



**MCP2515
PICtail™ Plus
Daughter Board
User's Guide**

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MCP2515 PICTAIL™ PLUS DAUGHTER BOARD USER'S GUIDE

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Preface

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 web site (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 “DSXXXXA”, where “XXXX” is the document number and “A” is the revision level of the document.

INTRODUCTION

This chapter contains general information that will be useful to know before using the MCP2515 PICtail Plus Daughter Board. Items discussed in this chapter include:

- Document Layout
- Conventions Used in this Guide
- Recommended Reading
- The Microchip Web Site
- Customer Support
- Document Revision History

DOCUMENT LAYOUT

This document describes how to use the MCP2515 PICtail Plus Daughter Board. The manual layout is as follows:

- **Chapter 1. “Product Overview”** – Important information about the MCP2515 PICtail Plus Daughter Board.
- **Chapter 2. “Installation and Operation”** – This chapter includes a detailed description of each function of the demo board and instructions for how to begin using the board.
- **Appendix A. “Schematic and Layouts”** – Shows the schematic and layout diagrams for the MCP2515 PICtail Plus Daughter Board.
- **Appendix B. “Bill Of Materials (BOM)”** – Lists the parts used to build the MCP2515 PICtail Plus Daughter Board.

CONVENTIONS USED IN THIS GUIDE

This manual uses the following documentation conventions:

DOCUMENTATION CONVENTIONS

Description	Represents	Examples
Arial font:		
Italic characters	Referenced books	<i>MPLAB® IDE User's Guide</i>
	Emphasized text	...is the <i>only</i> compiler...
Initial caps	A window	the Output window
	A dialog	the Settings dialog
	A menu selection	select Enable Programmer
Quotes	A field name in a window or dialog	"Save project before build"
Underlined, italic text with right angle bracket	A menu path	<u><i>File>Save</i></u>
Bold characters	A dialog button	Click OK
	A tab	Click the Power tab
N'Rnnnn	A number in verilog format, where N is the total number of digits, R is the radix and n is a digit.	4'b0010, 2'hF1
Text in angle brackets < >	A key on the keyboard	Press <Enter>, <F1>
Courier New font:		
Plain Courier New	Sample source code	#define START
	Filenames	autoexec.bat
	File paths	c:\mcc18\h
	Keywords	_asm, _endasm, static
	Command-line options	-Opa+, -Opa-
	Bit values	0, 1
	Constants	0xFF, 'A'
Italic Courier New	A variable argument	<i>file.o</i> , where <i>file</i> can be any valid filename
Square brackets []	Optional arguments	mcc18 [options] <i>file</i> [options]
Ellipses...	Replaces repeated text	var_name [, var_name...]
	Represents code supplied by user	void main (void) { ... }

RECOMMENDED READING

This user's guide describes how to use MCP2515 PICtail Plus Daughter Board. The following Microchip documents are available and recommended as supplemental reference resources:

MCP2515 Data Sheet, “Stand-Alone CAN Controller With SPI Interface”, DS21801

This data sheet provides detailed information regarding the MCP2515 Product Family.

MCP2551 Data Sheet, “High-Speed CAN Transceiver”, DS21667

This data sheet provides detailed information regarding the MCP2551 Product Family.

Explorer 16 User's Guide, “Explorer 16 Development Board User's Guide”, DS51589

This user's guide provides detailed information regarding the Explorer 16 Development Board and its functionality.

PICkit Serial User's Guide, “PICkit™ Serial Analyzer User's Guide”, DS51647

This user's guide provides detailed information regarding the PICkit Serial Analyzer functionality.

THE MICROCHIP WEB SITE

Microchip provides online support via our web site at www.microchip.com. This web site is used as a means to make files and information easily available to customers. Accessible by using your favorite Internet browser, the web site contains the following information:

- **Product Support** – Data sheets and errata, application notes and sample programs, design resources, user's guides and hardware support documents, latest software releases and archived software
- **General Technical Support** – Frequently Asked Questions (FAQs), technical support requests, online discussion groups, Microchip consultant program member listing
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- Distributor or Representative
- Local Sales Office
- Field Application Engineer (FAE)
- Technical Support
- Development Systems Information Line

Customers should contact their distributor, representative or field application engineer (FAE) for support. Local sales offices are also available to help customers. A listing of sales offices and locations is included in the back of this document.

