



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



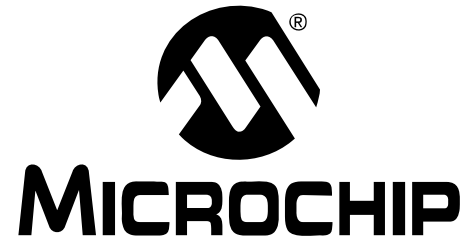
## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





**MCP3425 SOT23-6  
Evaluation Board  
User's Guide**

---

**Note the following details of the code protection feature on Microchip devices:**

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as "unbreakable."

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip's code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

---

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights.

**Trademarks**

The Microchip name and logo, the Microchip logo, Accuron, dsPIC, KEELOQ, KEELOQ logo, MPLAB, PIC, PICmicro, PICSTART, rfPIC, SmartShunt and UNI/O are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.


FilterLab, Linear Active Thermistor, MXDEV, MXLAB, SEEVAL, SmartSensor and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, Application Maestro, CodeGuard, dsPICDEM, dsPICDEM.net, dsPICworks, dsSPEAK, ECAN, ECONOMONITOR, FanSense, In-Circuit Serial Programming, ICSP, ICEPIC, Mindi, MiWi, MPASM, MPLAB Certified logo, MPLIB, MPLINK, mTouch, PICkit, PICDEM, PICDEM.net, PICtail, PIC<sup>32</sup> logo, PowerCal, PowerInfo, PowerMate, PowerTool, REAL ICE, rfLAB, Select Mode, Total Endurance, WiperLock and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

All other trademarks mentioned herein are property of their respective companies.

© 2009, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

 Printed on recycled paper.

**QUALITY MANAGEMENT SYSTEM**  
**CERTIFIED BY DNV**  
**== ISO/TS 16949:2002 ==**

*Microchip received ISO/TS-16949:2002 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures are for its PIC<sup>®</sup> MCUs and dsPIC<sup>®</sup> DSCs, KEELOQ<sup>®</sup> code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.*



# MCP3425 SOT23-6 EVALUATION BOARD USER'S GUIDE

---

---

## Table of Contents

---

---

<b>Preface</b> .....	<b>1</b>
Introduction.....	1
Document Layout .....	1
Conventions Used in this Guide .....	2
Recommended Reading.....	3
The Microchip Web Site .....	3
Customer Support .....	3
Document Revision History .....	4
<b>Chapter 1. Quick Start Instructions</b>	
1.1 Introduction .....	5
1.2 Description of the MCP3425 SOT23-6 Evaluation Board .....	5
1.3 Getting Started with PICKit™ Serial Analyzer .....	7
<b>Appendix A. Schematic and Layouts</b>	
A.1 Introduction .....	23
A.2 Board – Schematic .....	24
A.3 Board – Top Layer .....	25
A.4 Board – Top Metal Layer .....	26
A.5 Board – Bottom Layer .....	27
<b>Appendix B. Bill Of Materials (BOM)</b>	
<b>Worldwide Sales and Service</b> .....	<b>30</b>

# MCP3425 SOT23-6 Evaluation Board User's Guide

---

NOTES:



# MCP3425 SOT23-6 EVALUATION BOARD USER'S GUIDE

## 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](http://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.

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 MCP3425 SOT23-6 Evaluation 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 MCP3425 SOT23-6 Evaluation Board as a development tool to emulate and debug firmware on a target board. The manual layout is as follows:

- **Chapter 1. "Quick Start Instructions"** – this chapter provides an overview of the MCP3425 SOT23-6 Evaluation Board and instructions on how to program the DAC register and EEPROM of the MCP4725 device.
- **Appendix A. "Schematic and Layouts"** – shows the schematic and layout diagrams for the MCP3425 SOT23-6 Evaluation Board.
- **Appendix B. "Bill Of Materials (BOM)"** – lists the parts used to build the MCP3425 SOT23-6 Evaluation Board.

# MCP3425 SOT23-6 Evaluation Board User's Guide

## CONVENTIONS USED IN THIS GUIDE

This manual uses the following documentation conventions:

### DOCUMENTATION CONVENTIONS

Description	Represents	Examples
<b>Arial font:</b>		
Italic characters	Referenced books	<i>MPLAB<sup>®</sup> 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&gt;Save</i></u>
Bold characters	A dialog button	Click <b>OK</b>
	A tab	Click the <b>Power</b> 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>
<b>Courier New font:</b>		
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]
Curly brackets and pipe character: {   }	Choice of mutually exclusive arguments; an OR selection	errorlevel {0 1}
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 the MCP3425 SOT23-6 Evaluation Board with the PICkit Serial Analyzer. The following Microchip documents are available and recommended as supplemental reference resources.

### **PICkit™ Serial Analyzer User's Guide, DS51647**

Consult this document for instructions on how to use the PICkit Serial Analyzer hardware and software.

### **MCP3425 Data Sheet, "16 bit Analog-to-Digital Converter with I<sup>2</sup>C Interface and On-Board Reference", DS22072**

This data sheet provides detailed information regarding the MCP3425 product.

## THE MICROCHIP WEB SITE

Microchip provides online support via our web site at [www.microchip.com](http://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
- **Business of Microchip** – Product selector and ordering guides, latest Microchip press releases, listing of seminars and events, listings of Microchip sales offices, distributors and factory representatives

## CUSTOMER SUPPORT

Users of Microchip products can receive assistance through several channels:

- Distributor or Representative
- Local Sales Office
- Field Application Engineer (FAE)
- Technical Support

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>



# MCP3425 SOT23-6 Evaluation Board User's Guide

---

## DOCUMENT REVISION HISTORY

### Revision A (January 2009)

- Initial Release of this Document.

---

---

## Chapter 1. Quick Start Instructions

---

---

### 1.1 INTRODUCTION

The following sections provide an overview of the MCP3425 SOT23-6 Evaluation Board and demonstrate how to use it with the PICKit™ Serial Analyzer (P/N: DV164122).

The following topics are covered:

- Description of the MCP3425 SOT23-6 Evaluation Board
- Using MCP3425 SOT23-6 Evaluation Board with the PICKit Serial Analyzer to evaluate the MCP3425 device.

### 1.2 DESCRIPTION OF THE MCP3425 SOT23-6 EVALUATION BOARD

The MCP3425 SOT23-6 Evaluation Board (P/N MCP3425EV) contains a MCP3425 16-bit Delta-Sigma Analog-to-Digital Converter (ADC). The MCP3425 is an 16-bit single channel ADC device with various options. The MCP3425 SOT23-6 Evaluation Board has analog input connection pads and  $V_{DD}$ , SDA, and SCL test pads. The user can connect any sensor input signal to this evaluation board and test the ADC conversion results. The PICKit Serial Analyzer's PC graphic user interface (GUI) provides the user's interface for configuration register bits of the MCP3425 and displays the ADC conversion values. The PICKit Serial Analyzer links between the GUI and the MCP3425 SOT23-6 Evaluation Board and provides the I<sup>2</sup>C communication to the MCP3425 SOT23-6 Evaluation Board. The user also can use this MCP3425 SOT23-6 Evaluation Board without the PICKit Serial Analyzer by providing the I<sup>2</sup>C communication signal to the SDA and SCL test pads on the board.

This evaluation board has the following interfaces:

- PICKit Serial Analyzer (P/N: DV164122) for writing configuration register bits and reading the conversion data.

**Note:** The user can use this board without the PICKit Serial Analyzer as long as the  $V_{DD}$ , SCL, and SDA are provided to the board. This evaluation board does not include MCU.

