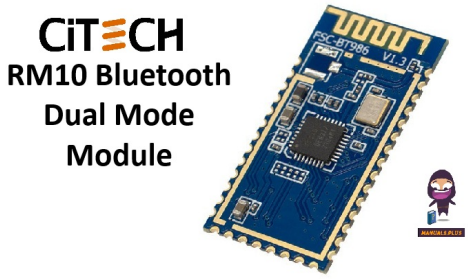
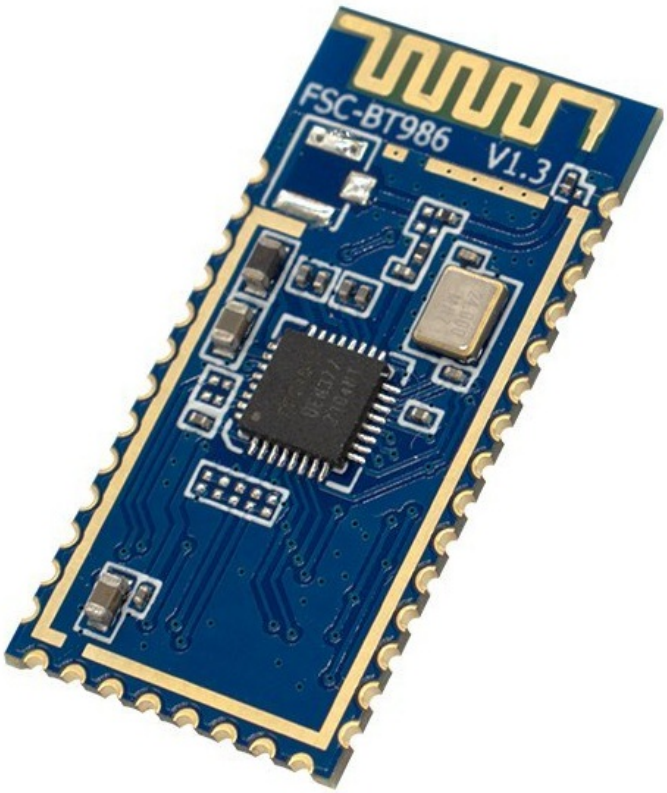


CITECH RM10 Bluetooth Dual Mode Module Instructions

Contents

CITECH

CITECH RM10 Bluetooth Dual Mode Module



Specifications

Categories	Features	Implementation
	Chip	QCC3083
	Bluetooth Version	V5.1 Dual-mode
		2402MHz ~ 2480MHz
	Raw Data Rates (Air)	Mbps (Classic BT – BR/EDR)
Host Interface Peripherals	UART Interface	TX, RX, CTS, RTS
		General Purpose I/O
		Default 115200, N,8,1
		Baudrate support from 1200 to 4000000
	GPIO	20 (maximum – configurable) lines
		O/P drive strength (2, 4, 8, or 12 mA)
		Pull-up resistor (33 KΩ) control
	SPI Interface	SPI debug and programming interface with read access disable locking
	USB Interface	1 full-speed (12Mbps)
Supply Voltage	Supply	4.75V ~ 5.5V

Overview
RM10 is a Bluetooth dual-mode module series. It supports a Bluetooth Low Energy and compliant system for

audio and data communication. RM10 integrates an ultra-low-power DSP and application processor with embedded flash memory, a high-performance stereo codec, a power management subsystem, I2S, LED drivers, and ADC I/O in a SOC IC. Both cores use external flash to execute code, making it easy for users to differentiate products from new features without delaying the development. By default, the RM10 module is equipped with powerful and easy-to-use Feasycom firmware. It's easy to use and completely encapsulated. Feasycom firmware enables users to access Bluetooth functionality with simple ASCII commands delivered to the module over a serial interface – it's just like a Bluetooth modem. Therefore, RM10 provides an ideal solution for developers who want to integrate Bluetooth wireless technology into their design.

