CyberTAN Technology, Inc.

Model Name	JB413-A1
Description	Bluetooth Module
Version	Release V0.4.1
Date	October 16, 2023
Author	Ethan Lo

Revision History

Date	Release	Author	Description
2023-09-14	0.1	Ethan Lo	First preliminary release
2023-09-18	0.2	Ethan Lo	Second release
2023-09-22	0.3	Ethan Lo	Third release
2023-10-16	0.4.1	Ethan Lo	Fourth release

Related Documents

Date	Author	Description
		QCA BlueCore® CSR8811 WLCSP

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1. OVERVIEW

The CSR8811 WLCSP is a product from CSR's Connectivity Centre. It is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems including EDR to 3Mbits/s and Bluetooth low energy. CSR8811 WLCSP's dual-mode radio enables it to connect to the billions of Bluetooth products already on the market, as well as a new generation of Bluetooth low energy devices.
When used with CSR Synergy® Software and a CSR UniFi ® wireless chip, CSR8811 WLCSP provides a system fully qualifiable to the Bluetooth v4.1 for faster file transfer.

Features

- Fully qualified Bluetooth® v4.1 system
- Full-speed Bluetooth operation with full piconet and scatternet support
- Class 1 Bluetooth power level supported
- High-sensitivity Bluetooth receiver
- On-chip SBC encoding
- On-chip balun
- Low-power selectable 1.2 to 3.6V I/O
- Integrated I/O and core regulators
- High-speed UART port (up to 4Mbps)
- PCM/I2S digital audio interface
- Support for IEEE 802.11 coexistence
- HFP v1.6 wide-band speech supported on-chip
- Optimised for use on low-cost PCBs
- 28-ball 2.57 x 3.21 x 0.6mm 0.5mm pitch WLCSP
- Green (RoHS compliant and no

1.1 Basic Specifications

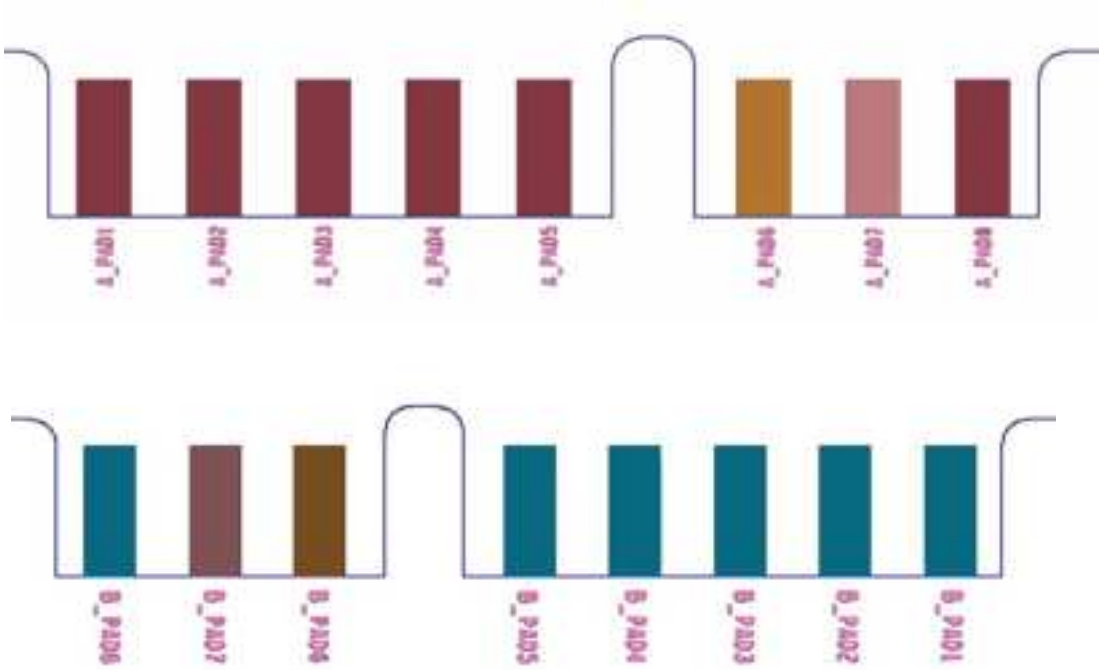
Table 1: Basic Specifications

Model Number	JB413-A1
Product Type	Bluetooth Module
Main Chip(s)	CSR8811A12
Connector	8 Pin GOLDEN FINGER
Bluetooth Standard(s)	Bluetooth v4.1 specification, supports BR/EDR/LE
Bluetooth Operation Frequency	2.402 - 2.480 GHz
Bluetooth Data Rates	1Mbps BR, 2Mbps and 3Mbps EDR, 1Mbps LE support
Power Requirements	Supplying Voltage: 3.3V±5%
Dimensions	38 x 22 x 1mm
Regulatory Conformance	EMI: FCC Part 15b, Part 15c
Normal Operating Temperature:	-10~ +50°C
Functional Temperature:	-30~ +70°C