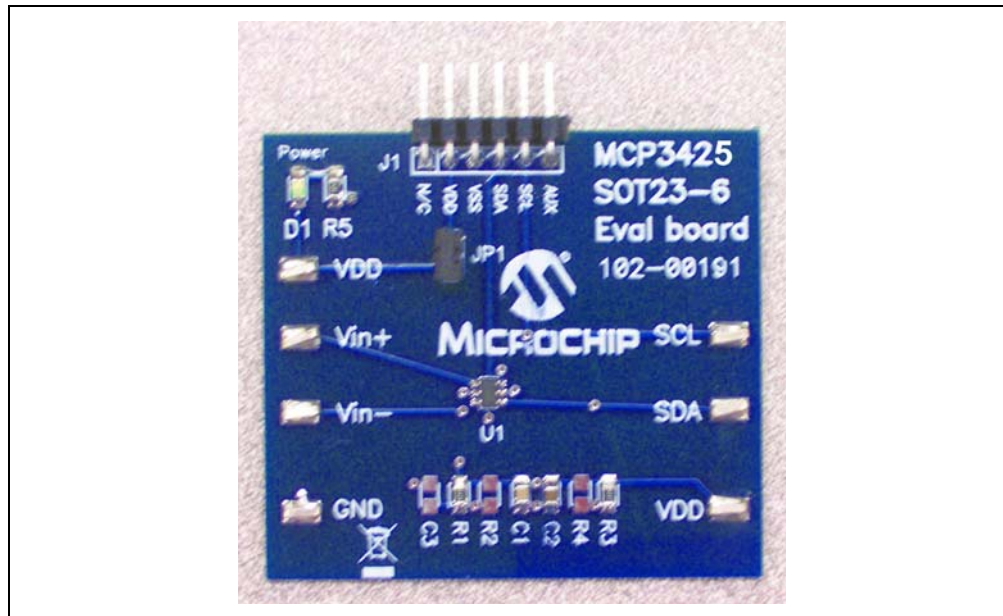
The user can monitor the I<sup>2</sup>C communications by connecting an oscilloscope to the SDA and SCL test pads. Refer to **Appendix A. "Schematic and Layouts"**.

# MCP3425 SOT23-6 Evaluation Board User's Guide

---

## 1.2.1 I<sup>2</sup>C Address Bits

The I<sup>2</sup>C device code and address bits of the MCP3425 device in this evaluation board are pre-programmed at factory (Code: 1101000).



**FIGURE 1-1:** Front and Back Views of the MCP3425 SOT23-6 Evaluation Board.

## 1.3 GETTING STARTED WITH PICKIT™ SERIAL ANALYZER

Figure 1-1 shows the MCP3425 SOT23-6 Evaluation Board, while Figure 1-2 shows the evaluation board and the PICKit Serial Analyzer connection.

The following instructions show how to use them together:

1. Connect the MCP3425 SOT23-6 Evaluation Board's J1 pin socket to the PICKit Serial Analyzer, as shown in Figure 1-2.
2. Connect oscilloscope probes to SCL and SDA test pins (optional).
3.  $V_{DD}$  selection: You can use the  $V_{DD}$  from the PICKit Serial Analyzer or your own external  $V_{DD}$ . You can select the  $V_{DD}$  path using the JP1 connector:
  - (a) Connect JP1, if using  $V_{DD}$  from PICKit Serial Analyzer.
  - (b) Disconnect JP1 and apply  $V_{DD}$  at the  $V_{DD}$  pad, if you are using external  $V_{DD}$ .

**Note:** If you are using external  $V_{DD}$ , connect the external  $V_{DD}$  at  $V_{DD}$  pad.

4. Connect  $V_{DD}$ , if external  $V_{DD}$  is used.

**Note:** Do not connect  $V_{DD}$  if you are using the  $V_{DD}$  from the PICKit Serial Analyzer. The PICKit Serial Analyzer provides the  $V_{DD}$  automatically if it is connected to the PC.

5. LED D1 is turned on when  $V_{DD}$  is applied.

**Note:** If the  $V_{DD}$  is provided from the PICKit Serial Analyzer, then the LED may not be turned on until you execute a command. See **Section 1.3.2.1 "Creating a Script File for Configuration Byte Writing"** for executing the I<sup>2</sup>C command.

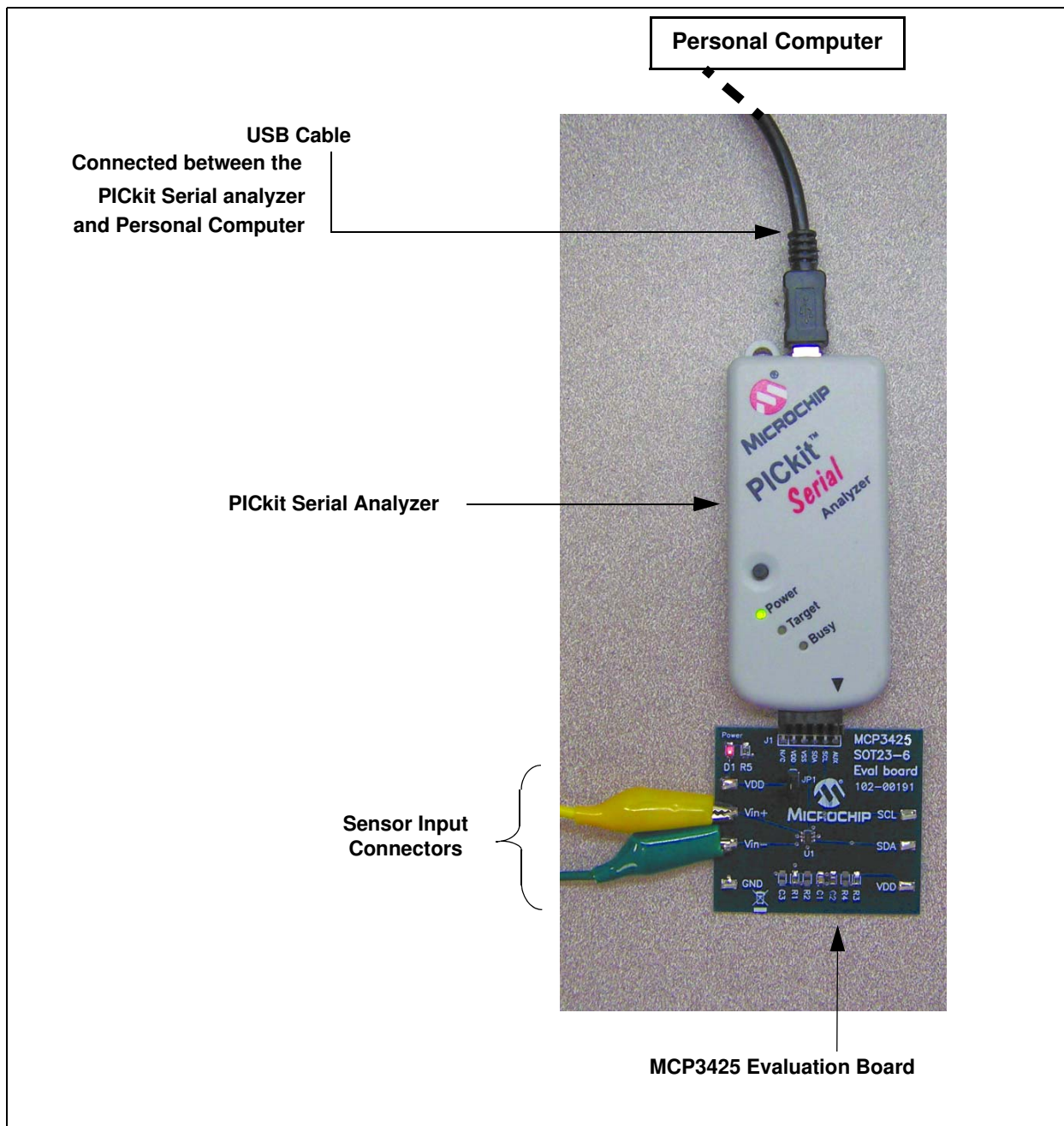
6. **Connecting analog inputs:** If you need to measure single-ended input, connect the unused pin (for example,  $V_{IN-}$ ) to  $V_{SS}$ .
7. Use the PICKit Serial Analyzer PC GUI to send I<sup>2</sup>C write and read commands. See **Section 1.3.2.1 "Creating a Script File for Configuration Byte Writing"**
8. Execute the PICKit Serial Analyzer Script file and obtain the ADC conversion results. The conversion results appear on the PICKit Serial Analyzer PC GUI. You can also observe the conversion results using the oscilloscope.

