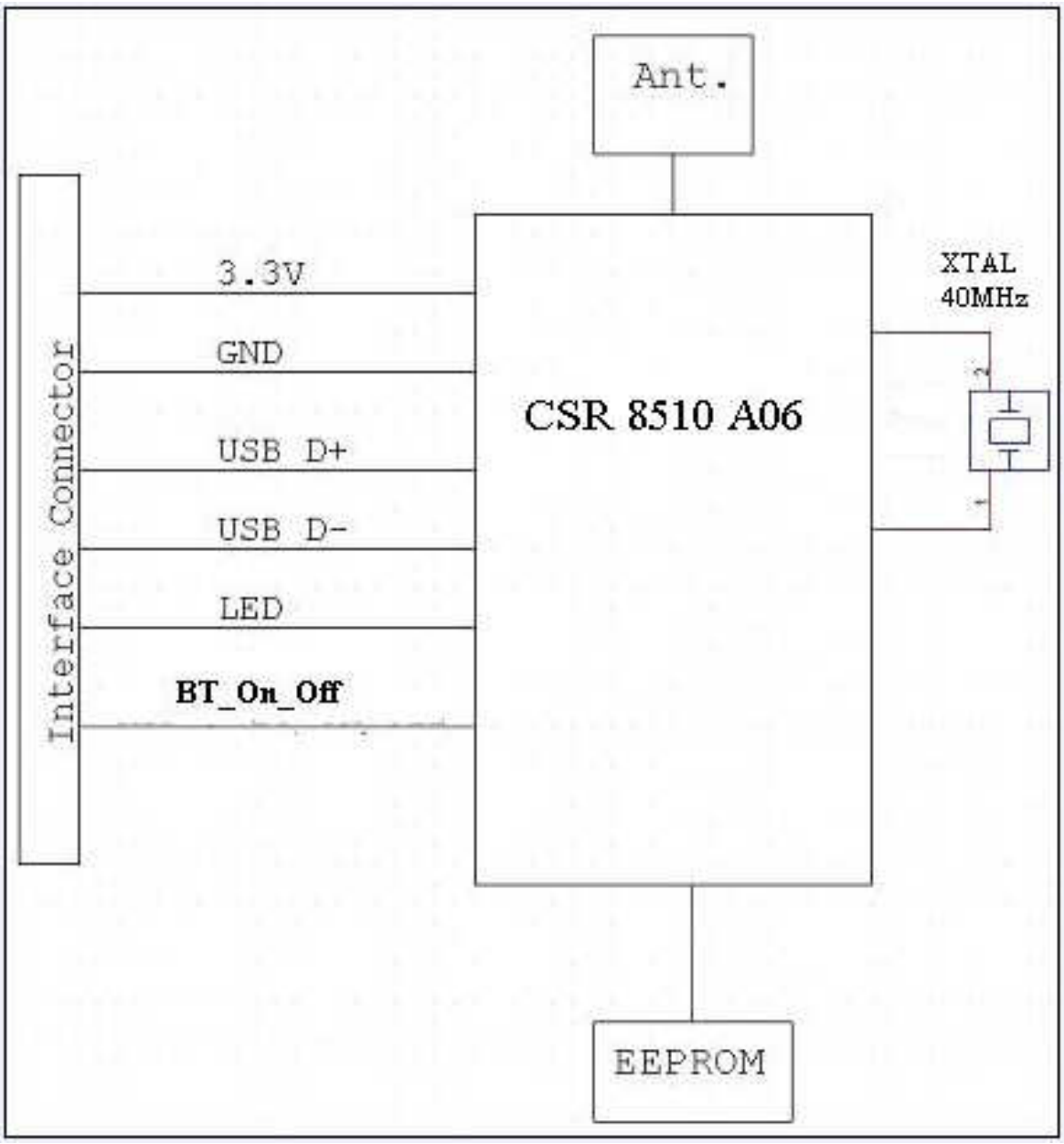
- Bluetooth Specification V.2.1+EDR and V 4.0 compliant
- USB Specification V1.1
- Compatible with USB V2.0 Full Speed (12Mbits/s)

Modulation Methods

FHSS (Frequency Hopping Spread Spectrum) defined in Bluetooth Specification.

