
MO-CC1100+PA

433MHz FSK/MSK/ASK/OOK TR Module

433MHz FSK/ASK/OOK/MSK

Description

CC1100+PA is a FSK/ASK/OOK/MSK Transceiver with power amplifier module. It provides extensive hardware support for packet handling, data buffering, burst transmissions, clear channel assessment, link quality indication and wake on radio. It can be used in 315/433/868 and 915MHz ISM/SRD band systems. eg. RKE-two way Remote Keyless Entry, wireless alarm and security systems, AMR-automatic Meter Reading, Consumer Electronics, Industrial monitoring and control.

We support the frequency 433 MHz ISM Band now,

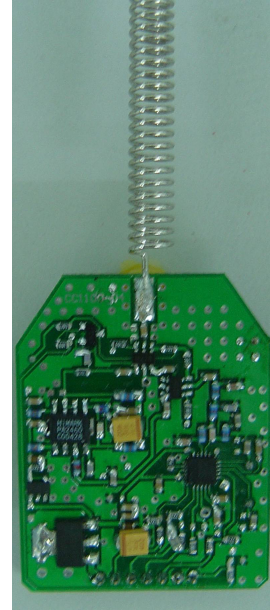


Figure 1 CC1100+PA

Features

- Low current consumption.
- Easy for application.
- Efficient SPI interface
- Operating voltage 4.75-26 Volts
- Operating temperature range - 40°C ~ +85°C
- Frequency range 300 – 1000 MHz
- Programmable output power and High sensitivity
- Programmable data rate up to 500kbps
- Suitable for frequency hopping protocols

Applications

- 315/433/868 and 915MHz ISM/SRD band systems
- Consumer Electronics
- Industrial monitoring and control
- Wireless alarm and security systems
- Home and building automation
- AMR – Automatic Meter Reading
- RKE – Two-way Remote Keyless Entry