### CAUTION

The analog input pin has ESD diodes. Certain input conditions can damage the device. Please pay attention to the following conditions:

- (a) Do not apply input greater than the input range specified by the MCP3425 data sheet.
- (b) Apply input signal after the  $V_{DD}$  is powered-up.

# MCP3425 SOT23-6 Evaluation Board User's Guide



**FIGURE 1-2:** MCP3425 SOT23-6 Evaluation Board with the PICkit™ Serial Analyzer.

## 1.3.1 PICkit™ Serial Analyzer PC Software Set-Up for the MCP3425 Evaluation Board

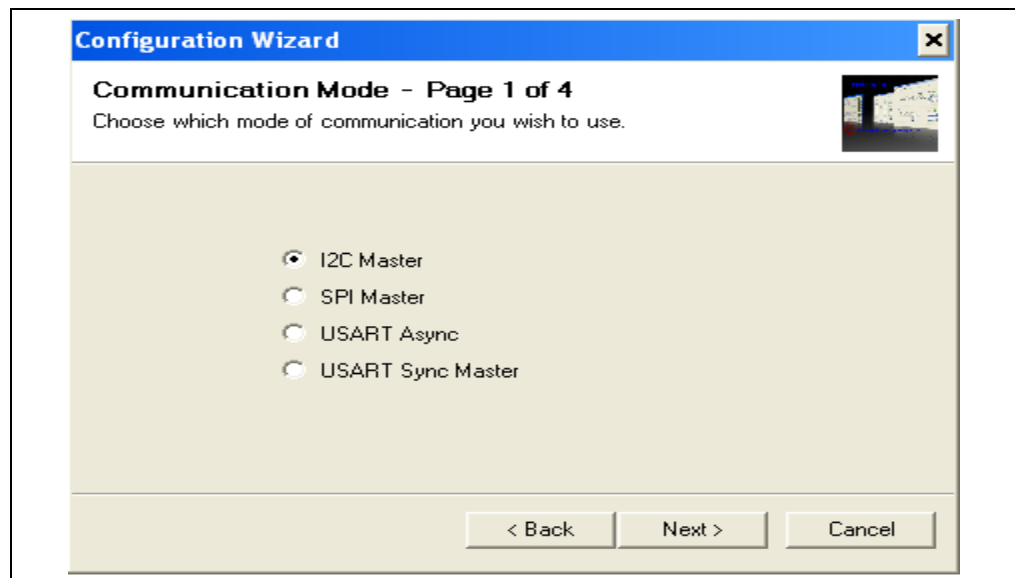
The following steps describe how to set up and use the PICkit Serial Analyzer PC Graphic User Interface (GUI) to write the configuration bits of the MCP3425 on the MCP3425 SOT23-6 Evaluation Board and read the ADC conversion results.

1. Install the PICkit Serial Analyzer software onto your personal computer (PC).
2. Connect the USB cable between the PICkit Serial Analyzer and your PC.
3. Run the PICkit Serial PC Software; the following graphic user interface (GUI) will appear. Click the **Next** button and follow the instructions.



**FIGURE 1-3:** PICkit Serial Analyzer Configuration Wizard Welcome Window.

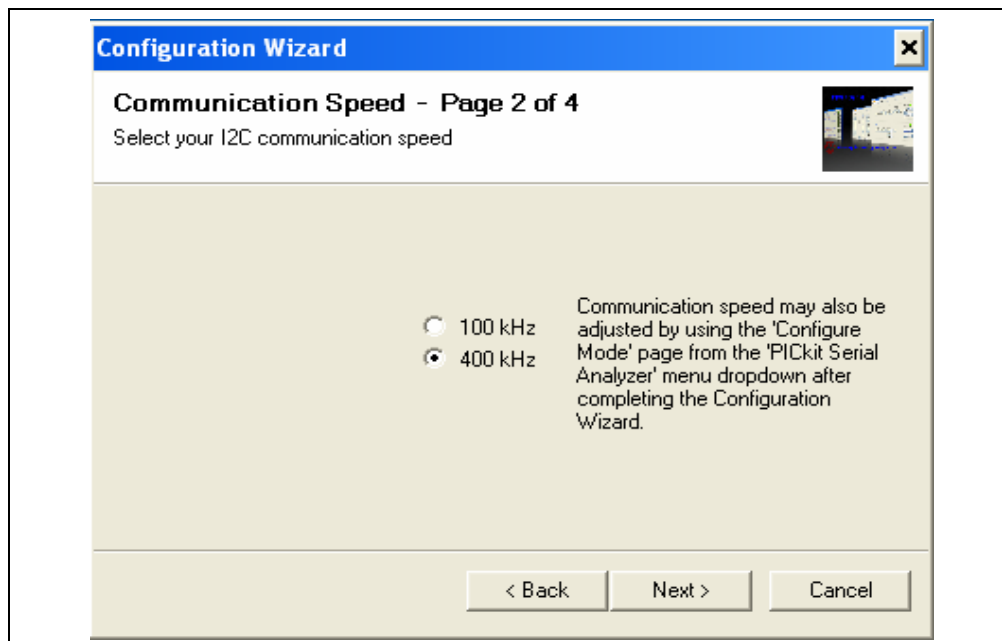
4. Select the Communication Mode type: I<sup>2</sup>C Master, and click the **Next** button.