Features

- Qualified to Bluetooth® v5.1 specification
- 32 MHz Developer Processor for applications
- Firmware Processor for the system
- Advanced audio algorithms
- High-performance 24-bit stereo audio interface
- Digital and analog microphone interfaces
- I2S/PCM, SPDIF interfaces input/output
- SBC and AAC audio codecs support
- Serial interfaces: UART, Bit Serializer (I²C/SPI) ,USB 2.0
- Integrated PMU: Dual SMPS for system/digital circuits, Integrated Li-ion battery charger

Application subsystem

Dual-core application subsystem 32 MHz operation

32-bit Firmware Processor:

- Reserved for system use
- Runs Bluetooth upper stack, profiles, and house-keeping code

32-bit Developer Processor:

- Runs developer applications
    - Both cores execute code from external flash memory using QSPI clocked at 32MHz
    - On-chip caches per core allow for optimized performance and power consumption

Bluetooth subsystem

- Qualified to Bluetooth v5.1 specification, including
- 2 Mbps Bluetooth low energy(Production parts)
- Single-ended antenna connection with on-chip balun and Tx/Rx switch
- Bluetooth, Bluetooth low energy, and mixed topologies are supported
- Class 1 support

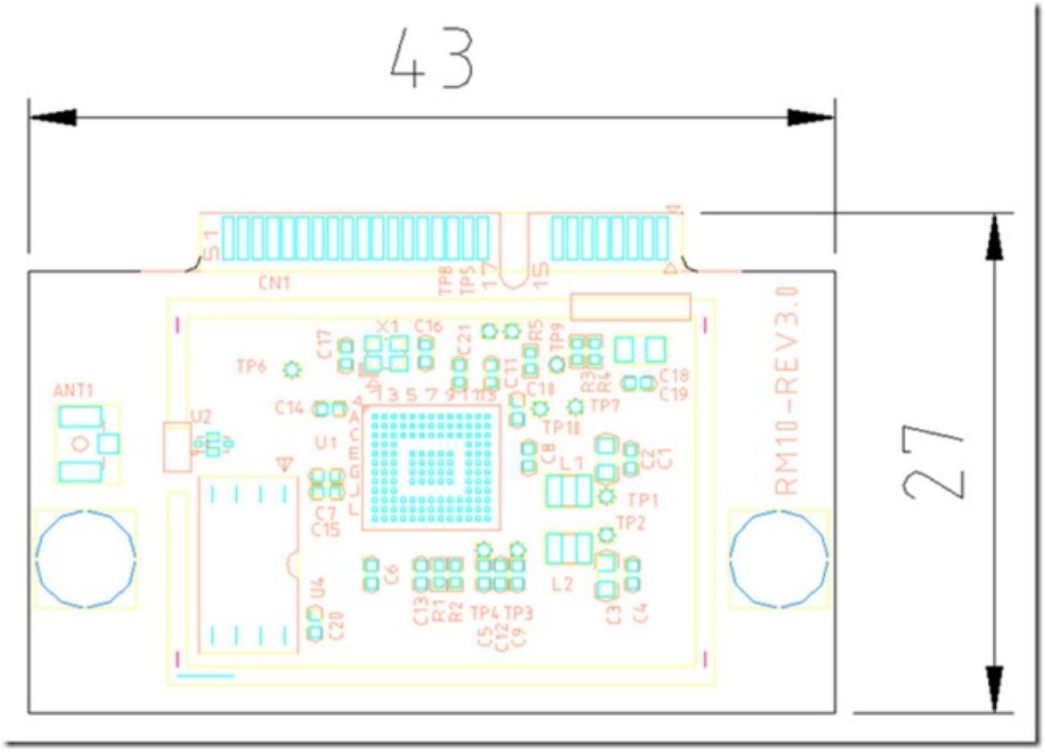
Application

- Bluetooth speakers
- Bluetooth music box

PIN Definition Descriptions

1	I2S_PCM_DOUT[0]	22	PIO-32
2	PIO-31	23	GND
3	I2S_PCM_MCLK	24	GND
4	BT_UART_TX	25	BT_UART_RTSN
5	I2S_PCM_SYNC	26	GND
6	BT_UART_CTSN	27	BT_UART_RX
7	GND	28	GND
8	PIO-33	29	GND
9	GND	30	I2S_PCM_DIN[0]
10	GND	31	GND
11	VCC_5V0	32	GND
12	BT_USB_DN	33	GND
13	VCC_5V0	34	GND
14	BT_USB_DP	35	GND
15	VCC_5V0	36	GND
16	GND	37	GND
17	BT_SYS_CTRL	38	GND
18	TBR_MOSI	39	GND
19	TBR_CLK	40	GND
20	BT-RESET#	41	GND
21	TBR_MISO	42	GND
43	GND	48	GND
44	GND	49	GND
45	GND	50	GND
46	GND	51	1V8_SMPS
47	GND	52	GND

Mechanical Details



Usage Instructions

Power Supply Connection
Connect the supply voltage within the specified range of 4.75V to 5.5V to power the Bluetooth module.

Interface Connections
Make the necessary connections for TX, RX, CTS, RTS, General Purpose I/O, UART, SPI, and USB interfaces as per the provided pin definitions.

Bluetooth Pairing
Follow the standard Bluetooth pairing procedure to connect the module to your desired host device.

Data Transmission
Utilize the implemented interfaces for data transmission at the supported data rates over the Bluetooth connection.

FCC Approval
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 equipment has been tested and found to comply with the limits for a Class B digital device, under 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, nd can radiate radio frequency energy and, if not installed and used according to 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 to 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.

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 should be installed and operated with minimum 20 cm between the radiator and your body.

INTEGRATION INSTRUCTIONS

List of applicable FCC rules
