

CC1100 Wireless Module Manual

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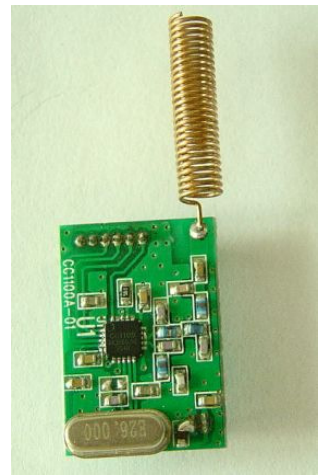
MO-CC1100

315/434/868/915MHz FSK/MSK/ASK/OOK

Description

CC1100 is a FSK/ASK/OOK/MSK Transceiver module. It provides extensive hardware support for packet handling, data buffering, burst transmissions, clear channel assessment, link quality indication and wake on radio. Its data stream can be Manchester coded by the modulator and decoded by the demodulator. It has a high performance and is easy to design your product. It can be used in 315/434/868/915MHz ISM/SRD band systems, Consumer Electronics, AMR (Automatic Meter Reading) RKE (Two-way Remote Keyless Entry).

We support the frequency have 315/434/868/915MHz ISM Band modules now,

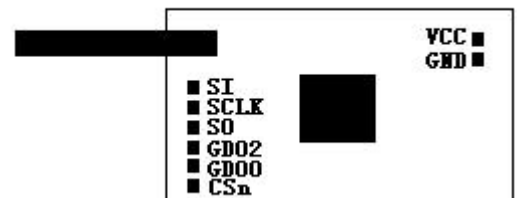


Features

- Low current consumption.
- Easy for application.
- Efficient SPI interface
- Operating temperature range
- Operating voltage
- Available frequency at
- Programmable output power and high sensitivity

Applications

- 315/434/868/915MHz ISM/SRD band systems
- Consumer Electronics
- AMR Automatic Meter Reading
- RKE Two-way Remote Keyless Entry
- Home and building automation



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Pin Descriptions

Pin No	Pin Name	Pin Type	Description
1	SI	Digital Input	Serial configuration interface, data input
2	SCLK	Digital Input	Serial configuration interface, clock input
3	SO	Digital Output	Serial configuration interface, data output. Optional general output pin when CSn is high
4	GDO2	Digital Output	Digital output pin for general use: Test signals FIFO status signals Clear Channel Indicator Clock output, down-divided from XOSC Serial output RX data
5	GDO0	Digital I/O	Digital output pin for general use: Test signals FIFO status signals Clear Channel Indicator Clock output, down-divided from XOSC Serial output RX data Serial input TX data
6	CSn	Digital Input	Serial configuration interface, chip select
7	VCC	Power	1.8V-3.6V power
8	GND	Ground	GND

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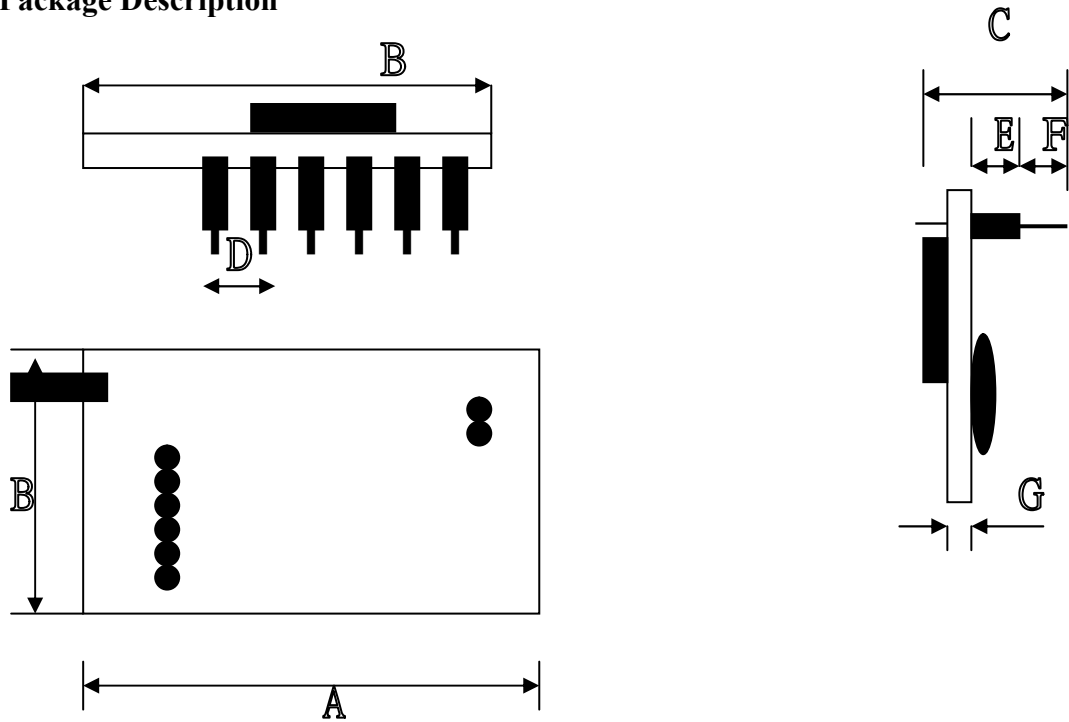
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Absolute Maximum Ratings

