Radiocontrolli®
WIRELESS MODULES

Ultra Low Power sub 1GHz Multichannels Radio Transceiver Miniaturized

The **RF-CC1310** module is based on Texas Instruments CC1310F128 component. This device combines a flexible, very low power RF transceiver with a powerful 48 MHz Cortex M3 microcontroller in a platform supporting multiple physical layers and RF standard. Miniaturized version.

Module Information :	*Frequency*
RF-CC1310	**868/915MHz**

Sub-1Ghz technology is becoming one of the chief driving forces behind the **Internet of Things (Iot)**, in particular this type of module is ideal for this applications basically for the following reasons :

Ultra low power consumption, the consumption of this device is 5.5mA when receiving and 23.5mA when transmitting at +14dBm (13.4mA at +10dBm) in sleep mode the consumption is 0.6µA (microamps).

Long range operations, the sensitivity parameter is -110dBm at data rates of 50 kbps and down to -124dBm when the data rate is 0.625kbps.
Interference from other wireless communications can be overcome with 90dB of blocking.
The RF output power levels can reach up to +14dBm.
All this ensure a robust signaling for long range communications.

SimpleLink-Easylink compatibility,ultra-low power platform designed (from TI) to easily implement the long-range connectivity with low power consumption on the Internet of Things projects (IoT).

TI-15.4 Stack, IEEE802.15.4e/g Standard Based Star Networking Software Designed for long **r**ange & robust star networks.

6LoWPAN compatibility with mesh network stack for **Contiki.**

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 M3
- Supported by the open platform Contiki 6LoWPAN.
- Very Small size

RADIO MODULES OF THINGS

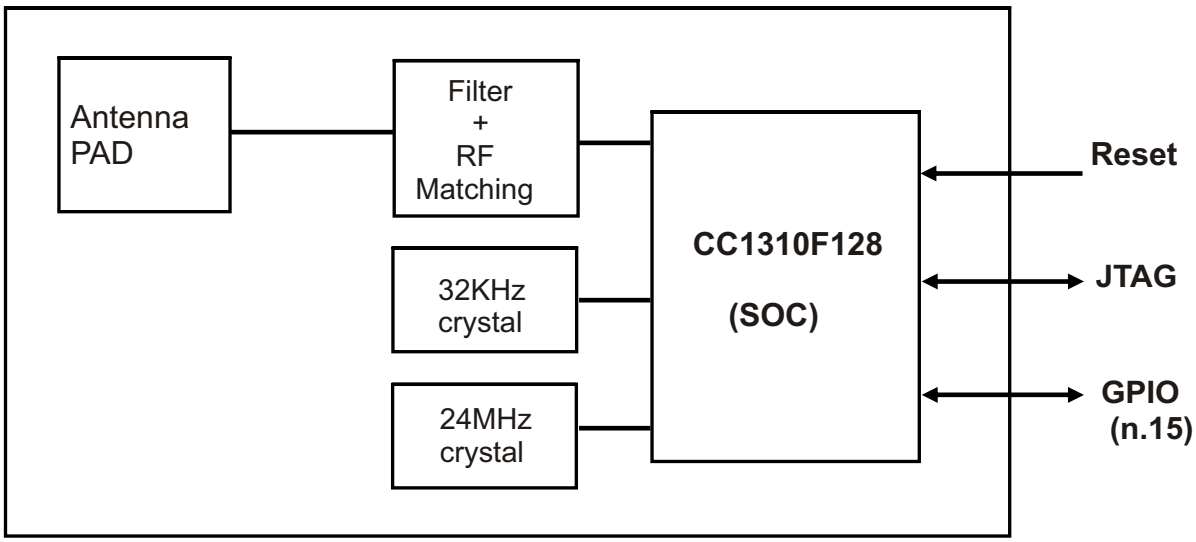
RF-CC1310-XXX					
Parameter	Symbol	Min.	Typ.	Max.	Units
Operating Voltage	V_{CC}	1.8	3.00	3.8	VDC
Supply Current RX Mode	I_{CRX}		5.50		mA
Supply Current TX Mode +10dBm	I_{CTX1}		13.40		mA
Supply Current TX Mode +14dBm	I_{CTX2}		23.50		mA
Supply Current Standby Mode	I_{CSTB}		0,70		µA
Supply Current Shut Down Mode	I_{CSHU}		185		nA
Operative Frequency	F_{of}		868/915		MHz
Frequency Error	F_{pp}		±10		ppm
RF Power Output 50ohm (*)	P_{oo}	-10.0		+14.0	dBm
RF Sensibility 50kbps	S_d		-110.0		dBm
RF Sensibility Long Range Mode 625bps	S_{LR}		-124.0		dBm
Data Rate	D_{cc}	0,01		4.0	Mbit/s
Operative Temperature	T_{LR}	-30		+75	°C

(*) Programmable parameter.

