

Dual band sub 1GHz and 2.4GHz Multichannels Radio Transceiver

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

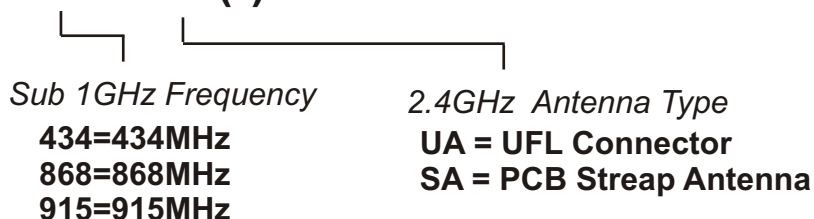
The CC1352R device is a multiprotocol Sub-1 and 2.4-GHz wireless MCU targeting Wireless M-Bus, IEEE 802.15.4g, IPv6-enabled smart objects (6LoWPAN), Thread, Zigbee®, KNX RF, Wi-SUN®, Bluetooth® 5 low energy, and proprietary systems.



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(*)



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 M4F CPU
- Supported by the open protocols like 6LoWPAN.
- Very Small size



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 Leakage SRAM
- Support Over-the-Air Upgrade (OTA)

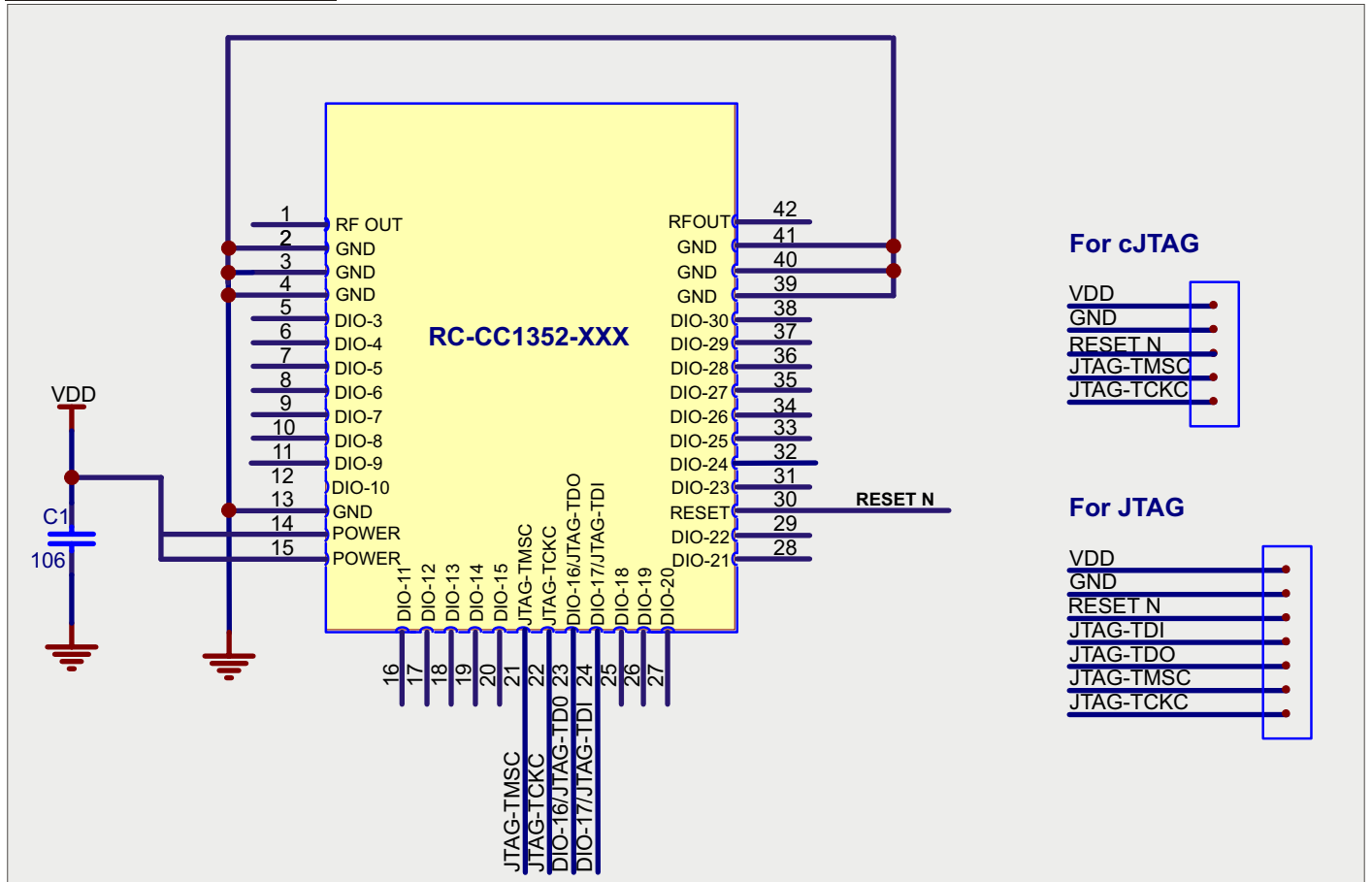
Technical Characteristics

| 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 |

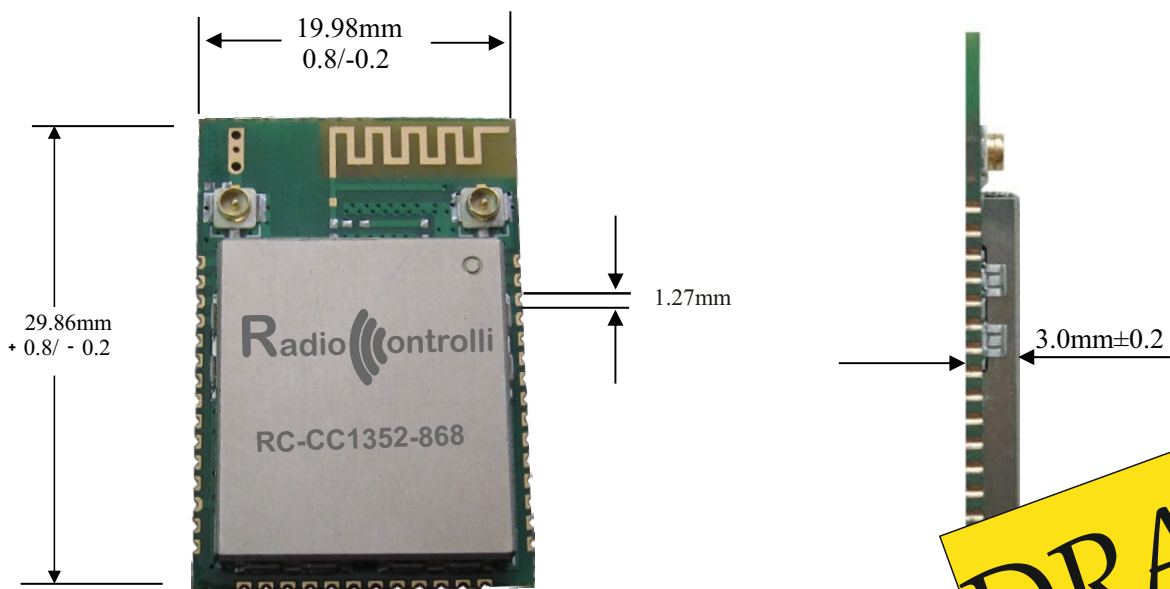
For more information and details, please refer to the CC1352R Texas Instruments data sheet.



Reference Schematics



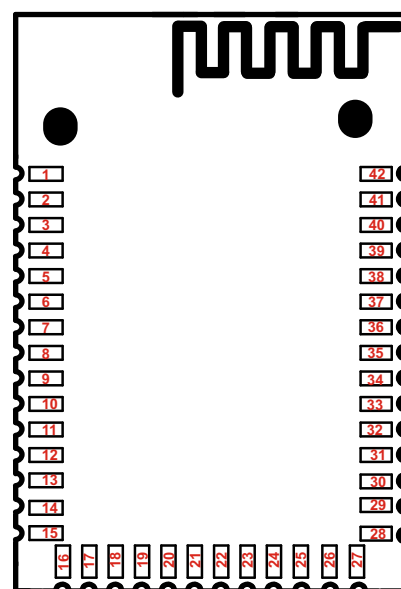
Mechanical dimensions



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Terminal description RC-CC1352-XXX

