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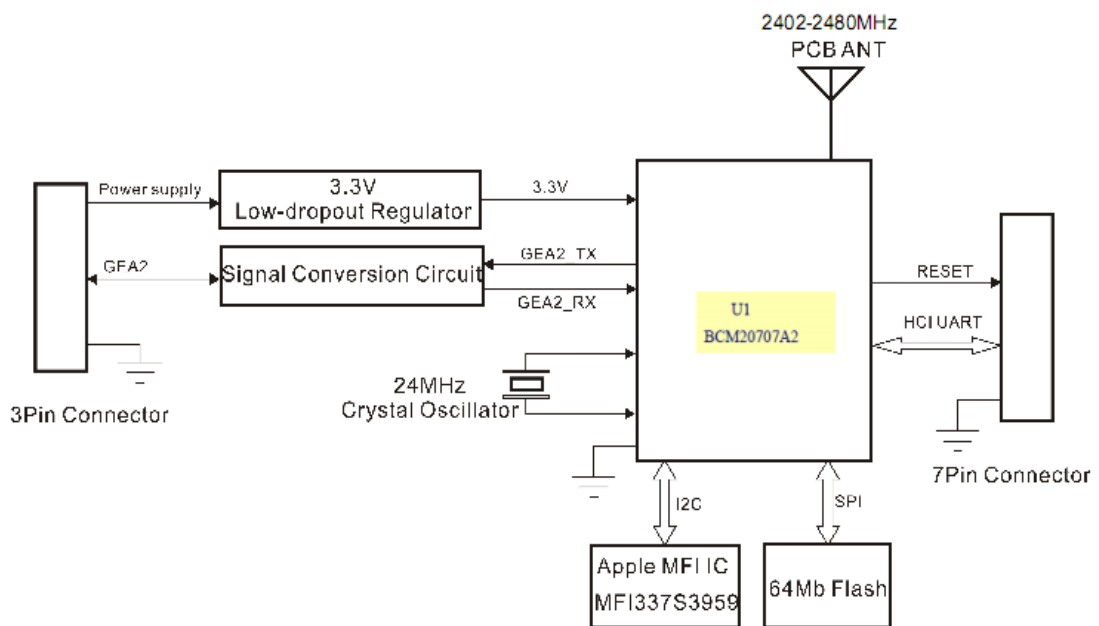
1.Summary

The Module which use the Cypress® CYW20707UA2 that is a single-chip Bluetooth 4.2-compliant, stand-alone baseband processor with an integrated 2.4 GHz transceiver.

Features:

- 1) Complies with Bluetooth Core Specification version 4.2 including BR/EDR, without BLE mode.
- 2) Bluetooth Device ID profile version 1.3 compliant
- 3) Supports Generic Access Profile (GAP)
- 4) Supports Adaptive Frequency Hopping (AFH)
- 5) Excellent receiver sensitivity

2.Functional Block Diagram



3.Module Hardware Characteristic

3.1 RF Specifications

1.Receiver RF Specifications

Parameter	Conditions	Minimum	Typical ¹	Maximum	Unit
General					
Frequency range	–	2402	–	2480	MHz
RX sensitivity ²	GFSK, 0.1% BER, 1 Mbps	–	–93.5	–	dBm
	GFSK, 0.1% BER, 1 Mbps	–	–96.5	–	dBm
	$\pi/4$ -DQPSK, 0.01% BER, 2 Mbps	–	–95.5	–	dBm
	8-DPSK, 0.01% BER, 3 Mbps	–	–89.5	–	dBm
Maximum input	GFSK, 1 Mbps	–	–	–20	dBm
Maximum input	$\pi/4$ -DQPSK, 8-DPSK, 2/3 Mbps	–	–	–20	dBm
Interference Performance					
C/I cochannel	GFSK, 0.1% BER	–	9.5	11	dB
C/I 1 MHz adjacent channel	GFSK, 0.1% BER	–	–5	0	dB
C/I 2 MHz adjacent channel	GFSK, 0.1% BER	–	–40	–30.0	dB
C/I \geq 3 MHz adjacent channel	GFSK, 0.1% BER	–	–49	–40.0	dB
C/I image channel	GFSK, 0.1% BER	–	–27	–9.0	dB
C/I 1 MHz adjacent to image channel	GFSK, 0.1% BER	–	–37	–20.0	dB
C/I cochannel	$\pi/4$ -DQPSK, 0.1% BER	–	11	13	dB
C/I 1 MHz adjacent channel	$\pi/4$ -DQPSK, 0.1% BER	–	–8	0	dB
C/I 2 MHz adjacent channel	$\pi/4$ -DQPSK, 0.1% BER	–	–40	–30.0	dB
C/I \geq 3 MHz adjacent channel	8-DPSK, 0.1% BER	–	–50	–40.0	dB
C/I image channel	$\pi/4$ -DQPSK, 0.1% BER	–	–27	–7.0	dB
C/I 1 MHz adjacent to image channel	$\pi/4$ -DQPSK, 0.1% BER	–	–40	–20.0	dB
C/I cochannel	8-DPSK, 0.1% BER	–	17	21	dB
C/I 1 MHz adjacent channel	8-DPSK, 0.1% BER	–	–5	5	dB
C/I 2 MHz adjacent channel	8-DPSK, 0.1% BER	–	–40	–25.0	dB
C/I \geq 3 MHz adjacent channel	8-DPSK, 0.1% BER	–	–47	–33.0	dB
C/I Image channel	8-DPSK, 0.1% BER	–	–20	0	dB
C/I 1 MHz adjacent to image channel	8-DPSK, 0.1% BER	–	–35	–13.0	dB
Out-of-Band Blocking Performance (CW)³					
30 MHz–2000 MHz	0.1% BER	–	–10.0	–	dBm
2000–2399 MHz	0.1% BER	–	–27	–	dBm
2498–3000 MHz	0.1% BER	–	–27	–	dBm
3000 MHz–12.75 GHz	0.1% BER	–	–10.0	–	dBm

