



## SPECIFICATIONS

Bluetooth 2.0+EDR USB Module

QBTM300-02 (V6)  
(IVT Software Supported Vista & WinXP)

Ver: 2A4  
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**Prepared by : Qcom Technology Inc.**

**Approved by :**

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## **Device Overall Description**

The QBTM300 is designed to provide Bluetooth2.0 + EDR function on a small form factor. The Bluetooth function is based on CSR BlueCore4-ROM Single Chip Bluetooth System, which implements the full speed class 2 Bluetooth operations with full 7 slave Piconet support. The interface of QBTM300 to host system is USB and full compliant with USB V1.1 and compatible with USB V2.0 Full Speed (12Mbits/s).

## **Bluetooth**

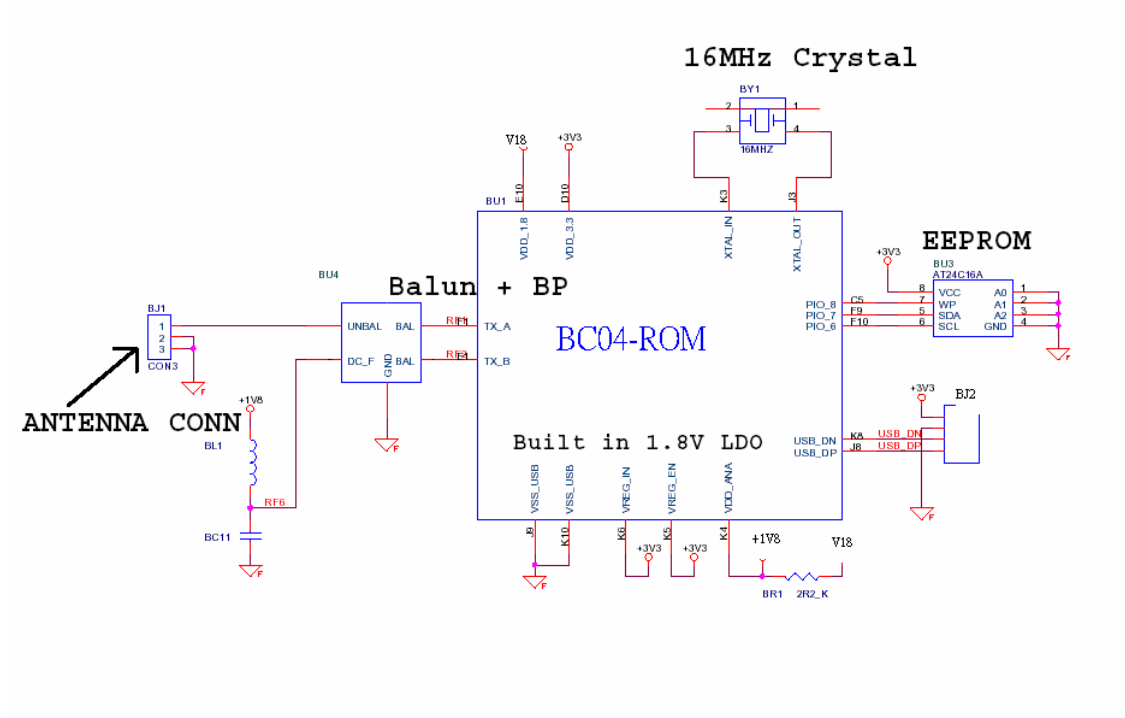
### **Features**

- CSR BlueCore4-ROM Single Chip Bluetooth System
- Bluetooth 2.0 + EDR support
- Full Speed Class 2 Bluetooth operation with full 7 slave Piconet support
- Full Speed USB interface compliant with USB V1.1 and compatible with USB V2.0
- Single onboard Antenna connector support
- Printed PCB antenna on board **(Optional)**

### **Specification Compliance**

- Bluetooth Specification V1.1, V1.2, and V.2.0 compliant.  
(Including Bluetooth Specification. Radio Specification. Core System Package Part A. Test Suite Structure (TSS) and Test Purposes (TP). System Specification 1.2/2.0/2.0 + EDR. Document Number RF. TS/2.0.E.2)
- USB Specification V1.1
- Compatible with USB V2.0 Full Speed (12Mbits/s)

- **Bluetooth Block Diagram**



**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     | $\pi/4$ – DQPSK   |
|                    | 3Mbps     | 8DPSK             |