**FIGURE 1-4:** Step 1 - Communication Mode Selection.

# MCP3425 SOT23-6 Evaluation Board User's Guide

5. Select 100 kHz or 400 kHz. Either one will be fine. Click the **Next** button.

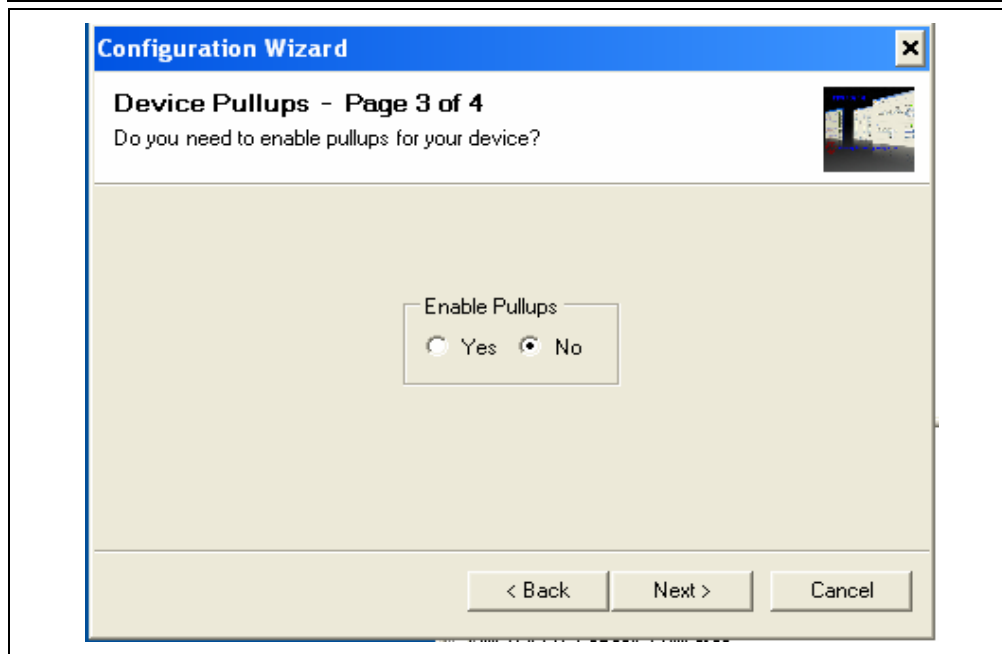


**FIGURE 1-5:** Step 2 - I<sup>2</sup>C Communication Speed Window.

**Note:** The MCP3425 device supports the I<sup>2</sup>C bus data rate up to 3.4 MHz, but the current version of the PICkit Serial Analyzer supports the I<sup>2</sup>C bus data rate up to 400 kHz only.

6. Select No on Enable Pull-ups and click the **Next** button.

**Note:** The MCP3425 SOT23-6 Evaluation Board has its own pull-up resistors.



**FIGURE 1-6:** Step 3 - Device Pullups Window.

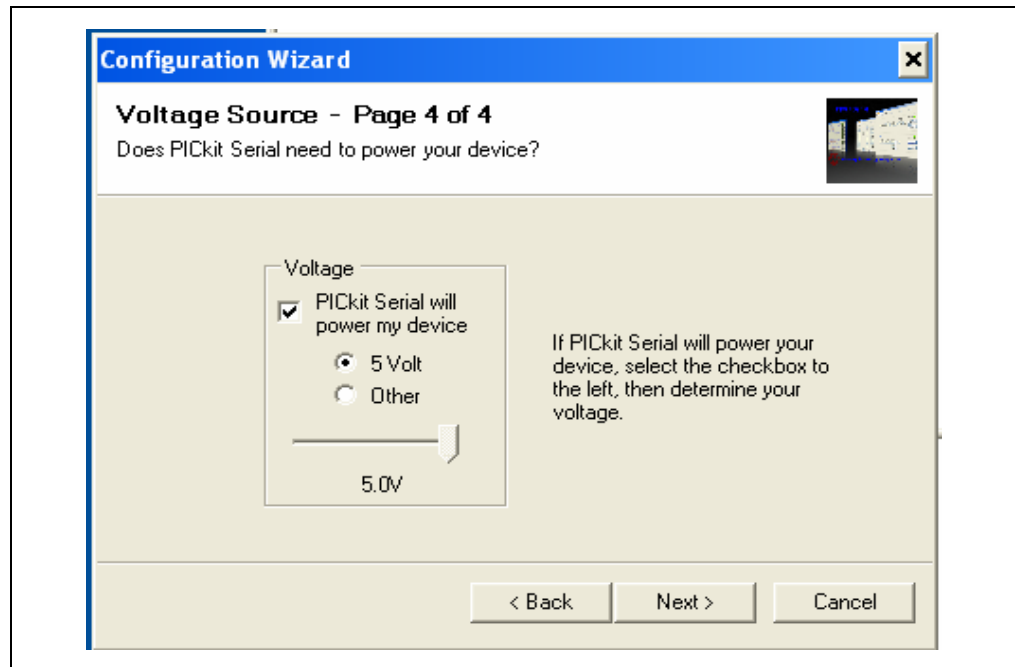
7. Select the  $V_{DD}$  voltage of the MCP3425 SOT23-6 Evaluation Board and click the **Next** button.

### Case 1: When you use $V_{DD}$ from the PICkit Serial Analyzer:

If you choose **PICkit Serial will power my device** and **5 Volt** as shown below, the MCP3425 SOT23-6 Evaluation Board is powered by the 5V DC from the PICkit Serial Analyzer through the JP1 jumper. In this case, make sure that the JP1 jumper on the MCP3425 SOT23-6 Evaluation Board is connected.

### Case 2: When you use your own $V_{DD}$ :

You can also provide your own  $V_{DD}$  voltage by applying a  $V_{DD}$  voltage at  $V_{DD}$  test point on the board. In this case, make sure that the JP1 jumper is disconnected.



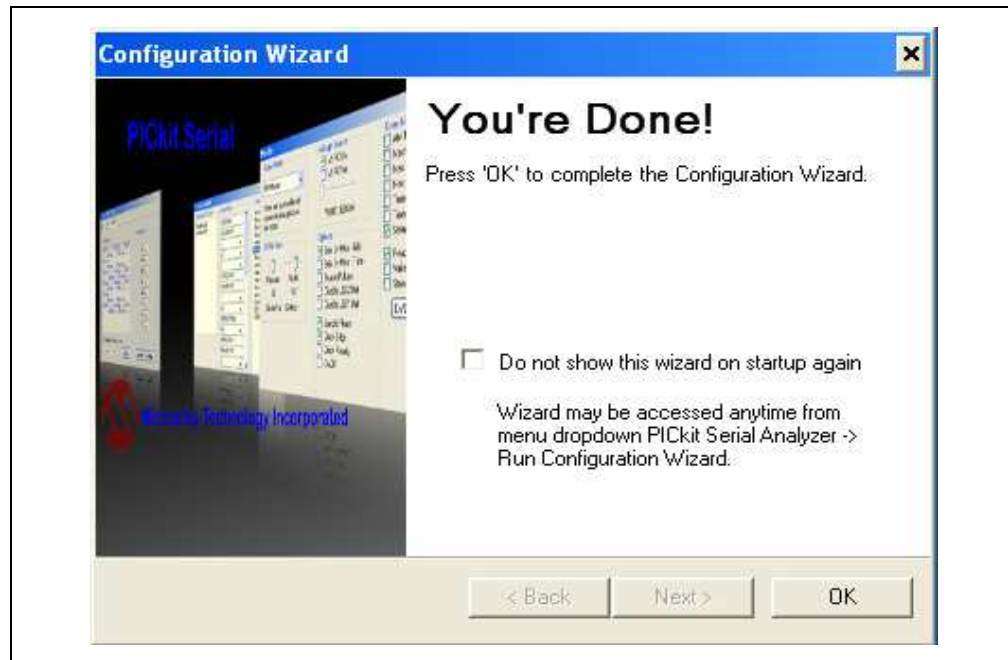
**FIGURE 1-7:** Step 4 - Voltage Source Selection Window.



# MCP3425 SOT23-6 Evaluation Board User's Guide

---

8. Click the **OK** button. You have made all of the PICkit Serial Analyzer Configuration Set-ups. You are now ready to program the MCP3425 SOT23-6 Evaluation Board using the PICkit Serial Analyzer.

