RC-CC1352-XXX

Radio((Controlli
Wireless Modules

Dual band sub 1GHz and 2.4GHz Multichannels Radio Transceiver

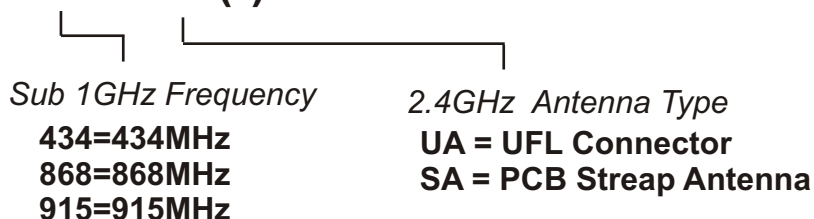The **RC-CC1352-XXX** module is based on Texas Instruments CC1352R component.

The CC1352R device is a multiprotocol Sub-1 and 2.4-GHz wireless MCU targeting Wireless M-Bus, IEEE 802.15.4g, IPv6-enabled smart objects (6LoWPAN), Thread, Zigbee®, KNX RF, Wi-SUN®, Bluetooth® 5 low energy, and proprietary systems.

The CC1352R device is a member of the CC26xx and CC13xx family of cost-effective, ultra-low power, 2.4-GHz and Sub-1 GHz RF devices. Very low active RF and microcontroller (MCU) current, in addition to sub-µA sleep current with up to 80KB of RAM retention, provide excellent battery lifetime and allow operation on small coin-cell batteries and in energy-harvesting applications.
The CC1352R device combines a flexible, very low-power RF transceiver with a powerful 48-MHz Arm® Cortex®-M4F CPU in a platform supporting multiple physical layers and RF standards. A dedicated Radio Controller (Arm® Cortex®-M0) handles low-level RF protocol commands that are stored in ROM or RAM, thus ensuring ultra-low power and great flexibility. The low power consumption of the CC1352R device does not come at the expense of RF performance; the CC1352R device has excellent sensitivity and robustness (selectivity and blocking performance).

Module Information :

RC-CC1352 - XXX - XX(*)

Sub 1GHz Frequency
434=434MHz
868=868MHz
915=915MHz

2.4GHz Antenna Type
UA = UFL Connector
SA = PCB Streap Antenna

(*) If not specified, the default version is with PCB streap antenna

Applications :

- Low-Power Wireless Systems

- Smart Grid and Automatic Meter Reading

- Home and Building Automation

- Wireless Sensor Network

- 6LoWPAN systems

Feature :

- IEEE 802.15.4g mode switch support

- Ultra Low consumption technology

- Powerful ARM Cortex

- Supported by the open platform Contiki 6LoWPAN.

