SPECIFICATION

2.4GHz Low Power
RF transceiver module

Mode： **Sub-2.4GHz RF Module**

IC Part No： CC2340R5   **TEXAS INSTRUMENTS**

Module Part No： TC2340-F512-XX

Version： V13

Date： 2023/11/27

■ Applications

◆ Medical (Home healthcare)

◆ Home and building automation

◆ Lighting (LED luminarice,Lighting Control)

◆ Factory automation and control

◆ Communication equipment

◆ Personal electronics

■ Features

● Wireless microcontroller

– 2.4 GHz RF transceiver compatible with

– Bluetooth® 5.3 Low Energy

– lntegrated balun

–Supports over-the-air upgrade (OTA)

–Serial Wire Debug (SWD)

– Operating temperature range from -40°C to +85°C

● Low power consumption:

– 5.3 mA RX

– 5.1 mA TX @ 0 dBm   (System bus off refers to device idle mode, DMA disabled, flash disabled)

– < 11.0 mA TX at +8 dBm

● RF features

– Programmable RF output power up to +8 dBm

● Supply voltage

– Max：+3.8 V

■ Selection Guide

Part No.： TC2340-F512-XX

SA : PCB Antenna
SE : External Antenna

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■ Operating range

Parameter	Min	Typ	Max	Units	Condition/Note
Operating battery supply voltage	2.0	3	3.8	V	
Operating ambient temperature range	-40	+25	+85	°C	

■ Electrical Specifications

● Current Consumption

Parameter	Min	Typ	Max	Units	Condition/Note
Current consumption in power down modes		150		nA	shutdown mode
		2.6			active mode
		710		uA	standby mode
Current consumption(TX Power 0dbm)		19.3		mA	Supply voltage=3.8V
		16.2		mA	Supply voltage=3.0V
		10.3		mA	Supply voltage=2.0V

● RF Receive Section

Parameter	Min	Typ	Max	Units	Condition/Note
Current consumption, RX states(2.44Ghz)		-101		dBm	125kbps(LE Coded)
		-94		dBm	1Mbps(LE 1M)
		-90.5		dBm	2Mbps(LE 2M)

● RF Output power

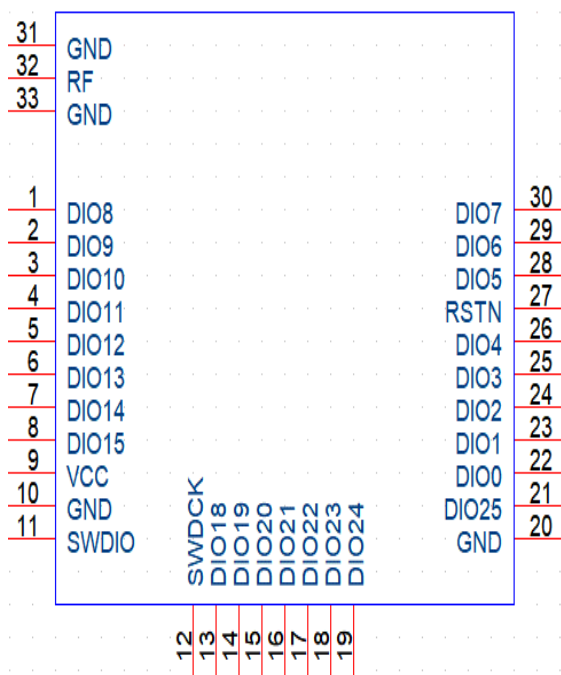| Parameter	Min	Typ	Max	Units	Condition/Note
Current consumption, TX states(2.44Ghz)		+7.8		dBm	Power supply=3V
		+5		dBm	Power supply=3V
		0		dBm	Power supply=3V