Technical support is available through the web site at: <http://support.microchip.com>

DOCUMENT REVISION HISTORY

Revision A (September 2008)

- Initial Release of this Document.

Chapter 1. Product Overview

1.1 OVERVIEW

This chapter provides an overview of the MCP2515 PICTail Plus Daughter Board and covers the following topics:

- Overview
- What is the MCP2515 PICTail Plus Daughter Board?
- What the MCP2515 PICTail Plus Daughter Board kit includes.

1.2 WHAT IS THE MCP2515 PICTAIL PLUS DAUGHTER BOARD?

The MCP2515 PICTail Plus Daughter Board is a simple Controller Area Network (CAN) board designed to be used with boards containing the PICTail Plus connector. The board also has the PICKit Serial connector for interfacing to the PICKit Serial Analyzer tool.

The CAN node consists of the MCP2515 Stand-Alone CAN controller and MCP2551 CAN transceiver. The PICKit Plus and PICKit Serial connectors allow the board to be interfaced to a variety of PICmicros so that the user can develop a CAN node.

The board also contains headers or test points for most of the MCP2515 pins to allow the external functions to be monitored/evaluated.

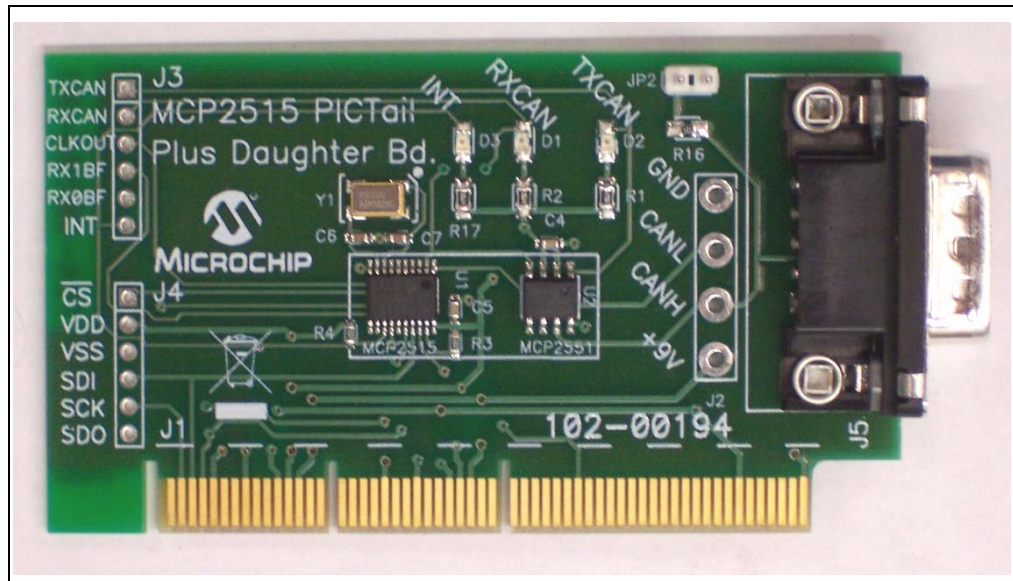


FIGURE 1-1: MCP2515 PICTail Plus Daughter Board.

1.3 WHAT THE MCP2515 PICTAIL PLUS DAUGHTER BOARD KIT INCLUDES

The MCP2515 PICtail Plus Daughter Board kit includes:

- MCP2515 PICtail Plus Daughter Board (102-00194)
- Analog and Interface Products Demonstration Boards CD-ROM (DS21912)
 - MCP2515 CAN PICtail Plus Daughter Board User's Guide (DS51762)

Chapter 2. Installation and Operation

2.1 HARDWARE OVERVIEW

The MCP2515 PICTail Plus Daughter Board can be connected to either a PIC/development board with the PICKit Plus connector or the PICKit™ Serial connector. Figure 2-1 below shows the connections to the Explorer 16 Development Board (DM240001).