- Very Small size

RC-CC1352-XXX

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Technical Characteristics

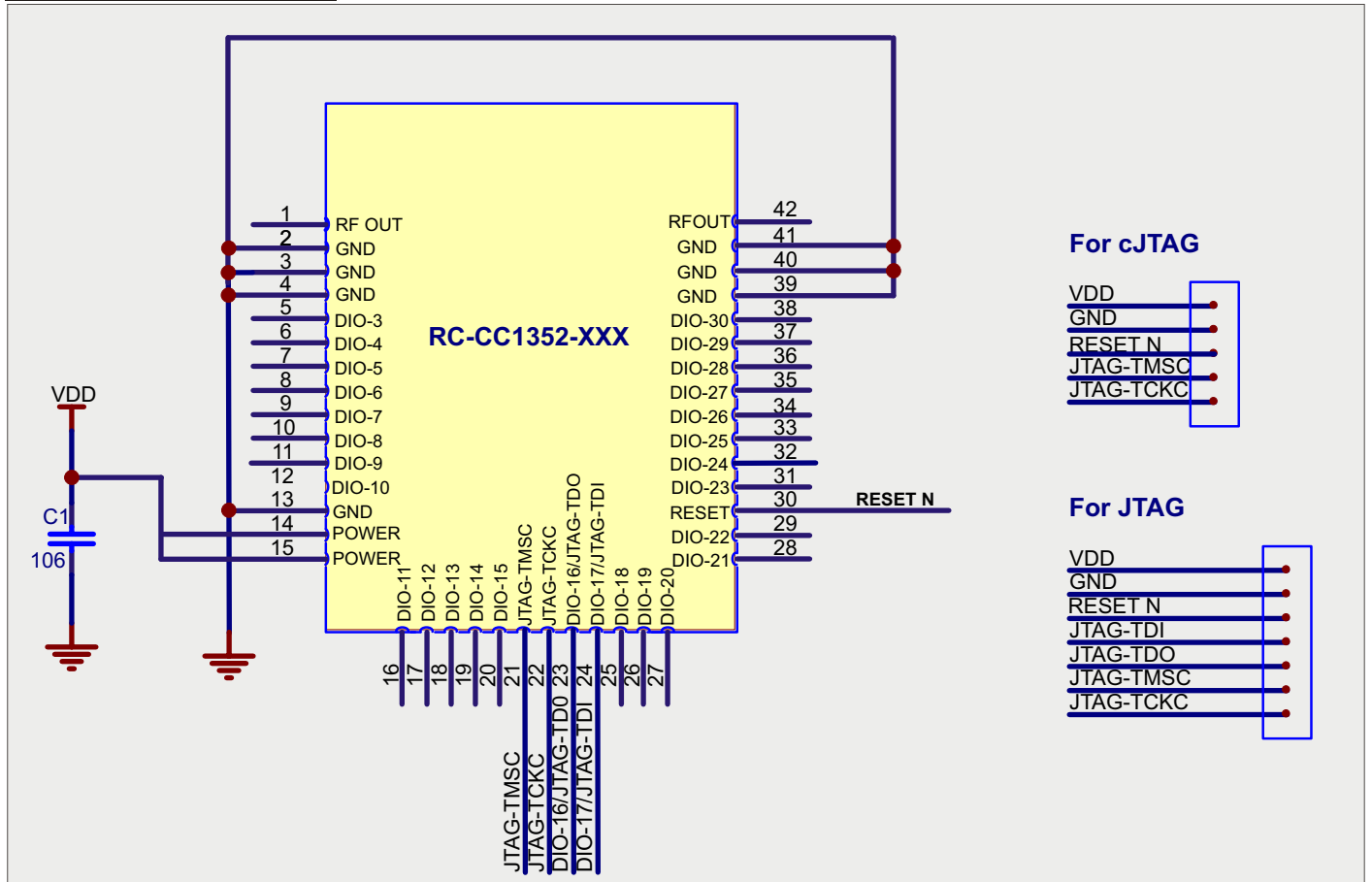| Sub 1 GHz parameters	MIN	TYP	MAX	UNIT
Supply Voltage	1.8	3	3.8	VDC
Supply Current RX mode		8.1		mA
Supply Current TX mode ---> +10dBm		13.4		mA
Supply Current TX mode ---> +14dBm		24		mA
Supply Current Standby Mode		0.1		µA
RF Power Output 50ohm (*)			+14	dBm
Operative Frequency		434/868/915		MHz
RF Sensitivity 50kbps		- 110		dBm
RF Sensitivity long range mode 2.5Kbps		- 122		dBm
Data Rate (*)	0,01		4	Mbit/s
Operative Temperature	-30		+75	°C

(*) Programmable parameter.