Parameter	Rating	Units
Supply voltage	3.6	V DC
Operating Temperature	-40 to +85	°C

Package Description



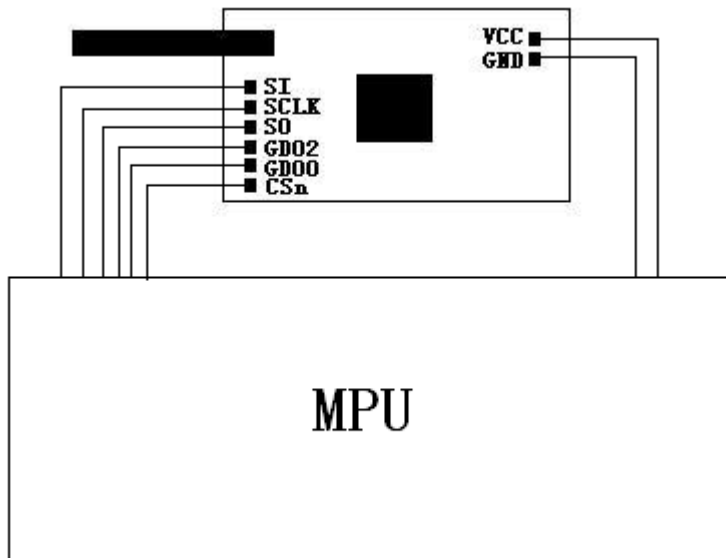
Name	Dimension	Name	Dimension
A	24mm+/-0.5mm	E	1.6mm
B	17mm+/-0.5mm	F	2.8mm+/-0.2mm
C	10mm (+ANT)	G	1.0mm
D	1.27mm		

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Application Circuit



Module Program 模块编程

1. Configuration Software 配置软件

CC1100 can be configured using the **SmartRF®** Studio software, available for download from <http://www.chipcon.com>. The SmartRF® Studio software is highly recommended for obtaining optimum register settings, and for evaluating performance and functionality.

可以利用**SmartRF®** Studio 软件对**CC1100**进行配置，该软件可以从网站 <http://www.chipcon.com> 下载。SmartRF® Studio是被高度推荐用来获得最合适的寄存器配置，和用来评估模块性能和功能的软件。

