



PIC18F26K83 Plug-In Module (PIM) User's Guide

Preface

**Important: Notice to customers:**

All documentation becomes dated, and this manual is no exception. Microchip tools and documentation are constantly evolving to meet customer needs, so some actual dialogs and/or tool descriptions may differ from those in this document. Please refer to our website (www.microchip.com) to obtain the latest documentation available.

Documents are identified with a “DS” number. This number is located on the bottom of each page, in front of the page number. The numbering convention for the DS number is “DSXXXXXA”, where “XXXXX” is the document number and “A” is the revision level of the document.

For the most up-to-date information on development tools, see the MPLAB® IDE online help. Select the Help menu, and then Topics to open a list of available online help files.

Introduction

This document describes how to use the device as a development tool to emulate and debug firmware on a target board, as well as how to program devices.

Recommended Reading

For the latest information on using the device, read the “Readme for Device #.htm” file (an HTML file) in the Readmes subdirectory of the MPLAB IDE installation directory. The release notes (Readme) contains update information and known issues that may not be included in this user’s guide.

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1. Introduction and Review

1.1 INTRODUCTION

The PIC18F26K83 Plug-In Module (PIM) allows the users to easily experiment with the PIC18F26K83 family of microcontrollers in conjunction with the Automotive Networking Development Board (ADM00716). The PIC18F26K83 family of devices fully supports applications requiring cost-effective, low-power CAN solutions with high performance and robust peripheral set. The PIM has an integrated CAN module that conforms to the CAN 2.0B active specification.

Table 1-1. 28-pin to 100-Pin PIM Mapping

Device Pin	PIC18F26K83 28-Pin QFN	PIM Pin
1	RA2/V _{REF} -/DAC1OUT1/C1IN0+/C2IN0+	28
2	RA3/V _{REF} +/C1IN1+	29
3	RA4	77
4	RA5	76
5	V _{SS}	15
6	RA7/OSC1/CLKIN	63
7	OSC2/CLKOUT/RA6	64
8	RC0/SOSCO	74
9	RC1/SOSCI	73
10	RC2	20
11	RC3	55
12	RC4	54
13	RC5	53
14	RC6	51
15	RC7	52
16	V _{SS}	31
17	V _{DD}	16
18	RB0	50
19	RB1	57
20	RB2	56
21	RB3	87
22	RB4	88
23	RB5	49

Device Pin	PIC18F26K8328-Pin QFN	PIM Pin
24	RB6/PGC	26
25	RB7/PGD	27
26	MCLR/RE3	13
27	RA0/C1IN0-/C2IN0-	82
28	RA1/C1IN1-/C2IN1-	81

1.2 HIGHLIGHTS

Items discussed in this chapter include:

- PIC18F26K83 Plug-In Module Kit Contents
- Overview of the PIC18F26K83 Family CAN Capabilities

1.3 PIC18F26K83 PLUG-IN MODULE KIT CONTENTS

The PIM module kit contains the following Items.

- PIC18F26K83 100-pin Plug-In Module

1.4 OVERVIEW OF THE PIC18F26K83 FAMILY AUTOMOTIVE COMMUNICATIONS

CAN:

- Conforms to CAN 2.0B Active Specification
- Three Operating modes:
 - Legacy mode (full backward compatibility with existing PIC18CXX8/FXX8 CAN modules)
 - Enhanced mode (programmable TX/RX buffers)
 - FIFO mode (programmable TX/RX buffers)
- Message Bit Rates up to 1 Mbps
- DeviceNet™ Data Byte Filter Support
- Six Programmable Receive/Transmit Buffers
- Three Dedicated Transmit Buffers with Prioritization
- Two Dedicated Receive Buffers
- Sixteen Full, 29-Bit Acceptance Filters with Dynamic Association
- Three Full, 29-Bit Acceptance Masks

Hardware LIN:

- Master and Slave Receive and Transmit
- Checksum Calculation
- PID Parity Checks

2. Important Notes

2.1 HIGHLIGHTS

This chapter discusses:

- Using the PIM with the Automotive Networking Board
- Programming the Microcontroller

2.2 USING THE PIM WITH THE AUTOMOTIVE NETWORKING DEVELOPMENT BOARD

The PIC18F26K83 device has Peripheral Pin Select (PPS) for most of its peripheral input and outputs. The PIC[®] Microcontroller (MCU) pins that have been brought out to the PIM locations have been, where possible, matched with the default locations of the PIC MCU functions, but not all functions could be mapped this way. In addition, peripheral outputs on the PIC18F26K83 do not have default pin locations, and those must be programmed. In order for each peripheral to be routed to the correct locations on the Automotive Networking Board, the following PPS settings are required:

SPI1SCKPPS = 0x13

SPI1SDIPPS = 0x14

U1RXPPS = 0x17

I2C2SCLPPS = 0x09

I2C2SDAPPS = 0x0A

CANRXPPS = 0x0B

U2RXPPS = 0x0D

RC3PPS = 0x1E

RC5PPS = 0x1F

RC6PPS = 0x13

RB0PPS = 0x16

RB1PPS = 0x23

RB2PPS = 0x22

RB4PPS = 0x33

2.3 PROGRAMMING THE CONTROLLER

When the PIM is mated to the Automotive Networking Development Board, it may be reprogrammed directly through the modular RJ11 jack (JP1) or the PICKit[™] connection (J11) on the Automotive Networking Development Board.