2.2 CONNECTING THE BOARD

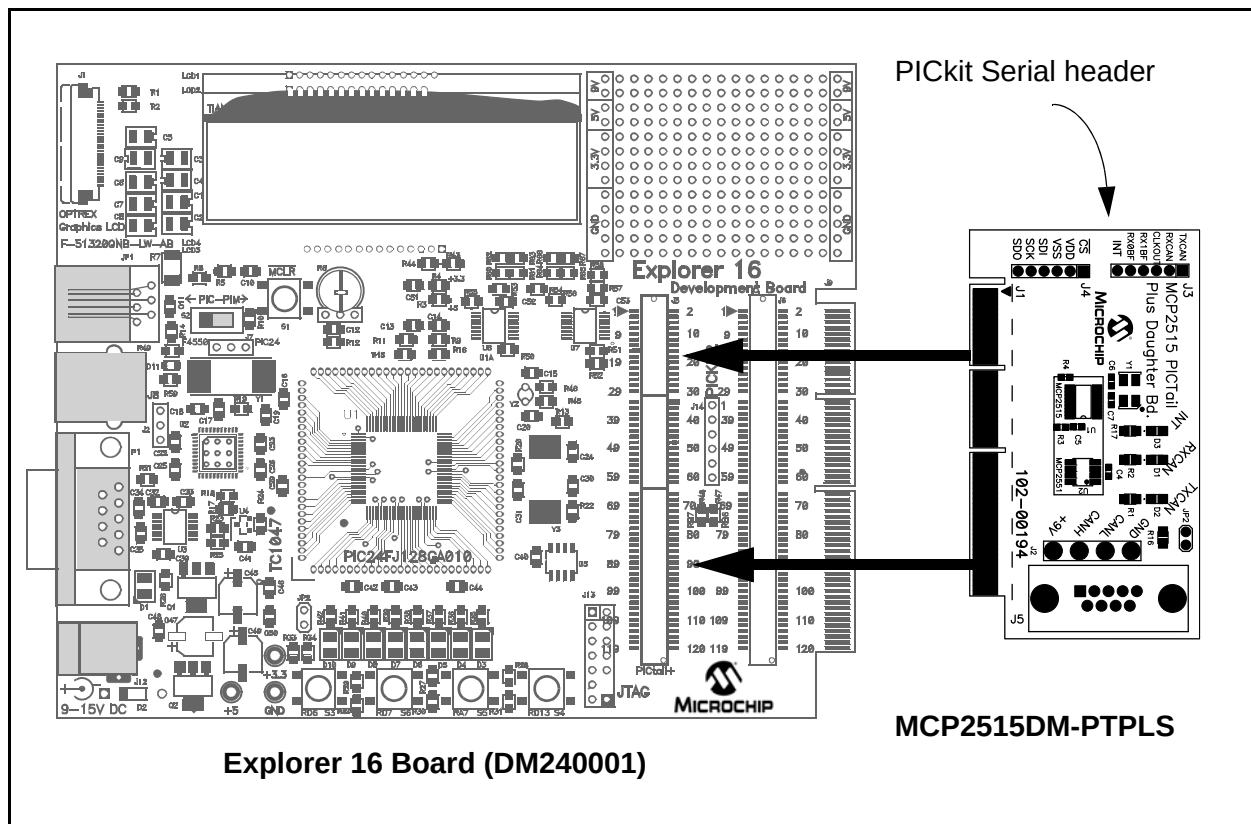


FIGURE 2-1: Hardware Overview.

2.3 OPERATION

The user can write firmware for the MCP2515 PICtail Plus Daughter Board in order to create a custom CAN node. Check the Explorer 16 and PICkit Serial web pages for the latest firmware and/or software supporting the MCP2515 or general SPI interfaces.



