MRF24J40MC PICtail™/PICtail Plus Daughter Board Information Sheet

Overview

The MRF24J40MC PICtail™/PICtail Plus Daughter Board is a demonstration and development daughter board for the MRF24J40MC 2.4 GHz IEEE Std. 802.15.4 RF Transceiver Module with PA/LNA and External Antenna Connector (AC164143).

The daughter board can be plugged into multiple Microchip Technology demonstration and development boards. For example, the daughter board is appropriate for 8-bit microcontroller development using the PIC18 Explorer Board (DM183032) or for 16-bit and 32-bit microcontroller development using the Explorer 16 Development Board (DM240001).

User's Guide

The **MRF24J40MC PICtail™/PICtail Plus Daughter Board User's Guide (70660A)** is available for download at http://www.microchip.com/wireless. The User's Guide contains detailed information on the features, operation, schematics and the Printed Circuit Board (PCB).

Software

Sample source code is available at the Microchip Wireless Development Environment: Microchip Wireless Media Access Controller (MiMAC) and Microchip Wireless Application Programming Interface (MiApp), as described in Application Notes AN1283 and AN1284. A Quick Start Guide is included in the software installation package that explains the installation and operation of the demonstration program. The Quick Start Guide is available for download from the Microchip web site http://www.microchip.com/wireless.

The MRF24J40 Radio Utility Driver Program provides design engineers a development and testing utility program that operates on the PIC18 Explorer Board (DM183032) and for 16-bit and 32-bit microcontroller development using the Explorer 16 Development Board (DM240001). The program is available for download from the Microchip web site http://www.microchip.com/wireless, and detailed information is given in the Application Note AN1192.

Operation

Programming and configuration options for the MRF24J40MC transceiver modules are provided in the **MRF24J40 IEEE Std 802.15.4 2.4 GHz RF Transceiver Data Sheet (DS39776)**. Sample source code is the best place to start. Refer to the compile options when enabling the MRF24J40MC transceiver modules.

> **IMPORTANT**
>
> The MRF24J40MC module contains a power amplifier (PA) and low noise amplifier (LNA). It is important that the MRF24J40 be configured to control the PA and LNA. Refer to **Section 4.2 External PA/LNA Control** in the *MRF24J40 IEEE 802.15.4 2.4 GHz RF Transceiver Data Sheet* (DS39776). When using the sample source code, refer to the compile options to enable the PA and LNA.

> **CAUTION**
>
> Voltage and current to the MRF24J40MC PICtail™/PICtail Plus Daughter Board should be in the range of 2.7V – 3.6V and capable of supplying 120 mA. Ensure that the daughter board is plugged into a development/demonstration board that meets this power requirement; otherwise, damage to the MRF24J40 may occur.

Jumper Configuration

Power Disconnect/Current Measure jumpers (JP1/JP2) – Two 2-pin headers are connected in parallel. A shunt on one of the two headers connects power to the MRF24J40MC module. A current meter can be placed on the open header and when the shunt is removed from the opposite header, current consumption can be measured without interrupting power. A useful cable that can be connected to the 2-pin header and current meter, using banana plugs, is the XLP Current Measurement Cable (AC002023).

INT2 Jumper (JP3) – For the PIC18 Explorer Board, jumpering JP3 with a shunt allows the connection of RA5 to RB2/INT2 and enables push-button switch S2 to trigger an interrupt.

DS51977A

DS51977A