	Data Rate	Modulation scheme
Basic Data Rate	1 Mbps	GFSK
Enhanced Data Rate	2Mbps	π/4 – DQPSK
	3Mbps	8DPSK

Bluetooth Block Diagram



Channel Assignment

Country	Freq. Range	RF Channel
Europe* & USA	2400~2483.5MHz	Freq. = 2402 + k MHz k = 0~78
Japan	2400~2483.5MHz	Freq. = 2402 + k MHz k = 0~78

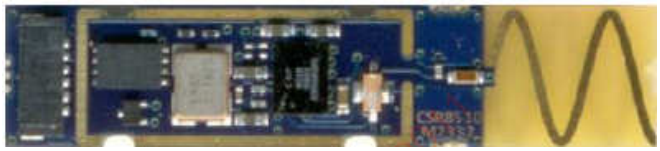
*****Most Europe area except Spain and France

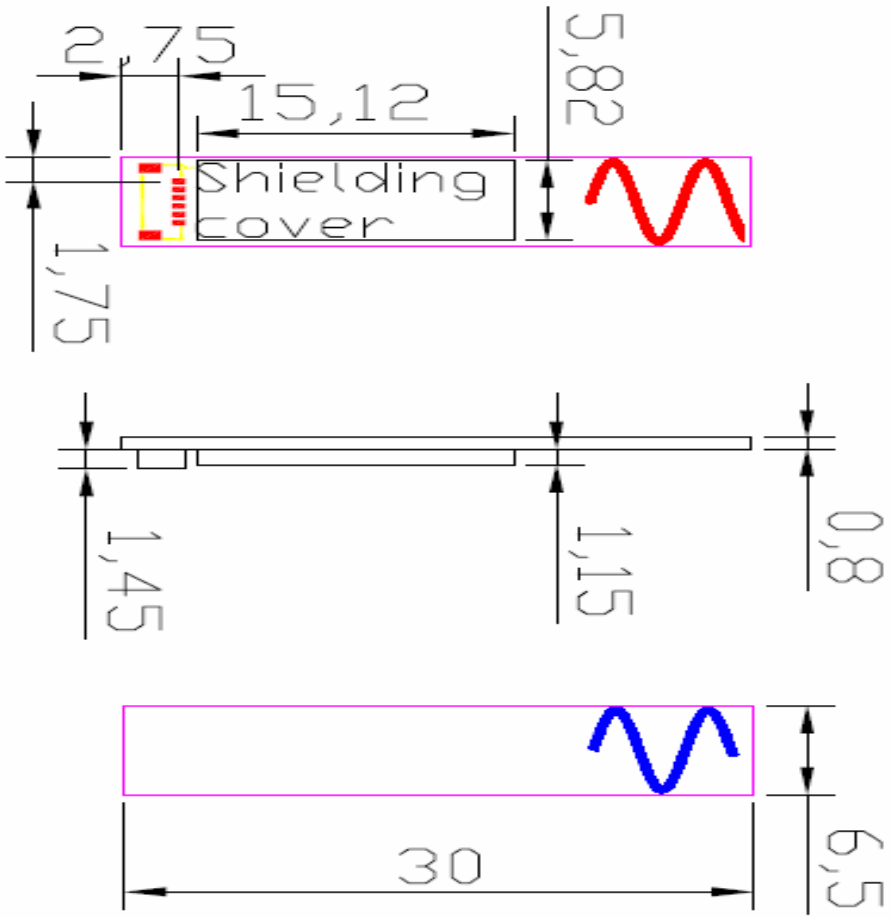
Bluetooth Power Consumption

Electrical Characteristics	Minimum	Typical	Maximum	Units
Supply Voltage	**3.0**	**3.3**	**3.6**	**V**
TX Supply Current (Max.)				**mA**
RX Supply Current (Max.)				**mA**
BT_OFF (H/W Disable)				**mA**
Idle mode				**mA**
Sleep mode (S3/4)				**mA**