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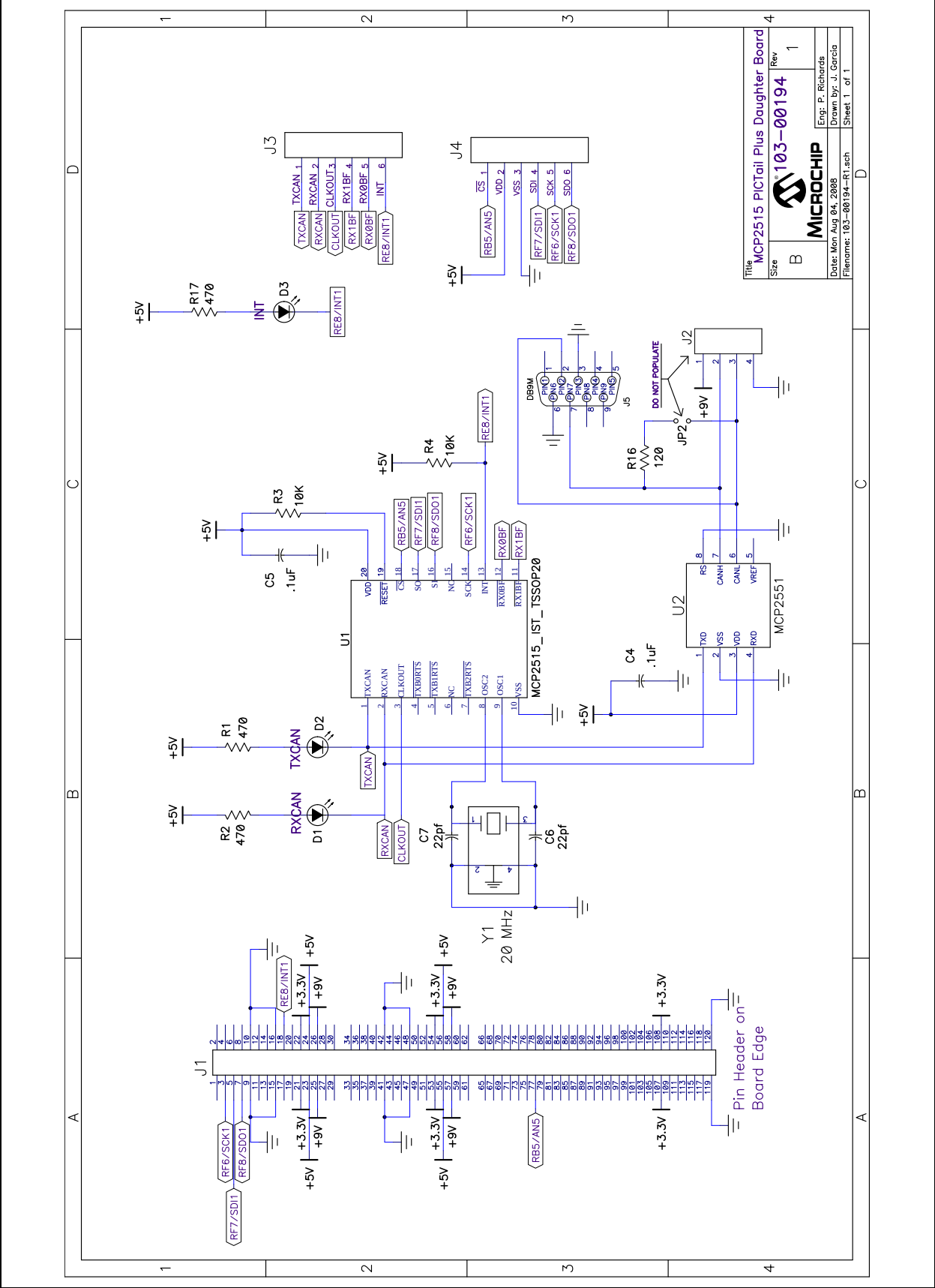
Appendix A. Schematic and Layouts