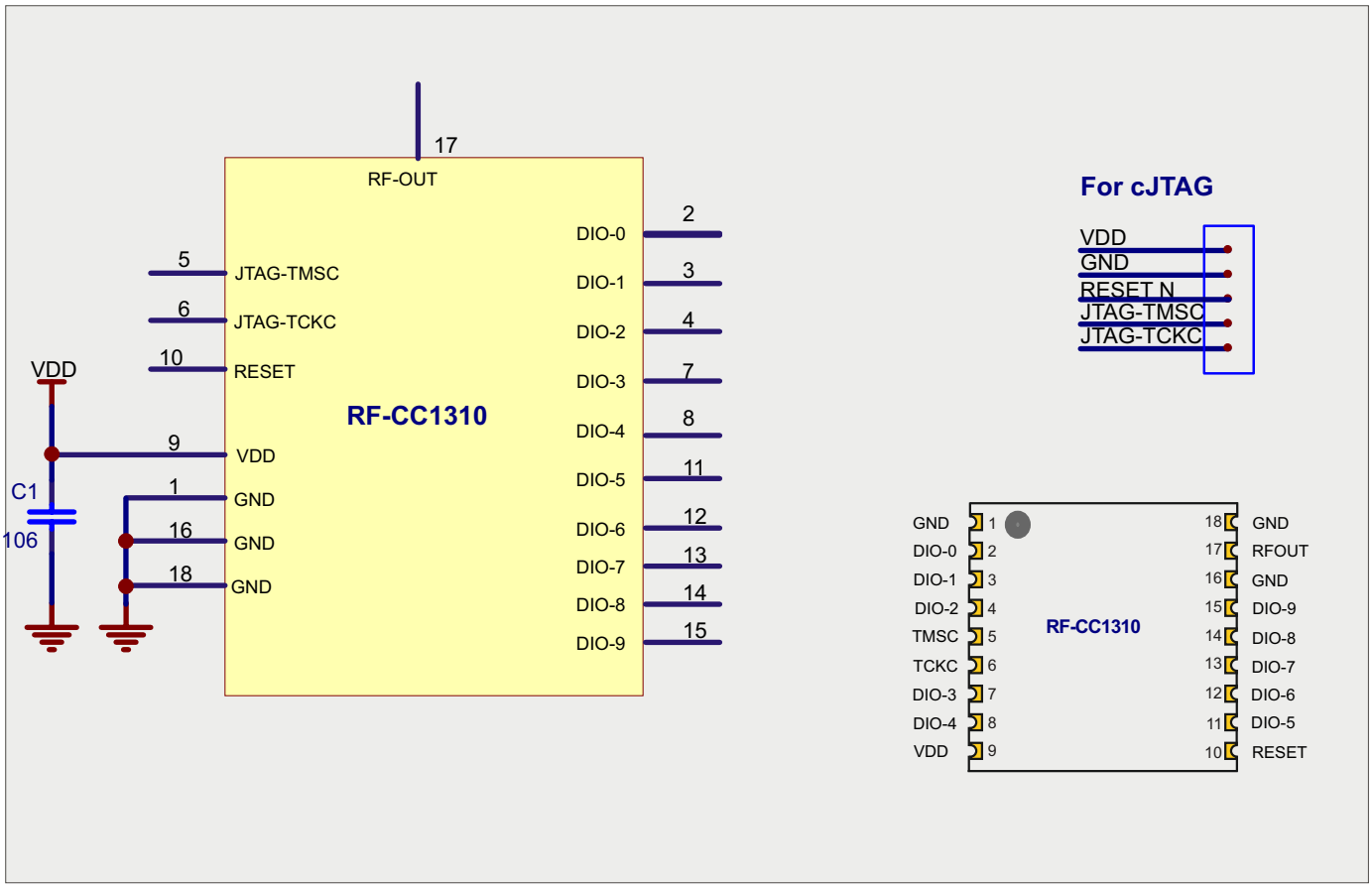
MICROCONTROLLER:
- Power ARM Cortex - M3
- Up to 48MHz Clock Speed
- 128KB of On-System Programming Flash
- 8KB of SRAM for Cache (or as General-Purpose RAM)
- 20KB of Ultralow Leakege SRAM
- Support Over-the-Air Upgrade (OTA)

For more information and details, please refer to the CC1310 Texas Instruments datasheet.

