Qcom

SPECIFICATIONS

Bluetooth 2.1+EDR USB Module

QBT410UB-04
(PCB Antenna)

**(Broadcom BTW Software Supported
Windows 7, Vista &XP)**

Ver: 2A
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Approved by:

Content

Specifications of Small Form Factor Bluetooth Module.

1. Device Overall Description

The QBT410UB is designed to provide Class 2 Bluetooth2.1 + EDR function on a small form factor USB interface module. The Bluetooth function is based on Broadcom BCM2070 single chip controller, which fully implements the Bluetooth 2.1 features (including AFH, Scatter Mode, QoS, eSCO, Fast Connect, LMP improvements, synchronization) and Enhanced Data Rate (EDR). The interface of QBT410UB to host system is HCI USB and full compliant with USB V2.0 Full Speed (12Mbits/s).
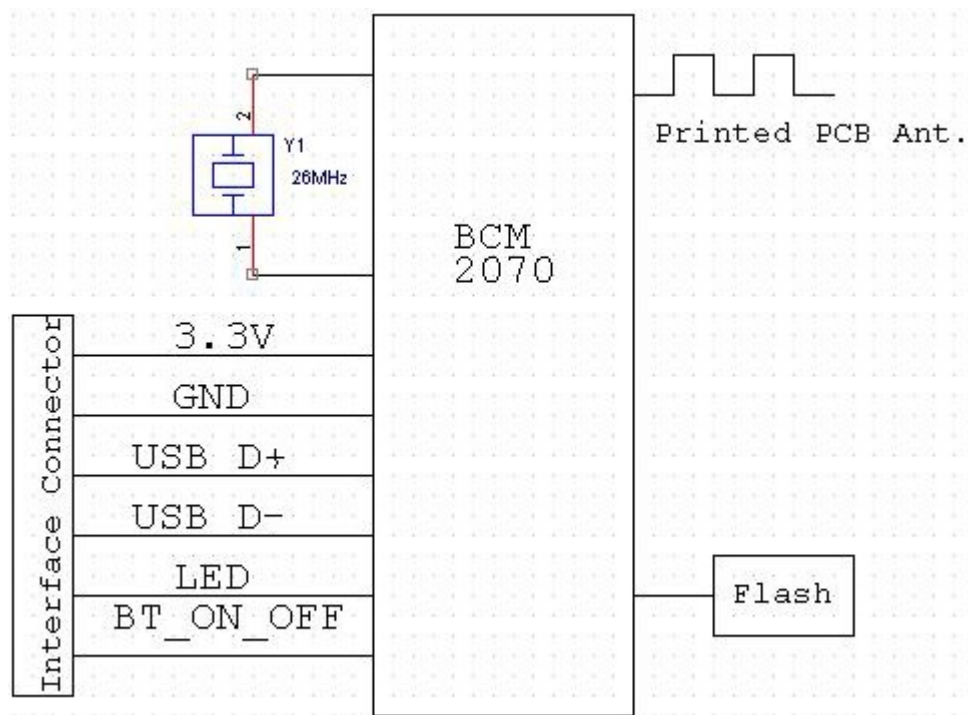
2. Bluetooth

Features

- Broadcom BCM2070 Flash Single Chip Bluetooth System .
- Bluetooth Core Specification version 2.1 compliant + EDR support.
- Bluetooth Class 2 output power, multipoint operation with up to 7 active slaves support.
- HCI USB transport support with USB version 2.0 full-speed compliant interface.
- Printed PCB Antenna on board.

Specification Compliance

- Bluetooth Specification V1.2, V2.0+EDR and V.2.1 + EDR compliant
- USB Specification V1.1 and V2.0 Full Speed (12Mbits/s)
- Bluetooth 2.1 including EDR, AFH, Scatter Mode, QoS, eSCO, Fast Connect, LMP improvements, synchronization.

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Block Diagram

Specifications of Small Form Factor Bluetooth Module.

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

Power Consumption

Electrical Characteristics	Minimum	Typical	Maximum	Units
Supply Voltage	3.0	3.3	3.6	V
TX Supply Current (Max.)		41		mA
RX Supply Current (Max.)		31		mA
Idle mode	6		10	mA
Radio Off				mA
BT_OFF (H/W Disable)		6.27		mA
S3/4		<0.1		mA

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RF Characteristics

RF Characteristics	Min	Typical	Max	SPEC Requirement	Units
Antenna I/F Impedance		50			ohms
Ambient Operating Temperature Rage	0		70		C
Storage Temperature Rage	-20		85		C
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		0		-6 ~ +4	dBm
TX Output Power, 2441MHz		0		-6 ~ +4	dBm
TX Output Power, 2480MHz		0		-6 ~ +4	dBm
Initial Carrier Frequency Tolerance	>-15		<15	+-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, $\Delta f1$ avg (DH5,kHz)		152.7		140 ~175	kHz
Modulation Characteristics, $\Delta f2$ max (DH5, kHz)		125.7		>115	kHz
Modulation Characteristics, $\Delta f2$ avg /$\Delta f1$ avg		1.00		>=0.8	kHz
20 dB Bandwidth			<1000	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

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LED Status Definition

(Listed in order of priority, with the top being highest priority):

 - Power Up state: Solid Off

 - Inquiry state: Blinking 1 time/second

 - Page state: Blinking 1 time/second

 - Connected Stat: Blinking approximately 1 time/second

 - Transmit/Receive State: Blinking 4 time/second

 - Radio Disabled: Solid Off

 - USB Suspend: Solid Off

 - Sleep State: Solid Off

Software & OS support

- Windows 7 / Vista / Windows XP_SP2 native supported Profiles –

  DUN, GAP, HCRP, HID, OPP, PAN-U, SDP and SPP.