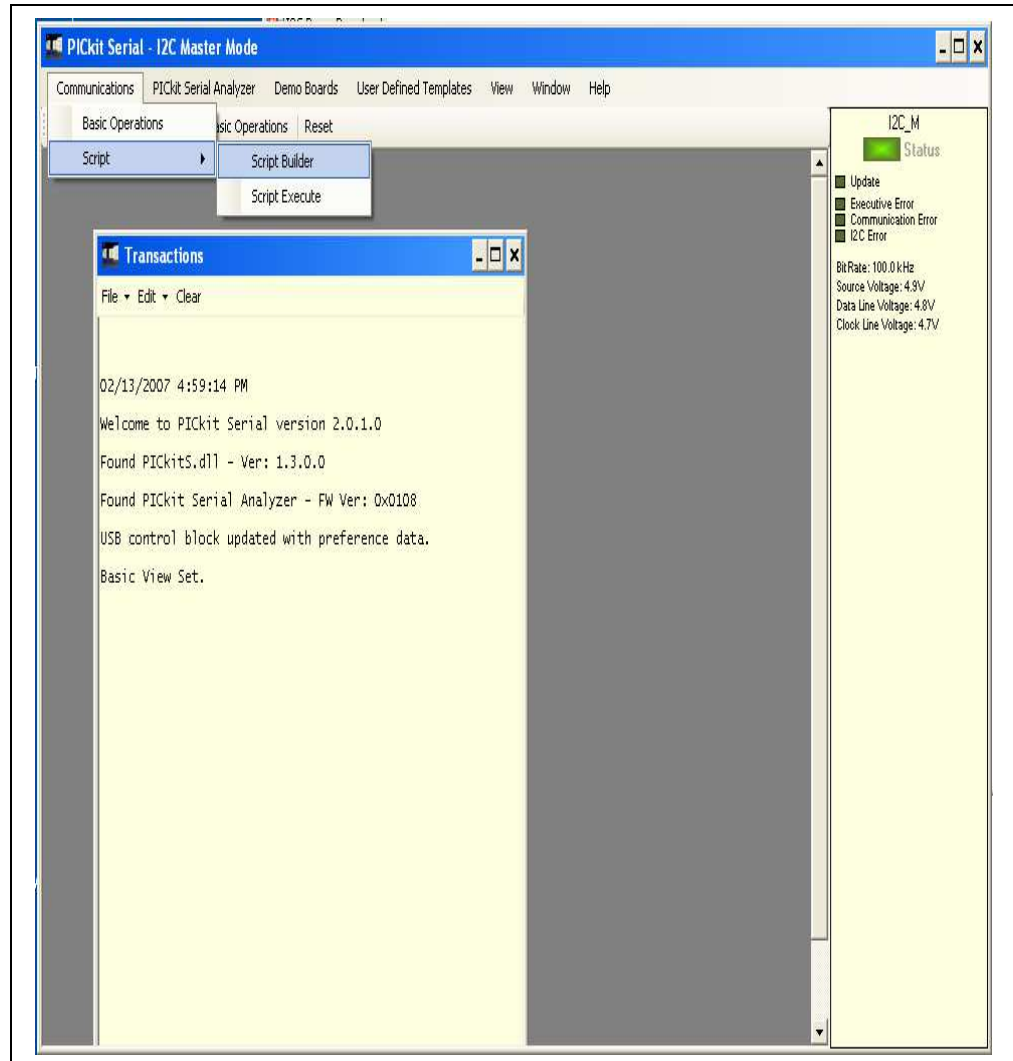


**FIGURE 1-8:** Configuration Wizard - Finishing Step.

## 1.3.2 Creating Script Files

In order to make a communication between the PICKit Serial Analyzer and the MCP3425 SOT23-6 Evaluation Board, a script file is needed. The following procedure shows how to create script files and how to use them.

- Select **Communication -> Script -> Script Builder**.



**FIGURE 1-9:** Creating a Script File with Script Builder.

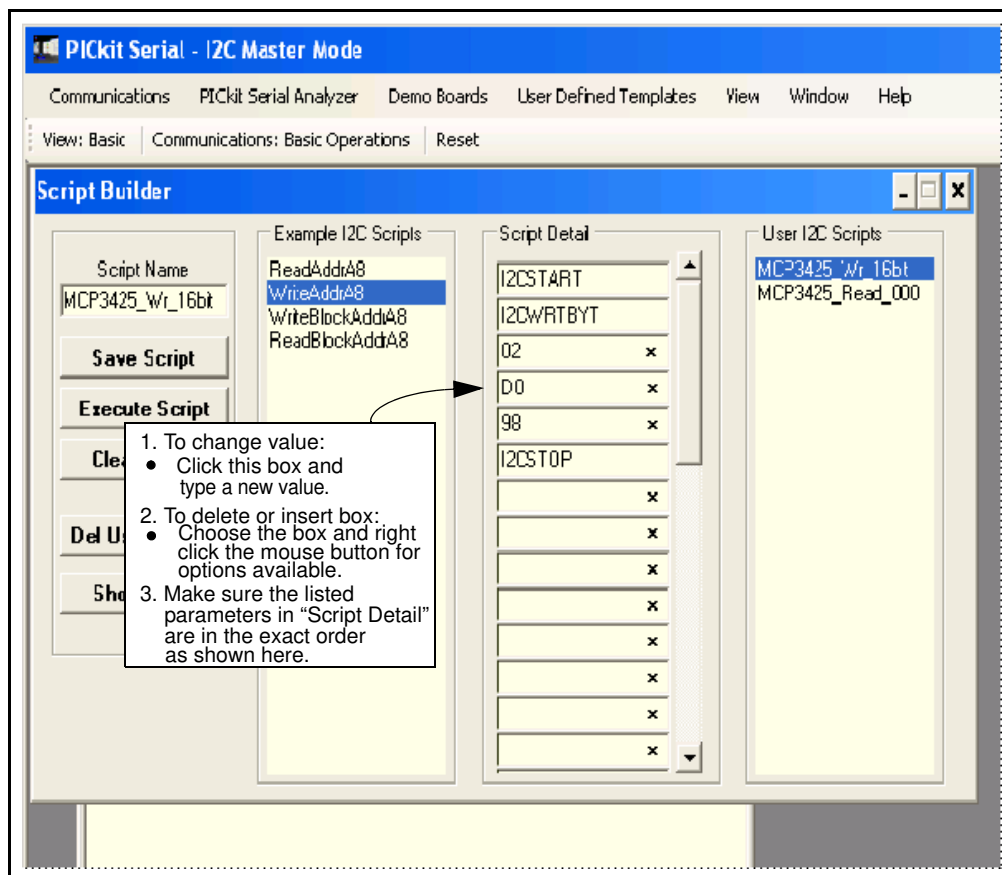
# MCP3425 SOT23-6 Evaluation Board User's Guide

## 1.3.2.1 CREATING A SCRIPT FILE FOR CONFIGURATION BYTE WRITING

1. Click on **WriteBlockAddrA8** in "Example I<sup>2</sup>C Scripts" column.
    - This will result in filling in the spaces under **Script Detail** column.
- Now you can modify the **Script Detail** column parameters by clicking with the right mouse button.

### Modifying the Script Details parameters:

1. Under the Script Detail box, select the item in the parameter box.
2. Right click the mouse button and an option box appears to the right of your selection. This gives you the options that are available for the parameter selected.
3. Select the desired options (delete or insert the parameter box).
4. Keep the parameters in the same order as shown in the image below:



**FIGURE 1-10:** Modifying Parameters in the Script Builder Window.

# Quick Start Instructions

---

5. Change the parameter value.

Script Detail	
I2CSTART	*
I2CWRTBYT	*
02	-----> This means there are two bytes to send
D0	-----> 1st Write Byte: Address byte with W/R bit = 1101-0000
98	-----> 2nd Write Byte: Configuration byte = 1001-1000
I2CSTOP	*

**Note:** All 6 parameters above must be listed in the same order as shown here. The parameters above with \* are not modifiable. Address bits (A2, A1, A0) = (0,0,0) for this evaluation board. See the MCP3425 Data Sheet for more information on address bit selection.

