

UWB Module Datasheet

HANSONG (NANJING) TECHNOLOGY CO. , LTD.

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Revision control

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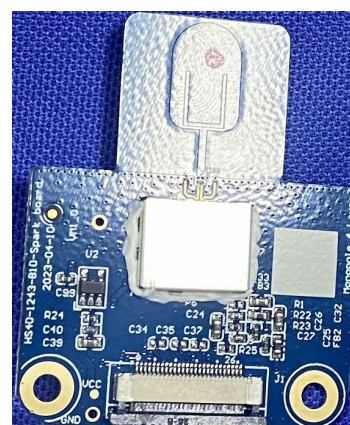
1 Overview

Spark module is an intelligent UWB transmission product independently developed by the company, which is high-end and efficient stereo wireless transmission scheme, the module adopts SR1020 and M481SIDAE chips to provide the module with high quality sound quality.

Customers only need to connect the module to the application product, and it can be fast realize the wireless transmission of music and enjoy the fun of wireless music.

2 Features

- Main Chipset : SR1020-28QFN-TR and M481SIDAE
- □ 7270MHz
- 20.48Mbps symbol rate
- 500MHz to 3GHz reconfigurable TX bandwidth
- Up to 3 dBm/20MHz tunable TX symbol energy
- -75dBm/20MHz RX sensitivity
- Support 48KHz 16-bit stereo audio interface
- Support 96KHz 24-bit stereo audio interface
- Size : 40mm x 49mm x 11.0mm



3 Applications

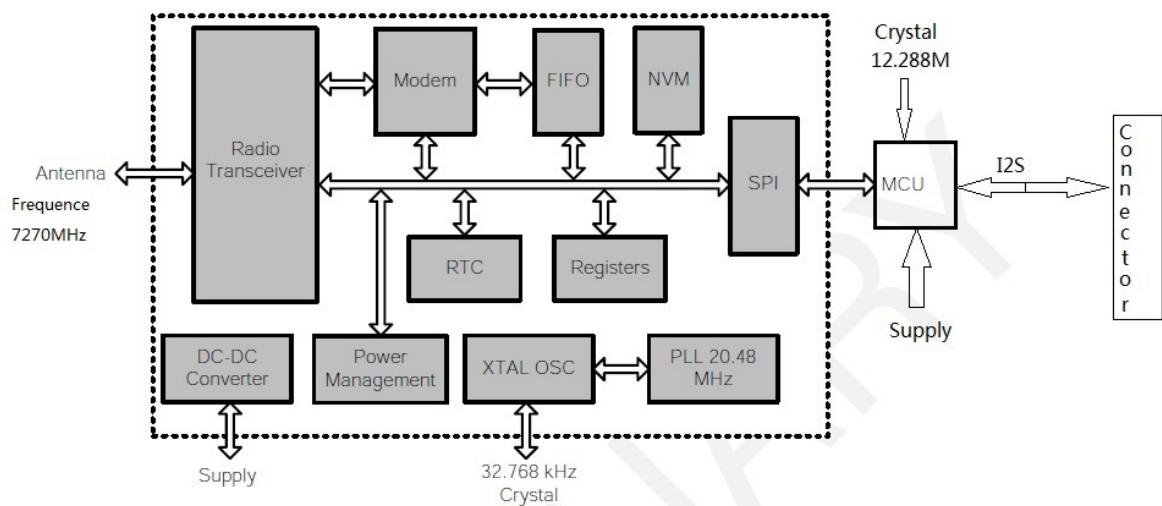
- Stereo Wireless transmission.

4 Specifications

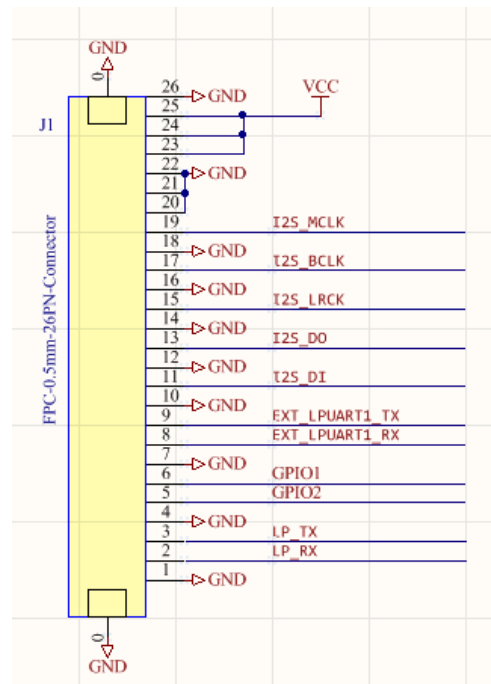
Model	UWB module
Bluetooth specifications	Fully qualified single-chip dual-mode Bluetooth v5.1system
Modulation mode	2BPPM
Supply voltage	5V
Working current	$\leq 50\text{mA}$

