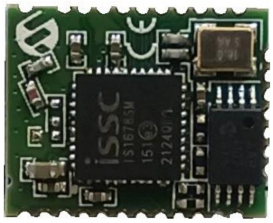


# TSC RF-BHN Bluetooth Module User Manual



**TSC RF-BHN Bluetooth Module User Manual**

TSC RF-BHN Bluetooth Module

Contents



## Copyright Information

## Agency Compliance and Approvals

**Federal Communication Commission Interference Statement**
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 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.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**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.

## IMPORTANT NOTE:

**FCC Radiation Exposure Statement:**

The product comply with the US portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This module is intended for OEM integrators only. Per FCC KDB 996369 D03 OEM Manual v01 guidance, the following conditions must be strictly followed when using this certified module: KDB 996369 D03 OEM Manual v01 rule sections:

**List of applicable FCC rules**

This module has been tested for compliance to FCC Part 15 Subpart C (15.247).

**Specific operational use conditions**

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

**Limited module procedures**

Not applicable.

**Trace antenna designs**

Not applicable.

**RF exposure considerations**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator & your body.

**Antennas**

This radio transmitter has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

| Ant | Brand | Part Number | Type | Frequency Range ( MHz) | Gain (dBi) |
|---|---|---|---|---|---|
| 1. | TSC | AT9520-B2R4HAAT/LF | Chip Antenna | 2400-2500 | 3.0 |

**Label and compliance information**

The final end product must be labeled in a visible area with the following: “Contains FCC ID: VTV-RFBHN”. The grantee’s FCC ID can be used only when all FCC compliance requirements are met.

**information on test modes and additional testing requirements**

Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host.

**Additional testing, Part 15 Subpart B disclaimer**

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B.

**Note EMI Considerations**

Host manufacture is recommended to use D04 Module Integration Guide recommending as “best practice” RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

**How to make changes**

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system. According to the KDB 996369 D02 Q&A Q12, that a host manufacture only needs to do an evaluation (i.e., no C2PC required when no emission exceeds the limit of any individual device (including unintentional radiators) as a composite. The host manufacturer must fix any failure.

### Industry Canada statement

This device complies with Industry Canada's licence-exempt RSSs. 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.

### Radiation Exposure Statement

The product comply with the Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

### This device is intended only for OEM integrators under the following conditions

1. The transmitter module may not be co-located with any other transmitter or antenna.
   As long as 1 condition above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

### IMPORTANT NOTE:

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

### End Product Labeling

The final end product must be labeled in a visible area with the following: " **Contains IC:10524A-RF-BHN".**

### Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how\ to install or remove this RF module in the user's manual of the end product which integrates\ this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

This radio transmitter (IC: 10524A-RFBHN) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

| Type | Connector | Gain |
| --- | --- | --- |
| Chip | N/A | 3 dB |

## Introduction

- **Part Name:** RF-BHN < ISSC BM78SPP05MC2 Bluetooth module>
- **Part Number:** BM78SPP05MC2-xxxxxx
- The ISSC BM78SPP05MC2 Bluetooth module is design for Bluetooth standard SPP/ BLE electronic accessories
- via Bluetooth connectivity. It is available in the 2.4GHz ISM band Class 2 Radio, compatible with Bluetooth Core
- Specification Version 3.0/ 4.2 + EDR.
- ISSC IS1678SM single chip solution combines transceiver and baseband function to decrease the external components. It narrows down the module size and minimizes its cost.
- The optimized power design minimize power consumption to keep low battery

### Major Components

- ISSC IS1678SM (40 pin QFN, single-chip Bluetooth transceiver and baseband processor)
- Serial EEPROM 8K (1024*8) TSSOP 8P