# MCP3425 SOT23-6 Evaluation Board User's Guide

**PICKit Serial - I2C Master Mode**

Communications PICKit Serial Analyzer Demo Boards User Defined Templates View Window Help

View: Basic | Communications: Basic Operations | Reset

### Script Builder

Script Name: MCP3425\_Wr\_16bit

Buttons: Save Script, Execute Script, Clear Script, Del User Scripts, Show Array

**Example I2C Scripts:** ReadAddrA8, WriteAddrA8, WriteBlockAddrA8, ReadBlockAddrA8

**Script Detail:**

I2CSTART	
I2CWRTBYT	
02	x
D0	x
98	x
I2CSTOP	
	x
	x
	x
	x
	x
	x
	x
	x
	x

**User I2C Scripts:** MCP3425\_Wr\_16bit, MCP3425\_Read\_000

5:41:19 PM Sent script from Script Builder page, 9 bytes:

```
[S_] [W_] [02] [D0] [98] [P_]
[S_] [P_]
```

Note the 98 in the configuration byte selects the following options:

- Conversion Mode: Continuous Conversion
- Bit Resolution: 16 bits
- Gain Selection: 1x

**FIGURE 1-11:** Script File Example for the I<sup>2</sup>C Write Command.

# Quick Start Instructions

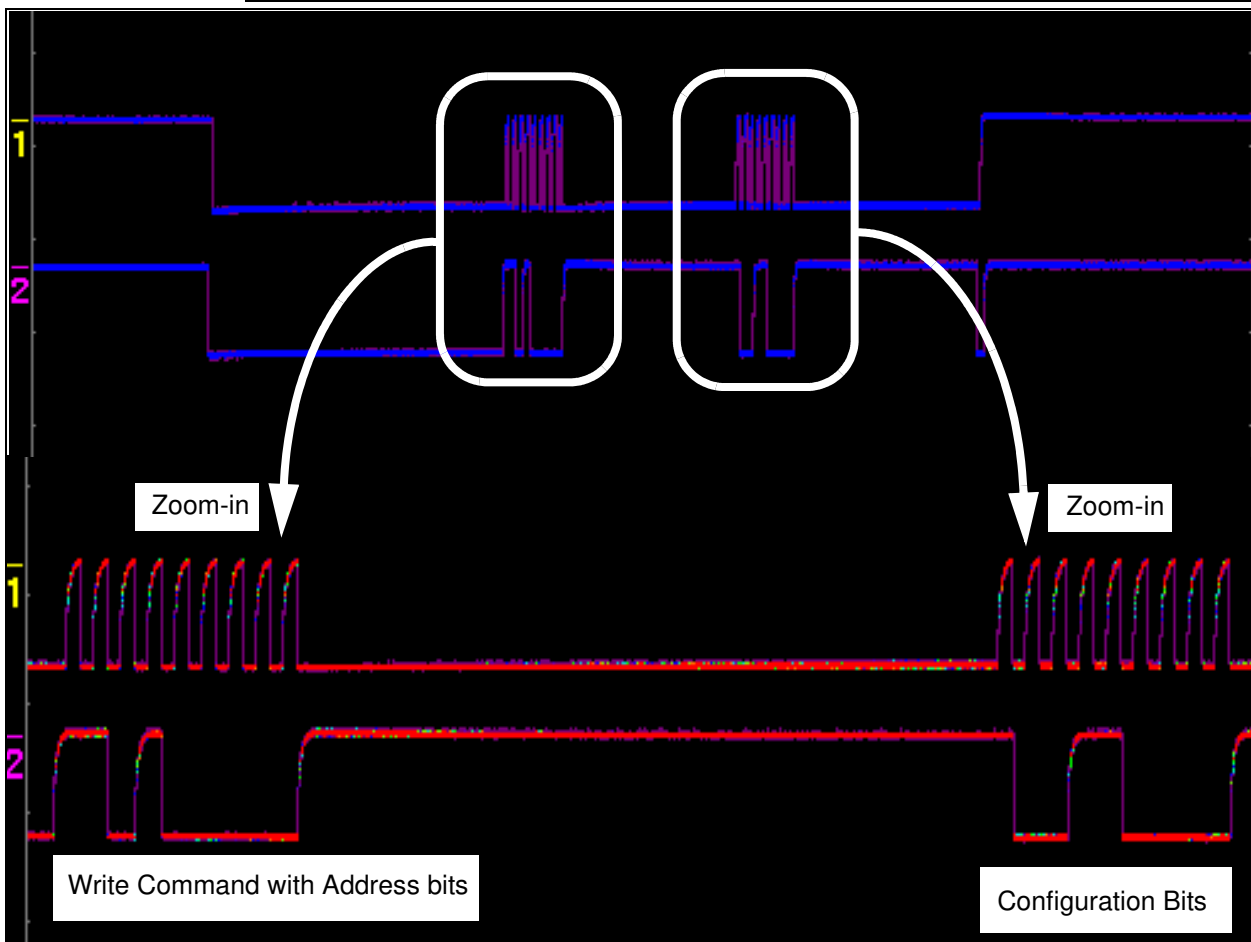
## 1.3.2.2 SAVING THE SCRIPT FILE AND PROGRAMMING THE CONFIGURATION REGISTER

1. Change the 2nd and 3rd data bytes you want in the Script Detail.
2. Type in any script name (i.e., MCP3425\_Wr\_16Bit) in the space below the **Script Name** menu.
3. Click **Save Script** button.
4. Click **Execute Script** button.

**Note:** At this point, the PICKit Serial transmits the I<sup>2</sup>C Write command to the MCP3425 device. The saved file name will appear in **Users I2C Scripts** column, and can be re-used any time by selecting the file name.

5. You can also see the SCL and SDA waveforms using the oscilloscope.

**Note:** When you click on the “Execute Script” menu, the “Busy” LED on the PICKit Serial Analyzer will momentarily turn on and then turn off. If the LED remains ON, a communications problem has occurred. Remove the PICKit Serial Analyzer from your computer and recheck the parameter values in the order of parameters under the “Script Detail” column. Try again until the “Busy” LED goes OFF immediately after executing the write command.