Temperature range	- 40 ° C to + 85 ° C
Wireless transmission range	more than 5m
Transmission power	3dBm/20MHz tunable TX symbol energy
Sensitivity	- 75dBm/20MHz RX sensitivity
Frequency range	7270MHz
External interface	UART, I2S, GPIO
Module size	40mm x 49mm x 11.0mm

5 Block Diagram



6 Pin view



7 Pin Assignment

Pin No.	Pin Name	Pin Type	Description
1	GND	GND	Common Ground
2	LP_RX	USART RX	USART RX for debug
3	LP_TX	USART TX	USART TX for debug
4	GND	GND	Common Ground
5	GPIO2	GPIO	General-purpose IO
6	GPIO1	GPIO	General-purpose IO
7	GND	GND	Common Ground
8	EXT_LPUART1_RX	USART RX	Communicate with the host
9	EXT_LPUART1_TX	USART TX	Communicate with the host
10	GND	GND	Common Ground
11	I2S_DI	I2S	I2S data input
12	GND	GND	Common Ground
13	I2S_DO	Analog or digital	I2S data output

		input/ open drain output.	
14	GND	GND	Common Ground
15	I2S_LRCK	Supply	I2S LRCLK
16	GND	GND	Common Ground
17	I2S_BCLK	Supply	I2S BCLK
18	GND	GND	Common Ground
19	I2S_MCLK	GND	I2S MCLK
20	GND	GND	Common Ground
21	GND	GND	Common Ground
22	GND	GND	Common Ground
23	VCC	Supply	Power Supply (3.3V-5.0V)
24			
25			
26	GND	GND	Common Ground

8 Interfaces

8.1 USART Interface

Spark Module has two USART device interface: one for connection to a host , another for Module Debug.

8.2 GPIO

Spark Module has two digital I/O, The I/O pins used to Communicate with host.

8.3 Audio interfaces

- 24-bit I² S interface with 1 input and 1 output channels
- Programmable audio master clock (MCLK).

8.4 Power supply

For improving the noise, recommend adding one 10Uf capacitor on the power supply pin

9 General Specifications

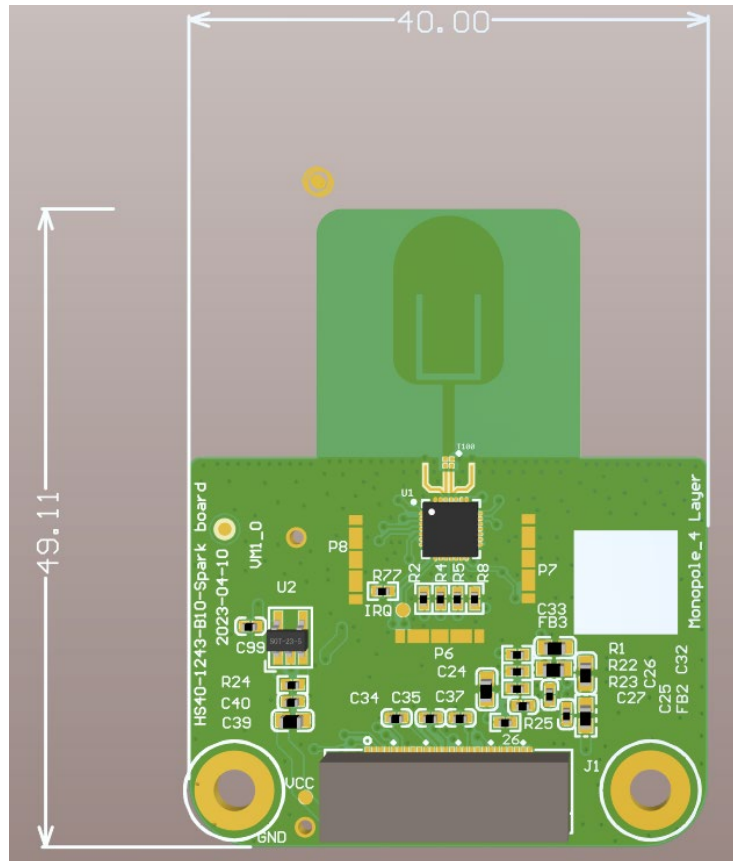
9.1 Absolute Maximum Ratings:

Ratings	Min.	Max.	Unit
Storage Temperature	-40	+85	°C
Supply Voltage (VCC)	-0.3	5.5	V
IO/I2S	-0.3	3.6	V