**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     |
| Continuous RX Supply Current |         | 64      |         | mA    |
| Continuous TX Supply Current |         | 43      |         | mA    |
| Idle mode                    |         | 7       |         | mA    |
| Radio disable mode           |         | 7       |         | mA    |

**RF Characteristics**

| RF Characteristics  | Mini. | Typical | Max. | SPEC Requirement | Units |
|---|-------|---------|------|------------------|-------|
| Antenna I/F Impedance   |       | 50      |      |                  | ohms  |
| Ambient Operating Temperature Range                                 | 0     |         | 70   |                  | C     |
| Storage Temperature Range   | -20   |         | 85   |                  | C     |
| Supply Voltage (3.3V only)  | 3.0   | 3.3     | 3.6  |                  | V     |
| TX Supply Current (at 3.3V)   |       | 43      |      |                  | mA    |
| RX Supply Current (at 3.3V)   |       | 64      |      |                  | mA    |
| Idle mode Current   |       | 7       |      |                  | mA    |
| 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,<br>$\Delta f1$ avg (DH1 ,00001111, kHz) |       | 165     |      | 140 ~175         | kHz   |
| Modulation Characteristics,<br>$\Delta f2$ max (DH1 ,00001111, kHz) |       | 180     |      | >115             | kHz   |
| Modulation Characteristics,<br>$\Delta f2$ avg / $\Delta f1$ avg    |       | 1.00    |      | $\geq 0.8$       | 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   |

**Antenna Connector**

- Antenna Connector, one piece
- SMT Ultra Miniature Coax Connector, Hirose, CL331-0471-0-10 (U.FL-R-SMT) or compatible

**Host Interface Connector**

- Connector: [ACES 87213-0800L](#)

**Software & OS support**

- Windows XP SP2 native supported Profiles - DUN, HCRP, HID, OPP, PAN-U and SPP
- 3<sup>rd</sup> Party Vendor support from IVT BlueSoleil (<http://www.bluesoleil.com/>), Included Profiles – A2DP, AG, AV, BIP, DUN, FTP, HCRP, HID, LAP, OPP, PAN-GN, PAN-U, SPP, SYNC and HS.

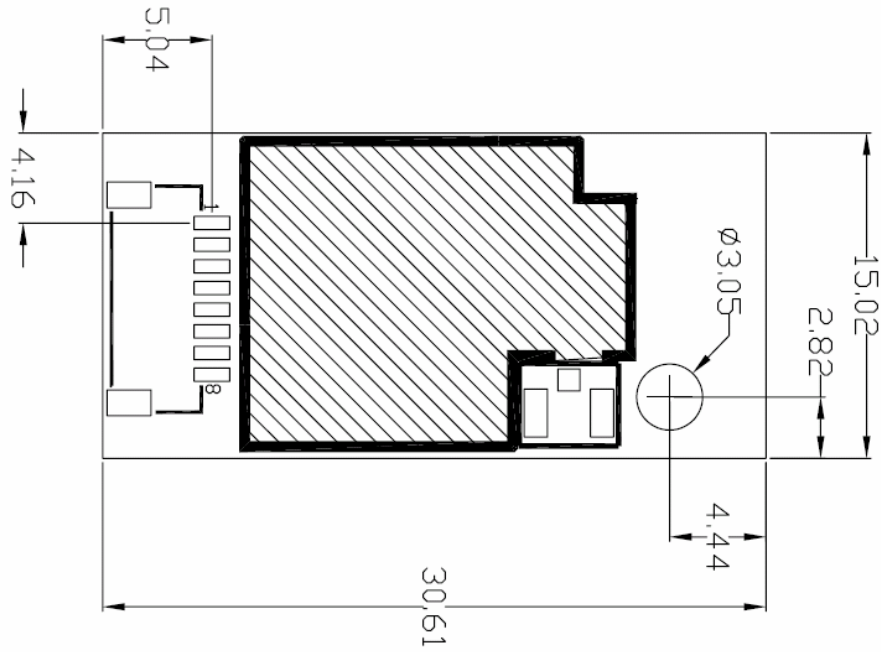
**\*\* IVT Software Supported Microsoft Vista and Microsoft Windows XP SP2.**

