Chipcon Products
from Texas Instruments

Quick Start Instructions
CC2420DBK Demonstration Board Kit

Introduction

The CC2420 is a single chip IEEE 802.15.4 compliant and ZigBee™ ready RF transceiver. It provides a highly integrated and very flexible low-cost solution for applications using the worldwide 2.4 GHz frequency band. The CC2420DBK demonstration board kit is designed to make it easy for the user to prototype software source code with the use of an Atmel Atmega128L with SPI interface to the CC2420.

The CC2420DBK includes two CC2420DB Demonstration Boards. The CC2420DB contains the CC2420 chip and external components together with the Atmega128L microcontroller.

The CC2420DB serves as a prototype platform for CC2420 software development with an Atmega128L microcontroller. The CC2420DB provides an RS-232 connection, buttons, a joystick, four LED's, voltage regulator, temperature sensor, a potentiometer and connectors. The connectors make it easy to interface to test equipment such as a logic analyzer, and possible extension boards.

The hardware is documented in the CC2420DBK User Manual, while SmartRF® Studio is used to obtain register settings for the CC2420DB software. All documentation and a free software example and libraries can be downloaded from Chipcon's web site. Please visit Chipcon's web site regularly for updates to the documentation and software.

Getting started

1. Connect the CC2420DB to an external power supply. When shipped, the CC2420DB can be used with a 4 -10 volt power supply (e.g. AC to DC adapter) or a 9 volt battery.
2. Install SmartRF® Studio and Atmel AVR Studio software on a PC if you have not already done this. Follow the instructions given by the installation programs. The PC must be running Windows 98 or newer for SmartRF® Studio. Please check appropriate OS compatibility with the AVR Studio Software documentation.
3. Use the supplied RS-232 cable to connect the CC2420DB and the PC together. This port is used with the bootloader and the AVR Studio. For details see the CC2420DBK User Manual.
4. The CC2420DB's are shipped with a demo software example called "rf_blink_led" programmed into the flash
5. To start the demo application follow the step-by-step procedure:
    a. Reset both CC2420DB.
    b. Pull the joystick up or down (towards antenna or RS-232 connector) on one of the boards
    c. Push and hold the joystick center button down on the other board. The same CC2420DB will start to transmit data packets and the yellow LED will toggle. For detailed documentation, please see the CC2420DBK User Manual.

d. The other CC2420DB will receive the packet and transmit a acknowledge frame and the green LED will toggle

e. Release joystick button

f. By adjusting the potentiometer on one board the data from the potentiometer setting is applied to change the brightness of the orange LED on the opposite board.

6. You may use this demo application to test the RF range with the PCB antenna connected to the CC2420 chip.

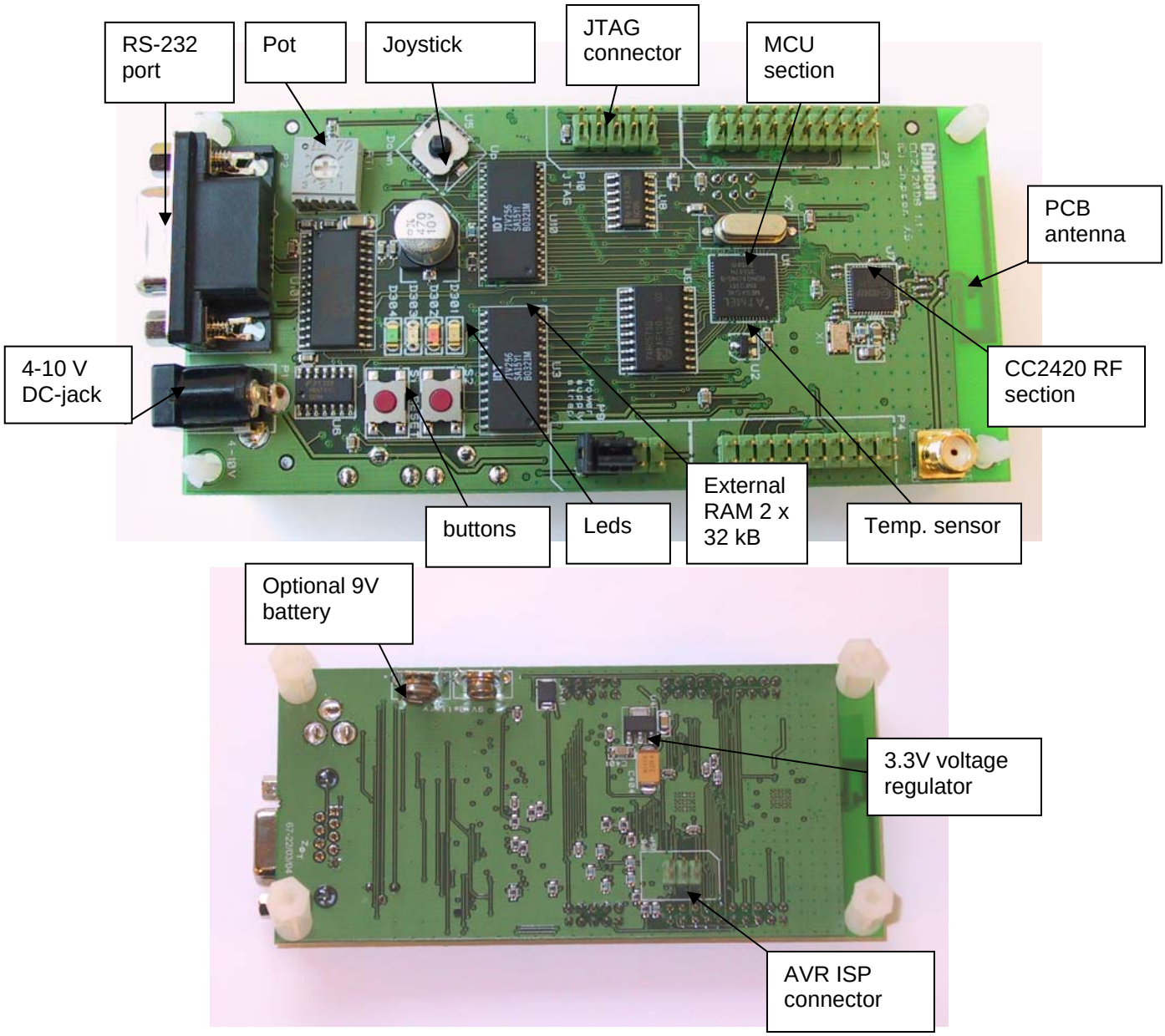

Figure 1: CC2420DB Demonstration Board