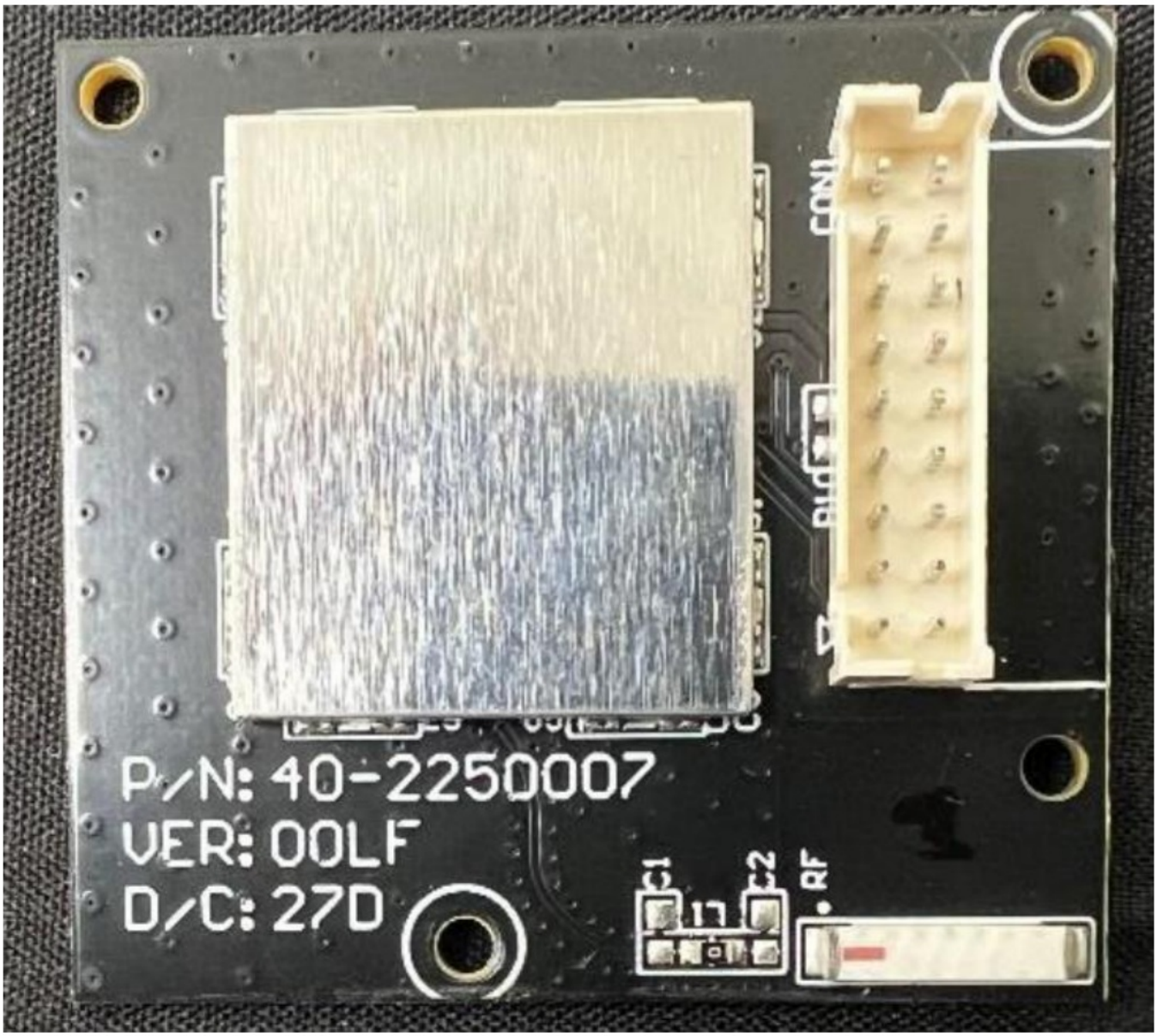
### Features

- Bluetooth 3.0/ 4.2+ EDR compliant
- Low power 1.8V RF operation
- RF transmitter output power Class 2
- RF receiver GFSK typical -90dBm, π/4 PSK typical -90dBm, 8DPSK typical -83dBm, BLE typical -92dBm
- Internal ROM and 4Mibts of flash
- 12C for external EEPROM
- 1 LED driver