2. Transmitter RF Specifications

Parameter	Conditions	Minimum	Typical	Maximum	Unit
General					
Frequency range	–	2402	–	2480	MHz
Class1: GFSK Tx power ¹	–	–	12	–	dBm
Class1: EDR Tx power ²	–	–	9	–	dBm
Class 2: GFSK Tx power	–	–	2	–	dBm
Power control step	–	2	4	8	dB
Modulation Accuracy					
$\pi/4$ -DQPSK Frequency Stability	–	–10	–	10	kHz
$\pi/4$ -DQPSK RMS DEVM	–	–	–	20	%
$\pi/4$ -QPSK Peak DEVM	–	–	–	35	%
$\pi/4$ -DQPSK 99% DEVM	–	–	–	30	%
8-DPSK frequency stability	–	–10	–	10	kHz
8-DPSK RMS DEVM	–	–	–	13	%
8-DPSK Peak DEVM	–	–	–	25	%
8-DPSK 99% DEVM	–	–	–	20	%
In-Band Spurious Emissions					
1.0 MHz < M – N < 1.5 MHz	–	–	–	–26	dBc
1.5 MHz < M – N < 2.5 MHz	–	–	–	–20	dBm
M – N \geq 2.5 MHz	–	–	–	–40	dBm
Out-of-Band Spurious Emissions					
30 MHz to 1 GHz	–	–	–	–36.0 ³	dBm
1 GHz to 12.75 GHz	–	–	–	–30.0 ^{3, 4}	dBm
1.8 GHz to 1.9 GHz	–	–	–	–47.0	dBm
5.15 GHz to 5.3 GHz	–	–	–	–47.0	dBm

1. 12 dBm output for GFSK measured with PAVDD = 2.5V.
2. 9 dBm output for EDR measured with PAVDD = 2.5V.
3. Maximum value is the value required for Bluetooth qualification.
4. Meets this spec using a front-end band pass filter.

4. Antenna: PCB Antenna.

5. Antenna Gain: 1.43dBi(Peak),

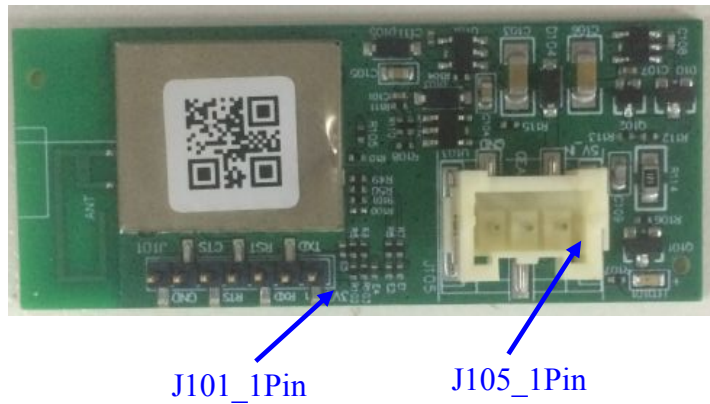
3.2 Electrical Characteristics

1. Operation temperature range: $-25^{\circ}\text{C} \sim +85^{\circ}\text{C}$
2. Storage temperature range: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

4. Connector pin definitions

7Pin connector (J101)model:TMM-107-01-F-S-SM

3Pin connector(J105) model:BM03B-XASS-TF



J101 connector pin definition

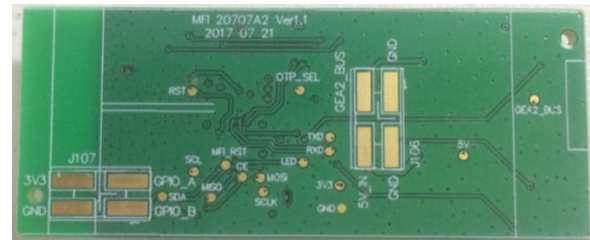
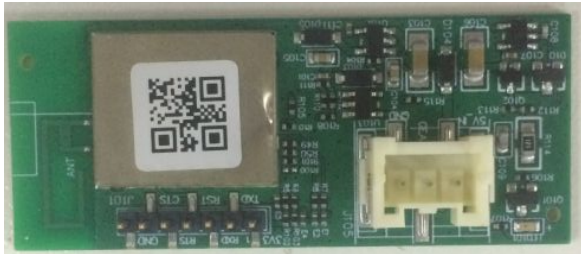
Pin	Signal	Description	Remark
1	3V3	Output voltage:3.3V typ	
2	TXD	20707 HCI UART_TX: UART transmit data	
3	RXD	20707 HCI UART_RX:UART receive data	
4	RST	20707 Reset :Active-low reset input	
5	RTS	20707 HCI UART_RTS: UART request to send output	
6	CTS	20707 HCI UART_CTS:UART clear to send input	
7	GND	Ground	