Package Description

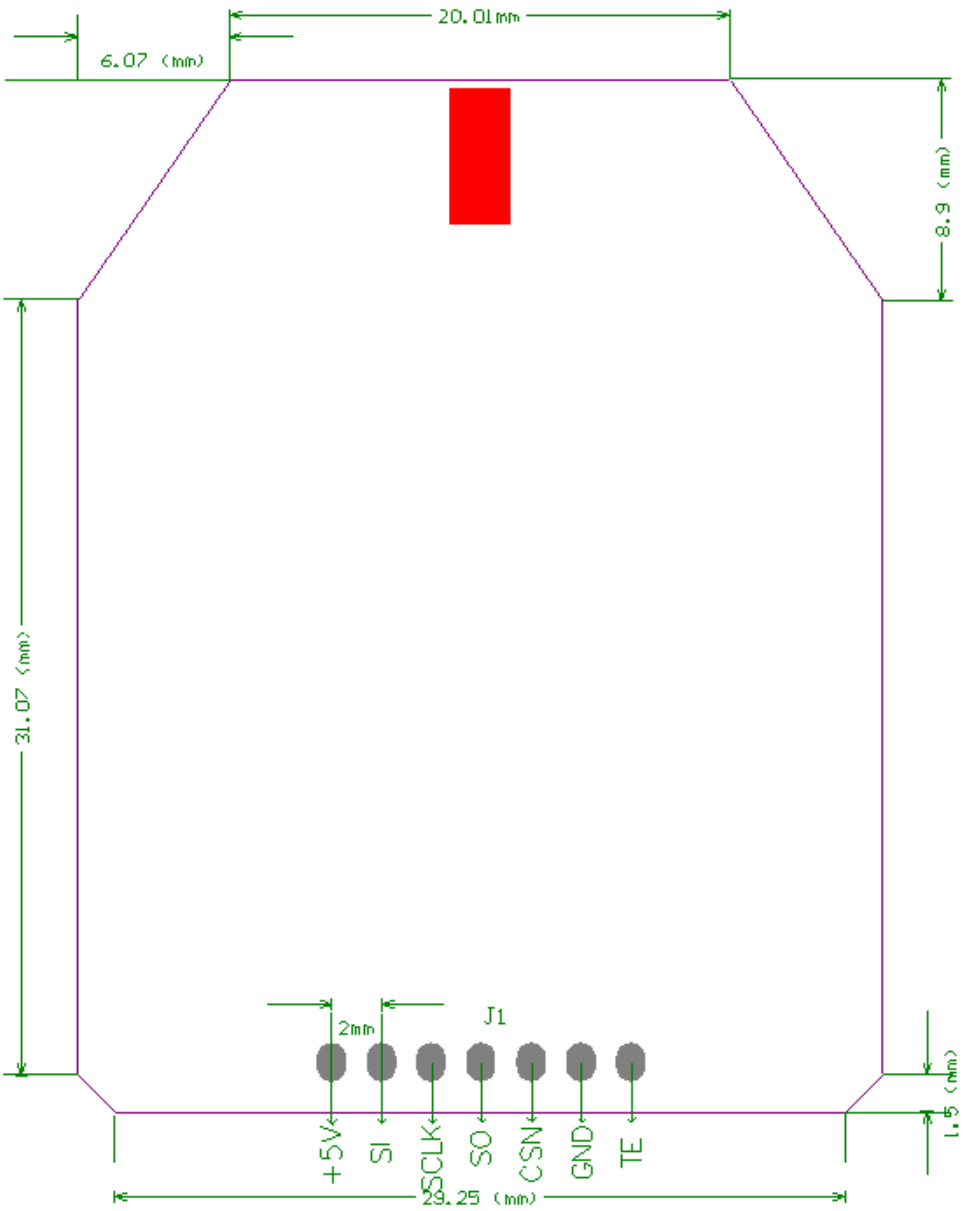


Figure 2.Dimension and Pin definition of the CC1100+PA Module

Pin Descriptions

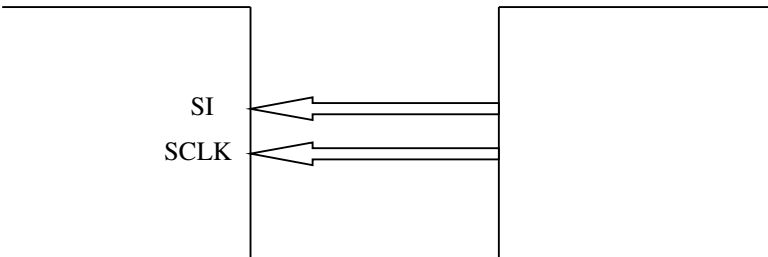
Pin No	Pin Name	Pin Type	Description
1	VCC	Power	4.75-6V power
2	GND	Ground	GND
3	SI	Digital Input	Serial configuration interface, data input
4	SCLK	Digital Input	Serial configuration interface, clock input
5	SO	Digital Output	Serial configuration interface, data output. Optional general output pin when CSn is high
6	CSn	Digital Input	Serial configuration interface, chip select
7	TE	Digital Input	PA enable

Absolute Maximum Ratings

Parameter	MIN	MAX	Units
Supply voltage	4.75	6	V DC
Operating Temperature	-40	85	°C
Output power		+33	dBm

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Application Circuit



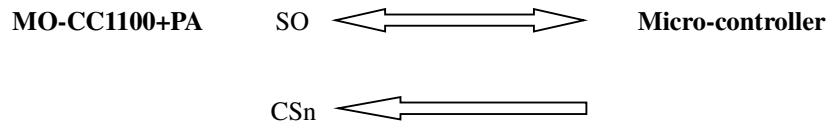


Figure3 .Typical application circuit

Module Program

1. Configuration Software

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.

