MCP401XEV Evaluation Board User's Guide

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MCP401XEV EVALUATION 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 "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 on-line help. Select the Help menu, and then Topics to open a list of available on-line help files.

INTRODUCTION

This chapter contains general information that will be useful to know before using the MCP401XEV Evaluation Board. Items discussed in this chapter include:

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

DOCUMENT LAYOUT

This document describes how to use the MCP401XEV Evaluation Board as a development tool to emulate and debug firmware on a target board. The manual layout is as follows:

- **Chapter 1. "Product Overview"** – Important information about the MCP401XEV Evaluation Board.
- **Chapter 2. "Installation and Operation"** – Includes instructions on how to get started with this evaluation board.
- **Appendix A. "Schematic and Layouts"** – Shows the schematic and layout diagrams for the MCP401XEV Evaluation Board.
- **Appendix B. "Bill of Materials (BOM)"** – Lists the parts used to build the MCP401XEV Evaluation Board.

CONVENTIONS USED IN THIS GUIDE

This manual uses the following documentation conventions:

DOCUMENTATION CONVENTIONS

Description	Represents	Examples
Arial font:		
Italic characters	Referenced books	*MPLAB® IDE User's Guide*
	Emphasized text	...is the *only* 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	*File>Save*
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>

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RECOMMENDED READING

This user's guide describes how to use the MCP401XEV Evaluation Board. Other useful documents are listed below. The following Microchip documents are available and recommended as supplemental reference resources.

AN1080 Application Note, "*Understanding Digital Potentiometer Resistor Variations*", DS01080

These data sheets provide detailed information regarding the MCP401X and MCP40D1X product families:

MCP4017/18/19 Data Sheet, "*7-bit Single I^{2}C Digital POT with Volatile Memory in SC70*", DS22147

MCP40D17/18/19 Data Sheet, "*7-bit Single I^{2}C (with Command Code) Digital POT with Volatile Memory in SC70*", DS22152

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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

In addition, there is a Development Systems Information Line which lists the latest versions of Microchip's development systems software products. This line also provides information on how customers can receive currently available upgrade kits.

The Development Systems Information Line numbers are:

1-800-755-2345 – United States and most of Canada

1-480-792-7302 – Other International Locations

DOCUMENT REVISION HISTORY

Revision A (January 2010)

- Initial Release of this Document.

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Chapter 1. Product Overview

1.1 INTRODUCTION

This chapter provides an overview of the MCP401XEV Evaluation Board and covers the following topics:

- What is the MCP401XEV Evaluation Board?
- What the MCP401XEV Evaluation Board kit includes

1.2 WHAT IS THE MCP401XEV EVALUATION BOARD?

The MCP401XEV Evaluation Board allows the system designer to quickly evaluate the operation of Microchip Technology's MCP40D18 Digital Potentiometer device. This device is similar to the following devices:

- MCP40D17
- MCP40D19
- MCP4017
- MCP4018
- MCP4019

The board uses the SC70EV Generic PCB and has been populated for the MCP40D18. The 6-pin header (PICkit Serial) has been jumpered to the MCP40D18's appropriate pins. This allows the PICkit Serial to communicate with the device.

Additional blank PCBs may be ordered by using the order number: SC70EV. Each SC70EV kit contains 5 PCBs.

Figure 1-1 shows the top view of the PCB.

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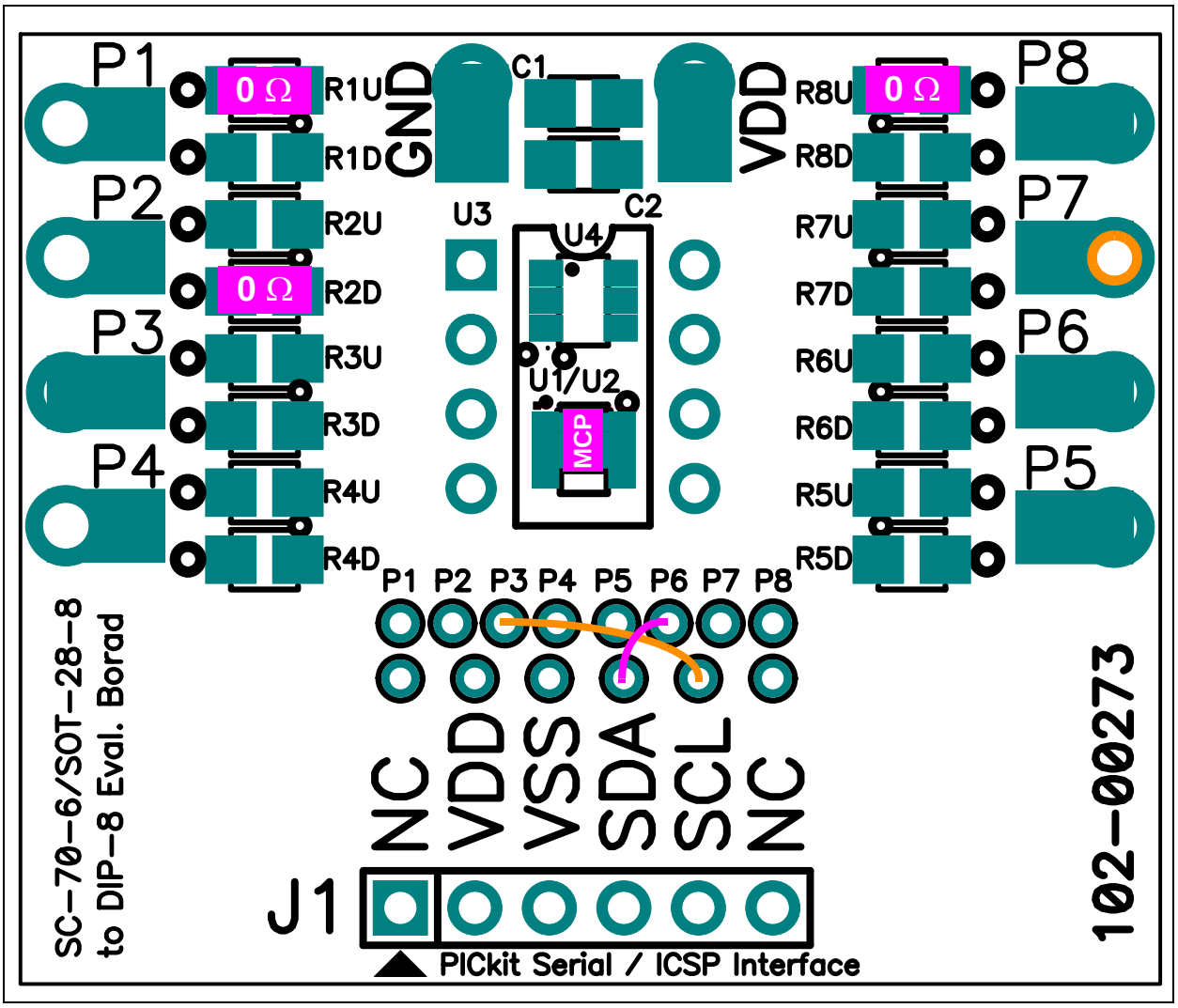

FIGURE 1-1: *MCP401XEV Evaluation Board Using the SC70EV Evaluation Board (MCP40D18 installed in U1).*

1.3 WHAT THE MCP401XEV EVALUATION BOARD KIT INCLUDES

This MCP401XEV Evaluation Board kit includes:

- MCP401XEV Evaluation Board
- One SC70EV Blank PCB, 102-00273.
  Extra blank PCBs can be ordered (order #: SC70EV)
- Important Information Sheet

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Chapter 2. Installation and Operation

2.1 INTRODUCTION

The MCP401XEV Evaluation Board allows the system designer to quickly evaluate the operation of the MCP40D18 10 kΩ (-103) Digital Potentiometer device using the PICkit Serial Analyzer. The PICkit Serial Analyzer is available separately (order number: DV164122).

The MCP401XEV Evaluation Board is a minimum configuration for the device. As well as the device, other desired passive components (resistors and capacitors) and connection posts may be installed.

The MCP401XEV Evaluation Board can also be very easily jumpered into a customers existing circuit. This gives an indication of the MCP40D18 device performance, but is affected by the jumper lead length and the EM noise that the jumpers pick up.

The MCP401XEV Evaluation board uses the generic SC70EV Evaluation Board PCB, and includes a second blank PCB. Additional PCB may be ordered (order number: SC70EV). The SC70EV kit includes 5 blank PCBs.

Other boards can be easily built up using the SC70EV PCB to allow evaluation of other resistance options (5 kΩ, 50 kΩ, or 100 kΩ) or any of the other devices in the following packages:

- SC70 package (uses I^2C interface)
  - MCP4017, MCP4018, MCP4019, MCP40D17, or MCP40D19
- SOT-23 package (uses Up/Down interface)
  - MCP4012, MCP4013, MCP4014, MCP4022, MCP4023, or MCP4024
- DIP-8 Package (uses SPI interface)
  - MCP4131, MCP4141, MCP4151, or MCP4161

The MCP401XEV Evaluation Board also has a 6-pin interface (PICkit Serial, ICSP, etc.) whose signals can easily be jumpered to any of the device's pins.

Additional information on using the SC70EV Evaluation Board PCB or for modifying the MCP401XEV board is available in the SC70EV User's Guide (DS51874). **Appendix A. "Schematic and Layouts"** has information on the PCB schematic and layout while Figure 2-2 shows components that are installed on the PCB.

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2.2 FEATURES

The MCP401XEV Evaluation Board has the following features:

- MCP40D18-103AE/LT is installed (I^2C address of 7Ch)
- 0Ω resistors connect MCP40D18 VDD and VSS signals to the appropiate Power or Ground plane (see Figure 2-2)
- 0Ω resistors connect MCP40D18 A terminal signal to Power plane, Resistor Network is in a voltage divider configuration (see Figure 2-2)
- Through-hole connection terminal (Orange) for the Wiper pin
- Connection terminals for all device pins (either through-hole or surface-mount)
- Footprints for optional passive components (SMT 805 footprint) for:
  - Power supply filtering (C_1 and C_2 footprints)
  - Device bypass capacitor (RxD footprint for device pin connected to V_{DD})
- Silk-screen area to write specifics of implemented circuit (on back of PCB), such as MCP4018 10 kΩ
- PICkit Serial Analyzer Header

The included SC70EV Board has the following features:

- Connection terminals may be either through-hole or surface-mount
- Three package type footprints supported:
  - SC70-6
  - SC70-5
  - SC70-3
  - SOT-23-8
  - SOT-23-6
  - SOT-23-5
  - SOT-23-3
  - DIP-8 (300 millimeter spacing)
- Footprints for optional passive components (SMD 805 footprint) for:
  - Power supply filtering (C_1 and C_2 footprints)
  - Device bypass capacitor (RxD footprint for device pin connected to V_{DD})
  - Output filtering (RxD footprint)
  - Output pull-up resistor (RxU footprint)
  - Output pull-down resistor (RxD footprint)
  - Output loading resistor (RxD footprint)
- Silk-screen area to write specifics of implemented circuit (on back of PCB), such as MCP4018 10 kΩ
- Can be used for SC70 or SOT-23 to DIP-8 converter
- PICkit Serial Analyzer / PICkit 2 Programming (ICSP) Header

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2.3 GETTING STARTED

The MCP401XEV Evaluation Board allows quick evaluation of the MCP40D18-103AE/LT device. This device is in the potentiometer configuration with terminal B internally tied to ground. This devices has an R_{AB} resistance that is typically 10 kΩ and has a slave I^2C device address of 7Ch. Evaluation can be done by:

- Using the PICkit Serial Analyzer for interface communication
- Jumpering the MCP401XEV Evaluation Board into your application circuit to control the MCP40D18-103A device

This user guide will discuss the steps needed to evaluate the MCP40D18-103AE/LT device using the PICkit Serial Analyzer (order number: DV164122).

Section 2.5 "Configuring The PICkit Serial Analyzer" shows the steps to configure the PICkit Serial Analyzer as well as create User Script files which are used to communicate with the MCP40D18, based on the devices I^2C communication protocol format.

2.4 MCP401XEV EVALUATION BOARD DESCRIPTION

The MCP401XEV Evaluation Board uses the flexible SC70EV Evaluation Board PCB. This simple Evaluation Board allows the system designer to quickly evaluate the operation of the MCP40D18-103A device ($R_{AB(TYP)}$ = 10 kΩ and has a device slave I^2C address = 7Ch) using the PICkit Serial Analyzer or by jumpering the board into their application system. The PICkit Serial Analyzer is available separately (order number: DV164122).