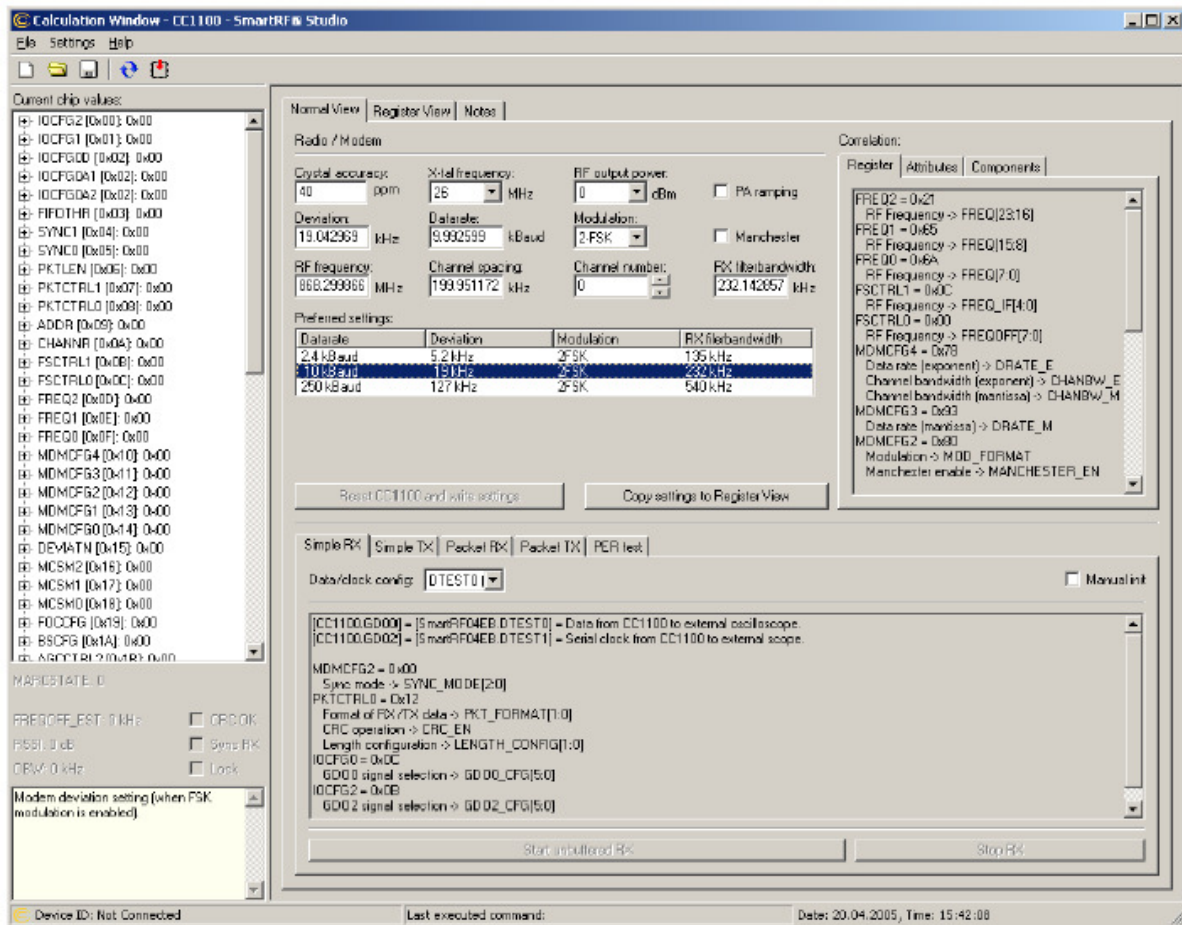


Figure 5: SmartRF® Studio user interface

2. 4-wire Serial Configuration and Data Interface

CC1100 is configured via a simple 4-wire SPI compatible interface (SI, SO, SCLK and CSn) where **CC1100** is the slave. This interface is also used to read and write buffered data. All address and data transfer on the SPI interface is done most significant bit first