This module complies with Part 15.247 of the FCC rule. Summarize the specific operational use conditions. Not applicable.e

Limited module procedures
This is Limited modular approval as this module is limited to installation by the grantee into our host systems. This module is certified as limited modular approval as it does not have its own power supply regulator, therefore the host device must supply a rated voltage(5V) using a voltage regulator or equivalent.
Note: Please check that the voltage is between 4.75V and 5.5V when a rated voltage is applied to the module. Host product manufacturers are responsible to follow the integration guidance and to perform a limited set of transmitter module verification testing, to ensure the end product is in compliance with the FCC rules.

Trace antenna designs
Not applicable

RF exposure considerations
This module complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. If RF exposure statements and use conditions are not provided, then the host product manufacturer is required to take responsibility for the module through a change in FCC ID (new application). Antenna: The antenna that can be used with the transmitter is as follows. Antenna Model Name: RS151, Type: PCB Antenna, Gain: 2.7,6dBi Cable: RPSMA to IPEX Cable, Loss: 0.46dB

Label and compliance information
The module is labeled with its own FCC. If the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. In that case, in the end product must be labeled in a visible area with the following: "Contains FCC ID: 2ANYL-RM10." The host manual shall include the following regulatory statement: 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.

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 should be installed and operated with a minimum of 20 cm between the radiator and your body.

Information on test modes and additional testing requirements
Testing of the host product with all the transmitters installed – referred to as the composite investigation test- is recommended to verify that the host product meets all the applicable FCC rules. The host manufacturer can use the software to control the RF signal during the etest

Additional testing, Part 15 Subpart B disclaimer
The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and the host product manufacturer is responsible for compliance with any other FCC rules that apply to the

host not covered by the modular transmitter grant of certification. The host product may need to be evaluated against the FCC Part 15B criteria for unintentional radiators to be properly authorized for operation as a Part 15 digital device. Note EMI Considerations: Not applicable.

FAQs

Q: What is the default baud rate for the UART interface?

A: The default baud rate for the UART interface is set to 11520 0,N,8,1, but it supports baud rates ranging from 1200 to 4000000.

Documents / Resources

RM10 Bluetooth Module	**CITECH RM10 Bluetooth Dual Mode Module** [pdf] Instructions RM10, 2ANYL-RM10, 2ANYLRM10, RM10 Bluetooth Dual Mode Module, RM10, Bluetooth Dual Mode Module, Dual Mode Module, Mode Module

References

- **User Manual**