**Regulation**

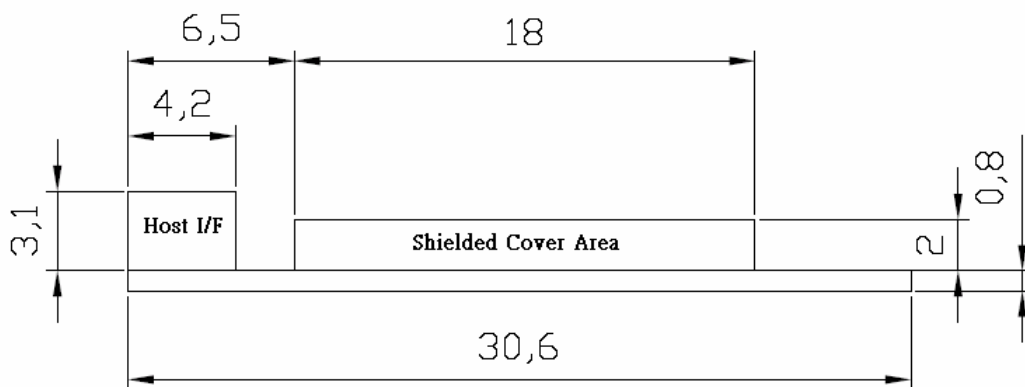
Depend on OEM customer requirement

**Mechanical Dimension**

- 30.61mm x 15.02mm x 3.9mm (L x W x H) +/- 0.15mm

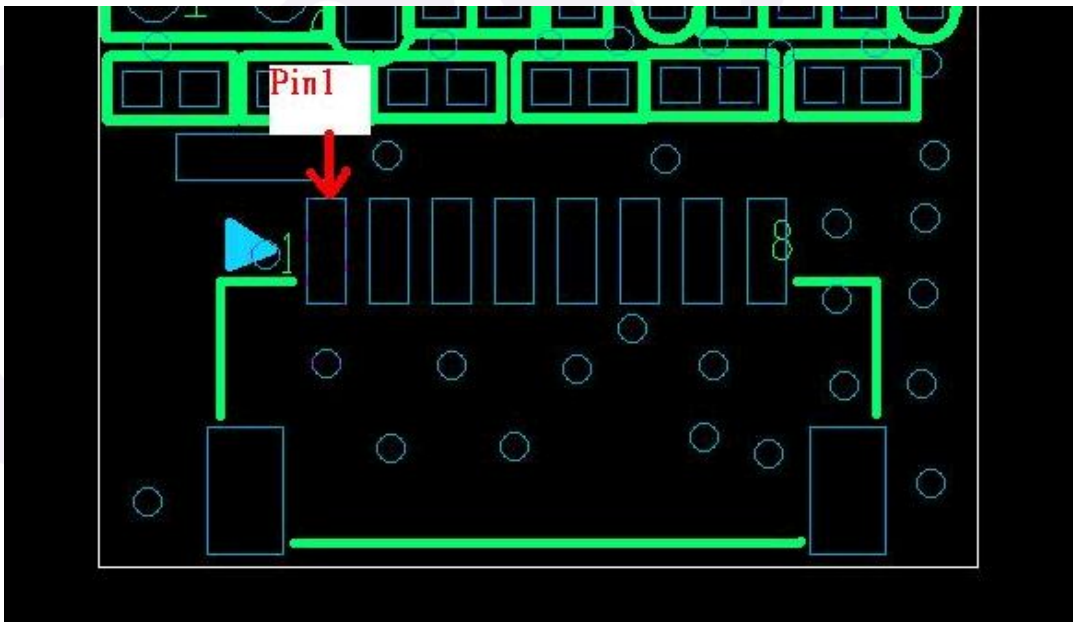


- Component height (unit: mm)



**Pinout and Definition**

| Pin# | Signal name      | Description  |
|------|------------------|--|
| 1    | <b>+3.3V</b>     | Positive supply for whole module.                                      |
| 2    | <b>GND</b>       | Ground Pin.  |
| 3    | <b>USB_D-</b>    | USB data minus.  |
| 4    | <b>USB_D+</b>    | USB data plus.   |
| 5    | <b>LED</b>       | BT activity LED indicator. Active high to indicate the BT activity.    |
| 6    | <b>Reserved/</b> | BT_Active  |
| 7    | <b>Reserved/</b> | WLAN_Active  |
| 8    | <b>BT_ON#</b>    | Active Low to enable BT radio function. High to disable Radio function |

**Pin1 Position:**

Connector: [ACES 87213-0800L](#)