Mechanical Dimension

6.5x30x(1.45+0.8) mm



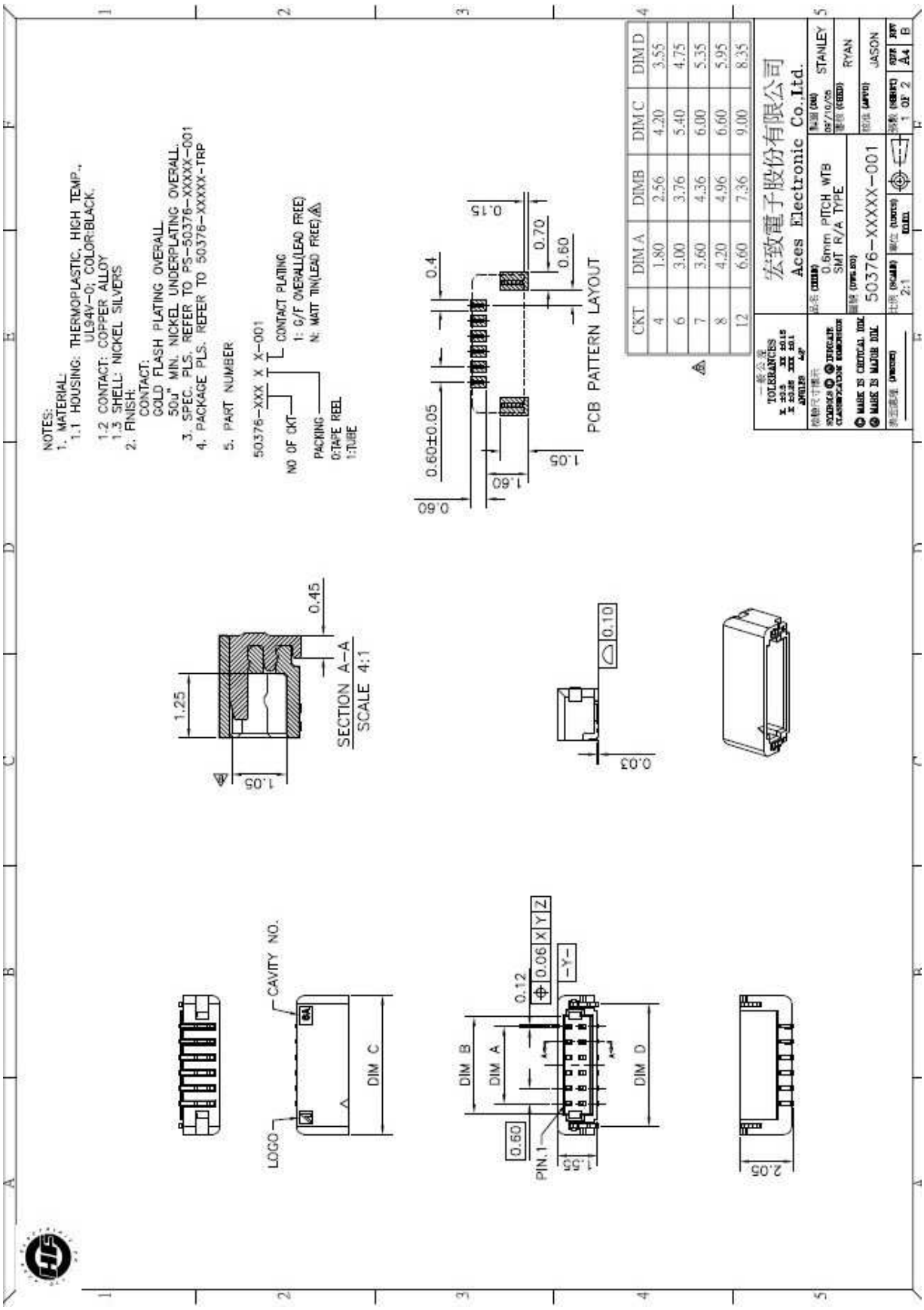


RF Characteristics

RF Characteristics	Minimum	Typical	Maximum	SPEC Requirement	Units
Antenna I/F Impedance		50			ohms
Ambient Operating Temperature Rage	0		70		C
Storage Temperature Rage	-20		85		C
Supply Voltage (3.3V only)	3.0	3.3	3.6		V
Basic Rate RX Sensitivity, 2402 MHz		< -70		-70	dBm
Basic Rate RX Sensitivity, 2441 MHz		< -70		-70	dBm
Basic Rate RX Sensitivity, 2480 MHz		< -70		-70	dBm
EDR RX Sensitivity, 2402 MHz		< -70		-70	dBm
EDR RX Sensitivity, 2441 MHz		< -70		-70	dBm
EDR RX Sensitivity, 2480 MHz		< -70		-70	dBm
TX Output Power, 2402MHz		2		-6 ~ +4	dBm
TX Output Power, 2441MHz		2		-6 ~ +4	dBm
TX Output Power, 2480MHz		2		-6 ~ +4	dBm
Initial Carrier Frequency Tolerance	>-10		<10	+-75	kHz
Carrier Frequency Drift, DH3 (01010101)	>-10		<10	40	kHz
Carrier Frequency Drift, DH5 (01010101)	>-10		<10	40	kHz
Carrier Frequency Drift Rate, DH3 (01010101)	>-10		<10	20	kHz
Carrier Frequency Drift Rate, DH5 (01010101)	>-10		<10	20	kHz
Modulation Characteristics, Δf1 avg (DH1 ,00001111, kHz)	140		175		kHz
Modulation Characteristics, Δf2 max (DH1 ,00001111, kHz)		180		>115	kHz
Modulation Characteristics, Δf2 avg /Δf1 avg		1.00		>=0.8	kHz
20 dB Bandwidth			>900	1000	kHz
TX Output Spectrum – Frequency Range (F_L)	2401			2400	MHz
TX Output Spectrum – Frequency Range (F_H)			2481	2483.5	MHz
Maximum Input Level		>-20		-20	dBm
EDR Maximum Input Level		>-20		-20	dBm