■ RF Module Dimension
- Module dimension information -
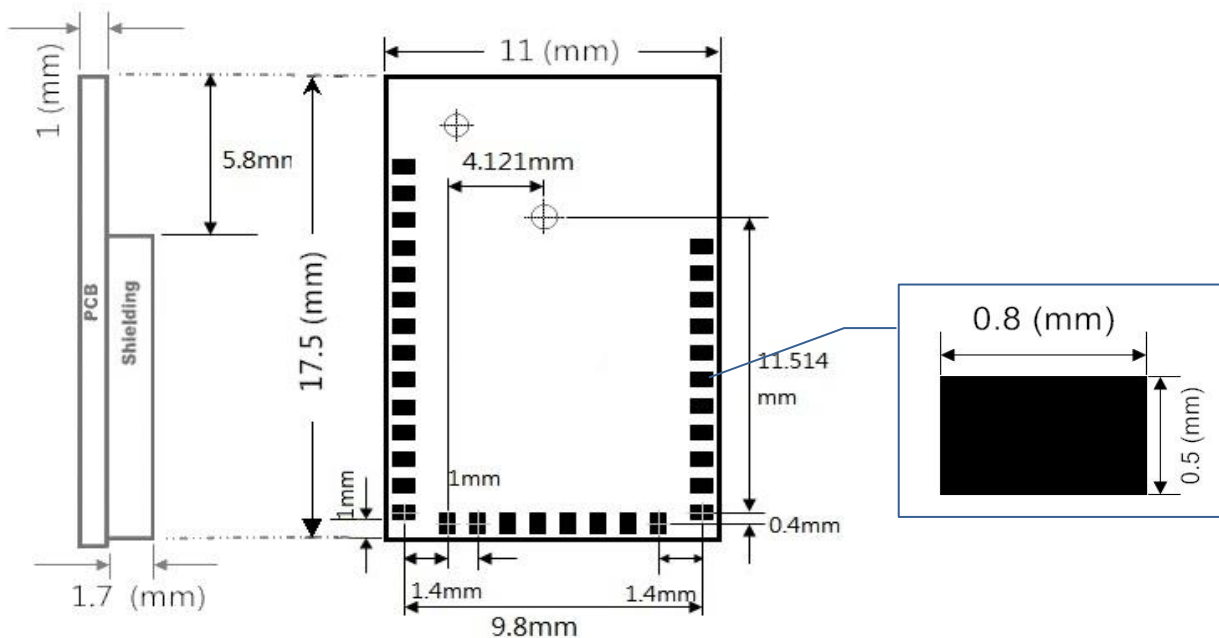
- Pin define information -

Front top view

Pin	Name		Pin	Name
31	GND			
32	RF			
33	GND			
1	DIO8		30	DIO7
2	DIO9		29	DIO6
3	DIO10		28	DIO5
4	DIO11		27	RSTN
5	DIO12		26	DIO4
6	DIO13		25	DIO3
7	DIO14		24	DIO2
8	DIO15		23	DIO1
9	VCC		22	DIO0
10	GND		21	DIO25
11	SWDIO		20	GND

SWDCK DIO18 DIO19 DIO20 DIO21 DIO22 DIO23 DIO24
12 13 14 15 16 17 18 19

Reverse bottom view

Pin #1

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■ RF Module Pin Configuration

Pin #	Pin name	Pin type	Description
▲1	DIO8	Digital I/O	GPIO
2	DIO9	Digital I/O	GPIO
3	DIO10	Digital I/O	GPIO
4	DIO11	Digital I/O	GPIO
5	DIO12	Digital I/O	GPIO
6	DIO13	Digital I/O	GPIO
7	DIO14	Digital I/O	GPIO
8	DIO15	Digital I/O	GPIO
9	VCC	(Digital)	Power supply 1.8 V to 3.6 V
10	GND	Ground	Ground
11	SWDIO	Digital I/O	SWD interface: mode select or SWDIO, high-drive capability
12	SWDCK	Digital I/O	SWD interface: clock, high-drive capability
13	DIO18	Digital I/O	GPIO
14	DIO19	Digital I/O	GPIO
15	DIO20	Digital/Analog	analog capability
16	DIO21	Digital/Analog	analog capability
17	DIO22	Digital/Analog	analog capability
18	DIO23	Digital/Analog	analog capability
19	DIO24	Digital/Analog	analog capability
20	GND	Ground	Ground
21	DIO25	Digital/Analog	analog capability
22	DIO0	Digital/Analog	analog capability
23	DIO1	Digital/Analog	analog capability
24	DIO2	Digital/Analog	analog capability
25	DIO3_X32P	Digital/Analog	32-kHz crystal oscillator pin 1
26	DIO4_X32N	Digital/Analog	32-kHz crystal oscillator pin 2
27	RSTN	Digital I/O	Reset, active low. internal pullup resistor
28	DIO5	Digital/Analog	analog capability
29	DIO6	Digital/Analog	analog capability
30	DIO7	Digital/Analog	analog capability
31	GND	Ground	Ground
32	ANT	RF	External Antenna (50 Ohm)
33	GND	Ground	Ground