J105 connector pin definition

Pin	Signal	Description	Remark
1	5V_IN	Power supply Range:4V~6.5V(5V typ)	
2	GEA2	Communication signals	
3	GND	Ground	

5. Module Size

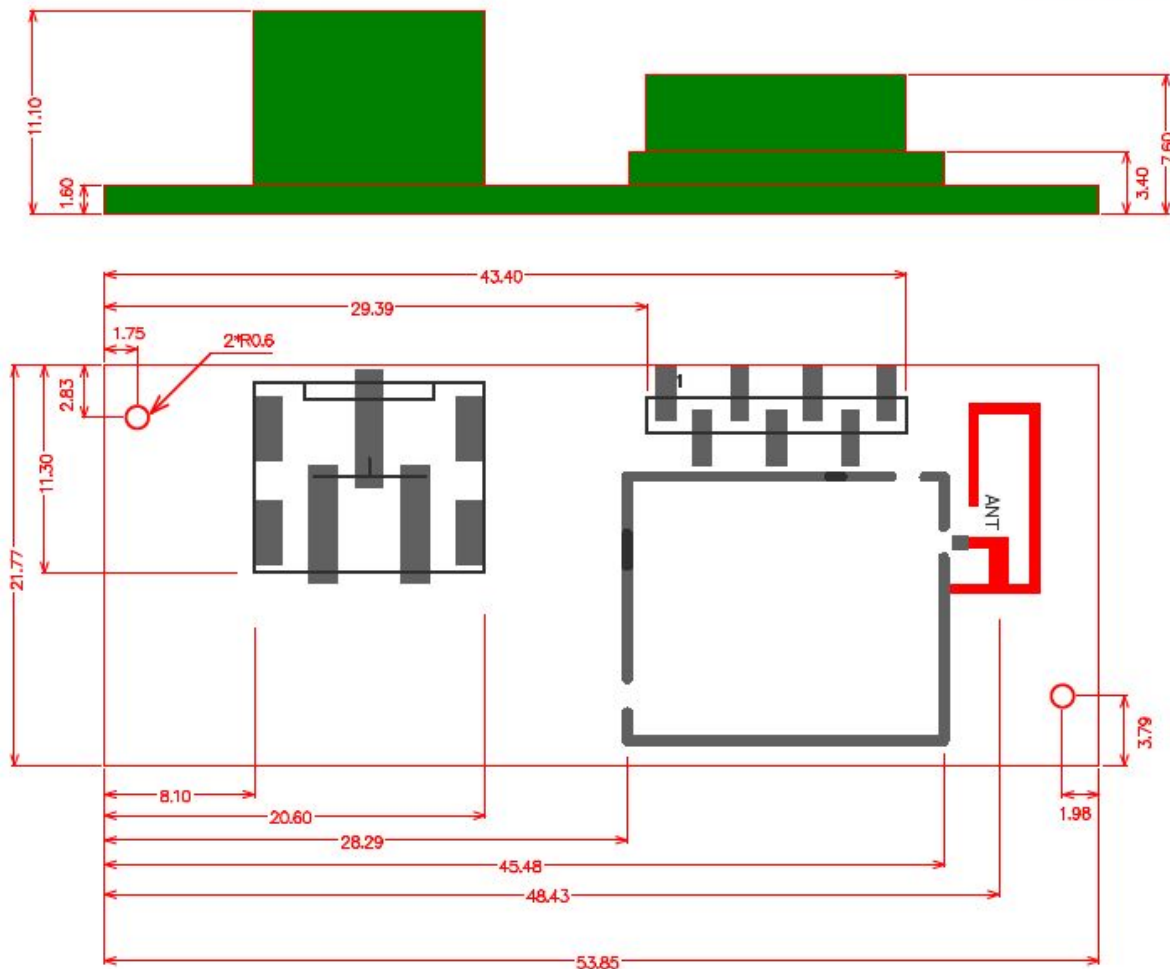
5.1 Sample Picture



5.2 Mechanical Dimensions

Unit :mm

Tolerance: $\pm 0.15\text{mm}$



FCC 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.

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

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

If the FCC identification number 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. This exterior label can use wording such as the following:

"Contains Transmitter Module FCC ID: ZKJ-BLEC002 Or Contains FCC ID: ZKJ-BLEC002"

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

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

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product .