A.1 INTRODUCTION

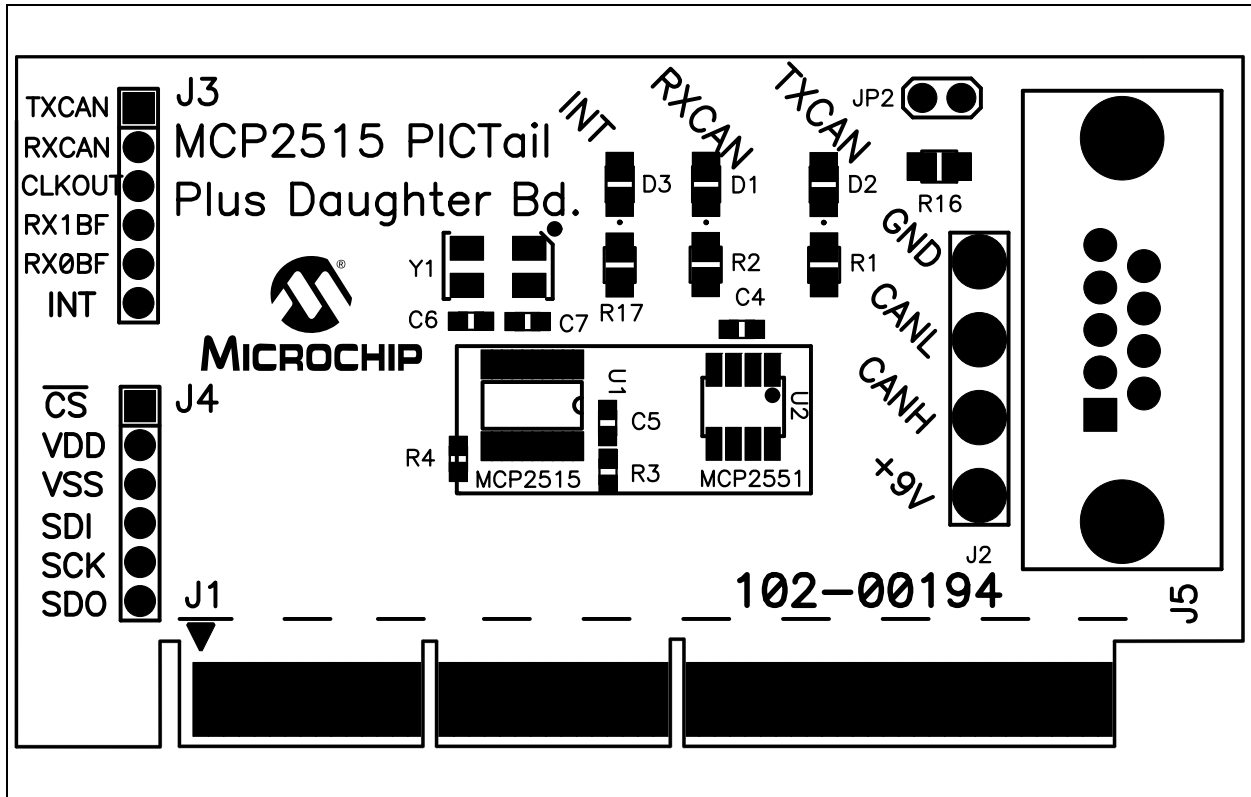
This appendix contains the following schematics and layouts for the MCP2515 PICTail Plus Daughter Board:

- Board Schematic
- Board - Top Layer
- Board - Silk-screen Layer
- Board - Bottom Layer