2.4.1 The Hardware

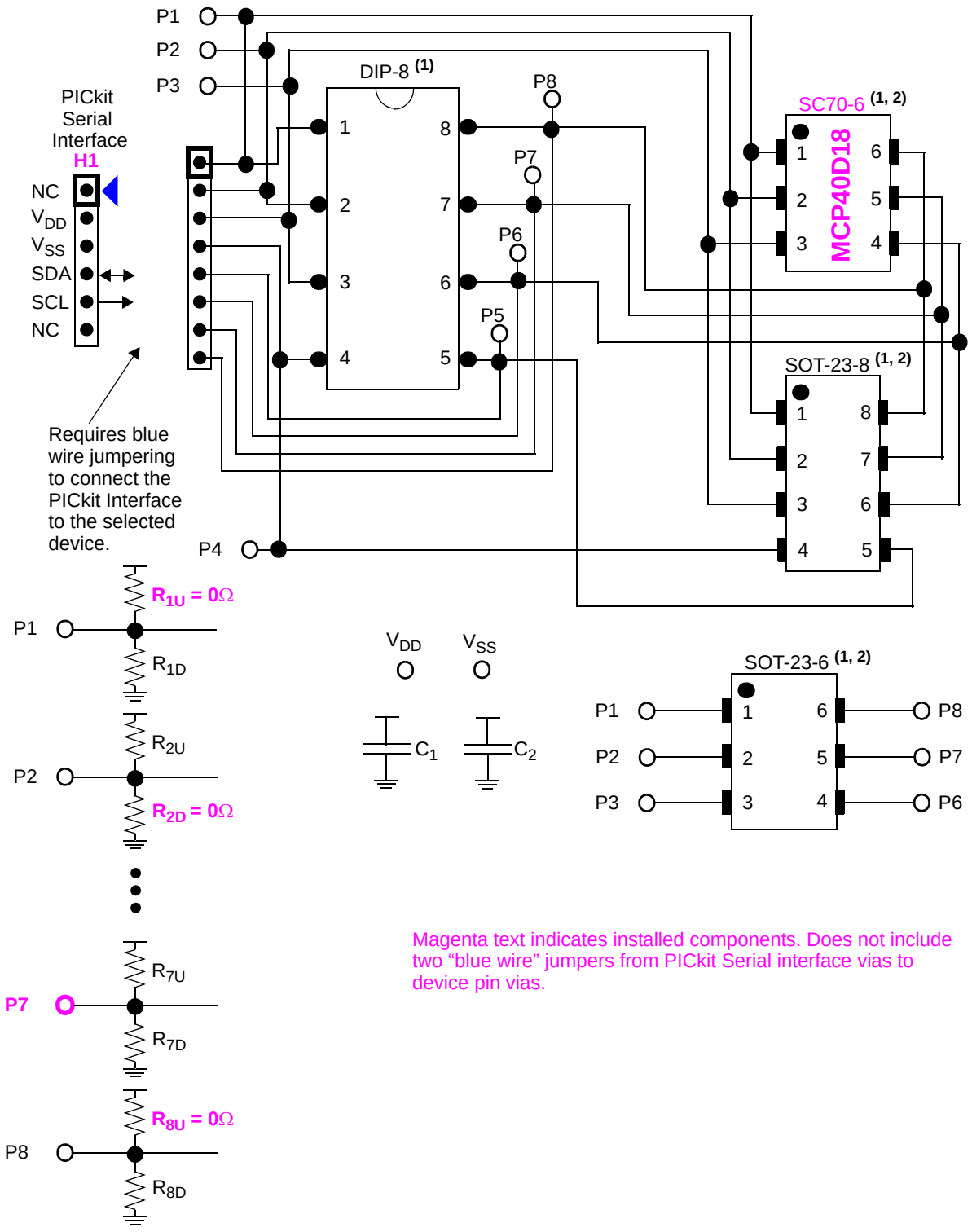
Figure 2-2 shows the component layout of the MCP401XEV Evaluation Board. This is a small four-layer board (1.43" x 1.255" (36.322 mm x 31.877 mm)). There are ten connection points/pads that can use either through-hole or surface-mount connector posts.

The pad labeled VDD is connected to the PCB power plane, while the pad labeled VSS is connected to the PCB ground plane. All the passive components that are connected to VDD or VSS are connected to either the power plane or ground plane.

The eight remaining PCB pads correspond to the device pins (i.e.; pad 1 connects to pin 1).

Each pad has two passive components associated with them: a pull-up resistor and a pull-down resistor. The pull-up resistor is always RXU and the pull-down resistor is RXD. The "X" is a numeric value that corresponds to a particular pad (1 to 8). As an example, Pad 5's pull-up resistor is R5U. Capacitor C1 and C2 are the power supply filtering capacitors. For whichever pin is the device's VDD, the RxD component footprint can be used for the device's bypass capacitor. Table 2-2 describes the components.

A 6-pin header interface is available to support the PICkit Serial or the PICmicro In-Circuit Serial Programming (ICSP) interface.



Note 1: The SC70 V_{DD} (SOT-23 V_{SS}) signal is connected to the DIP-8 V_{DD}/V_{SS} signal, and the SC70 VSS (SOT-23 V_{DD}) signal is connected to the DIP-8 V_{SS}/V_{DD} signal.

2: Only one of the SC70 or SOT-23 footprints may be populated at a give time.

3: The SC70-6 and SOT-23-8 footprints are superimposed on the PCB due to the similarity of the package lead width and lead pitch dimensions.

FIGURE 2-1: *SC70EV Evaluation Board Circuit.*

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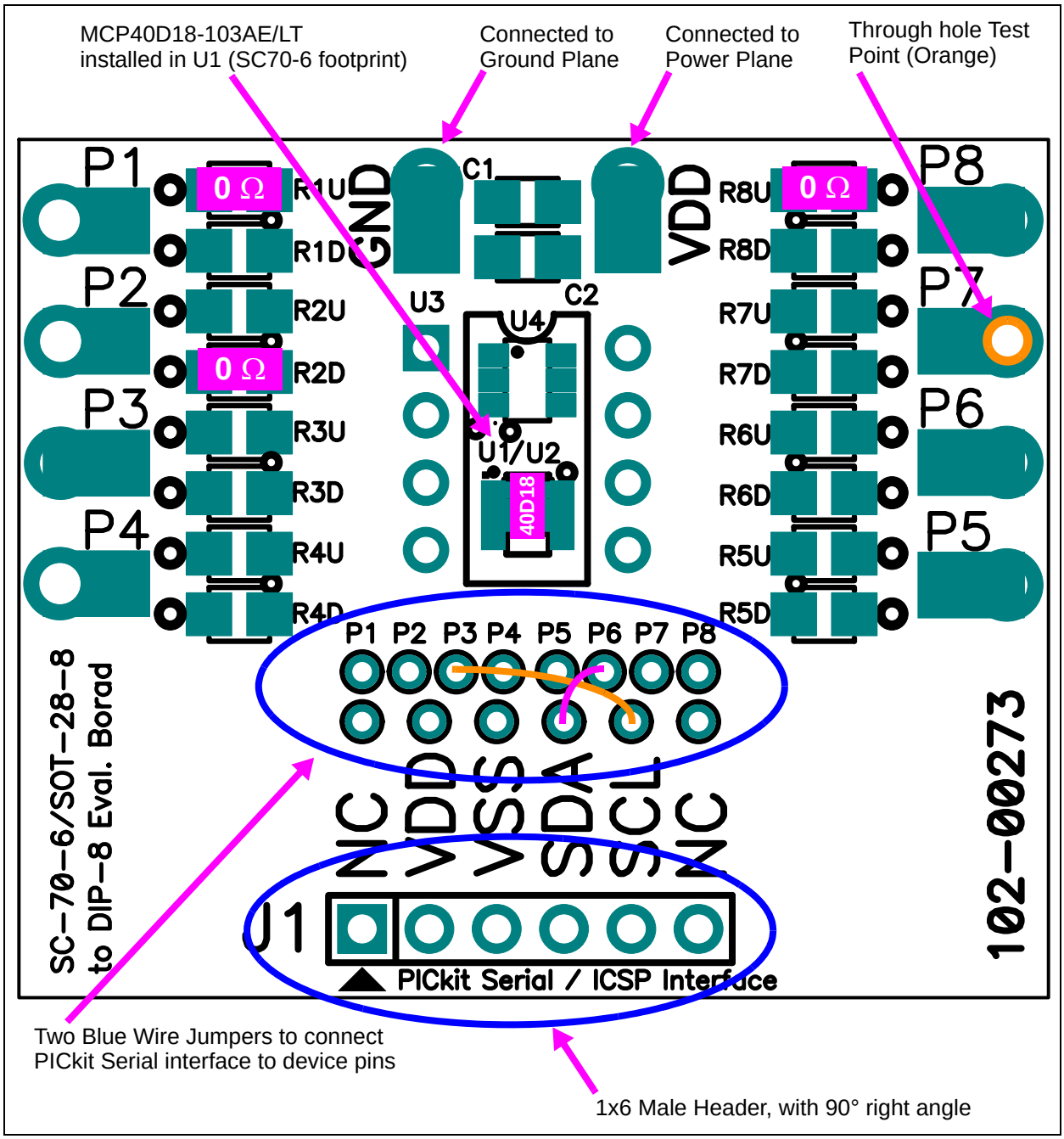

FIGURE 2-2: *MCP401XEV Evaluation Board Component Placement Using the SC70EV Evaluation Board (Top).*

TABLE 2-1: INSTALLED PASSIVE COMPONENTS (2)

Component	Description	Comment
R1U, R8U	0Ω SMT 805	Pull-up resistor
R2D	0Ω SMT 805	Pull-down resistor (1)
U1	MCP40D18-103AE/LT	10 kΩ, Device I^2C Slave Address = 7Ch
P7	Test Point - through hole connector (Orange)	
J1	1x6 Male Header, 100 mil spacing 90° angle.	1 x 6 male Header
—	Blue Wire: J1 SCL via to P3 via J1 SDA via to P6 via	See Figure 2-2

Note 1: Whichever pin is the device's VDD pin, that corresponding RXD footprint can be used for the device's bypass capacitor. So if Pin 8 is the device's VDD pin, then install the bypass capacitor in the R8D footprint.

2: All passive components use the surface mount 805 footprint.

TABLE 2-2: OPTIONAL PASSIVE COMPONENTS - NOT INSTALLED (2)

Component	Comment
C1, C2	Power supply bypass capacitors (3)
R2U, R3U, R4U, R5U, R6U, R7U	Pull-up resistor
R1D, R3D, R4D, R5D, R6D, R7D, R8D	Pull-down resistor (1)
U2, U3, U4	Alternate package footprints
VDD, GND	Power and Ground plane connection points
P1, P2, P3, P4, P5, P6, P8	Test Point connectors

Note 1: Whichever pin is the device's VDD pin, that corresponding RXD footprint can be used for the device's bypass capacitor. So if Pin 8 is the device's VDD pin, then install the bypass capacitor in the R8D footprint.

2: All passive components use the surface mount 805 footprint.

3: If board is powered via the VDD and GND connection points, the use of bypass capacitors on C1 and C2 may improve performance. The benefit is reduced if the board is powered via the PICkit Serial interface.

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2.5 CONFIGURING THE PICKIT SERIAL ANALYZER

Figure 2-3 shows the PICkit Serial Window after the program has started. The Transaction window indicates if the PICkit Serial GUI located the PICkit Serial Analyzer Hardware. When starting the PICkit Serial Analyzer for the 1st time, some setup questions may be asked. If you have any questions, please refer to the PICkit Serial Analyzer documentation, available at www.Microchip.com/PICkitSerial.