MICROCONTROLLER:
- Power ARM Cortex - M4F processor
- Up to 48MHz Clock Speed
- 352Kb of On-System Programming Flash
- 256KB of ROM for Protocol and Firmware
- 8KB of SRAM for Cache (or as General-Purpose RAM)
- 80KB of Ultralow Leakege SRAM
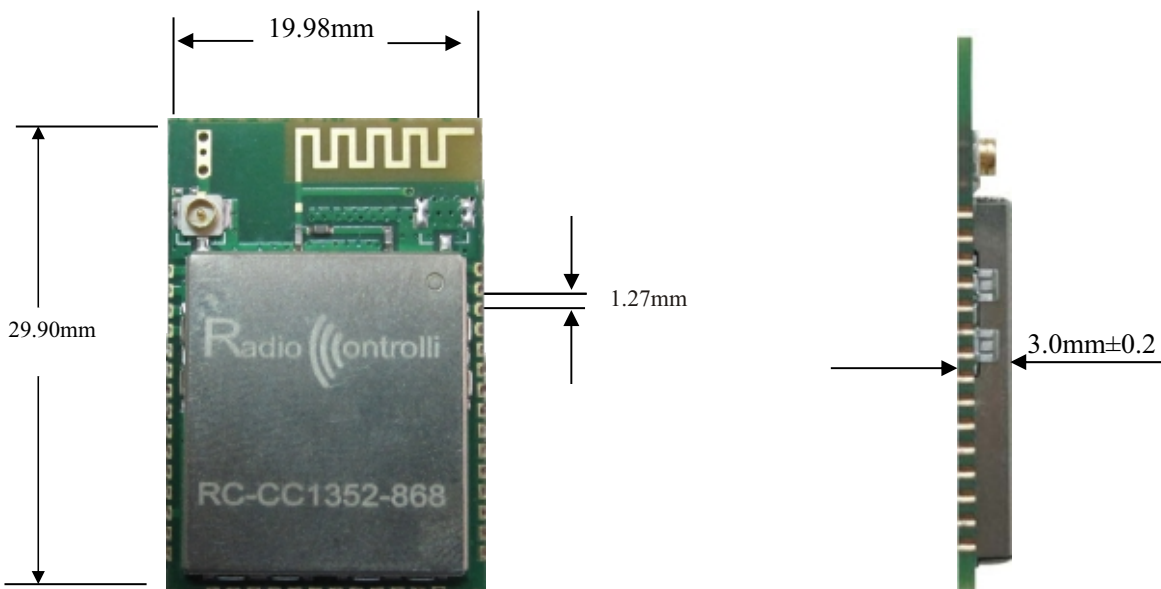- Support Over-the-Air Upgrade (OTA)

Technical Characteristics

2.4 Ghz parameters	MIN	TYP	MAX	UNIT
Supply Voltage	1.8	3	3.8	VDC
Supply Current RX mode		8.0		mA
Supply Current TX mode		10		mA
Supply Current Standby Mode		0.1		µA
TX Power			5	dBm

For more information and details, please refer to the CC1352R Texas Instruments datasheet.

Radiocontrolli s.r.l refuses any responsibility for irregular uses of the devices and for any possible lack or inaccuracy of the data and reserves the right to change in whole or in part these information without notice.

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Rev 1.5

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Reference Schematics

Mechanical dimensions

19.98mm

29.90mm

1.27mm

3.0mm±0.2

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Terminal description RC-CC1352-XXX

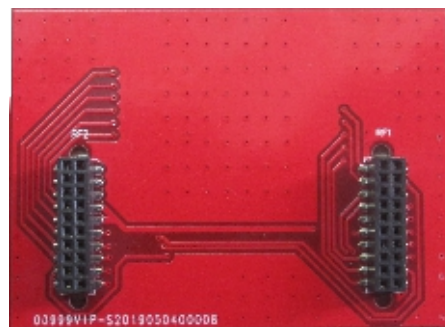| Pads	Name	Description
1	RFOUT	Sub 1GHz RFOUT
2	GND	Ground
3	GND	Ground
4	GND	Ground
5	DIO-3	GPIO, Sensor Controller
6	DIO-4	GPIO, Sensor Controller
7	DIO-5	GPIO, Sensor Controller, High drive capability
8	DIO-6	GPIO, Sensor Controller, High drive capability
9	DIO-7	GPIO, Sensor Controller, High drive capability
10	DIO-8	GPIO Digital
11	DIO-9	GPIO Digital
12	DIO-10	GPIO Digital
13	GND	Ground
14	VDD	Power
15	VDD	Power
16	DIO-11	GPIO Digital
17	DIO-12	GPIO Digital
18	DIO-13	GPIO Digital
19	DIO-14	GPIO Digital
20	DIO-15	GPIO Digital
21	JTAG-TMSC	JTAG TMSC, High drive capability
22	JTAG-TCKC	JTAG TCKC
23	DIO-16	GPIO,JTAG -TDO, High drive capability
24	DIO-17	GPIO,JTAG-TDI, High drive capability
25	DIO-18	GPIO Digital
26	DIO-19	GPIO Digital
27	DIO-20	GPIO Digital
28	DIO-21	GPIO Digital
29	DIO-22	GPIO Digital
30	RESET-N	RESET, (Active low ,No internal pull up)
31	DIO-23	GPIO Digital
32	DIO-24	GPIO, Sensor Controller, Analog
33	DIO-25	GPIO, Sensor Controller, Analog
34	DIO-26	GPIO, Sensor Controller, Analog
35	DIO-27	GPIO, Sensor Controller, Analog
36	DIO-28	GPIO, Sensor Controller, Analog
37	DIO-29	GPIO, Sensor Controller, Analog
38	DIO-30	GPIO, Sensor Controller, Analog
39	GND	Ground
40	GND	Ground
41	GND	Ground
42	RFOUT	2.4GHz RFOUT