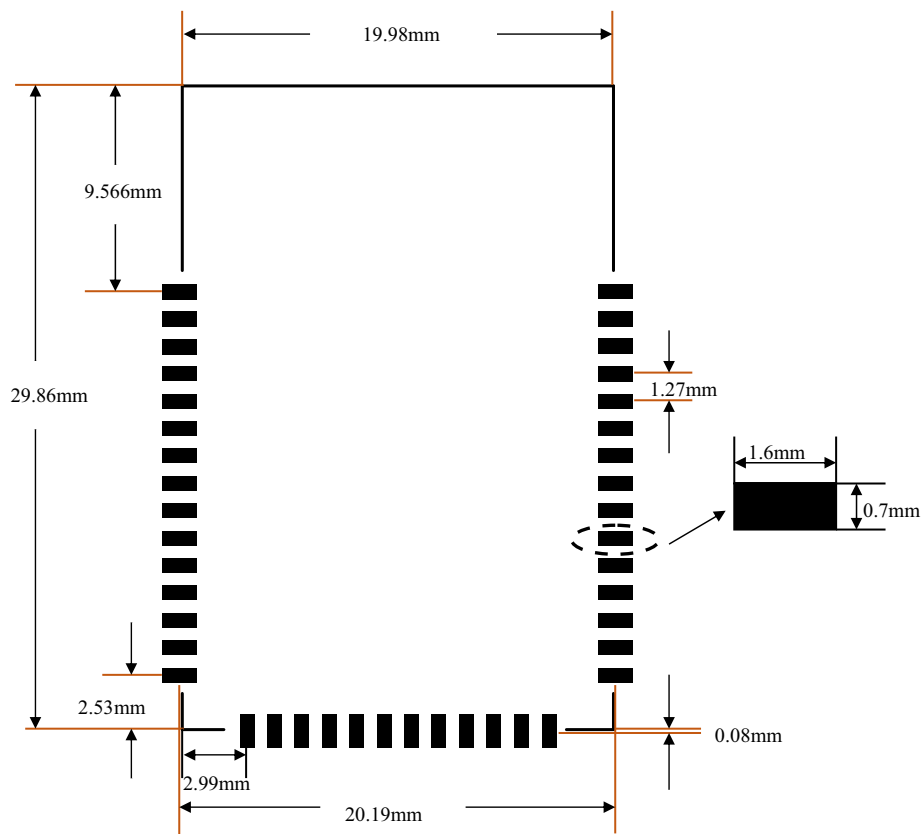
| Pads | Name | Description |
|------|-----------|--|
| 1 | RFOUT | Sub 1GHz RFOUT |
| 2 | GND | Ground |
| 3 | GND | Ground |
| 4 | GND | Ground |
| 5 | DIO-3 | GPIO, Sensor Controller |
| 6 | DIO-4 | GPIO, Sensor Controller |
| 7 | DIO-5 | GPIO, Sensor Controller, High drive capability |
| 8 | DIO-6 | 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, JTAG -TDO, High drive capability |
| 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 |



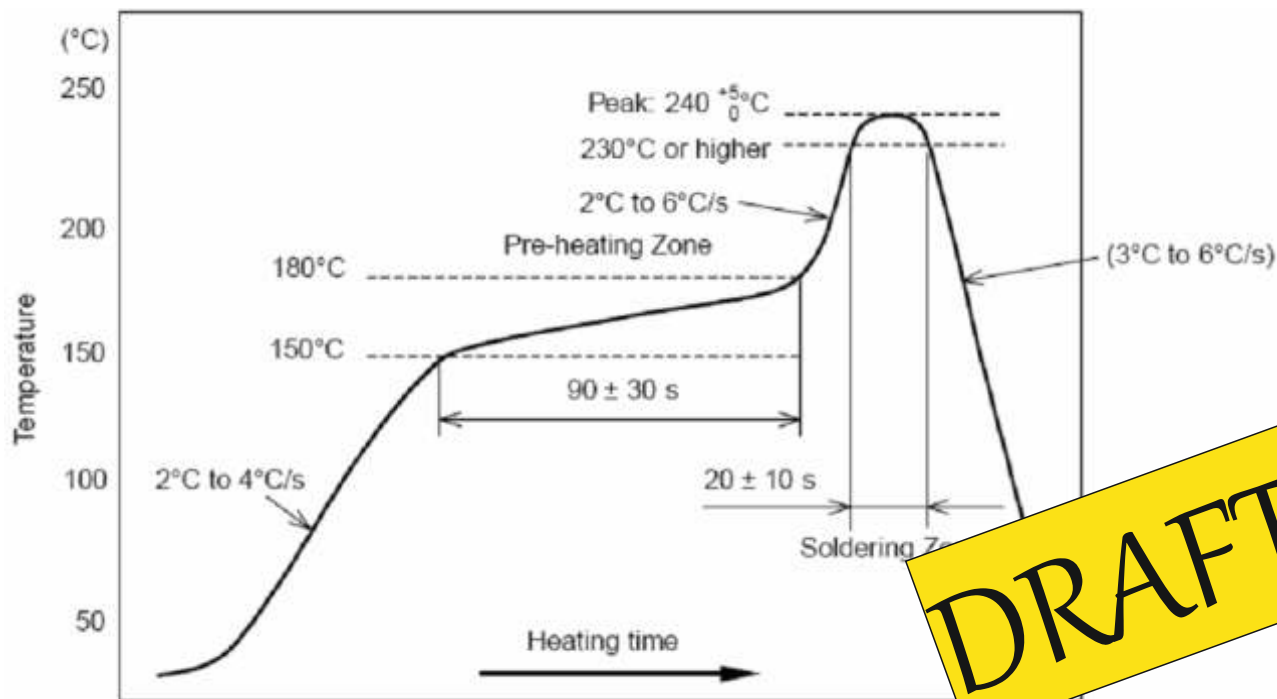
Pin out device

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Recommended PCB Layout



Recommended Reflow Profile for Lead Free Solder



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