3. Hardware Configuration Settings

3.1 HIGHLIGHTS

This chapter discusses:

- Hardware Features
- Crystal

3.2 HARDWARE FEATURES

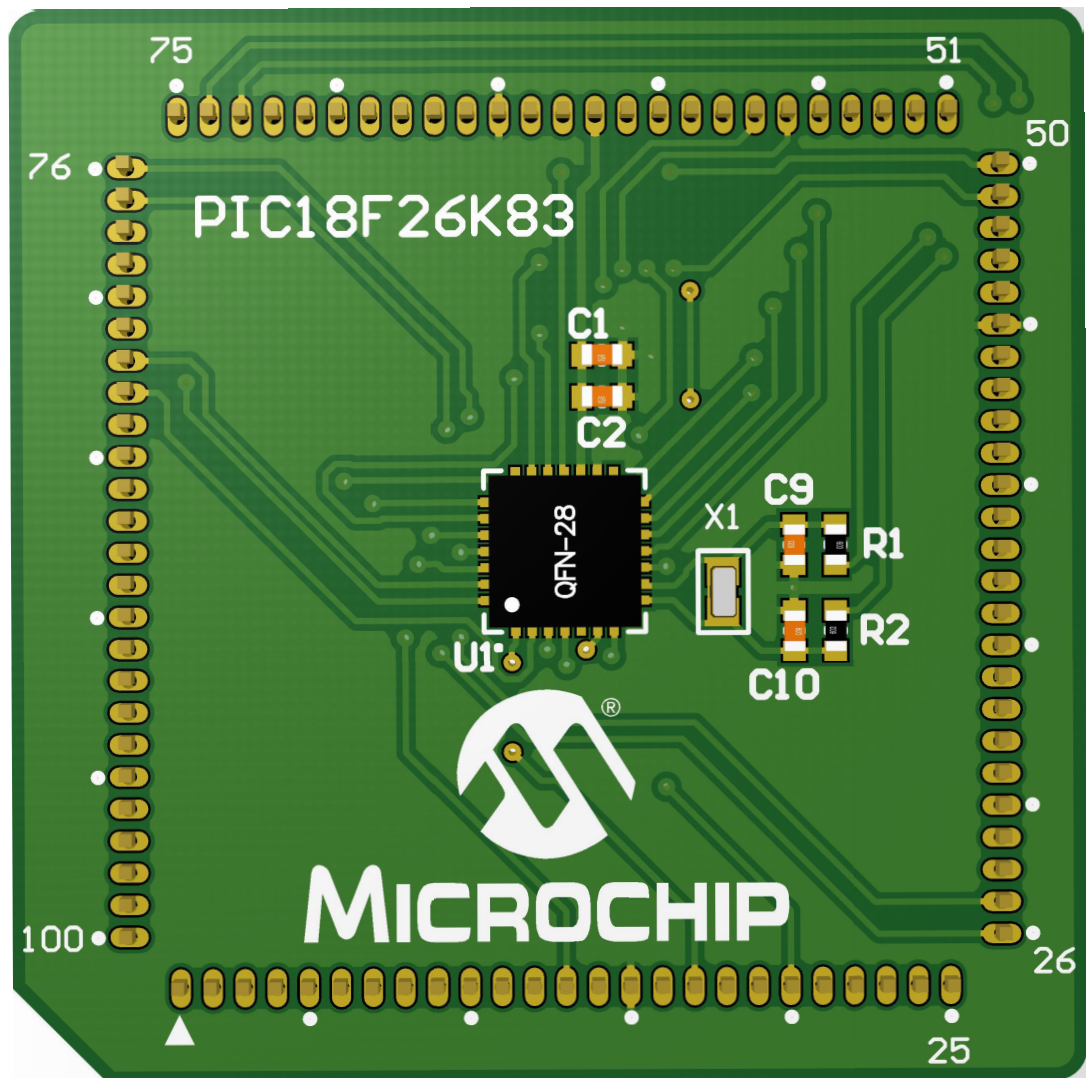
The PIC18F26K83 device has a number of hardware features intended to make it useful as an initial development platform and demonstration board. Refer to Appendix A. “PIC18F26K83 100-Pin Plug-In Module Schematics” for the schematics of the PIM. The board offers the following hardware features:

- 32.768 kHz surface-mounted crystal

3.3 CRYSTAL

The PIM is populated with a 32.768 kHz crystal oscillator on the secondary oscillator pins.

Figure 3-1. 3D view of PIC18F26K83 PIM



4. Demo Code/Reference Firmware

4.1 PREPROGRAMMED DEMONSTRATION FIRMWARE

The PIC18F26K83 100-pin PIM is programmed with firmware demonstrating basic features on the Automotive Networking Development Board. The source for the PIC18F26K83 PIM demo code may be downloaded from the Microchip website www.microchip.com and can also be found on [MPLAB Xpress IDE](#).