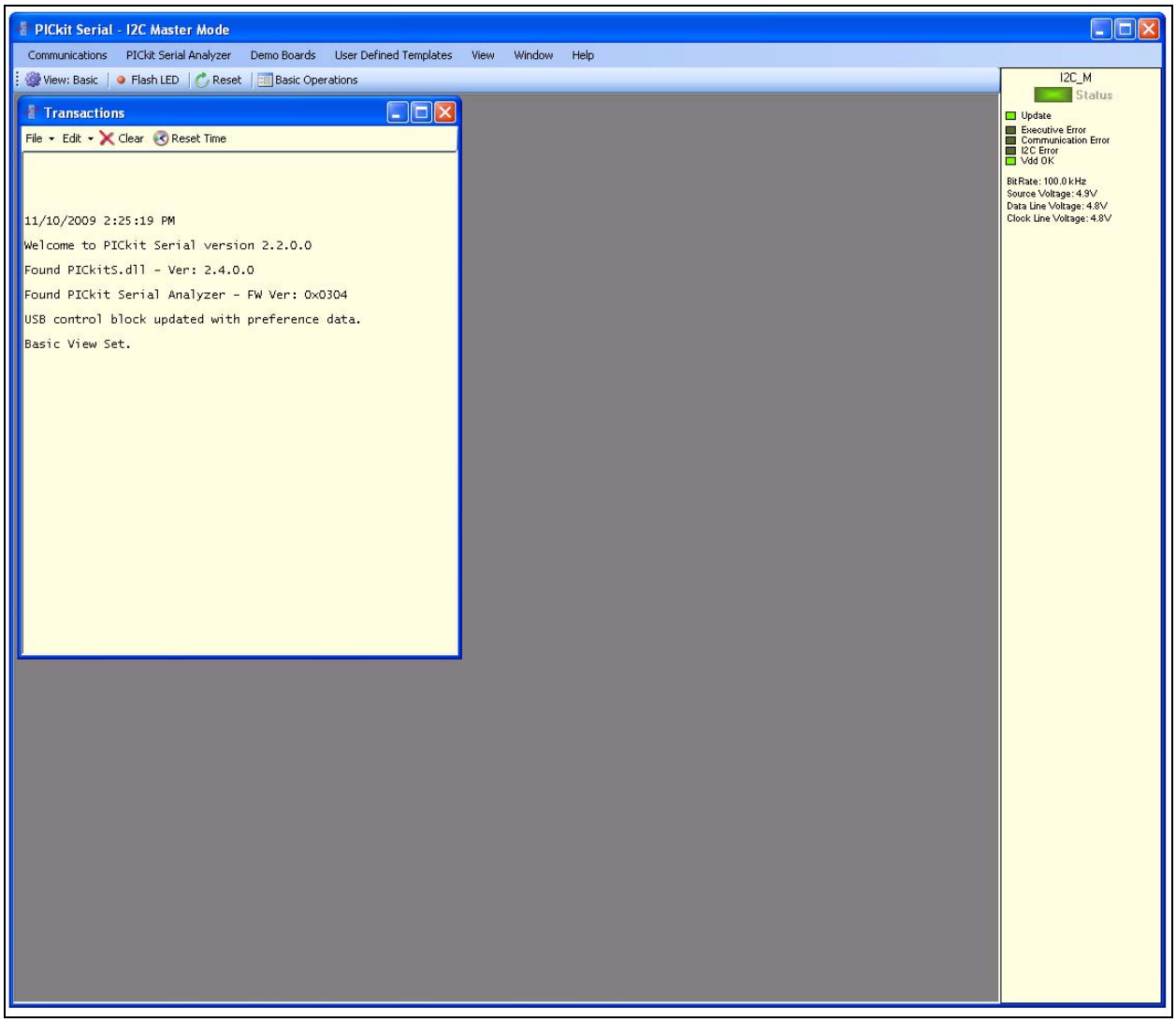

FIGURE 2-3: *PICkit Serial Main Window at Startup.*

We need to select the PICkit Serial Analyzer GUI to be in I^2C Master mode. Figure 2-4 shows how to select the proper mode. Select *PICkit Serial Analyzer -> Select Communications Mode -> I2C Master* menu item (make sure the I2C Master item is checked).

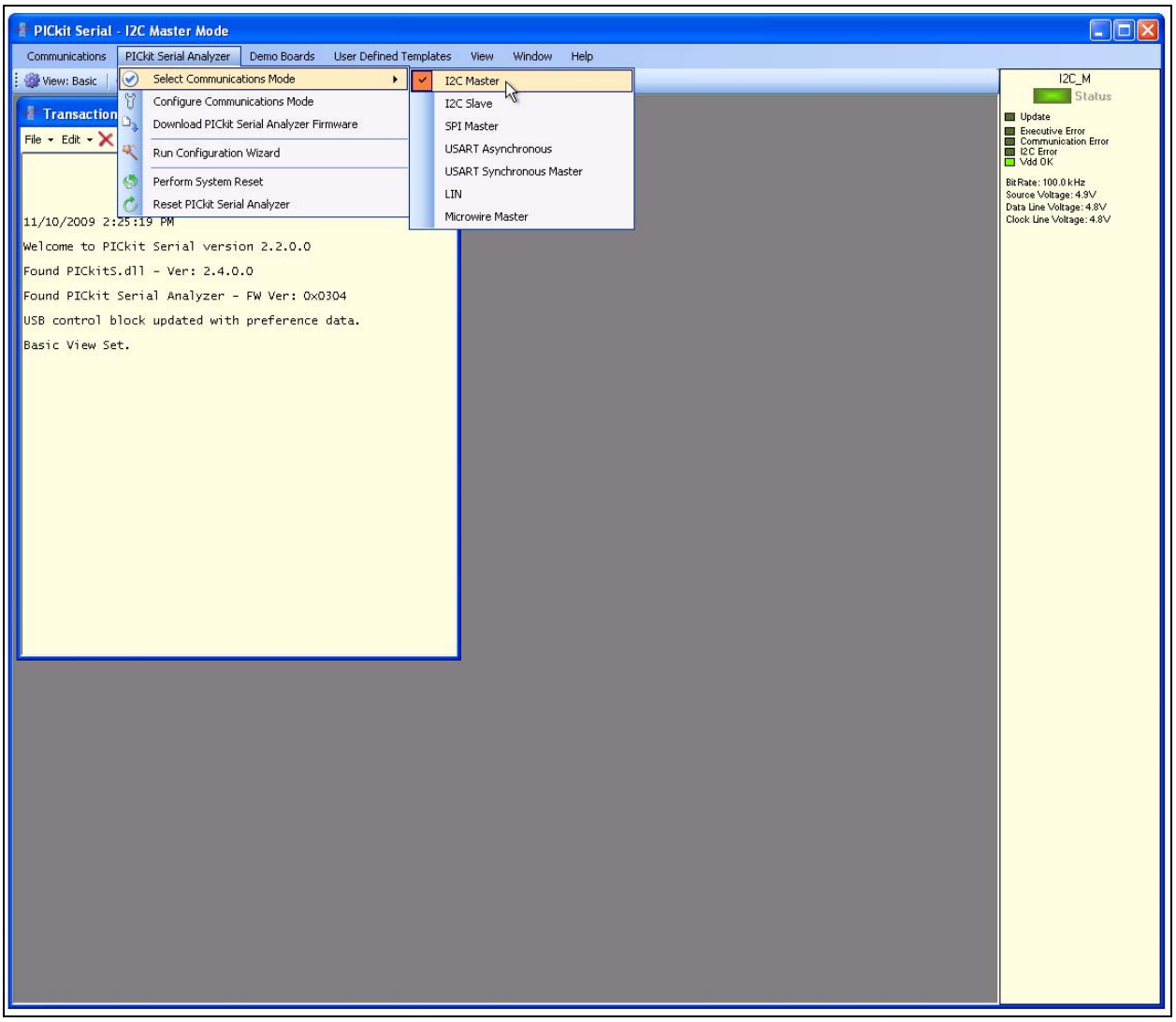

FIGURE 2-4: *PICkit Serial Selecting Communications Mode.*

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Now we need to configure the mode that we have selected. Figure 2-5 shows how to select the communications mode. Select *PICkit Serial Analyzer -> Configure Communications Mode* menu item. This will open a new window.

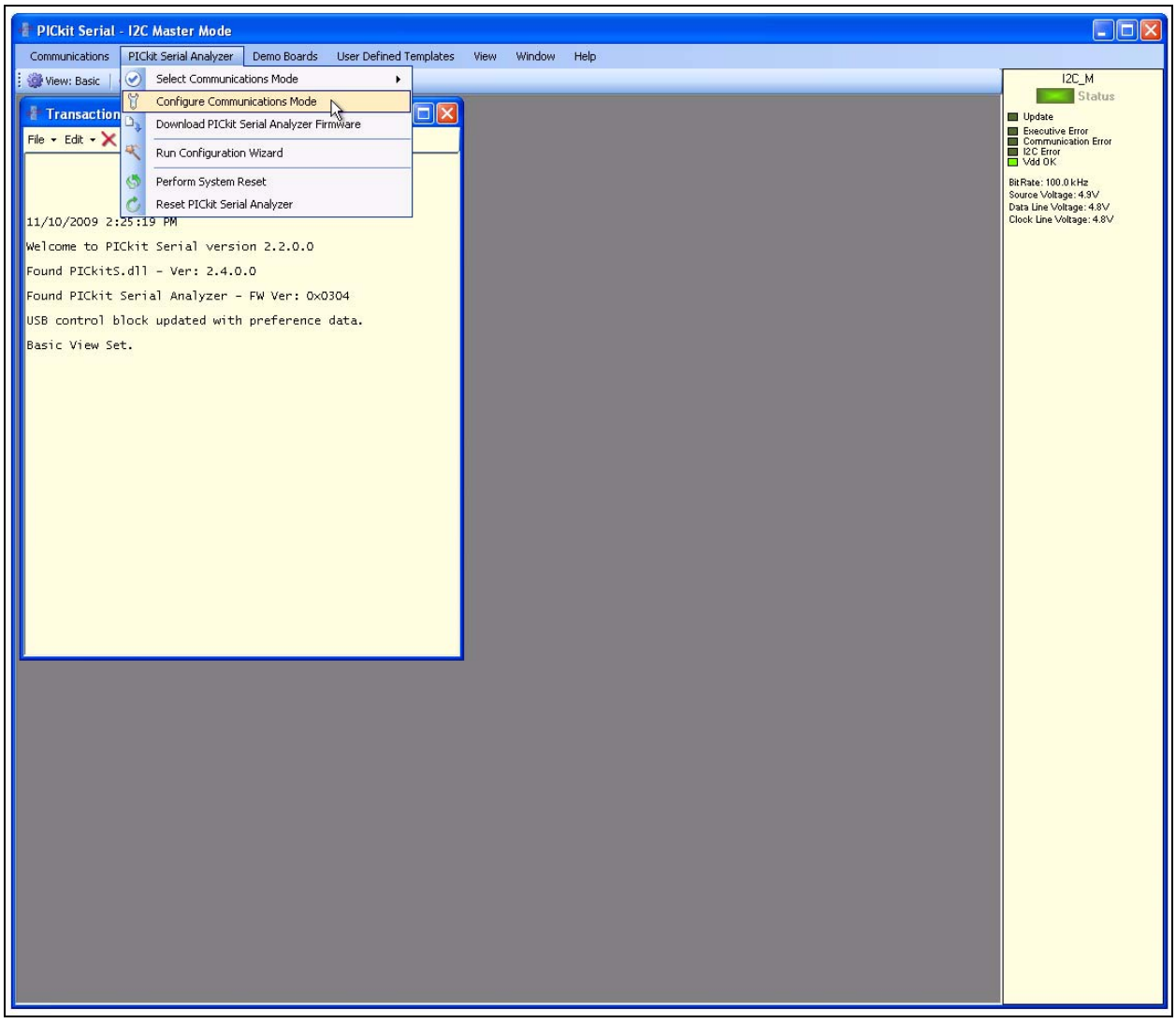

FIGURE 2-5: *PICkit Serial Main Window at Startup.*

Figure 2-6 shows the Configure Communications Mode window. Ensure that your window options and settings are the same as in this window, and then select the "Save Changes" button.

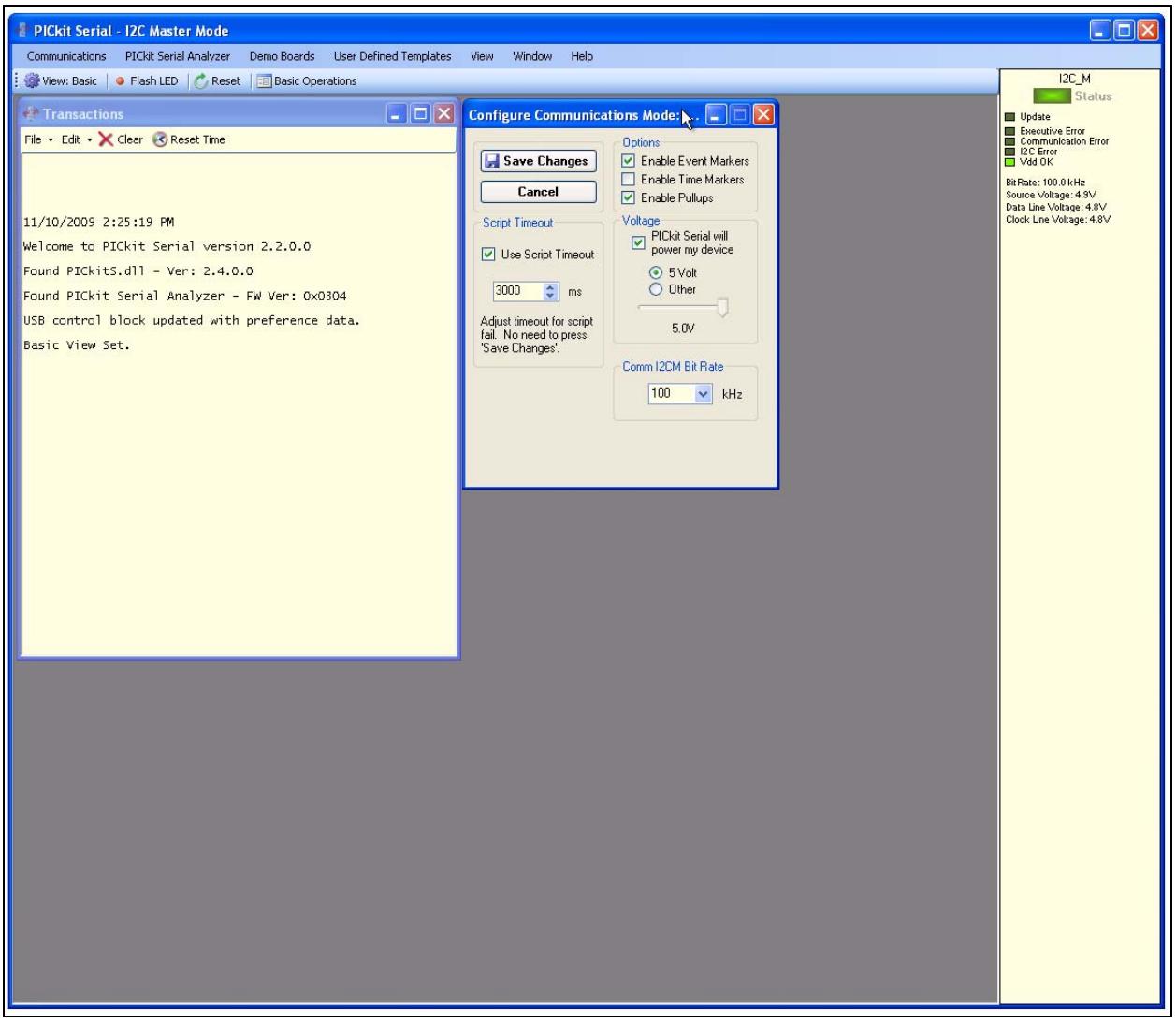

FIGURE 2-6: *PICkit Serial Configure Communications Mode Window.*

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Now we are going to create some custom scripts to match the MCP40D18 read and write commands. To open the Script Builder window, select the Communications -> Script -> Script Builder menu item (see Figure 2-7).