### Application

- GPS
- Printers
- Electric Scale
- Blood Pressure Monitors
- Bar code Scanner
- Industrial Applications (CNC, PLC, RFID)

## Product Image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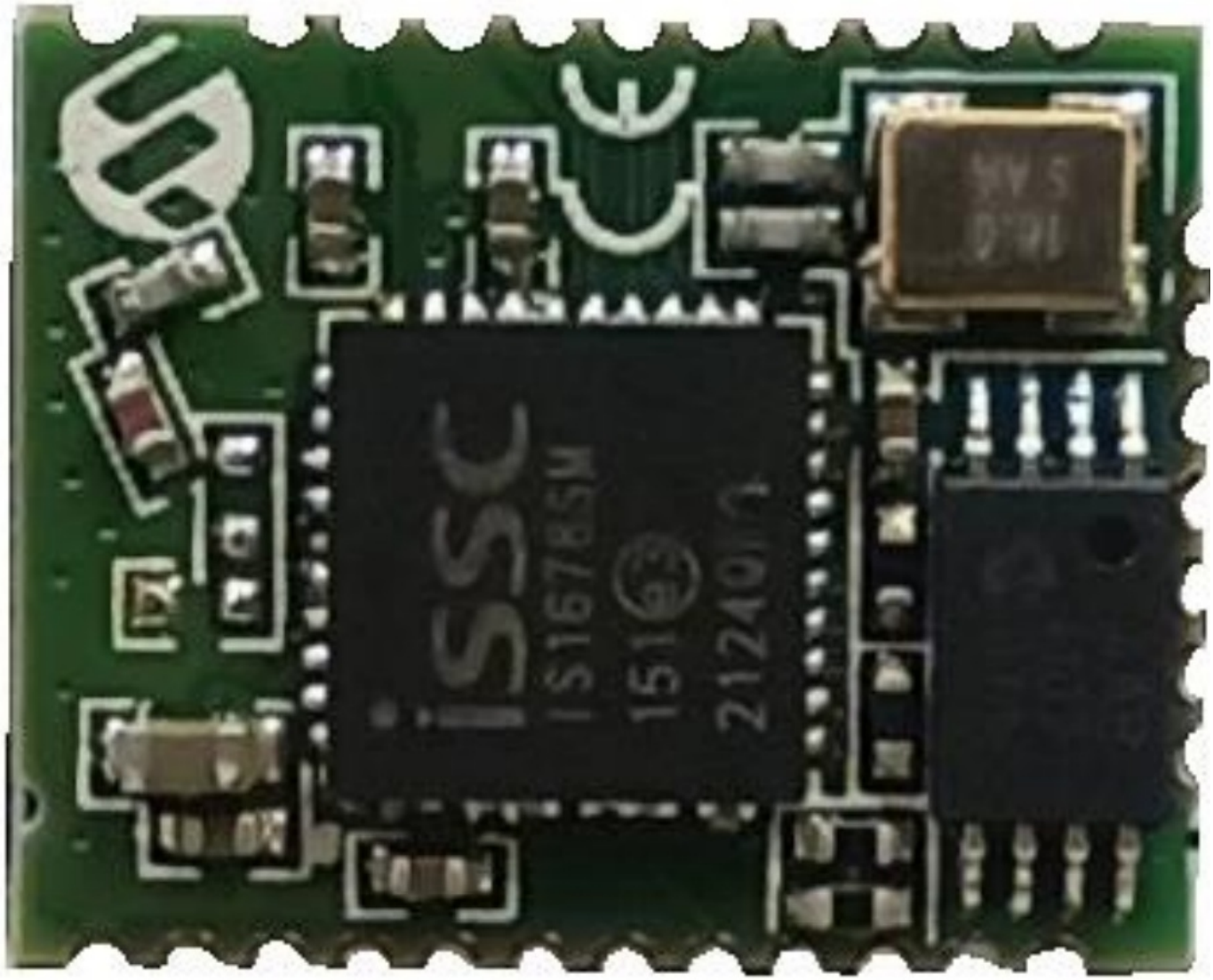
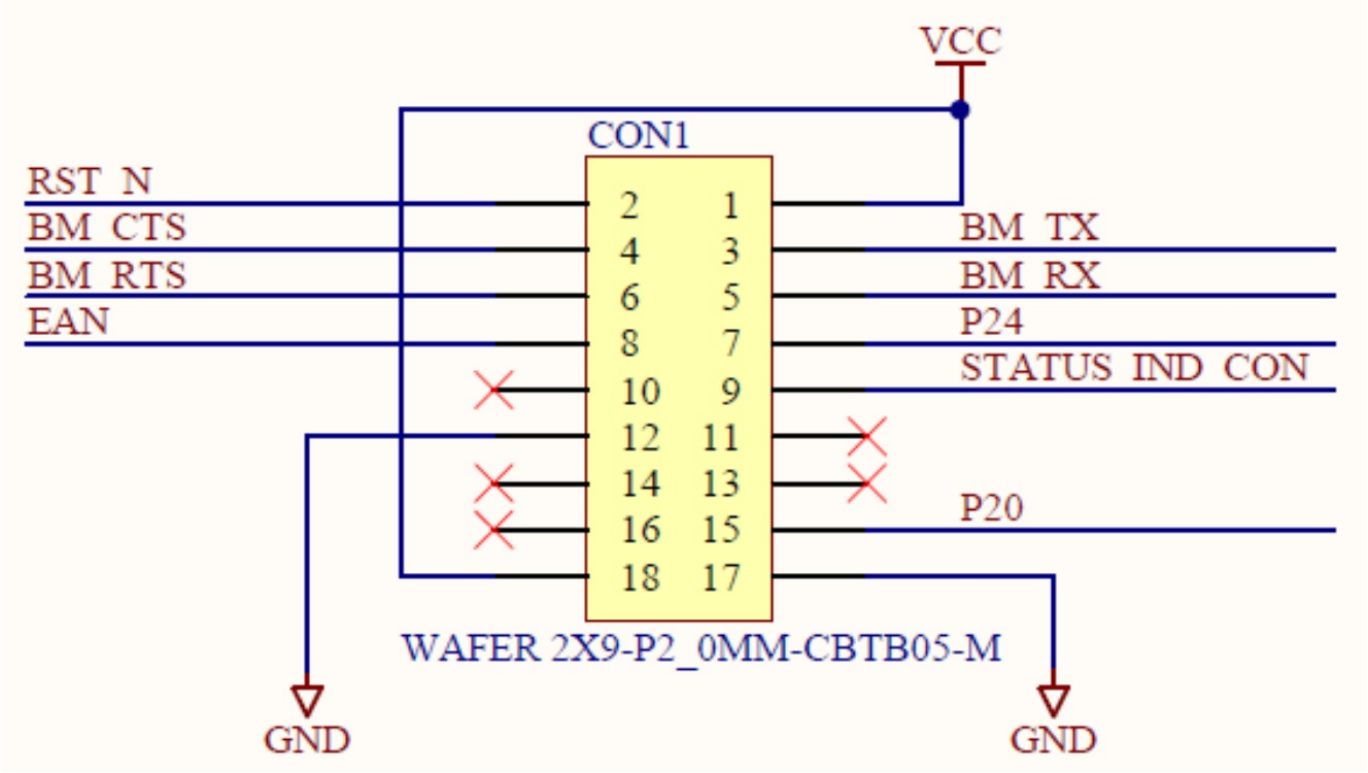
D/C: 27D
C1
C2
RF



**Connector Schematic**



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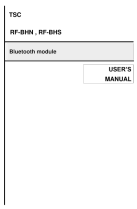
## Documents / Resources

| | |
|---|---|
|  | TSC RF-BHN Bluetooth Module [pdf] User Manual<br>RF-BHN Bluetooth Module, RF-BHN, Bluetooth Module, Module |

## References

- Commercial Label Printers | Barcode Verifiers | RFID Labels | TSC Printers
- User Manual