#### **Americas**

Atlanta - 678-957-9614 Austin - 512-257-3370 Boston - 774-760-0087 Chicago - 630-285-0071 Cleveland - 216-447-0464 Dallas - 972-818-7423 Detroit - 248-848-4000 Houston - 281-894-5983

New York - 631-435-6000 Phoenix - 480-792-7200

Toronto - 905-673-0699

#### Asia/Pacific

Australia - Sydney - 61-2-9868-6733 China - Beijing - 86-10-8569-7000 China - Chengdu - 86-28-8665-5511 China - Chongqing - 86-23-8980-9588 China - Hangzhou - 86-571-8792-8115

China - Nanjing- 86-25-8473-2460 China - Qingdao - 86-532-8502-7355 Indianapolis - 317-773-8323 China - Shanghai - 86-21-5407-5533

China - Shenzhen - 86-755-8864-2200 China - Wuhan - 86-27-5980-5300 Santa Jose - 408-735-9110 China - Xiamen - 86-592-2388138

China - Xian - 86-29-8833-7252 China - Zhuhai - 86-756-3210040 India - Bangalore - 91-80-3090-4444

India - Pune - 91-20-3019-1500 Japan - Osaka - 81-6-6152-7160 Japan - Tokyo - 81-3-6880-3770 Korea - Daegu - 82-53-744-4301

India - New Delhi - 91-11-4160-8631

Korea - Seoul - 82-2-554-7200 Malaysia - Kuala Lumpur - 60-3-6201-9857 Malavsia - Penang - 60-4-227-8870

Philippines - Manila - 63-2-634-9065 Singapore - 65-6334-8870

Taiwan - Hsin Chu - 886-3-5778-366 Taiwan - Kaohsiung - 886-7-213-7830 Taiwan - Taipei - 886-2-2508-8600 Thailand - Bangkok - 66-2-694-1351

Europe

Austria - Weis - 43-7242-2244-39 Denmark - Copenhagen - 45-4450-2828 France - Paris - 33-1-69-53-63-20 Germany - Dusseldorf - 49-2129-3766400 Germany - Munich - 49-89-627-144-0 China - Hong Kong SAR - 852-2943-5100 Germany - Pforzheim - 49-7231-424750 Italy - Milan - 39-0331-742611 Italy - Venice - 39-049-7625286 Netherlands - Drunen - 31-416-690399 Poland - Warsaw - 48-22-3325737 Spain - Madrid - 34-91-708-08-90 Sweden - Stockholm - 46-8-5090-4654 UK - Wokingham - 44-118-921-5800

03/25/14



Microchip Technology Inc. • 2355 West Chandler Blvd. • Chandler, AZ 85224-6199 www.microchip.com

The Microchip name and logo and the Microchip logo are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries. PICtail is a trademark of Microchip Technology Incorporated in the U.S.A. and other countries. All other trademarks mentioned herein are property of their respective companies. © 2009-2014, Microchip Technology Incorporated, Printed in the U.S.A. All Rights Reserved. 9/14

DS50001870B

# MRF24J40MA/MD PICtail™/PICtail Plus **Daughter Board**

#### Overview

The MRF24J40MA/MD PICtail™/PICtail Plus Daughter Board is a demonstration and development daughter board for the following modules:

- MRF24J40MA IEEE 802.15.4 2.4 GHz RF Transceiver module (AC164134-1)
- MRF24J40MD 2.4 GHz IEEE 802.15.4 20 dBm RF Transceiver module (AC164134-3)

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

#### User's Guide

The MRF24J40MA/MD PICtail/PICtail Plus Daughter Board User's Guide (DS50001867) is available for download at http://www.microchip.com/wireless. The User's Guide contains more detailed information on the features, operation, schematics and the PCB (Printed Circuit Board).

#### Software

Sample source code is available from the Microchip Wireless Design Environment: Microchip Wireless Media Access Controller (MiMAC) and Microchip Wireless Application Programming Interface (MiApp), as described in application notes AN1283 and AN1284, respectively. 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.

### Operation

Programming and configuration options for the MRF24J40MA and MRF24J40MD transceiver modules are provided in the MRF24J40 IEEE 802.15.4 2.4 GHz RF Transceiver Data Sheet (DS30009776). Sample source code is the best place to start. Refer to the compile options when enabling the MRF24J40MA and MRF24J40MD transceiver modules.

#### **IMPORTANT**

The MRF24J40MD 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 (DS30009776). When using the sample source code, refer to the compile options to enable the PA and LNA.

#### CAUTION

Voltage and current to the MRF24J40MA/MD PICtail/PICtail Plus Daughter Board should be in the range of 2.4-3.6V and capable of supplying 130 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 connects power to the MRF24J40 module. A current meter can be placed on the header and the shunt removed to measure current consumption.

TIP: To prevent power interruption to the MRF24J40 module, keep the shunt on the header while connecting the current meter. Once connected, remove the shunt to measure current. 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.