Antenna Radiation Pattern

Frequency(GHz)= 2.44	
Antenna efficiency(%)≈ 35	
Peak Gain(dbi) ≈ 2	
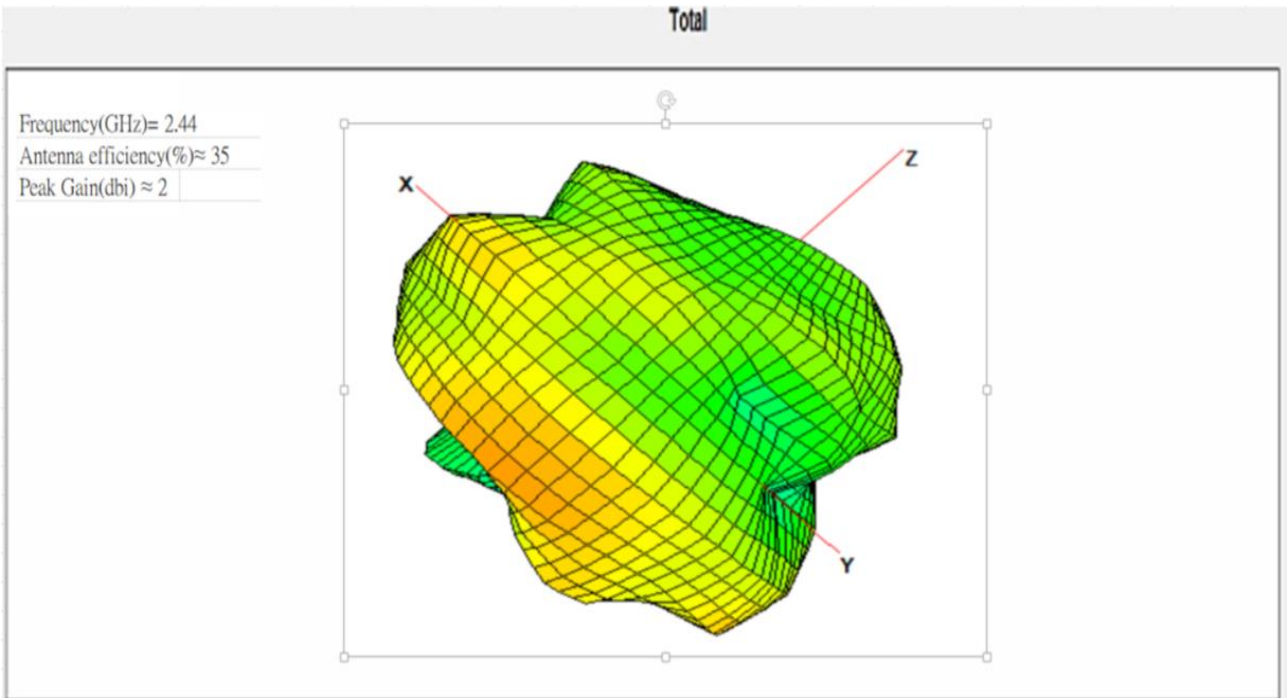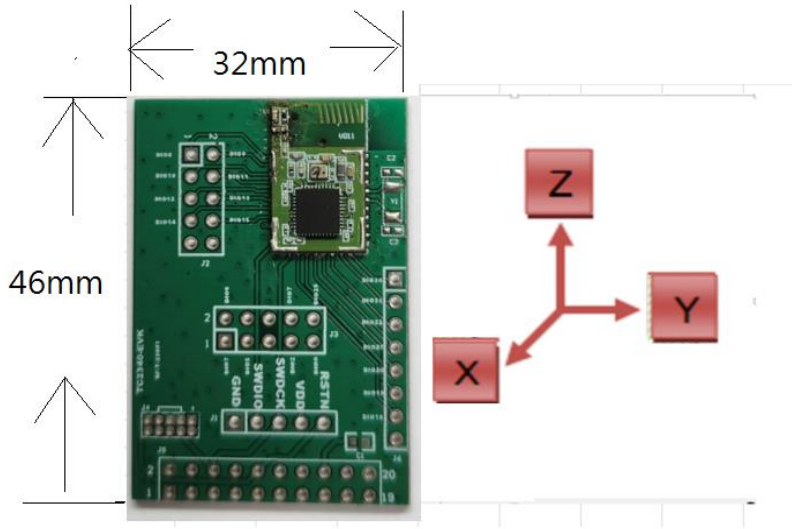
■ **Example schematic:**
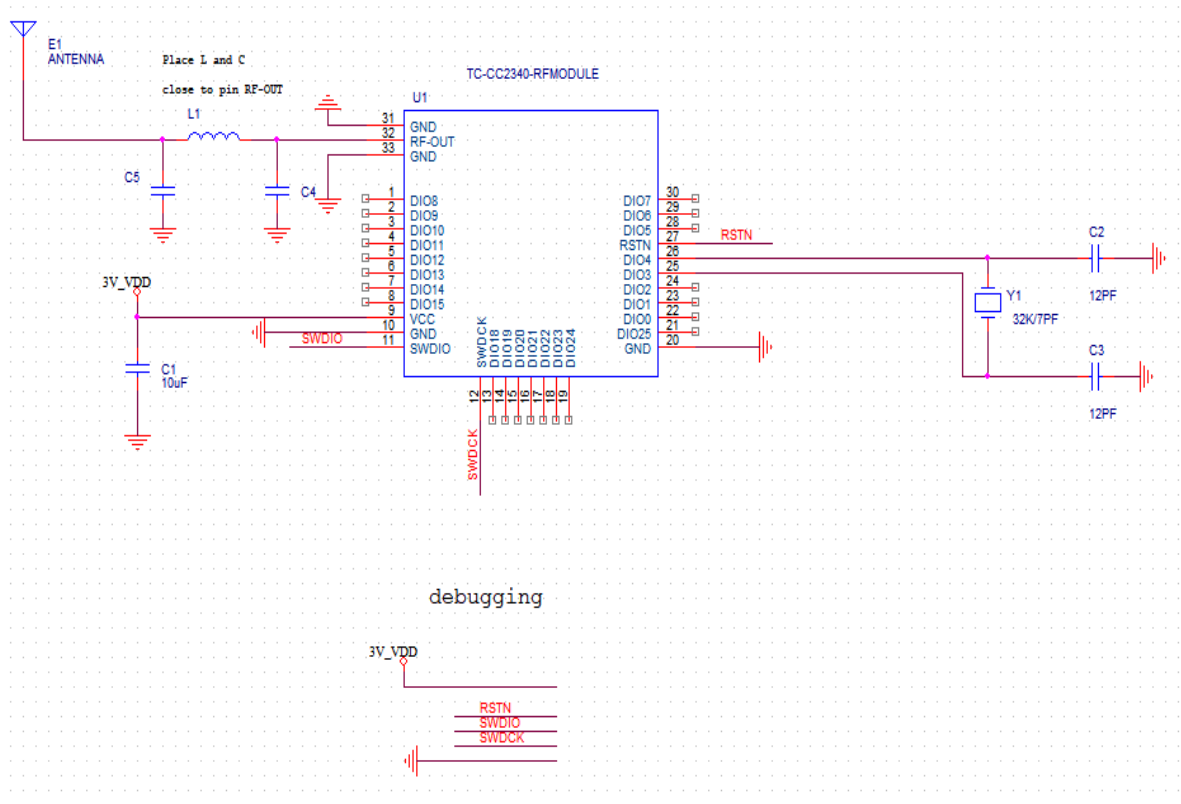
■ Document History

Revision	Date	Description/Changes
v10	2023.5.23	
v11	2023.5.29	Add module size.
v12	2023.6.2	Update module size
V13	2023.11.27	Update antenna radiation pattern by EVM

■ Address Information

■ RIFO'S PRODUCTS

Standard RF Module	
• RF Transmitters	• RF Receivers
• RF Transceivers	• 2.4GHz RF Modules
• 2.4GHz - IEEE802.15.4	• Bluetooth RF Module
• SimpleLink™ Wi-Fi®	• Digital Audio Streaming
• NFC	• Antenna

Market Solutions
- Optical Sensor Module
- Motion Module
- Programmable Control Board
- iBeacon Module
- G-Bike Sensor Module

Tools & Demo kit
- Wearable devices Solution
- BLE Demo kit1
- BLE Demo kit2
- iBeacon Module

Finished products
- Bluetooth headset
- Bluetooth speaker
- Wireless IP Camera