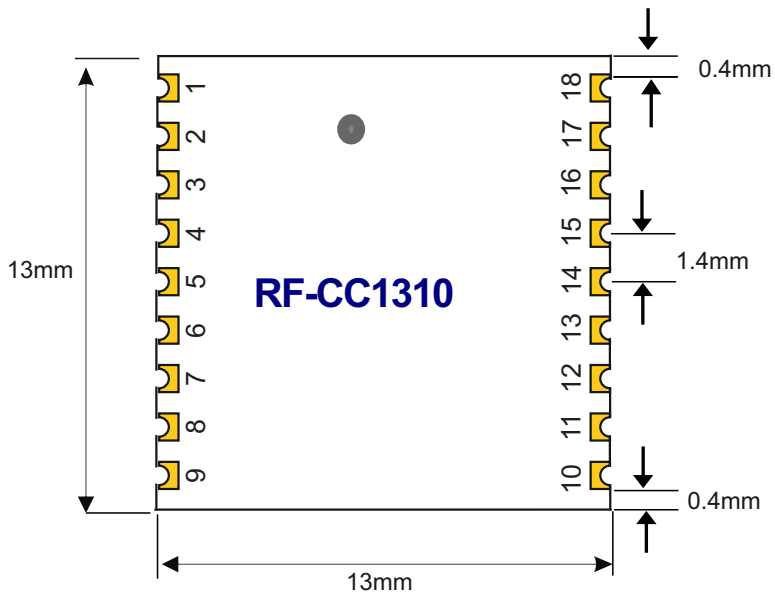
Block Diagram



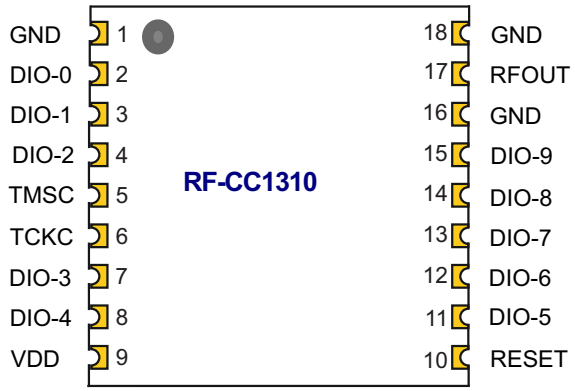
Reference Schematics



Mechanical Dimension

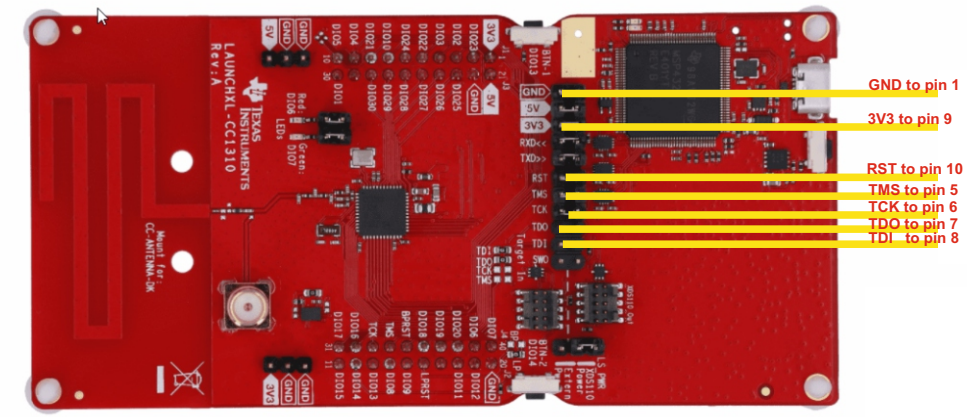


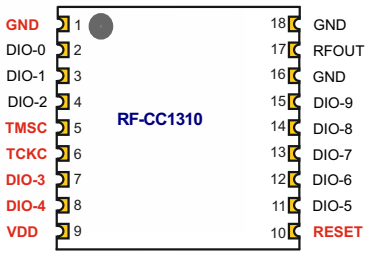
Terminal description RF-CC1310



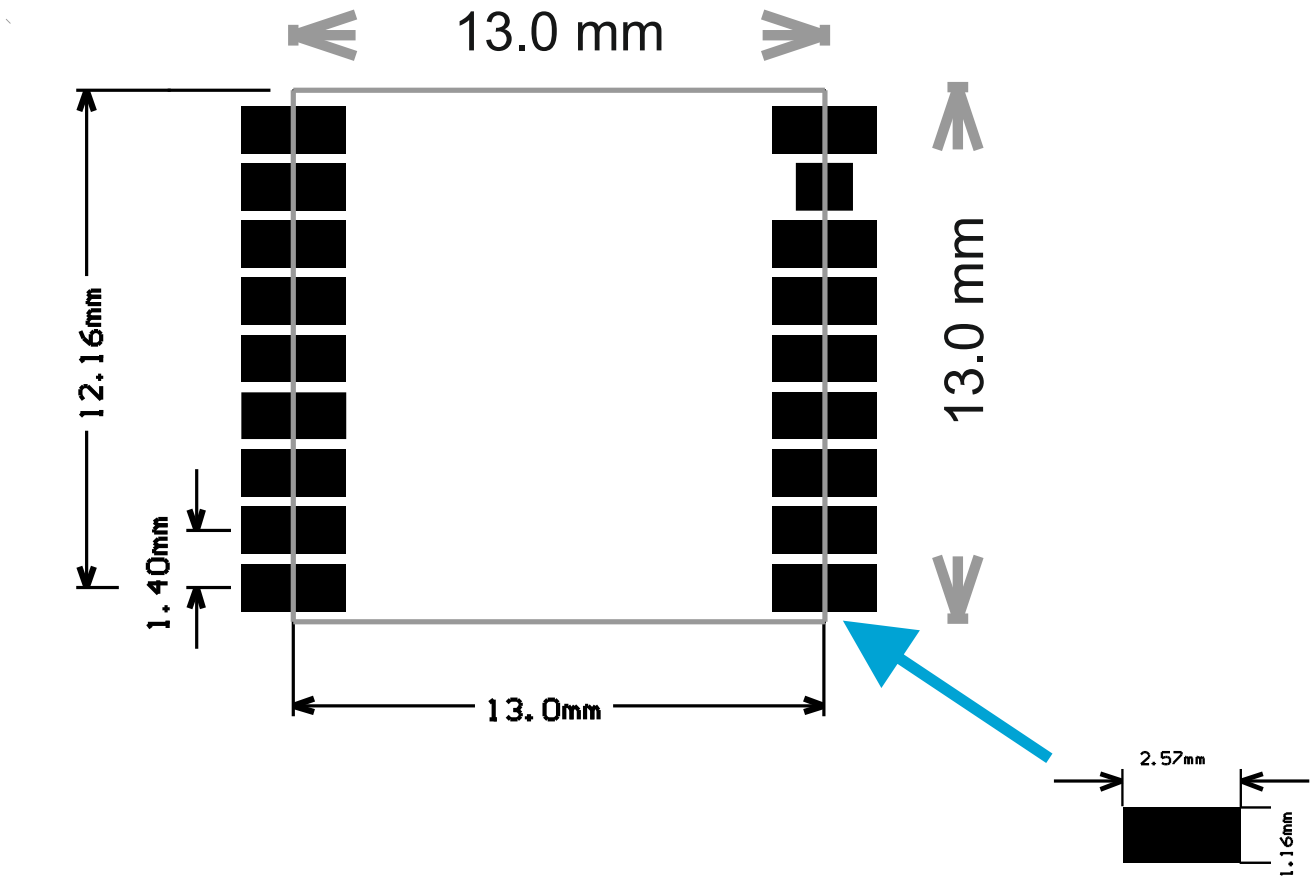
Pads	Name	Description
1	GND	Ground
2	DIO-0	GPIO,Sensor Controller
3	DIO-1	GPIO, Sensor Controller
4	DIO-2	GPIO, Sensor Controller, High drive capability
5	JTAG-TMSC	JTAG TMSC, High drive capability
6	JTAG-TCKC	JTAG TCKC
7	DIO-3 -TDO	GPIO, Sensor Controller, High drive capability
8	DIO-4 -TDI	GPIO, Sensor Controller, High drive capability
9	VDD	Power
10	RESET-N	RESET, (Active low)
11	DIO-5	GPIO, High drive capability
12	DIO-6	GPIO, High drive capability
13	DIO-7	GPIO, Sensor Controller, Analog
14	DIO-8	GPIO, Sensor Controller, Analog
15	DIO-9	GPIO, Sensor Controller, Analog
16	GND	Ground
17	ANTENNA	Antenna PAD
18	GND	Ground