Pin out device

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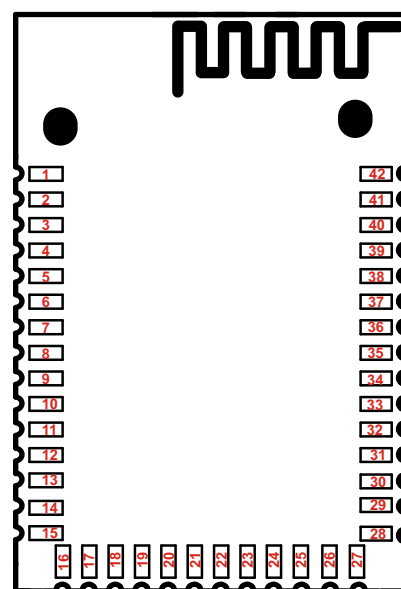
RC-CC1352-XXX Adapter board

To make immediate usable the RC-CC1352-XXX module with TI development systems has been realized the following board adapter.
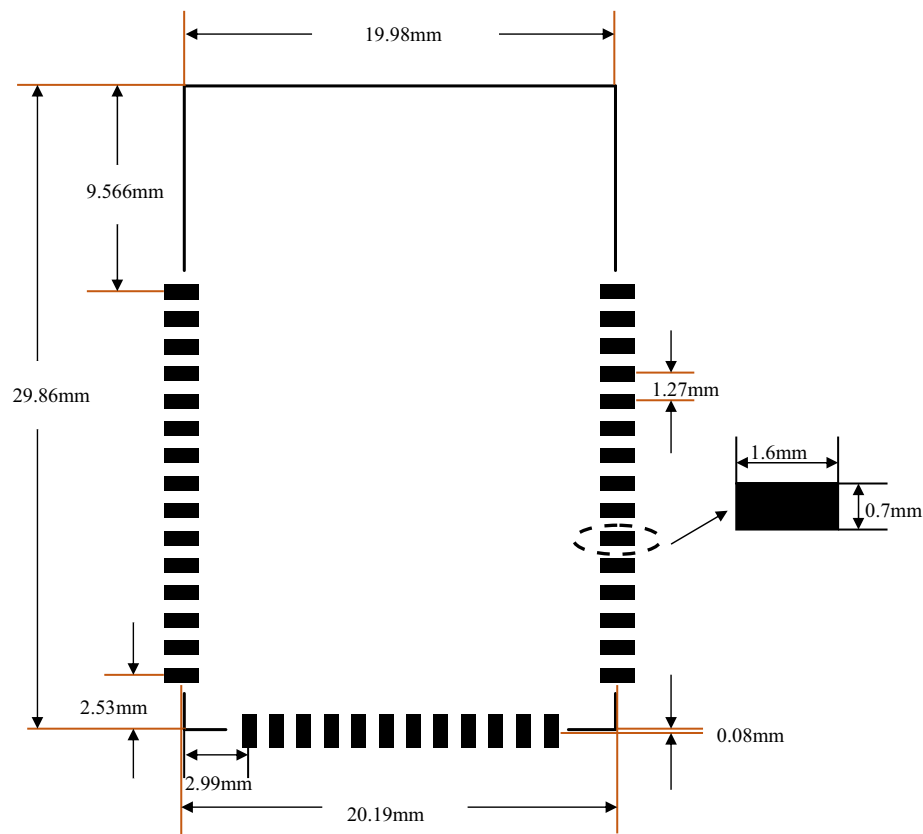
Adapter board front

Adapter board rear

SMART RF06 Evaluation board (TI)

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Recommended PCB Layout

- 19.98mm
- 9.566mm
- 29.86mm
- 1.27mm
- 1.6mm
- 0.7mm
- 2.53mm
- 0.08mm
- 2.99mm
- 20.19mm

Recommended Reflow Profile for Lead Free Solder

(°C)

Peak: 240 $^{+5}_{0}$°C

230°C or higher

2°C to 6°C/s

Pre-heating Zone

(3°C to 6°C/s)

180°C

150°C

90 ± 30 s

2°C to 4°C/s

20 ± 10 s

Soldering Zone

Heating time

Temperature

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