**FIGURE 1-12:** I<sup>2</sup>C Write Command Waveforms for the MCP3425.

# MCP3425 SOT23-6 Evaluation Board User's Guide

---

## 1.3.3 Reading the Conversion Data using the PICkit Serial Analyzer

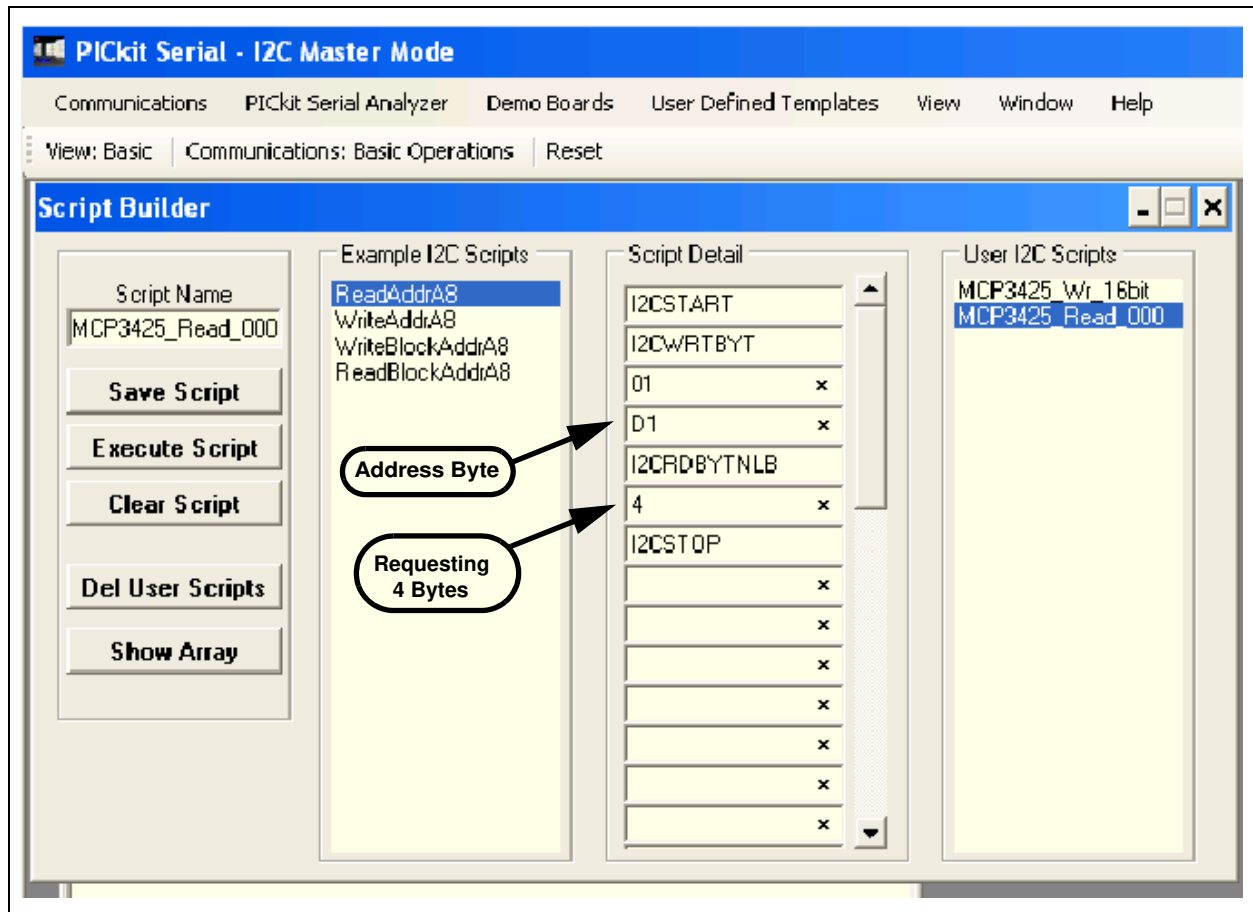
You can read back the conversion data with the following steps.

### 1.3.3.1 CREATING A SCRIPT FILE TO READ CONVERSION DATA

1. Click on **ReadAddrA8** in "Example I2C Scripts" column.
  - This will result in filling in the spaces under the **Script Detail** column. Now you can modify the parameter boxes (delete or insert) in the **Script Detail** column with options. The list of options will appear if you click the right mouse button at the parameter box. You can delete the parameter box or add a new one.
  - Make sure the "Script Detail" parameters are listed in order, as following:

Script Detail	
I2CSTART	*
I2CWRTBYT	*
01	-----> This means there <u>is</u> one byte to send for address
D1	-----> Address byte with $\overline{W}$ /R bit = 1101-0001
I2CRDBYTNLB	*
4	-----> 4 bytes to read
I2CSTOP	*

**Note:** All 7 parameters above must be listed in the same order as shown here. The parameters above with \* are not modifiable. Address bits (A2, A1, A0) = (0,0,0) for the MCP3425 SOT23-6 Evaluation Board. See the MCP3425 Data Sheet for more information on address bit selections.



**FIGURE 1-13:** Script File Sample to Read Conversion Data.

2. Type in any script name (i.e., MCP3425\_Read) in the space below the **Script Name** menu.
3. Click **Save Script** button.
4. Click **Execute Script** button.

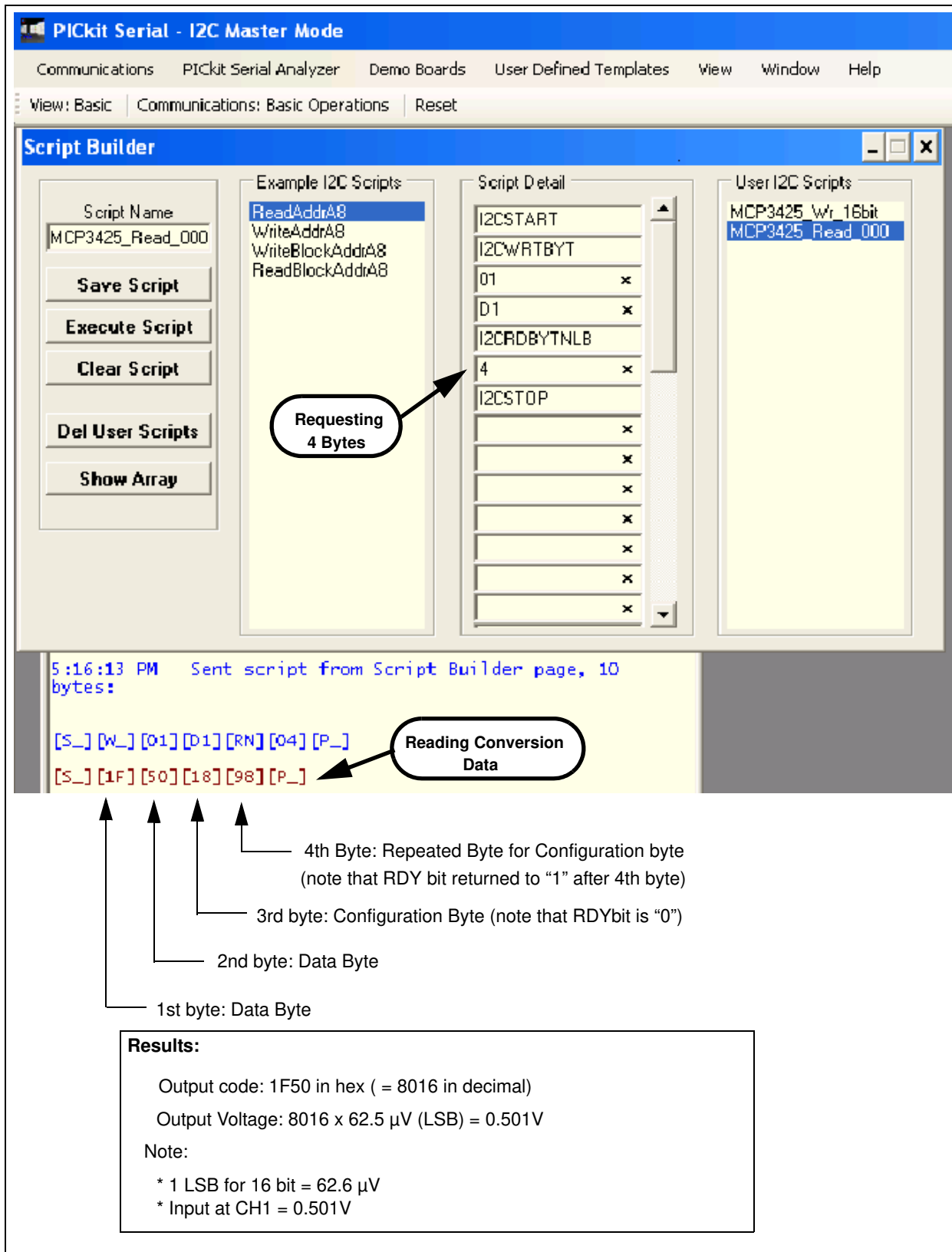
**Note:** At this point, the PICkit Serial transmits the I<sup>2</sup>C Read Command to the MCP3425 device. The saved file name will appear in **Users I2C Scripts** column, and can be re-used any time by selecting the file name.