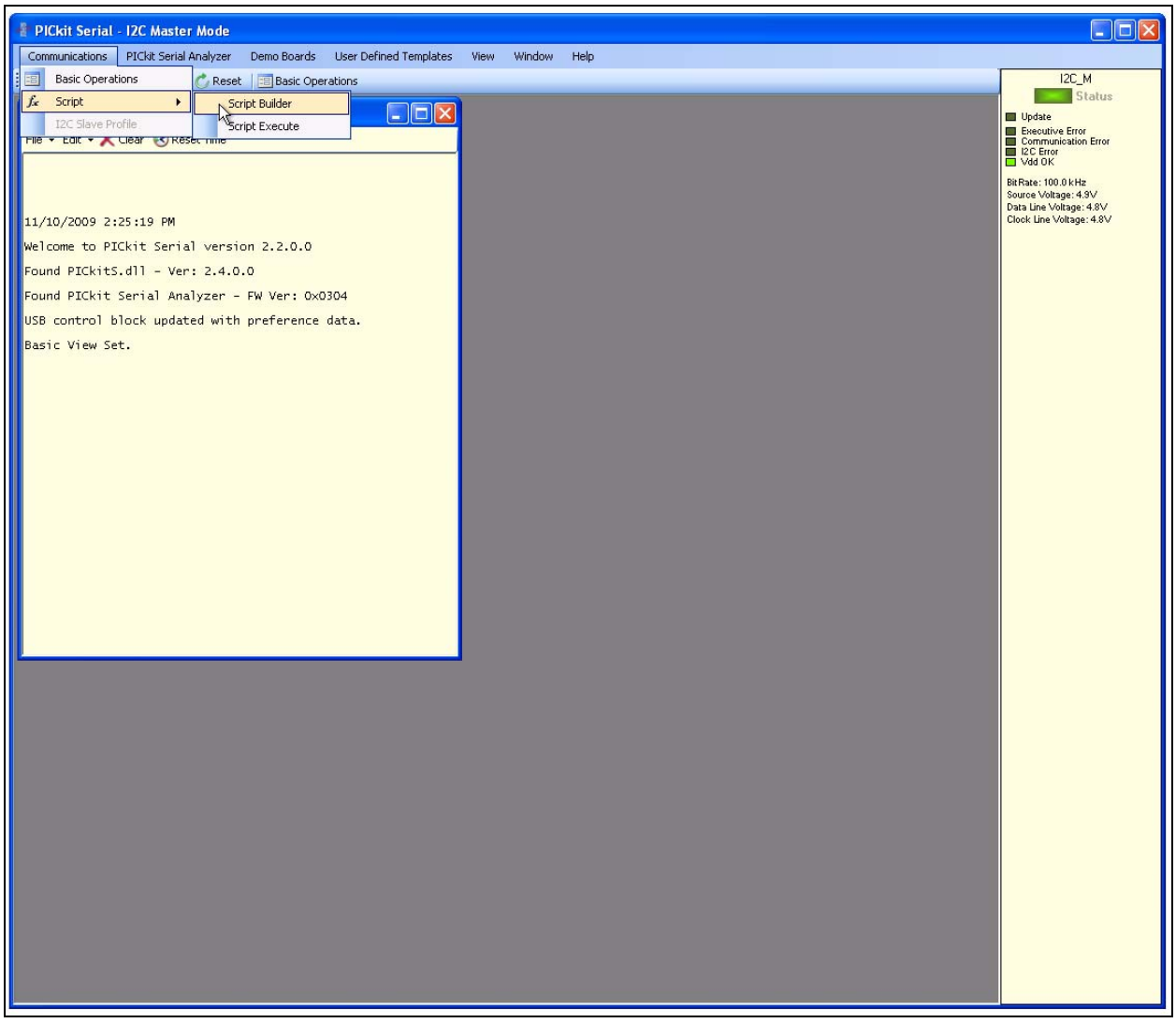

FIGURE 2-7: *PICkit Serial - Script Bulider Menu Selection.*

This will open the Script Builder window (Figure 2-8). In this window we see five Example I²C Master Scripts. We will use the ReadAddrA8 and WriteAddrA8 Example Script Files to create our User I²C Master Scripts.

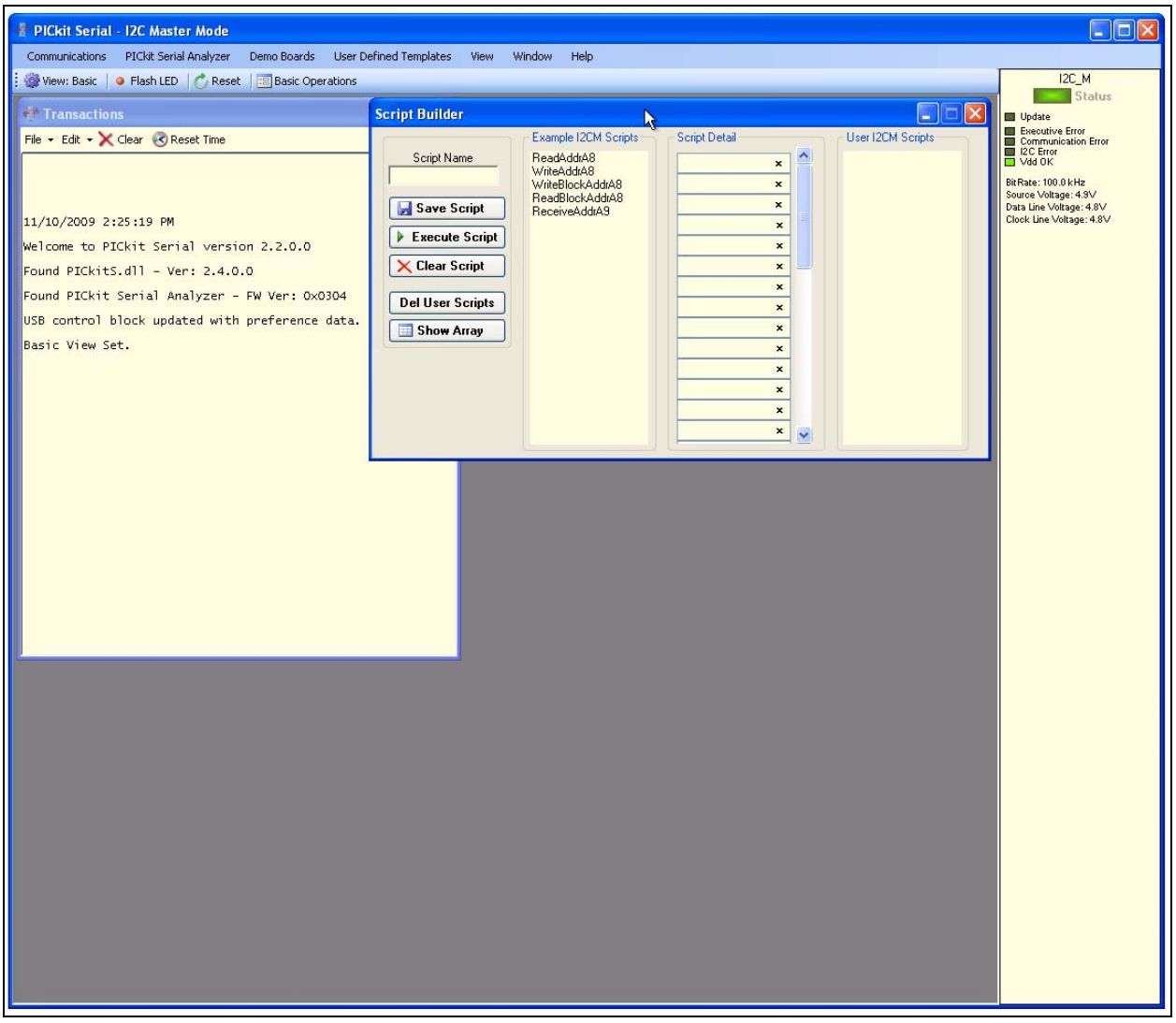

FIGURE 2-8: *PICkit Serial Main Window at Startup.*

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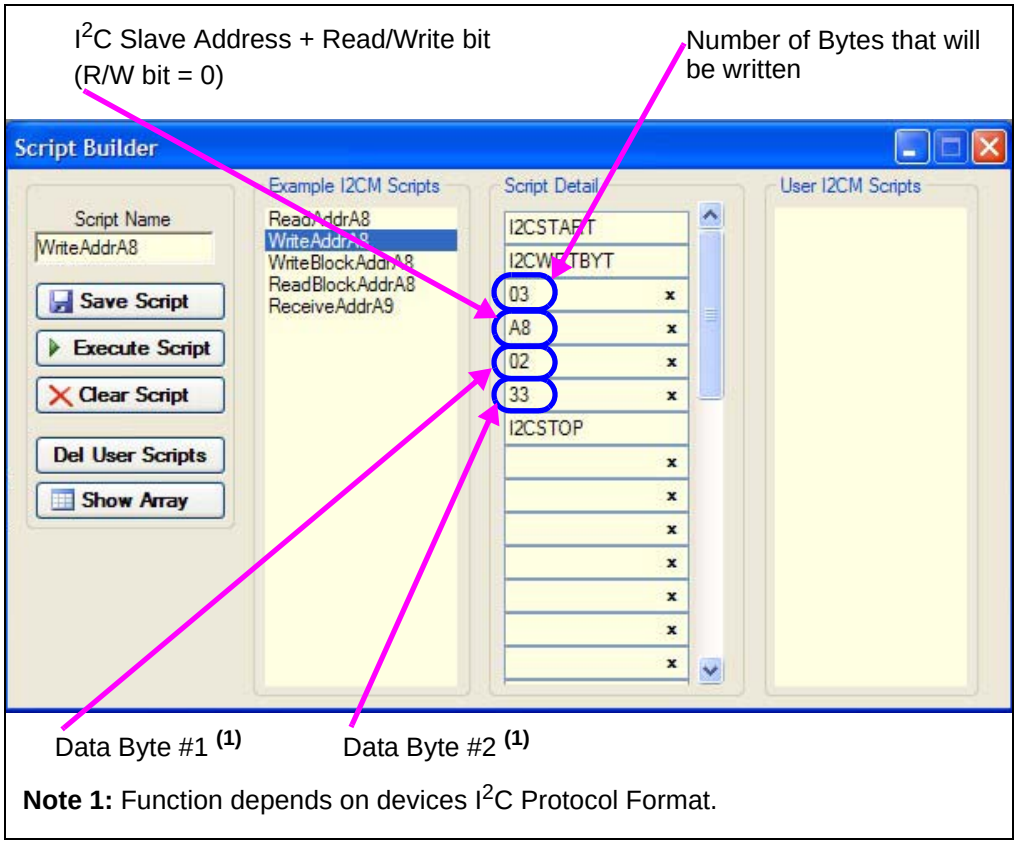
Double clicking on the WriteAddrA8 Example I2CM Script will load the Script Details. Figure 2-9 shows what the values mean in the Script Details. These values are hex numbers.

The first value (03h), is the number of bytes that will be written. The second byte is the I^2C Slave address (A8h) of the device with the Read/Write bit forced to '0' (an I^2C write). The next two bytes (02h and 33h) are data bytes, and these value will be dependent on the slave I^2C device protocol format and the desired operation.