2. MECHANICAL CHARACTERISTICS

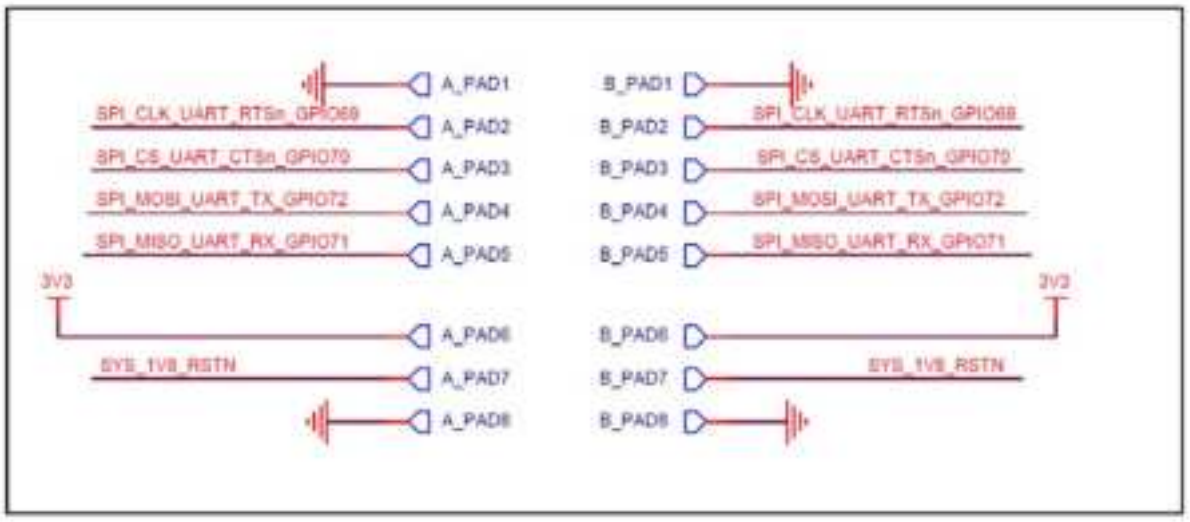
2.1 Pin Number

The logical definitions of the module's pins are depicted below

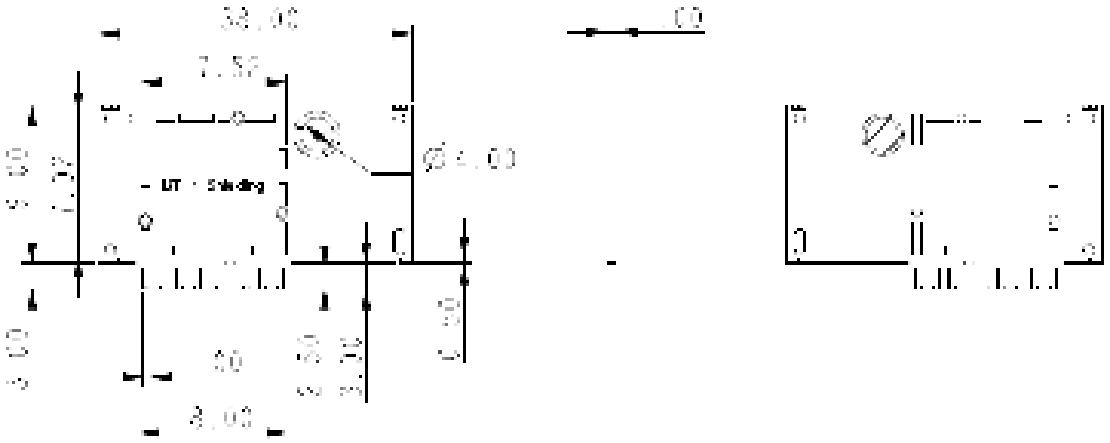


2.2 Pin Out Definitions

The logical definitions of the module's pins are depicted below



2.3 Module Dimensions



3. PIN AND SIGNAL DESCRIPTIONS

3.1 Pin Definition

Table 2: Pin Definition

No	Definition	Description	Remark
A_PAD1/B_PAD1	GND	Ground	
A_PAD2/B_PAD2	SPI_CLK_UART_RTSn	UART request to send, active low.	
A_PAD3/B_PAD3	SPI_CS_UART_CTSn	UART clear to send, active low.	
A_PAD4/B_PAD4	SPI_MOSI_UART_TX	UART data output, active high.	
A_PAD5/B_PAD5	SPI_MISO_UART_RX	UART data input, active high.	
A_PAD6/B_PAD6	3V3	3.3V Power Voltage	
A_PAD7/B_PAD7	SYS_1V8_RSTN	Take high to enable internal regulators. Also acts as active low reset.	
A_PAD8/B_PAD8	GND	Ground	

4. EMI CERTIFICATION NOTES

It is recommended that the module be entirely encased in metal shielding to ensure meeting FCC and CE requirements.

5. REGULATORY INFORMATION

5.1 FCC Statement

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 use in accordance with the instructions, may cause harmful interference 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 modification not expressly approved by the party responsible for compliance could void the use'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.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.
Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without C2PC

This device is restricted for indoor use.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC 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.

IMPORTANT NOTE:
This module is intended for OEM integrator. This module is only FCC authorized for the specific rule parts listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.
Additional testing and certification may be necessary when multiple modules are used.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under st1ch configuration, the FCC radiation exposure limits set forth for a population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:
In the user's manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:
The final end product must be labeled in a visible area with the following "Contains TX FCC ID: N89-JB413A1V1". This device complies with Part 15 of 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.

Antenna List:

Ant.	Brand	Part No.	Antenna Type	Connector	Gain (dBi)		
					2.4GHz	5GHz	Bluetooth
1	INPAQ	ACA-2012-A1-CC-S	Chip Antenna	--	--	--	1.72