5. You can also see the SCL and SDA waveforms using the oscilloscope.

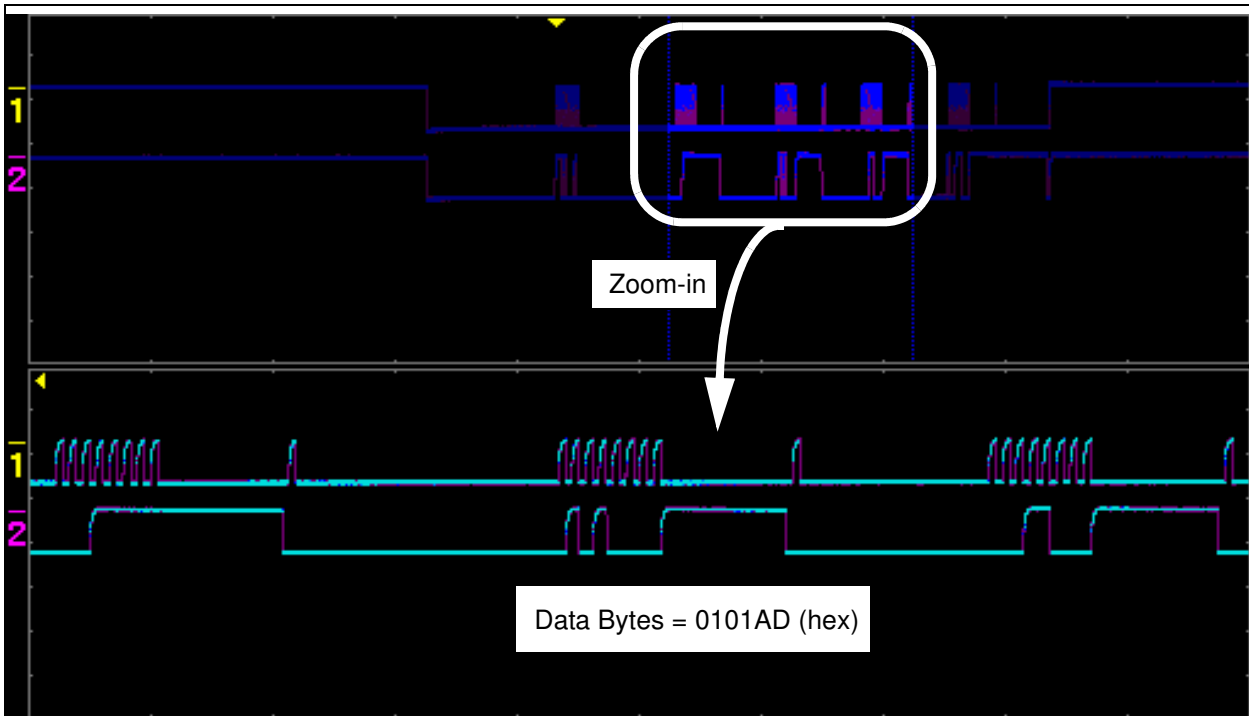
**Note:** When you click on the “Execute Script” menu, the “Busy” LED on the PICkit Serial Analyzer will momentarily turn on and then turn off. If the LED remains ON, a communications problem has occurred. Remove the PICkit Serial Analyzer from your computer and recheck the parameter values in the order of parameters under the “Script Detail” column. Try again until the “Busy” LED goes OFF immediately after executing the read command.



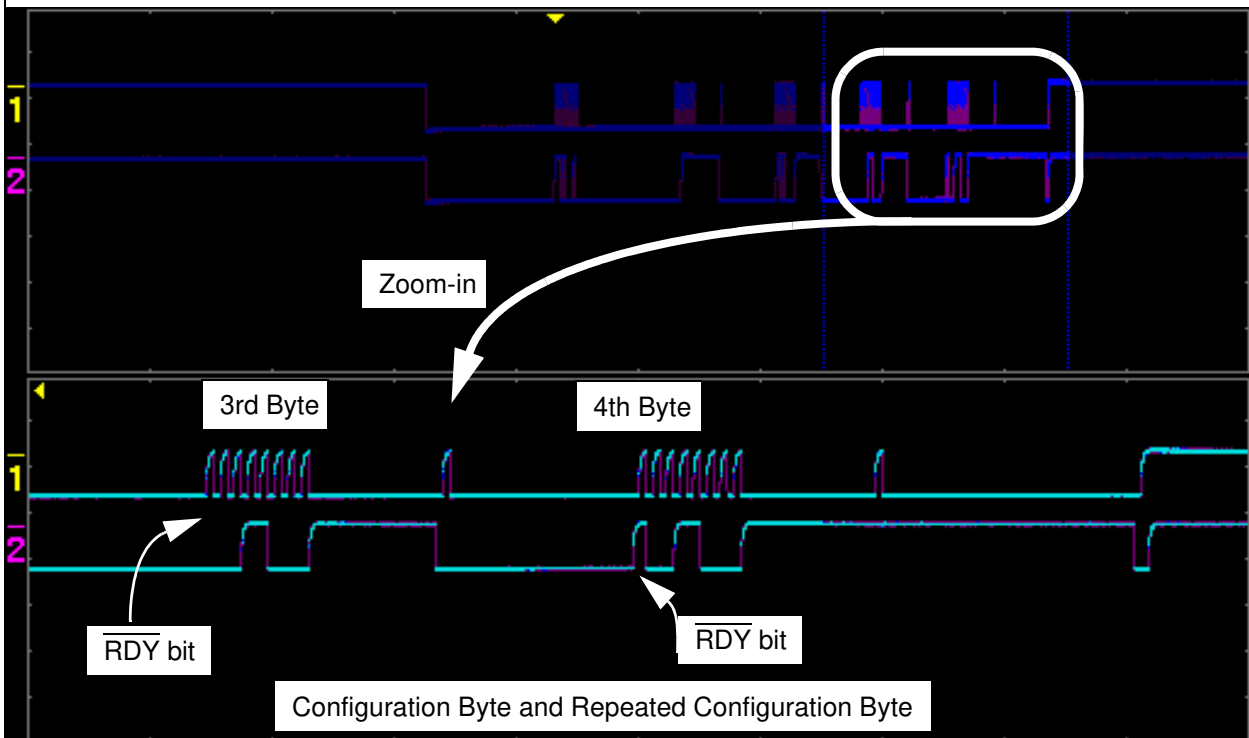
# MCP3425 SOT23-6 Evaluation Board User's Guide



**FIGURE 1-14:** Reading Conversion Results: Note that the Input = 0.501V is applied at Ch.1. The reading indicates the measured value is 0.501V. See Figure 1-15 for waveforms.



(a) Read command and outputs. The 3 data bytes are zoomed in for better clarity.



(b) Read command and outputs. The last two data bytes are zoomed in for better clarity.

**FIGURE 1-15:** Read Command and Data on  $I^2C$  bus. Note the  $\overline{RDY}$  bit in 3rd byte is "0". This means the conversion data just read is the latest conversion data. After the  $\overline{RDY}$  bit is read out at the 3rd byte, the  $\overline{RDY}$  bit becomes now "1" in the 4th byte (repeated byte). This means the device is now in the process of a new conversion and the latest conversion result is not ready yet.