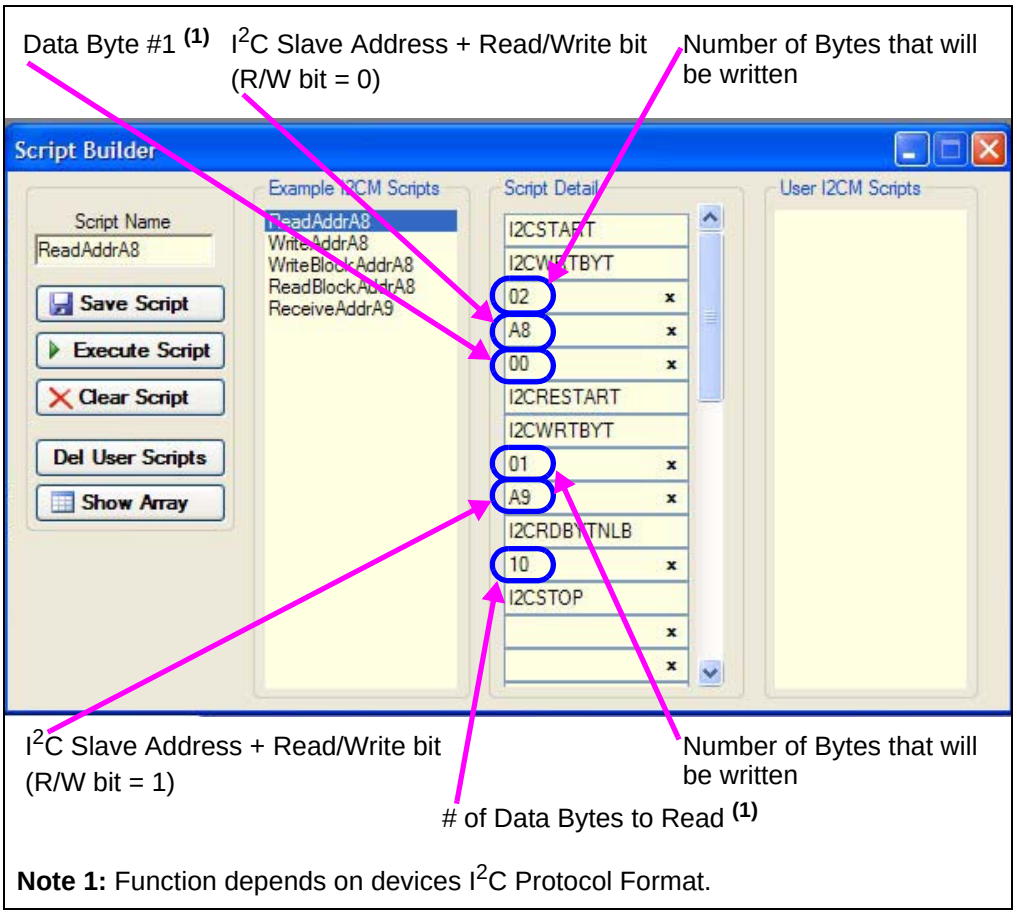
Note 1: Function depends on devices I^2C Protocol Format.

FIGURE 2-9: *Example Write Script.*

Double clicking on the ReadAddrA8 Example I2CM Script will load the Script Details. Figure 2-10 shows what the values mean in the Script Details. These values are hex numbers.

The first value (02h) is the number of bytes that will be written. The second byte is the I^2C Slave address (A8h) of the device with the Read/Write bit forced to '0' (an I^2C write). The next byte (00h) is a data byte, and the value will be dependent on the slave I^2C device protocol format and the desired operation.

Now a I^2C Restart bit is forced onto the I^2C bus. The next byte (01h) indicates how many bytes will be written. The next bit (A9h) is the I^2C Slave address (A8h) of the device with the Read/Write bit forced to '1' (an I^2C read). The last byte (10h) is the number of bytes that will be read from the I^2C Slave Device. The value will be dependent on the slave I^2C device protocol format and the desired operation.



Note 1: Function depends on devices I^2C Protocol Format.

FIGURE 2-10: *Example Read Script.*

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To create the write script for the MCP40D18, double click on the WriteAddrA8 script in the “Example I2CM Scripts” column. This loads the script (see Figure 2-9) into the “Script Detail” column. Modify the script details so that it looks like Figure 2-11. Then, in the “Script Name” write the name that you would like to call the script. We chose “MCP40D18_Write” (see Figure 2-11).

Then click on the “Save Script” button. This will save the script, which can then be accessed under the “User I2CM Script” column (see Figure 2-11). This script will be available when the GUI is opened in the future (unless the script has been cleared or deleted).

Note: The saved User Scripts are saved to a text file. The file is saved in the PICkit Serial Analyzer directory. This User Scripts file is called:
CommScripts.txt
The default install location of the file is:
C:\Program Files\Microchip\PICkit Serial Analyzer

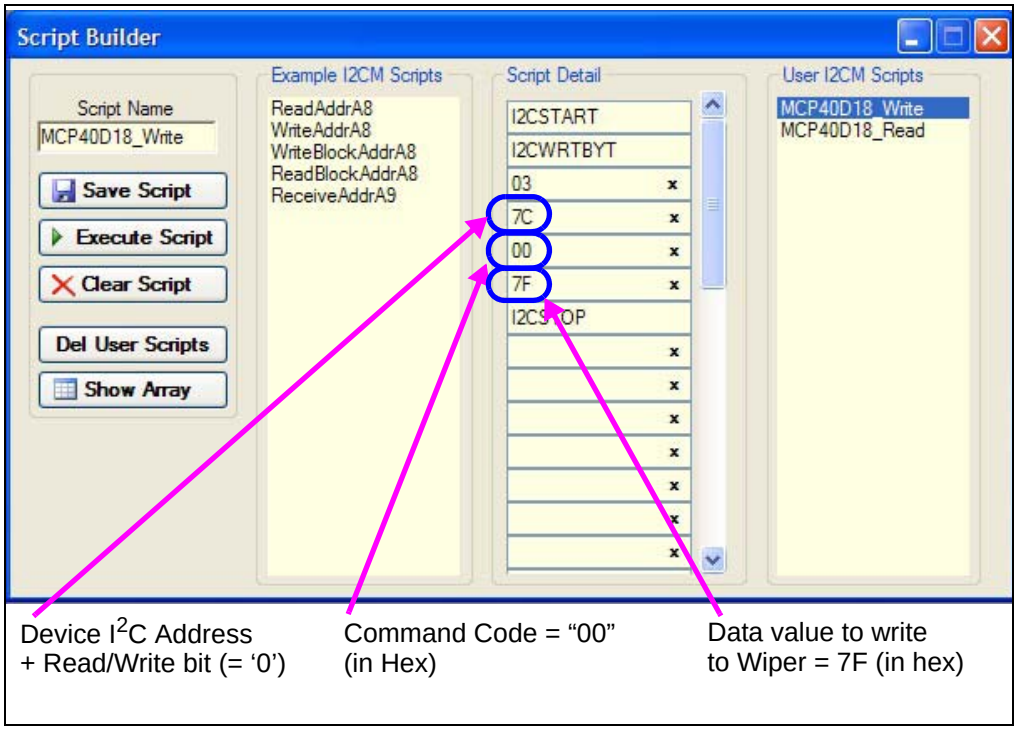

FIGURE 2-11: *MCP40D18 Write Script File.*

To create the read script for the MCP40D18, double click on the ReadAddrA8 script in the "Example I2CM Scripts" column. This loads the script (see Figure 2-10) into the "Script Detail" column. Modify the script details so that it looks like Figure 2-12. Then, in the "Script Name" write the name that you would like to call the script. We chose "MCP40D18_Read" (see Figure 2-12).

Then click on the "Save Script" button. This will save the script, which can then be accessed under the "User I2CM Script" column (see Figure 2-11). This script will be available when the GUI is opened in the future (unless the script has been cleared or deleted).

Note: The saved User Scripts are saved to a text file. The file is saved in the PICkit Serial Analyzer directory. This User Scripts file is called:
CommScripts.txt
The default install location of the file is:
C:\Program Files\Microchip\PICkit Serial Analyzer

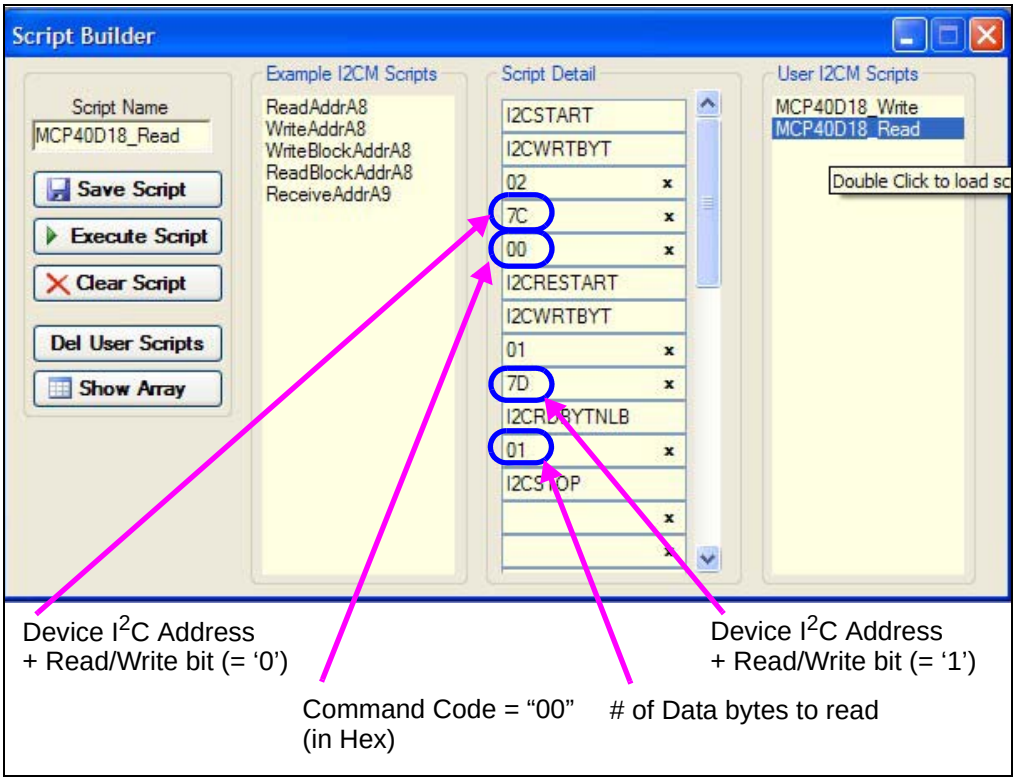

FIGURE 2-12: *MCP40D18 Read Script File.*

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2.6 MCP40D18EV DEMO STEPS

This demo assumes that you know how to configure the PICkit Serial Analyzer for Master I^2C operation. See **Section 2.5 "Configuring The PICkit Serial Analyzer"** or the PICkit Serial Analyzer User's Guide (DS51647) for additional information.

1. Plug the PICkit Serial device into the PC's USB port.
2. Plug the MCP40D18EV board into the PICkit Serial.
3. Start the PICkit Serial GUI.
4. Ensure the GUI is in Master I^2C communication mode (see Figure 2-4).
5. Ensure that the Master I^2C configuration is appropriately configured (see Figure 2-6).
6. Measure the wiper voltage on the MCP40D18EV board using an oscilliscope or digital multimeter. Measure voltage from the ground plane (GND) to the Wiper (P7). The voltage on the wiper should be ~ $V_{DD}/2$ (~2.5V).
7. Open the Script Builder window (see Figure 2-7).
8. Double click on the "WriteAddrA8" script in the "Example I2CM Scripts column. This loads the Script Detail column (see Figure 2-9).
9. Modify the "Script Detail" so that it is like that shown in Figure 2-13.
10. Click on the "Execute Script" button. This executes the script shown in the script detail column, which will update the wiper value to 7Fh. The Wiper voltage will now be ~V_{DD} (~5V). The Transaction window (see Figure 2-15) will be updated to indicate the execution of the script.
11. Select the "MCP40D18_Read" script in the User I2CM Scripts column. It should look like Figure 2-14.
12. Click on the "Execute Script" button. This executes the script shown in the script detail column. The Transaction window (see Figure 2-15) will be updated to indicate the execution of the script. The Data read is shown in the last line.
13. Select the "MCP40D18_Write" script in the User I2CM Scripts column. It should look like Figure 2-13.
14. Modify the data value to write to the wiper (see Figure 2-13) to 1Fh.
15. Click on the "Execute Script" button. This executes the script shown in the script detail column, which will update the wiper value to 1Fh (from 7Fh). The Wiper voltage will now be ~1/4*V_{DD} (~1.25V). The Transaction window (see Figure 2-16) will be updated to indicate the execution of the script.
16. Select the "MCP40D18_Read" script in the User I2CM Scripts column. It should look like Figure 2-14.
17. Click on the "Execute Script" button. This executes the script shown in the script detail column. The Transaction window (see Figure 2-16) will be updated to indicate the execution of the script. The Data read is shown in the last line.
18. You can repeate the sequence of writing values to the wiper register or Writing then reading the values back.