The firmware preprogrammed onto the device showcases basic features as well as the CAN. It has three basic functions:

1. Pressing Push Button S1 on the Automotive Networking Development Board toggles LED D1 on the same board.
2. Pressing the button also sends a message on CANTX with message ID of 0x1AC, the first two data bytes being 0x55 and 0xAA, and the second two data bytes containing the results of the ADC measurement of the potentiometer.
3. Sending a CAN message with an ID of 0x186 to the device will stimulate an echo from the device with an ID of 0x184.

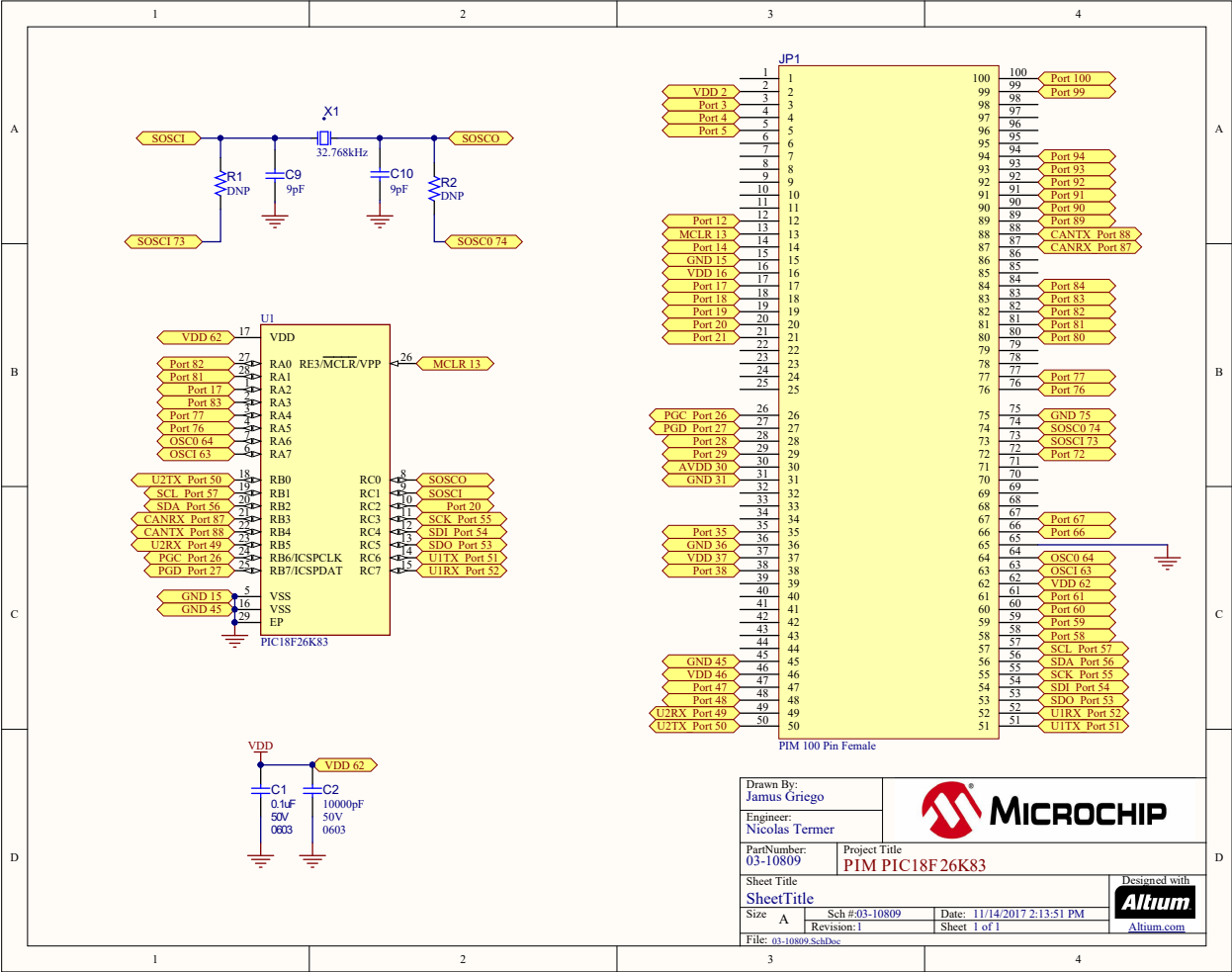
In order to properly demonstrate all functions of the PIM, a CAN transceiver click is required in addition to the PIM and the Automotive Networking Development Board.

5. Appendix A: PIC18F26K83 100-Pin Plug-in Module Schematics

The PIC18F26K83 100-Pin PIM schematics are shown in Figure A-x. By default, the PIM ships from the factory with the PIC18F26K83 pre-installed in location U1. The board revision number can be found etched into the copper on the bottom side of the PCB.

Add Schematic Figure

Figure 5-1. PIM Schematic



6. Revision History

Revision	Date	Comments
A	6/2018	Initial release.

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- Technical Support

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- Microchip is willing to work with the customer who is concerned about the integrity of their code.

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