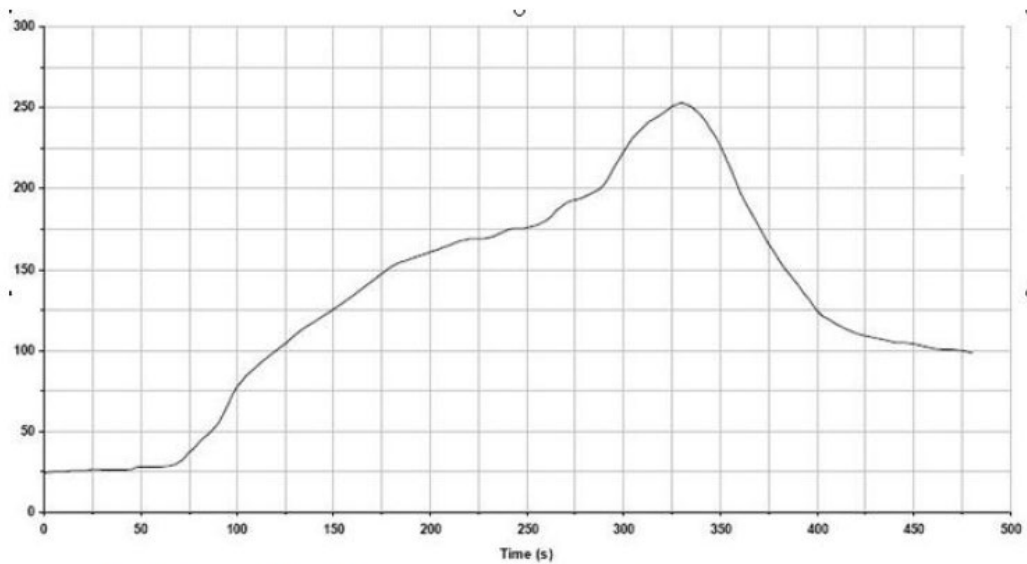
9.2 Recommended Operating Condition:

Ratings	Min	Typ	Max	Unit
Operating Temperature range	-40	20	+85	°C
Supply Voltage(VCC)	3.3	4	5.0	V
IO/I2S	-0.3	3.3	3.6	V

10 Module Dimension



11 Reflow temperature



Key features of the profile:

- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C

12 FCC ISED Statement

FCC

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.

This module transmitter is only authorized for the specific rule parts listed on the grant. And the host product manufacturer/OEM is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The modular doesn't comply with the requirements of Part 15 Subpart B. The host must comply with the requirements of Part 15 Subpart B.

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: XCO-SR1020". The FCC ID can be used only when all FCC compliance requirements are met.

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation or new certification.

Caution: Any changes or modifications not expressly approved by Hansong (Nanjing) Technology Co.,LTD. for compliance could void the user's authority to operate this equipment.

This module has been tested and found to comply with FCC Part 15F requirements for Modular Approval.

The module is tested for standalone mobile RF exposure use condition.

(1) The antenna must be installed such that 20 cm is maintained between the antenna and users,

(2) The transmitter module may not be co-located with any other transmitter or antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot 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 FCC authorization.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The antennas used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

Antenna Type and Gain

The following antenna has been certified for use with this module.

Only antennas of the same type with equal or lower gain may also be used with this module.

Other types of antennas and/or higher gain antennas may require the additional authorization for operation.

Antenna Specification list below:

Antenna Type	Frequency Bands (MHz)	Antenna Gain (dBi)
Monopole Antenna	7270	1.8

OEM/Host device integrated this module may only be operated indoors. Operation outdoors violates 47 U.S.C. 301 and could subject the operator to serious legal penalties.

UWB devices may not be employed to operate toys. Operation on board an aircraft, a ship, or a satellite is prohibited.

ISED

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.

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."

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

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de **20 cm** de distance entre la source de rayonnement et votre corps.

This transmitter module is authorized only for use in device where the antenna may be installed such that **20 cm** may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC: 7756A-SR1020".

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de **20 cm** peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC ID: 7756A-SR1020".

The transmitter module may not be co-located with any other transmitter or antenna. The OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

- 1) Operation shall be limited to indoor use only; and
- 2) This device is limited to under control an indoor access point or an indoor subordinate device and shall not be capable of initiating a network.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne. l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes

exigences de conformité supplémentaires requis pour ce module installé.

1) Utilisation limitée à l'intérieur seulement;

2) Ce dispositif est limité à un point d'accès à l'intérieur ou à un dispositif subordonné à l'intérieur et ne doit pas être capable d'initier un réseau.