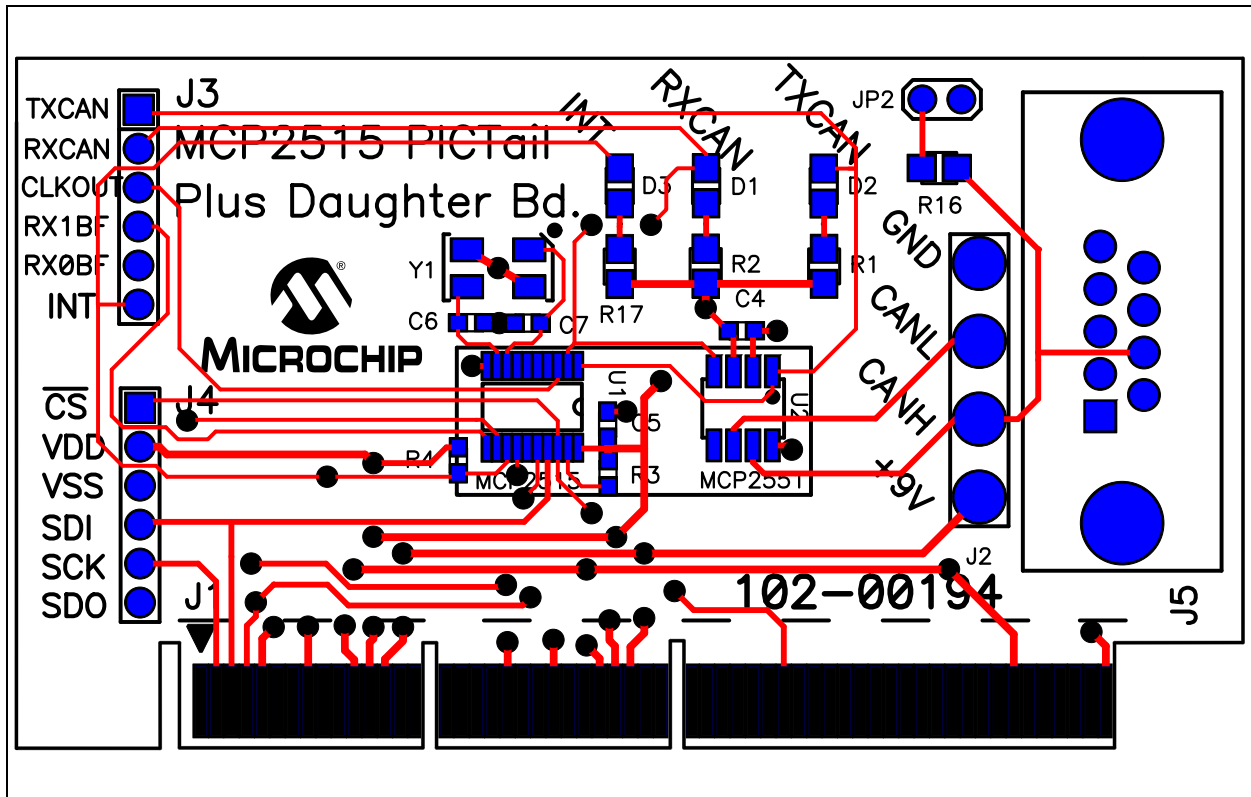
A.2 BOARD - SCHEMATIC



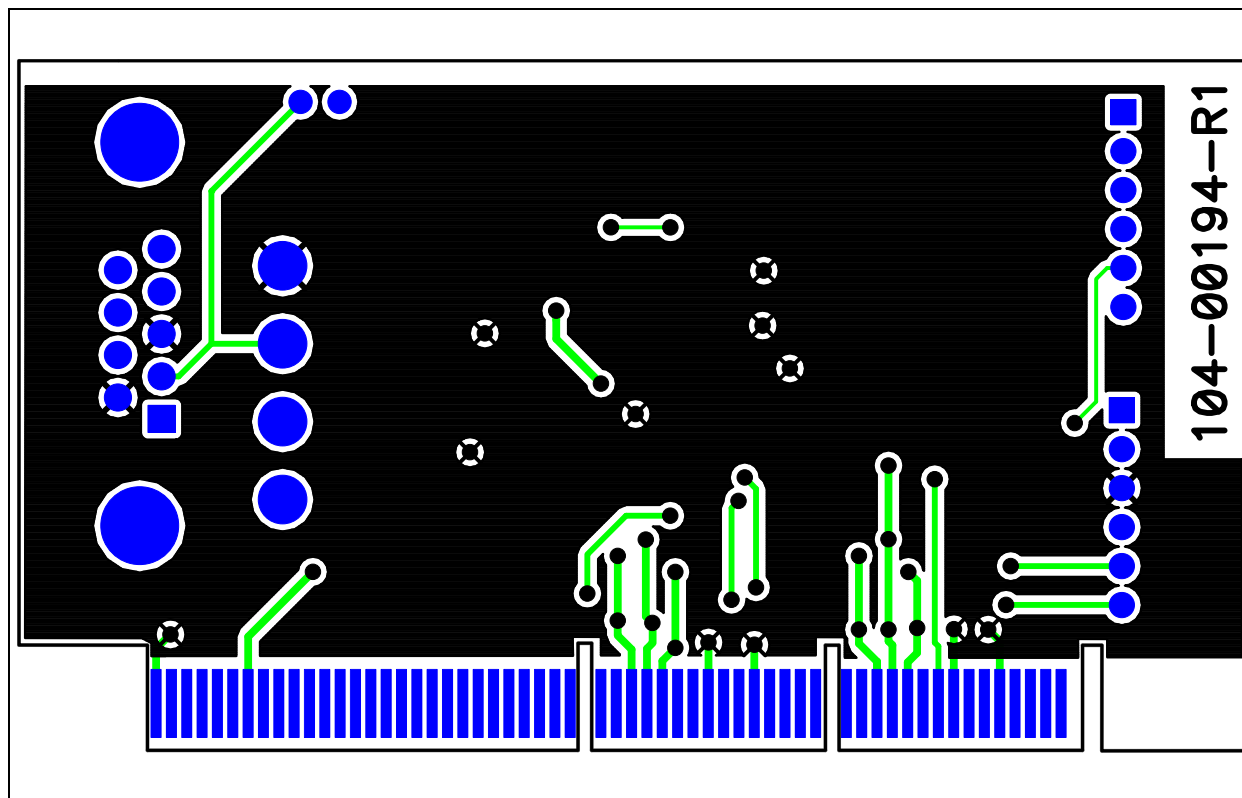
A.3 BOARD - TOP LAYER



A.4 BOARD - TOP LAYER AND SILKSCREEN LAYER



A.5 BOARD - BOTTOM LAYER





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Appendix B. Bill Of Materials (BOM)

TABLE B-1: BILL OF MATERIALS

Qty	Reference	Description	Manufacturer	Part Number
2	C4, C5	CAP .1UF 16V CERAMIC X7R 0603	Panasonic® - ECG	ECJ-1VB1C104K
2	C6, C7	CAP CERAMIC 22PF 50V 0603 SMD	Panasonic - ECG	ECJ-1VC1H220J
3	D1, D2, D3	LED SUPER RED 0805 SMD	Para Light Corp. (USA)	L-C170SRCT-U1
1	J5	CONN D-SUB PLUG R/A 9POS 30GOLD	Tyco® Electronics/Amp	5747840-4
1	JP2	CONN HEADER VERT 2POS .100 TIN	Tyco Electronics/Amp	3-644695-2
1	PCB	RoHS Compliant Bare PCB, MCP2515 PICTail Plus Daughter Board	Microchip Technology Inc.	104-000194
3	R1, R2, R17	RES 475 OHM 1/8W 1% 0805 SMD	Panasonic - ECG	ERJ-6ENF4750V
1	R16	RES 120 OHM 1/10W 1500PPM 5% 0805	Panasonic - ECG	ERA-S15J121V
2	R3, R4	RES 10K OHM 1/10W 5% 0603 SMD	Panasonic - ECG	ERJ-3GEYJ103V
1	U1	Stand-Alone CAN Controller With SPI Interface	Microchip Technology Inc.	MCP2515-I/ST
1	U2	High-Speed CAN Transceiver	Microchip Technology Inc.	MCP2551-I/SN
1	Y1	CRYSTAL 20.000MHZ 18PF FUND SMD	Abracon Corp.	ABM3B-20.000MHZ-B2-T

Note: The components listed in this Bill of Materials are representative of the PCB assembly. The released BOM used in manufacturing uses all RoHS-compliant components.



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Fax: 630-285-0075

Dallas

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Fax: 972-818-2924

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Fax: 248-538-2260

Kokomo

Kokomo, IN
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Fax: 765-864-8387

Los Angeles

Mission Viejo, CA
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Fax: 949-462-9608

Santa Clara

Santa Clara, CA
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Fax: 408-961-6445

Toronto

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Canada
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Fax: 86-28-8665-7889

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Fax: 86-21-5407-5066

China - Shenyang

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Fax: 86-27-5980-5118

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Korea - Daegu

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Fax: 82-53-744-4302

Korea - Seoul

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Fax: 82-2-558-5932 or
82-2-558-5934

Malaysia - Kuala Lumpur

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Fax: 60-3-6201-9859

Malaysia - Penang

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Fax: 60-4-227-4068

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Fax: 63-2-634-9069

Singapore

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Fax: 65-6334-8850

Taiwan - Hsin Chu

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Fax: 886-3-572-6459

Taiwan - Kaohsiung

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Fax: 886-7-536-4803

Taiwan - Taipei

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Fax: 66-2-694-1350

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Fax: 43-7242-2244-393

Denmark - Copenhagen

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Fax: 45-4485-2829

France - Paris

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Fax: 33-1-69-30-90-79

Germany - Munich

Tel: 49-89-627-144-0
Fax: 49-89-627-144-44

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Fax: 39-0331-466781

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Fax: 31-416-690340

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