NOTICE

If at any time during script execution, an error message is generated in the transaction window, it is good practice to reset the PICkit Serial Analyzer (PKSA). The PKSA can be reset using the "Reset" toolbar icon. Verify that subsequent script operations do not generate errors.

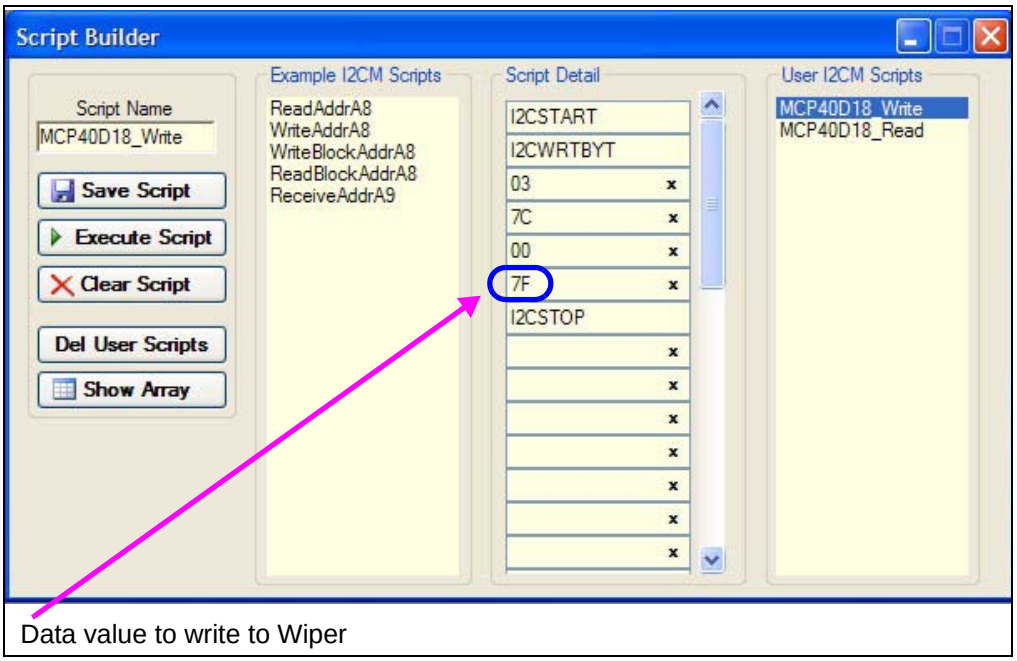

FIGURE 2-13: *MCP40D18 Write Script File - Updating Wiper Value.*

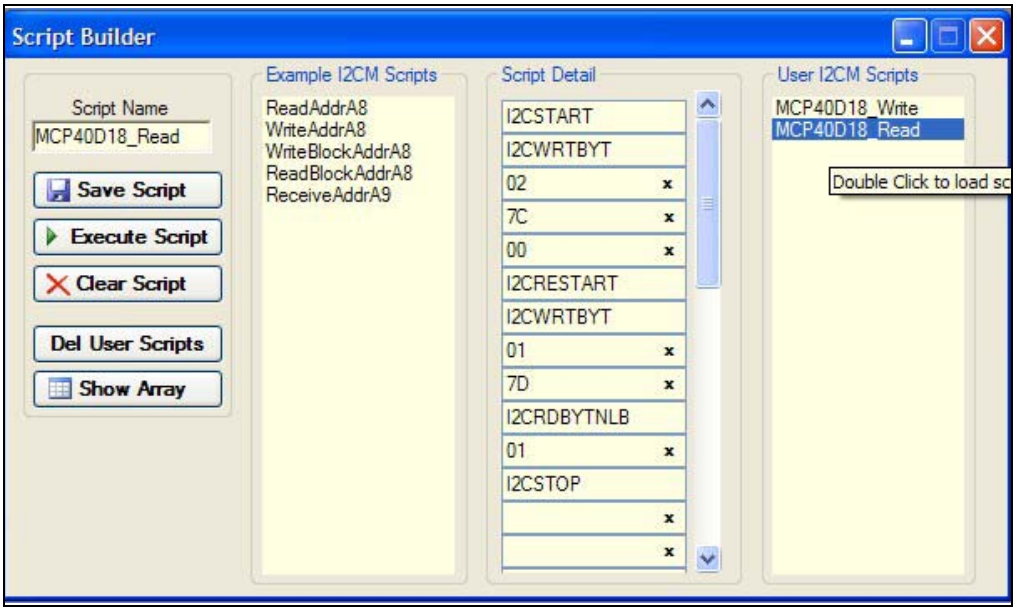

FIGURE 2-14: *MCP40D18 Read Script File.*

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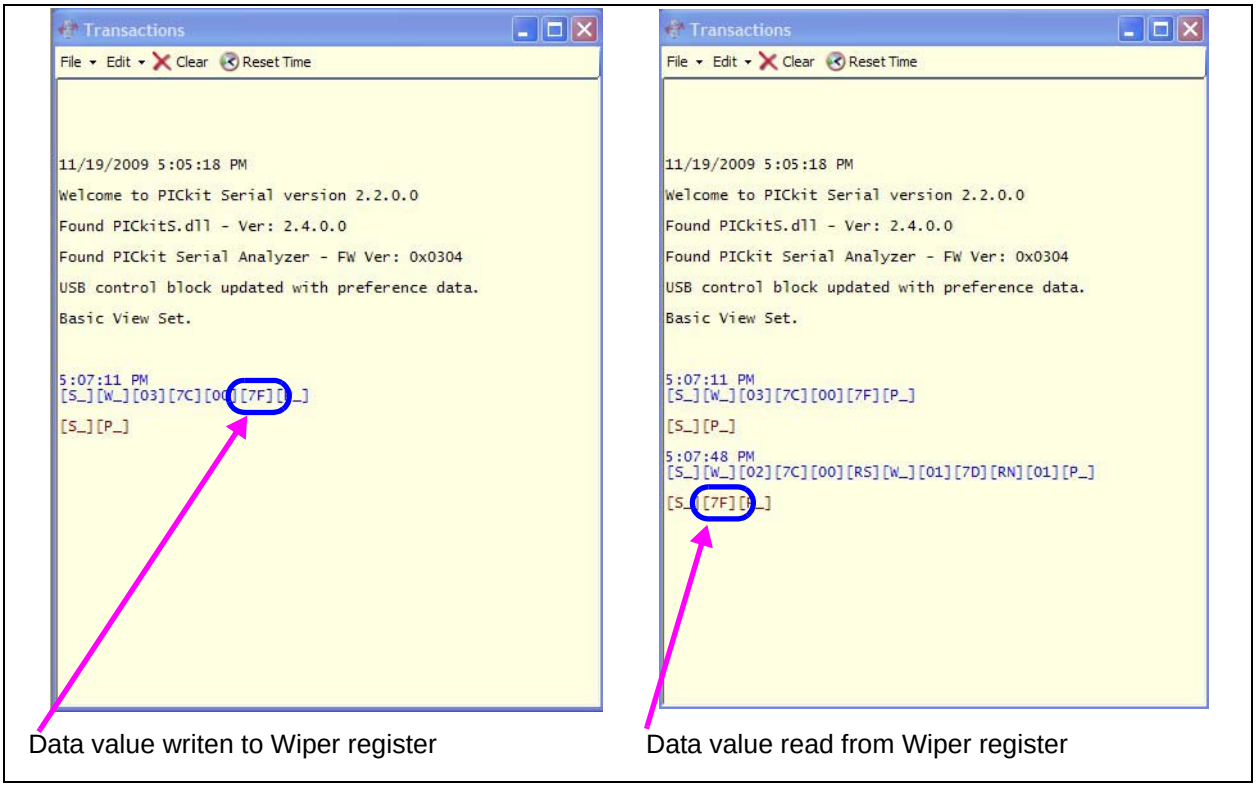

FIGURE 2-15: *MCP40D18 Transaction Windows 1 and 2.*

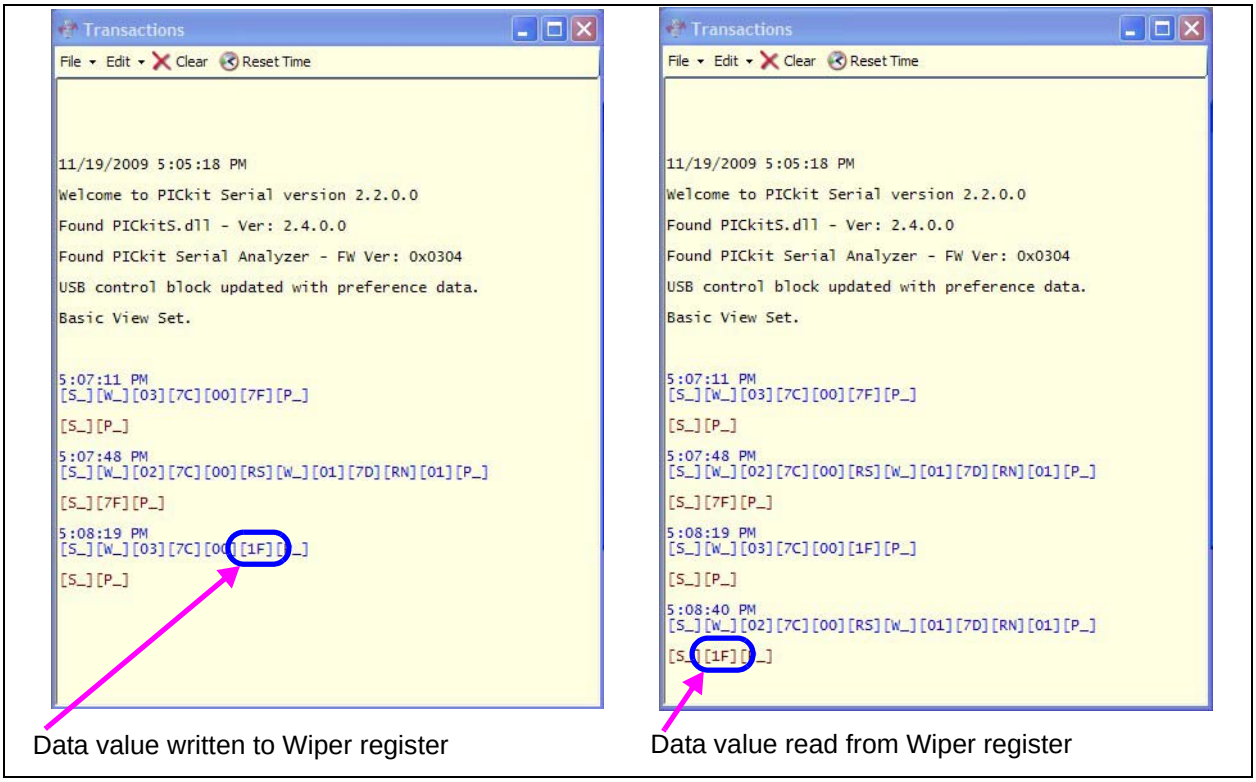

FIGURE 2-16: *MCP40D18 Transaction Windows 3 and 4.*

2.6.1 The SC70EV PCB and Supported Digital Potentiometers

Table 2-3 shows the current Digital Potentiomers that are supported by the SC70EV PCB.

TABLE 2-3: SC70EV PCB SUPPORTED DIGITAL POTENTIOMETERS

Device	SC70	SOT-23	DIP	Comment
MCP4012	—	Yes	—	SOT-23-6, uses Up/Down interface
MCP4013	—	Yes	—	SOT-23-6, uses Up/Down interface
MCP4014	—	Yes	—	SOT-23-5, uses Up/Down interface
MCP4017	Yes	—	—	
MCP40D17	Yes	—	—	
MCP4018	Yes	—	—	
MCP40D18	Yes	—	—	
MCP4019	Yes	—	—	
MCP40D19	Yes	—	—	
MCP4022	—	Yes	—	SOT-23-6, uses Up/Down interface
MCP4023	—	Yes	—	SOT-23-6, uses Up/Down interface
MCP4024	—	Yes	—	SOT-23-5, uses Up/Down interface
MCP4131	—	—	Yes	Has multiplexed SDI/SDO
MCP4132	—	—	Yes	
MCP4141	—	—	Yes	Has multiplexed SDI/SDO
MCP4142	—	—	Yes	
MCP4151	—	—	Yes	Has multiplexed SDI/SDO
MCP4152	—	—	Yes	
MCP4161	—	—	Yes	Has multiplexed SDI/SDO
MCP4162	—	—	Yes	
MCP41010	—	—	Yes	
MCP41050	—	—	Yes	
MCP41100	—	—	Yes	

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Appendix A. Schematic and Layouts

A.1 INTRODUCTION

This appendix contains the schematics and layouts for the MCP401XEV Evaluation Board. Diagrams included in this appendix:

- Board - Schematic
- Board - Top Trace, Silk and Pads
- Board - Bottom Trace & Pads
- Board - Layer 2 Ground Plane
- Board - Layer 3 Power Plane
- Board - Bottom Silk, Trace and Pads

A.2 SCHEMATICS AND PCB LAYOUT

Board - Schematic shows the schematic of the MCP401XEV Evaluation Board. The layer order is shown in Figure A-1.