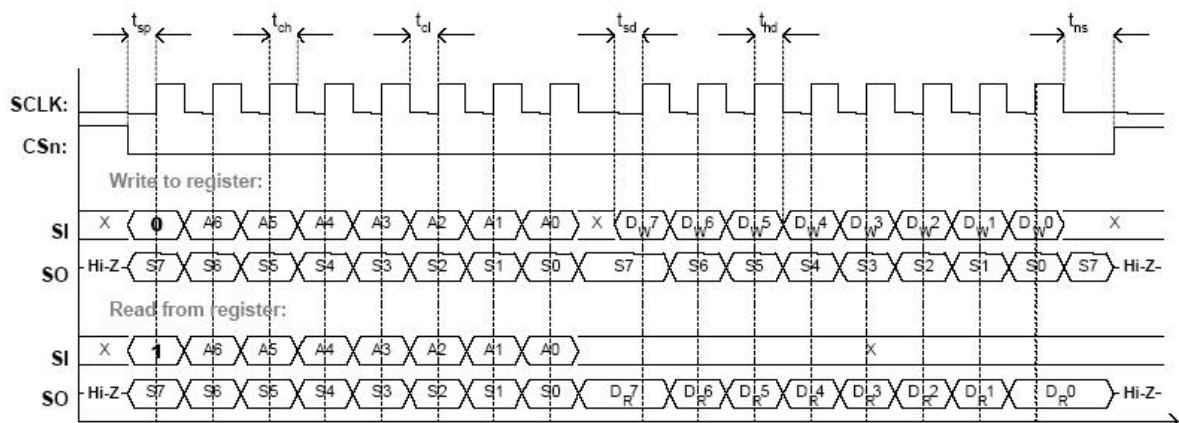


Figure 6: Configuration registers write and read operations

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Register access types

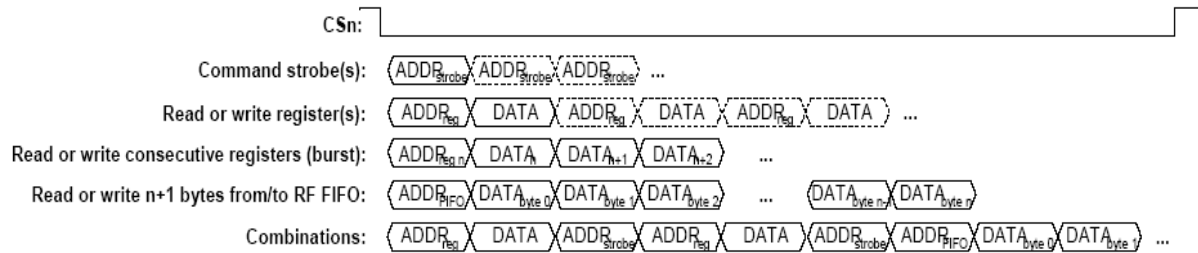


Figure 7: Register access types

3. Packet Format

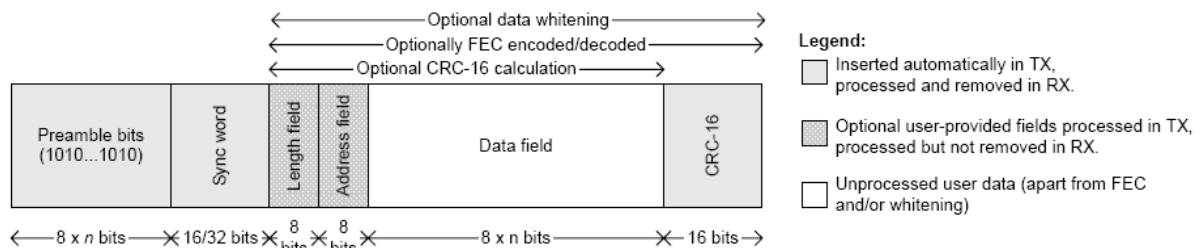


Figure 8: Packet Format

4. Power on start-up sequence

The power-up sequence is as follows (see Figure 11):

Set $SCLK=1$ and $SI=0$, to avoid potential problems with pin control mode .

Strobe CSn low / high.

Hold CSn high for at least 40 μ s.

Pull CSn low and wait for SO to go low ($CHIP_RDYn$).

Issue the $SRES$ strobe.

When SO goes low again, reset is complete and the chip is in the IDLE state.

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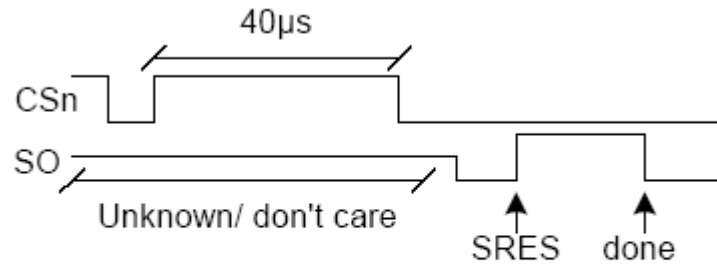


Figure 11: Power-up with SRES

5. Output power levels

	315MHz		433MHz		868MHz		915MHz	
Output power [dBm]	Setting	Current consumption, typ. [mA]	Setting	Current consumption, typ. [mA]	Setting	Current consumption, typ. [mA]	Setting	Current consumption, typ. [mA]
-30	0x04	10.9	0x68	11.7	0x03	12.0	0x11	11.9
-20	0x17	11.5	0x6C	12.2	0x0D	12.6	0x0B	12.4
-15	0x1D	12.2	0x1C	12.8	0x1C	13.2	0x1B	13.1
-10	0x26	13.4	0x06	14.3	0x34	14.6	0x6D	13.7
-5	0x69	13.0	0x3A	13.8	0x67	14.4	0x67	14.2
0	0x51	15.1	0x51	16.1	0x60	16.8	0x50	16.5
5	0x86	18.3	0x85	19.3	0x85	19.9	0x85	19.3
7	0xCC	22.2	0xC8	24.0	0xCC	25.6	0xC9	25.6
10	0xC3	26.9	0xC0	28.8	0xC3	30.3	0xC1	30.2

Table 24: Optimum PATABLE settings for various output power levels and frequency bands

	315MHz		433MHz		868MHz		915MHz	
Default power setting	Output power [dBm]	Current consumption, typ. [mA]	Output power [dBm]	Current consumption, typ. [mA]	Output power [dBm]	Current consumption, typ. [mA]	Output power [dBm]	Current consumption, typ. [mA]
0xC6	8.9	25.1	7.8	25.0	8.9	28.3	8.1	26.8

Table 25: Output power and current consumption for default PATABLE setting