Texas Instruments Launchpad Connection

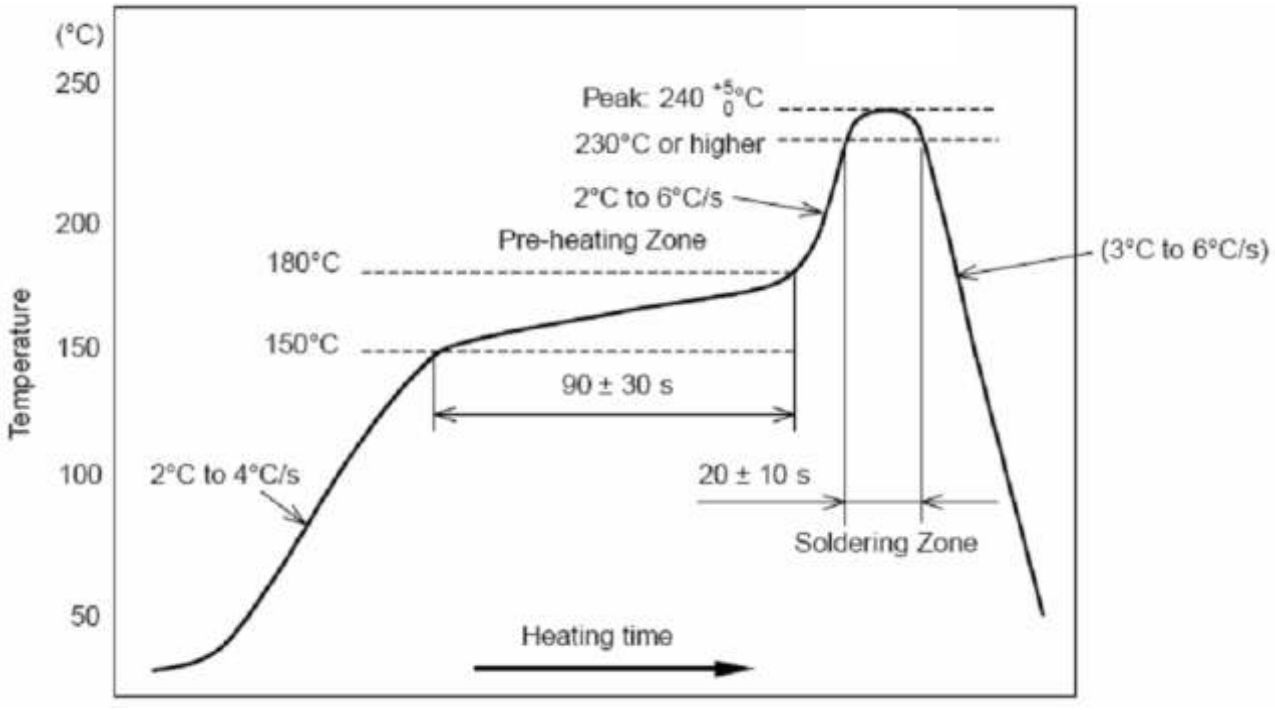




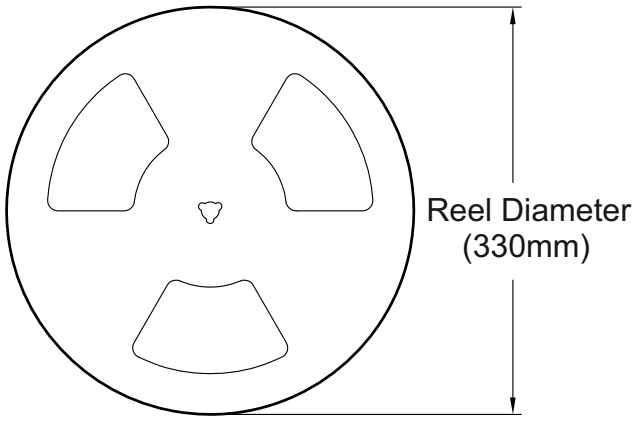
Recommended PCB Layout

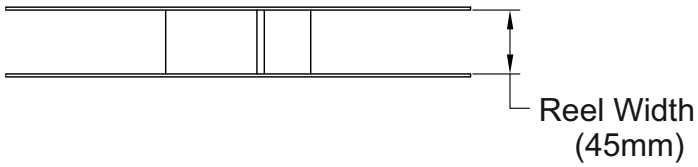


Recommended Reflow Profile for Lead Free Solder



REEL DIMENSIONS





TAPE DIMENSIONS