- Broadcom BTW software (for **Windows 7 / Vista / Windows XP**) Included Profiles – A2DP,

  AV, BIP, BPP, DUN, FTP, GAP, GAVDP, HCRP, HF, HID, HS, OPP, PAN-U, SDP, SPP

  and SYNC.

  (Profiles might change without prior notice; please refer to the SW release

   *document for detail.)*

Bluetooth SIG Listing

Broadcom BTW Bluetooth Stack V5.x for Windows XP:
Bluetooth SIG QDID: B013967

Broadcom BTW Bluetooth Stack V6.x for Windows Vista and Windows 7:
Bluetooth SIG QDID: B014023

Broadcom BCM2070 Controller subsystem:
Bluetooth SIG QDID: B015391

3. Mechanical Dimension

- 30x6.5x3.27 (Shielding cover 1.02mm + PCB0.8mm + Conn. 1.45mm) (unit: mm)
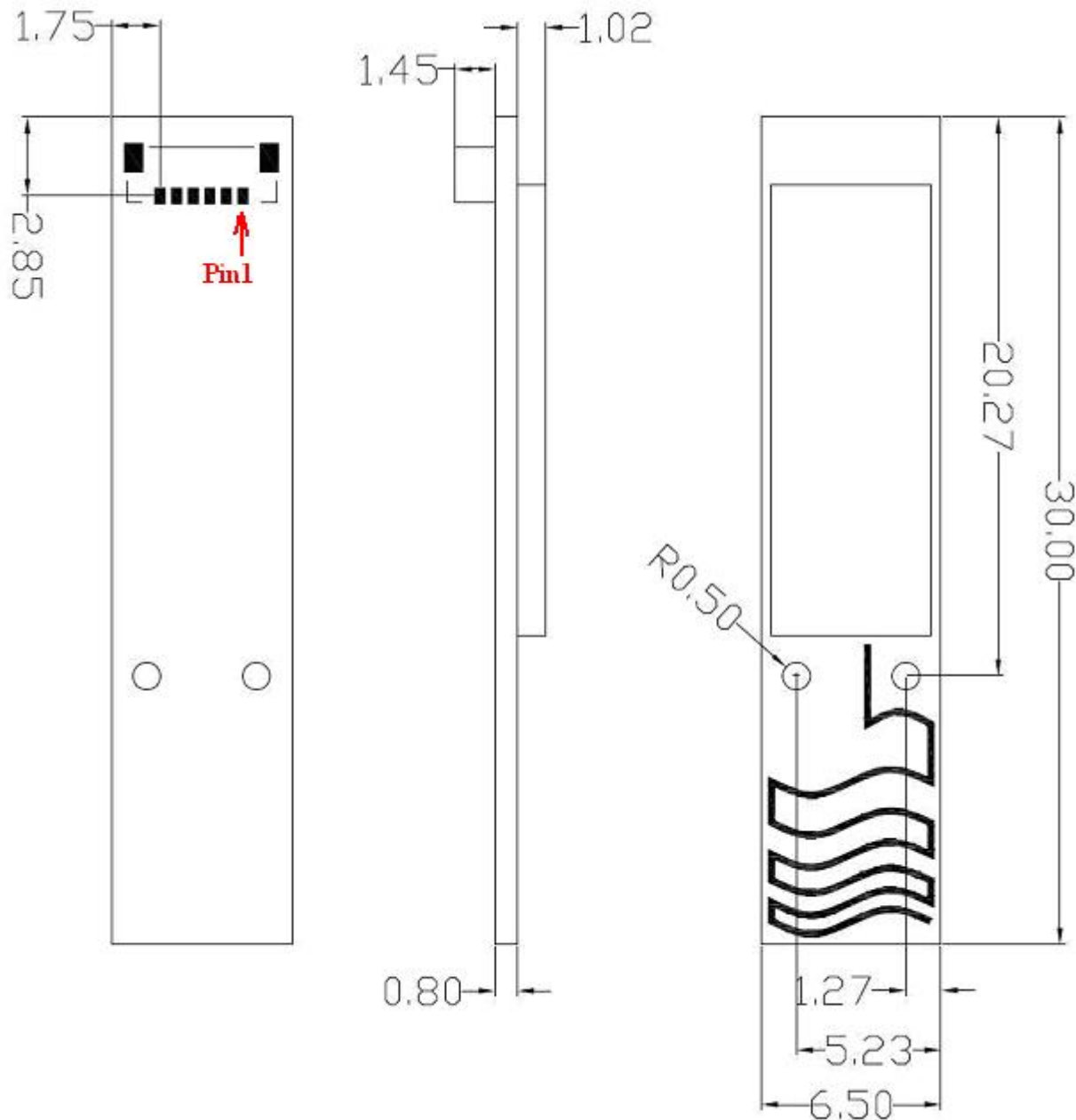
4. Pinout and Definition

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	BT activity LED indicator and High Active.
6	BT_ON_OFF	Active Low to disable BT function. Active High to Enable. Floating not allowed.

5. Host Interface Connector

- Connector:JST SM06B-XSRKHF-ETB(LF)(SN) Or compatible