SONAVOX Inc.	Wireless Audio Transceiver Module - 770102 Users Manual

This document is designed to provide general information for use of the Audio Wireless Transceiver Module 770102.

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

IC Compliance

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

When integrating the 770102 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-770102 / IC: 7985A-770102".
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 Micro-controller, Audio RF Transceiver, Power amplifier, RF switches, Band-pass filter, antenna / optional soldering pad and matching circuits. The block diagram is shown on Fig.1

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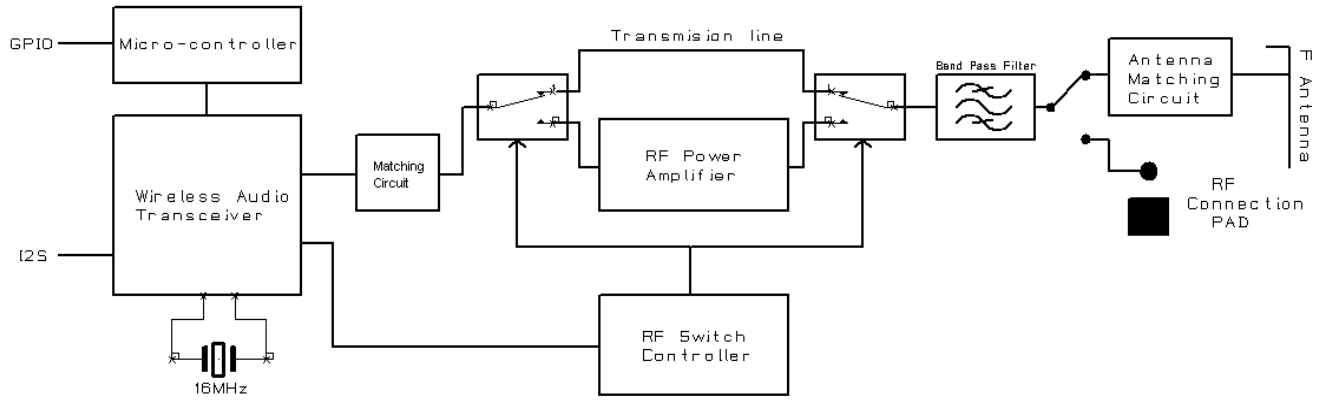
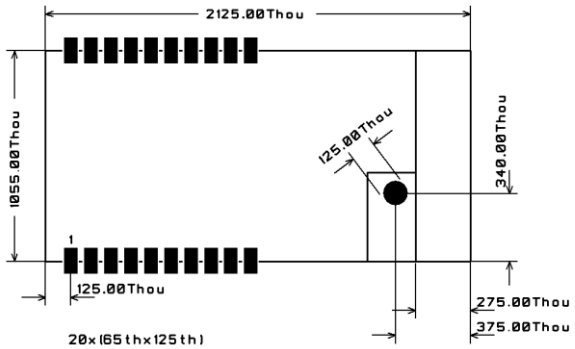


Figure 1

RF Performance and Antenna configuration
Outdoor range 30m.
Maximum Transmitting RF Power - 15 dBm.
Receiving Sensitivity -78 dBm.
Frequency ISM 2.404 - 2.475 GHz.
Operation mode – Adaptive FHSS.
Antenna – PCB "F" configuration.

Physical Dimensions
L x W x H = 2.125 x 1.055 x 0.200 [in]
SMT solder pads size (L x W) = 0.125 x 0.065 [in]
Lead spacing (LS) = 0.100 [in]



Electrical Parameters
Absolute maximum Supply Voltage Range 2.3 - 3.6 VDC
Nominal Supply voltage – 3.3VDC
Current Requirements - 200mA
Operating Temperature Range - 0 to 70 °C / 32 to 158 °F

User Interface GPIO
6 GPIO connections are provided (with programmable / alternate functionality). These GPIO can take 0..3.3V voltage range and +/-6mA of current. Voltage exceeding these limits can result in damage to the module circuitry.
Interrupt Capability is available on all pins.

PCB Material and layout considerations
The PCB material for the base PCB should be FR4 glass epoxy.

All supply pins should have decoupling electrolytic capacitors and ferrite beads positioned as close to the supply pins as possible.
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 1sm.

Communications
External devices can communicate with and through the module using low speed serial interface such as single wire communications (such as Infra Red Remote Control protocol) or systems using multiple connections (such as I2C, UART, SPI).
Audio devices (ADC, DAC) have dedicated high speed digital audio serial bus that can be configured as (Left Justified, I2S or Right Justified). The configuration can be up to 24bit audio data with sampling rates of up to 48kHz. Audio Latency is selectable from 6ms to 25.1ms

Addressing
Several systems can work in close proximity when they have different address. The address is randomly generated during paring mode. The pairing mode is typically started using an external, user accessible switch connected to one of the GPIO pins of the module.

Firmware
Sonavox can provide customized firmware on the module for our customers.

Other features
The module is RoHS compliant.
The module is FCC approved (documentation available on request).
The module is IC approved (documentation available on request).

Module Pin-out

Pin Number	Description
1	BCK – Digital audio – Bit clock
2	LRCLK – Digital Audio – Left/Right Clock
3	SDATA – Digital Audio - Data
4	MCLK – Digital audio – System Clock
5,7,9,20	GND
6	RF_TxRx_Vcc (+3.3V)
8	Control_Vcc (+3.3V)
10	RF_PA_CTRL_Vcc (+3.3V)
11	TDI/O_GPIO[1] – Micro-controller programming pin / General Purpose IO pin
12	TDI_GPIO[2] - Micro-controller programming pin / General Purpose IO pin

13	TMS_GPIO[3] - Micro-controller programming pin / General Purpose IO pin
14	TCK_GPIO[4] - Micro-controller programming pin / General Purpose IO pin
15	uC_TEST Micro-controller programming pin
16,17	GPIO[5], GPIO[6] - General Purpose IO pin
18	uC_RST - Micro-controller programming pin
19	RF_PA_Vcc (+3.3V)