Host Interface Connector

- Connector: Aces 50376-00601-001 or compatible.



Software & OS support

Windows 7/Vista/XP native built-in driver support Profiles - DUN, HCRP, HID, OPP, PAN-U and SPP

Windows 7
Bluetooth SIG Host Subsystem QDID B015409

BlueSlim2 Bluetooth Module (BSBM2) LE (BSBM2LE)
Bluetooth SIG Controller Subsystem QDID B018293

Motorola Bluetooth Stack

Bluetooth SIG Host Subsystem QDID B017934

A2DP, AVCTP, AVDTP, AVRCP, BIP, BPP, DUP, DIP, FMP, FTP, GAVDP,

GAP, HCRP, HFP, HSP, HID, OPP, PAN, PBAP, PXP, SDP and SPP.

Others system depending on OS provided like Linux and Android.

Pinout and Definition

Pin #	Signal name	Description
1	+3.3V	Positive supply for whole module.
2	GND	
3	USB_D+	USB data plus.
4	USB_D-	USB data minus.
5	LED	TBD
6	BT_On_Off	TBD

LED Status Definition

- Power up state: TBD
- Inquiry state: TBD
- Page state: TBD
- Connected State: TBD
- Transmit/Receive State: TBD
- USB Suspend: TBD
- Radio Disable: TBD
- Sleep state: TBD

Certification

Argentina	Korea	Turkmenistan
Australia	Kuwait	UAE
Bahrain	Lebanon	Uruguay
Belarus	Malaysia	Uzbekistan
Botswana	Mexico	Venezuela
Brazil	Moldova	Vietnam
Brunei	Morocco	USA
Cambodia	Pakistan	Ukraine
Canada	Papua	
Chile	Peru	
China	Philippines	
Croatia	Qatar	
Ecuador	Russia	
Egypt	South Africa	
EU	Sauda Arabia	
India	Serbia	
Indonesia	Singapore	
Israel	Sri Lanka	
Jamaica	Tadzhikistan	
Japan	Taiwan	
Jordan	Thailand	
Kazakhstan	Trinidad	
Kenya	Tunisia	