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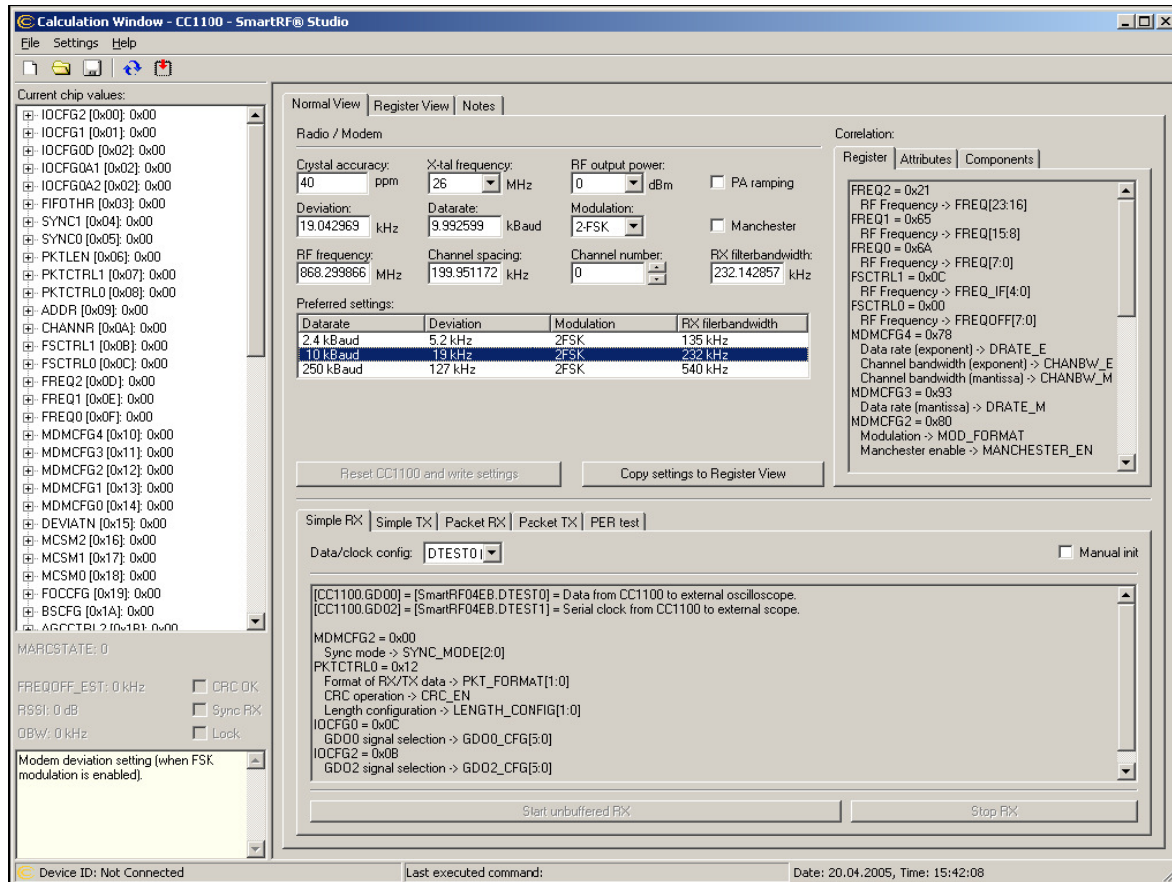


Figure 4: SmartRF® Studio user interface

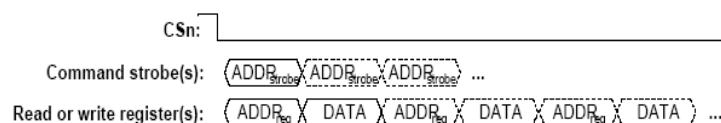
2. 4-wire Serial Configuration and Data Interface

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

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Register access types



3. Packet Format

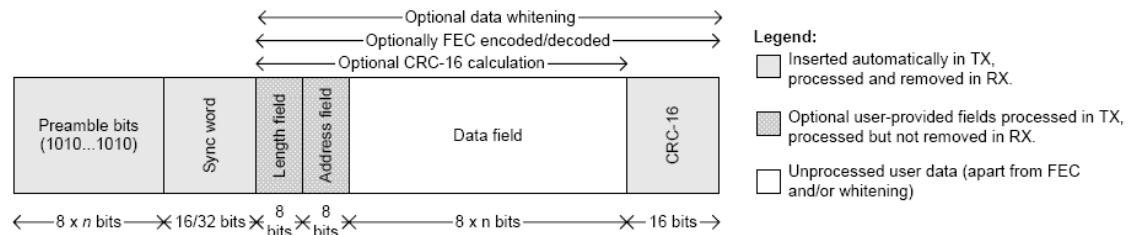


Figure 8: Packet Format

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 CS_n low / high.
- Hold CS_n high for at least 40 μ s.
- Pull CS_n low and wait for SO to go low ($CHIP_RDY_n$).
- Issue the $SRES$ strobe.
- When SO goes low again, reset is complete and the chip is in the IDLE state.

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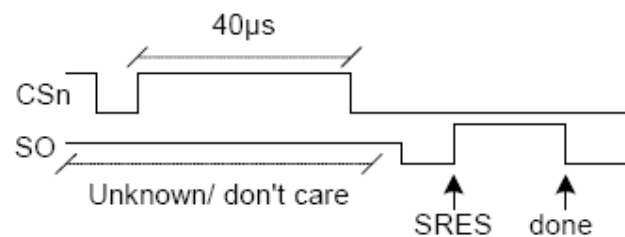


Figure 9: Power-up with SRES

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

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

Output power and current consumption for default PATABLE setting

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6. Simplified state diagram,with typical usage and current consumption

