FCC ID: WUO-WBT1010

IC: 7985A-WBT1010

Sonavox Canada Inc. Bluetooth Module **WBT1010**

User manual

This document is designed to provide general information for use of the Bluetooth Audio Module WBT1010.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EMI/EMC Compliance Guidelines

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

IC Compliance

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

When integrating the WBT1010 module into your own product, you must:

1. Use only the provided PCB antenna.
2. Operate the module according to the specifications listed in this data sheet.

3. Include a label clearly visible on the exterior of the product which states: “Contains FCC ID: WUO-WBT1010 / IC: 7985A-WBT1010”.

4. It is mandatory that you consult all FCC and IC documentation for use of a modular approved product, and comply with all listed guidelines and additional testing that may be required.

Specifications

RF Circuit

The module consists of CSR8645 Bluetooth SoC, Band-pass filter, antenna / optional connector and matching circuits.

RF Performance and Antenna configuration:

- Outdoor range: 15m.
- Maximum Transmitting RF Power: 8 dBm.
- Receiving Sensitivity: -82 dBm.
- Frequency: ISM 2.402 - 2.480 GHz.
- Operation mode: Adaptive FHSS.
- Antenna: chip antenna.

Physical Dimensions (Fig.1)

- L x W x H = 1120 x 740 x 200[thou]
- SMT solder pads size (L x W) = 50 x 30 [thou]
- Lead spacing (LS) = 50 [thou]

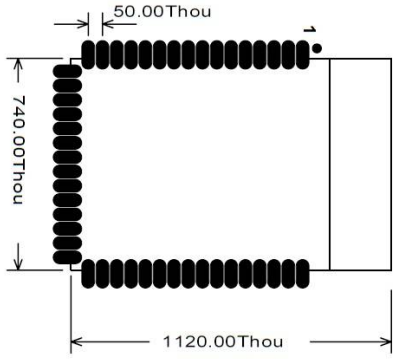

Figure 1

PCB Material and layout considerations

The PCB material for the base PCB should be FR4 glass epoxy.

The Vpwr pin should be connected to 5V and have decoupling electrolytic capacitor and ferrite bead positioned as close to the supply pin as possible. CHG_EXT, VBAT_SENSE, VBAT, 1V8_SMPS and 3V3_USB can be left not connected. Vdd_PIO should be connected to an external supply – typically 3.3V.

All digital audio pins must have small resistors (10..20 Ohms) or ferrite beads in series and positioned close to the module.

No components or traces should be located close to the antenna. Recommended minimum distance is 15[mm] from any metal part in the final assembly or PCB component.

Communications

External micro-controller (uC) can control the module by simulating button press on any of the PIO and VREGENABLE pins. External uC can detect events issued by the module by detecting pulse patterns on any of the PIO pins. For simpler designs, buttons and LEDs can be connected on the PIO pins to provide simple user interface.
Supported audio rates are 8kHz .. 96kHz. Digital audio configuration is I2S master.
The module supports A2DP, AVRCP and aptX.

Firmware

Sonavox can provide customized configuration of the module for its customers.

Other features

The module is RoHS compliant.
The module is FCC, IC and CE approved.

Pinout:

1. AIO - optional; battery charger
2. GND - ground
3. QSPI_CS#_I2C_WP - reserved; N/C
4. QSPI_CLK_I2C_SCL - reserved; N/C
5. QSPI_IO_I2C_SDA - reserved; N/C
6. QSPI_IO - reserved; N/C
7. GND - ground
8. PIO_3_SPI_MISO_PCM_OUT - production programming
9. PIO_17 - Programmable I/O pin
10. PIO_29 - Programmable I/O pin
11. GND - ground
12. PIO_4_SPI_CS#_PCM_SYNC - production programming
13. PIO_2_SPI_MOSI_PCM_IN - production programming

14. PIO_5_SPI_CLK_PCM_CLK - production programming
15. PIO_30 - Programmable I/O pin
16. #RST - Reset; active low
17. SPI_PCM# - production programming; normal high
18. VREGENABLE - power up, general control pin; active high
19. Vpwr - 5V +/-5%
20. CHG_EXT - optional; battery charger
21. VBAT_SENSE - optional; battery charger
22. VBAT - optional; battery charger
23. 1V8_SMPS - internal 1.8V; leave open
24. PIO_8 - Programmable I/O pin
25. PIO_0 - Programmable I/O pin
26. PIO_9 - Programmable I/O pin
27. PIO_1 - Programmable I/O pin
28. USB_N - USB Data
29. USB_P - USB Data
30. 3V3_USB - internal 3.3V; leave open
31. PIO_7 - Programmable I/O pin
32. PIO_6 - Programmable I/O pin
33. GND - ground
34. MIC_BP - microphone
35. MIC_BN - microphone
36. MIC_BIAS - microphone
37. Vdd_PIO - Vdd for PIO pins; connect to external Vcc (typically 3.3V).
38. PIO_31 - Programmable I/O pin
39. GND - ground
40. MIC_AP - microphone
41. MIC_AN - microphone
42. GND - ground
43. SPKR_RN - analog audio output
44. SPKR_RP - analog audio output
45. SPKR_LN - analog audio output
46. SPKR_LP - analog audio output