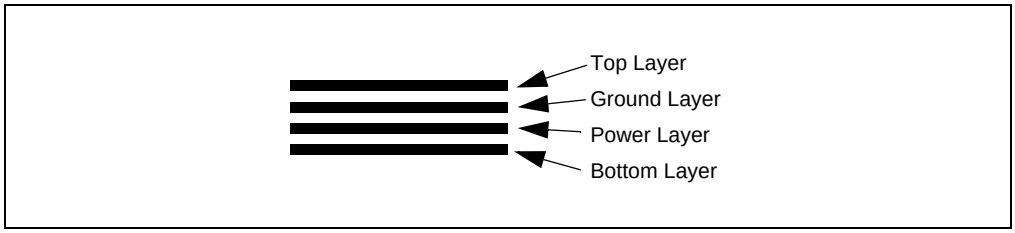
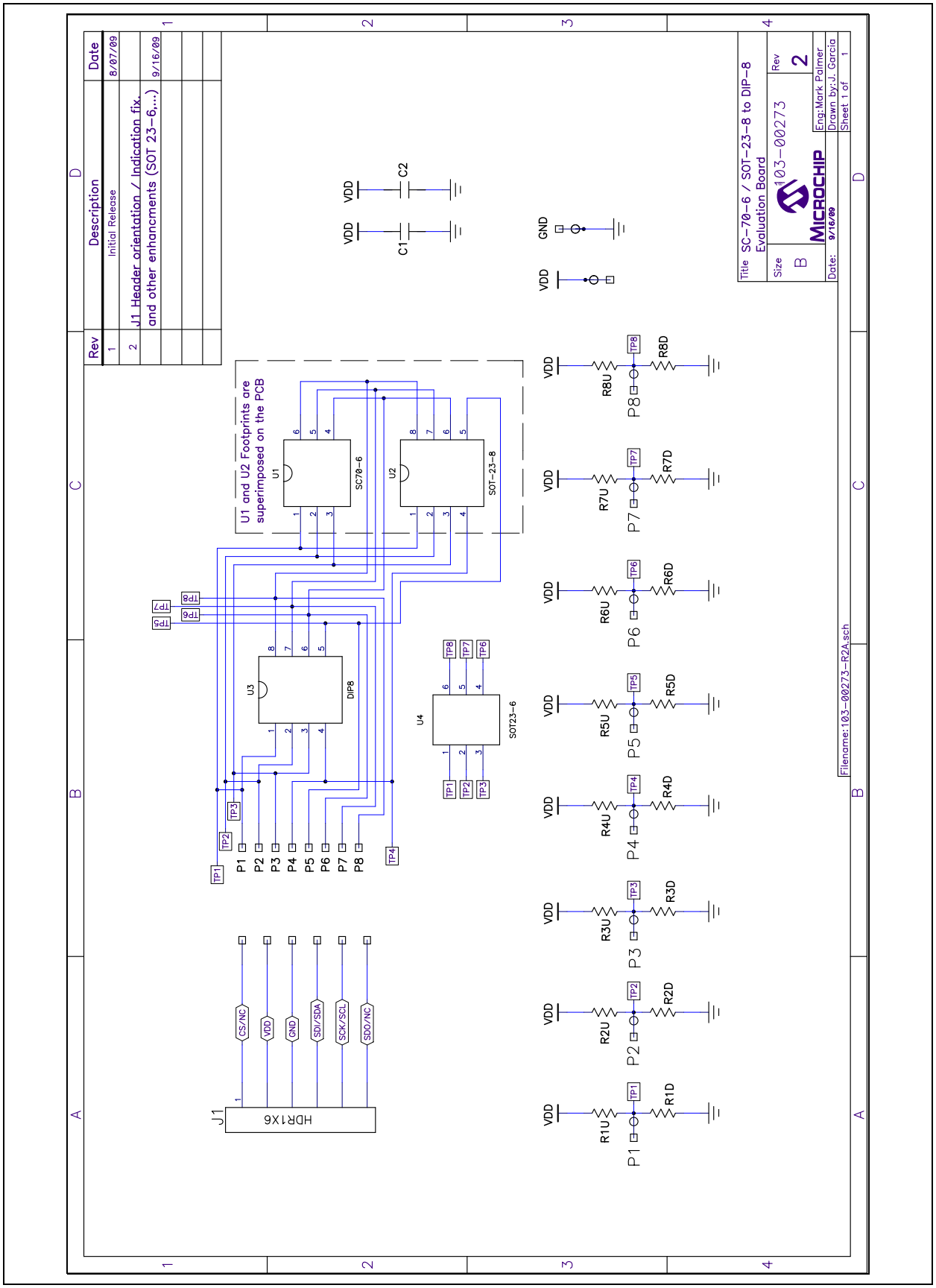


FIGURE A-1: *Layer Order.*

A.3 BOARD - SCHEMATIC



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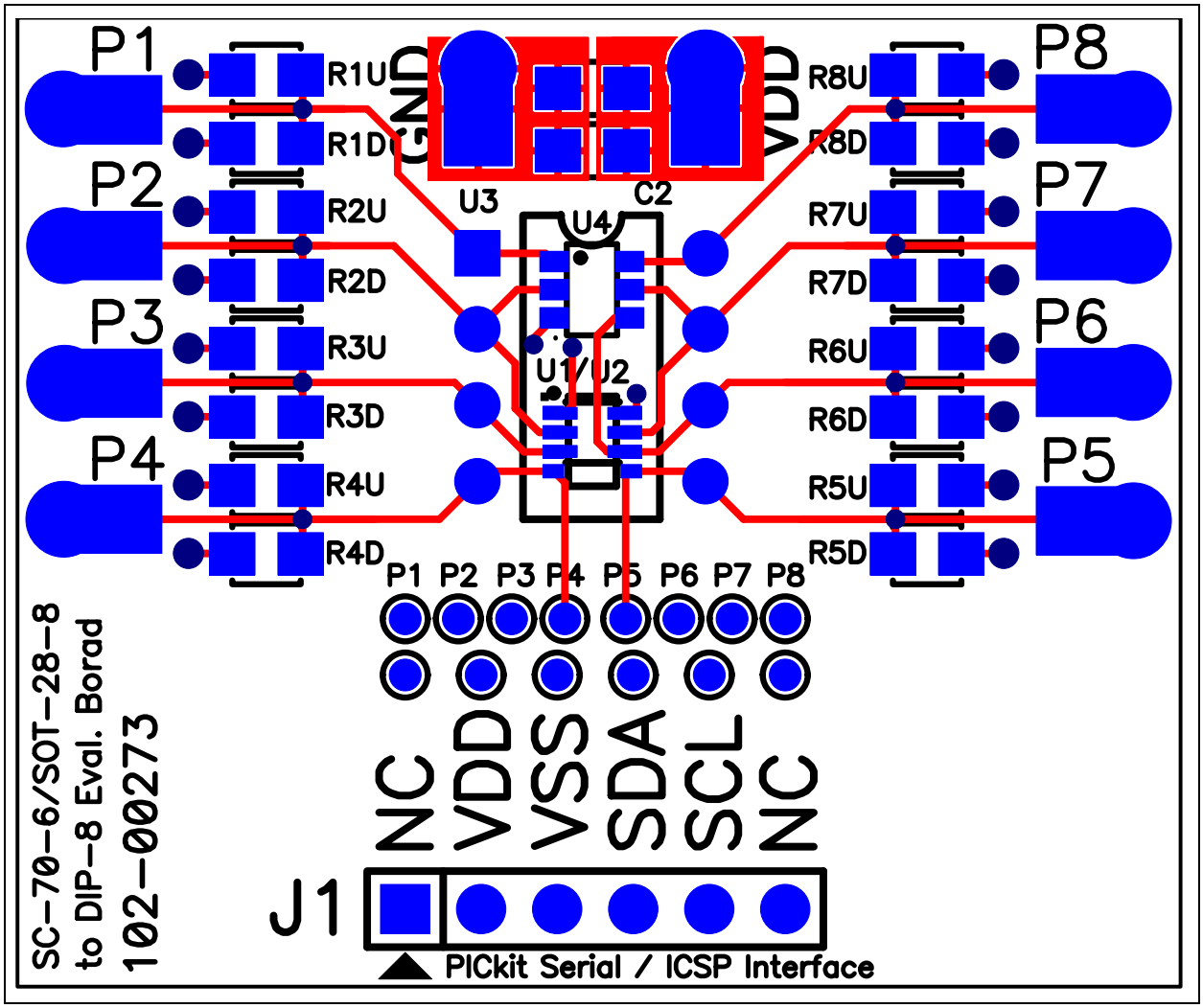
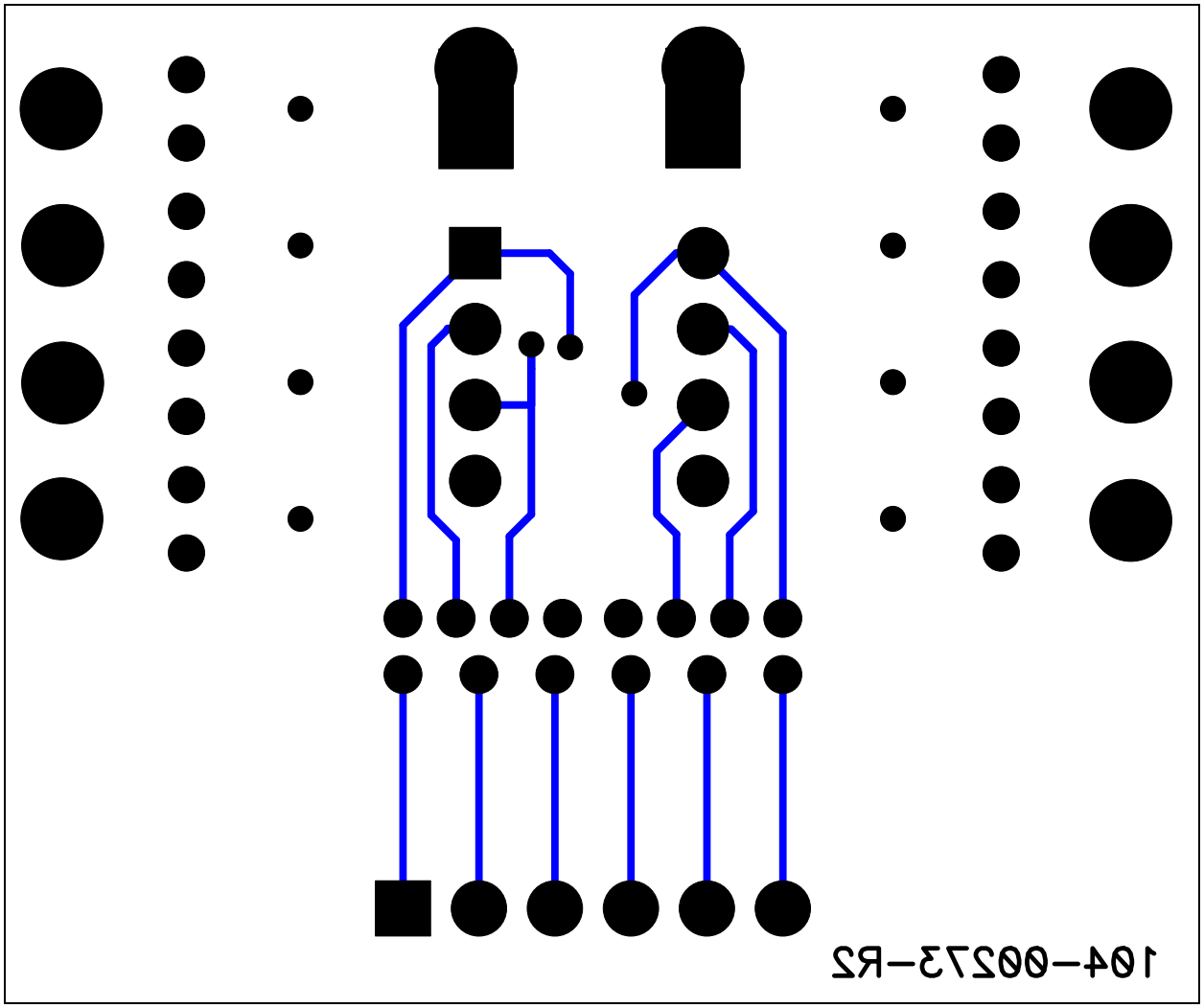
A.4 BOARD - TOP TRACE, SILK AND PADS



A.5 BOARD - BOTTOM TRACE & PADS



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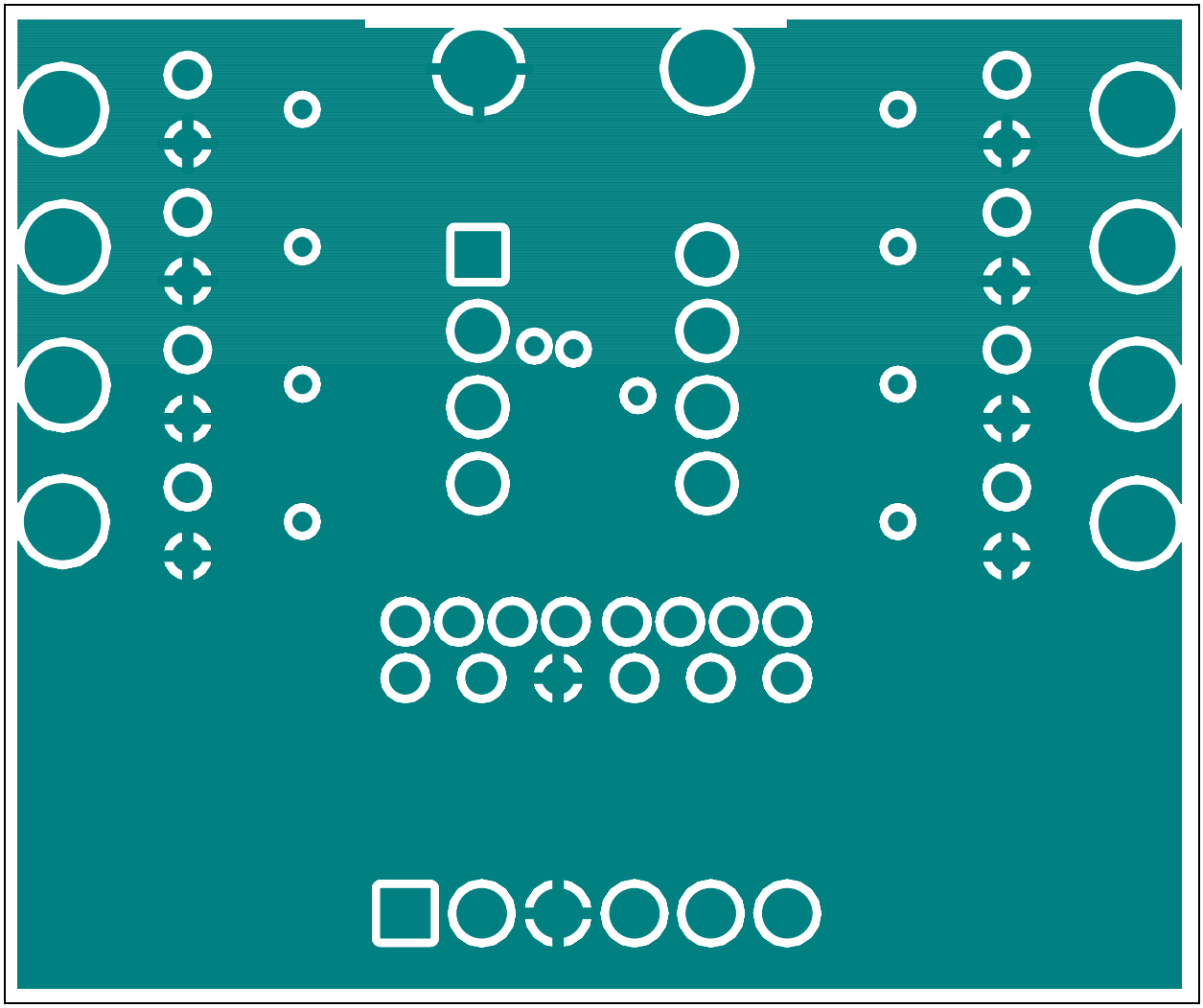
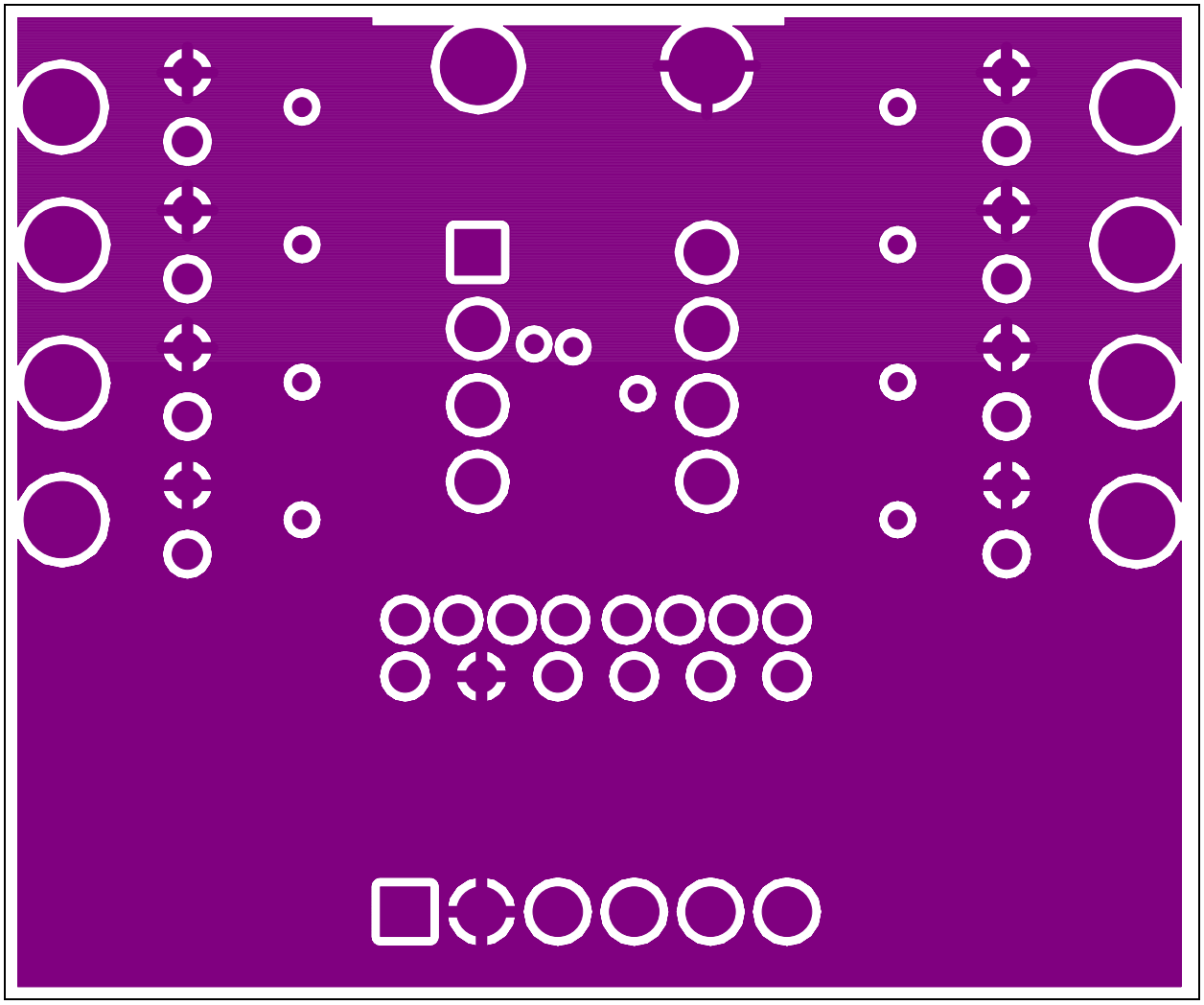
A.6 BOARD - LAYER 2 GROUND PLANE



A.7 BOARD - LAYER 3 POWER PLANE



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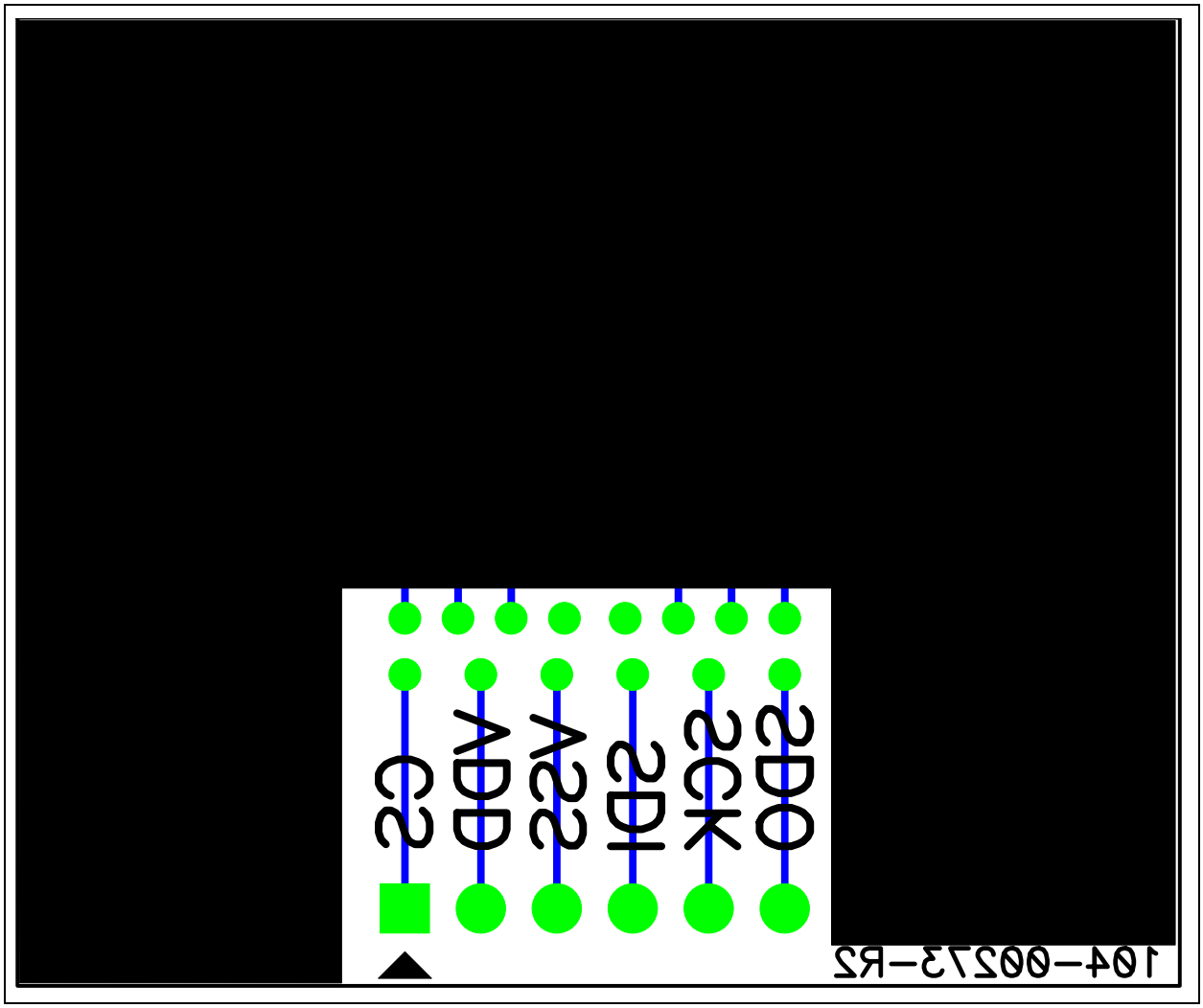
A.8 BOARD - BOTTOM SILK, TRACE AND PADS



NOTES:

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Appendix B. Bill of Materials (BOM)

TABLE B-1: BILL OF MATERIALS

Qty	Reference	Description	Manufacturer	Part Number
1	J1	CONN HEADER 6POS .100 R/A GOLD	Molex/Waldom Electronics Corp	22-28-8062
1	P7	TEST POINT PC MULTI PURPOSE ORG	Keystone Electronics®	5013
2	PCB	**Note 1**	Microchip Technology Inc.	104-00273 **(Note 3)**
3	R1U, R8U, R2D	RES 0.0 OHM 1/8W 5% 0805 SMD	Panasonic® - ECG	ERJ-6GEY0R00V
1	U1	7-Bit Single I2C™ (with Command Code) Digital POT with Volatile Memory in SC70	Microchip Technology Inc.	MCP40D18-103AE/LT
1	—	Blue Wire: J1 SCL via to P3 via J1 SDA via to P6 via	See Figure 2-2	—

Note 1: This assembly uses RoHS Compliant SC70-6 and SOT-23-6/8 to DIP-8 Evaluation Board.

2: 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.

3: This part number is an internal Microchip number; if a customer wants to order, the SC70EV order number needs to be used.

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Fax: 49-89-627-144-44

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