

**MCP1252/3
Evaluation Kit
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.

Information contained in this publication regarding device applications and the like is intended through suggestion only and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. No representation or warranty is given and no liability is assumed by Microchip Technology Incorporated with respect to the accuracy or use of such information, or infringement of patents or other intellectual property rights arising from such use or otherwise. Use of Microchip's products as critical components in life support systems is not authorized except with express written approval by Microchip. No licenses are conveyed, implicitly or otherwise, under any intellectual property rights.

Trademarks

The Microchip name and logo, the Microchip logo, KEELOQ, MPLAB, PIC, PICmicro, PICSTART, PRO MATE and PowerSmart are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.


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

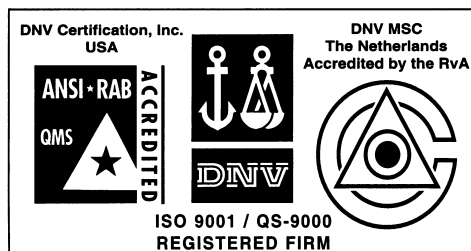
Accuron, dsPIC, dsPICDEM.net, ECONOMONITOR, FanSense, FlexROM, fuzzyLAB, In-Circuit Serial Programming, ICSP, ICEPIC, microPort, Migratable Memory, MPASM, MPLIB, MPLINK, MPSIM, PICC, PICkit, PICDEM, PICDEM.net, PowerCal, PowerInfo, PowerTool, rPIC, Select Mode, SmartSensor, SmartShunt, SmartTel and Total Endurance are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

Serialized Quick Turn Programming (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.

© 2003, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

 Printed on recycled paper.



Microchip received QS-9000 quality system certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona in July 1999 and Mountain View, California in March 2002. The Company's quality system processes and procedures are QS-9000 compliant for its PICmicro® 8-bit MCUs, KEELOQ® code hopping devices, Serial EEPROMs, microperipherals, non-volatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001 certified.

Table of Contents

General Information	1
Chapter 1. MCP1252/3 Evaluation Board	3
1.1 Introduction and Features	3
1.2 Getting Started	4
1.3 Detailed Description	5
Appendix A. Schematic.....	7
A.1 Introduction	7
A.2 Board Schematic	8
A.3 Board - Top Assembly	9
A.4 Board - Top Layer	10
Appendix B. Bill of Materials (BOM)	11
B.1 Introduction	11
Worldwide Sales and Service	12

MCP1252/3 Eval. Kit User Guide

NOTES:

General Information

INTRODUCTION AND HIGHLIGHTS

This section contains general information that will be useful to know before using the MCP1252/3 Evaluation Board. This board currently supports the following devices:

- MCP1252-33X50, MCP1252-ADJ, MCP1253-33X50, MCP1253-ADJ

This section covers the following topics:

- About this Guide
- Recommended Reading
- The Microchip Internet Web Site
- Customer Support

ABOUT THIS GUIDE

Document Layout

This document describes how to use the MCP1252/3 Evaluation Board.

The User's Guide layout is as follows:

- **Chapter 1.1 - 1.3: System Overview and Installation** – important information on how to install the MCP1252/3 Evaluation Board.

Appendices:

- **Appendix A: Schematics and Layouts** – shows the schematic and board layout diagrams for the MCP1252/3 Evaluation Board.
- **Appendix B: Bill of Materials** – lists the parts used to build the MCP1252/3 Evaluation Board.
- **Worldwide Sales and Service** – gives the address, telephone and fax number for Microchip Technology Inc. sales and service locations throughout the world.

RECOMMENDED READING

For more information regarding the MCP1252/3 devices, the following are recommended reading:

MCP1252/3 Data Sheet (DS21752)

This data sheet provides detailed information regarding the MCP1252/3 Low Noise, Positive-Regulated Charge Pumps. It is available on the Microchip web site at

www.microchip.com

or from the Technical Library CD-ROM (DS00161). To obtain this CD-ROM, contact the nearest Microchip Sales and Service location (see back page).

MCP1252/3 Eval. Kit User Guide

THE MICROCHIP INTERNET WEB SITE

Microchip provides on-line support and easy access to our documentation through our World Wide Web Site at www.microchip.com. You can download files from the web site or from our FTP site at <ftp://ftp.microchip.com>

CUSTOMER SUPPORT

Users of Microchip products can receive assistance through several channels:

- Distributor or Representative
- Local Sales Office
- Field Application Engineer (FAE)
- Corporate Applications Engineer (CAE)
- Hot line

Customers should call their distributor, representative or field application engineer (FAE) for support. Local sales offices are also available to help customers. See the back cover for a listing of sales offices and locations.

Corporate Applications Engineers (CAEs) may be contacted at (480) 792-7627.

In addition, there is a Systems Information and Upgrade Line. This line provides system users a listing of the latest versions of all of Microchip's development systems software products. Plus, this line provides information on how customers can receive any currently available upgrade kits.

The Hot Line Numbers are:

- 1-800-755-2345 for U.S. and most of Canada, and
- 1-480-792-7302 for the rest of the world.

Chapter 1. MCP1252/3 Evaluation Board

1.1 INTRODUCTION AND FEATURES

The MCP1252/3 Evaluation Board is an evaluation kit designed to support Microchip's MCP1252-33X50, MCP1252-ADJ, MCP1253-33X50 and MCP1253-ADJ low noise, positive-regulated charge pump devices and has the following features:

- Evaluation of MCP1252/3 in 8-pin MSOP packages
- Simple Stand-Alone Operation or Microcontroller Compatible
- Powered from external bench supply or battery pack
- Surface-Mount Design
- Fully Assembled and Tested

MCP1252/3 Eval. Kit User Guide

1.2 GETTING STARTED

The following steps provide simple stand-alone operation. Refer to the setup configuration diagram below.

Note: Do not turn on the input power until all other setup steps are complete.

1. Connect an external bench supply or battery pack to the appropriate device for evaluation. **Observe correct polarity of connection.**
2. For MCP1252-33X50 evaluation, select the desired output voltage (3.3V or 5.0V) by placing switch S2-2 in the appropriate position.
3. Turn on bench supply, if applicable.
4. Enable the appropriate device for evaluation by placing either switch S1-1 or switch S2-1 in the appropriate position.

For MCP1253-ADJ evaluation, adjust the trim potentiometer (R4) to obtain the desired output voltage. The evaluation board is adjustable over the range of 1.2V to 5.2V. The evaluation board comes preset to an output voltage of 2.5V, typically.

Note: the output voltage can not be adjusted beyond twice the input voltage.

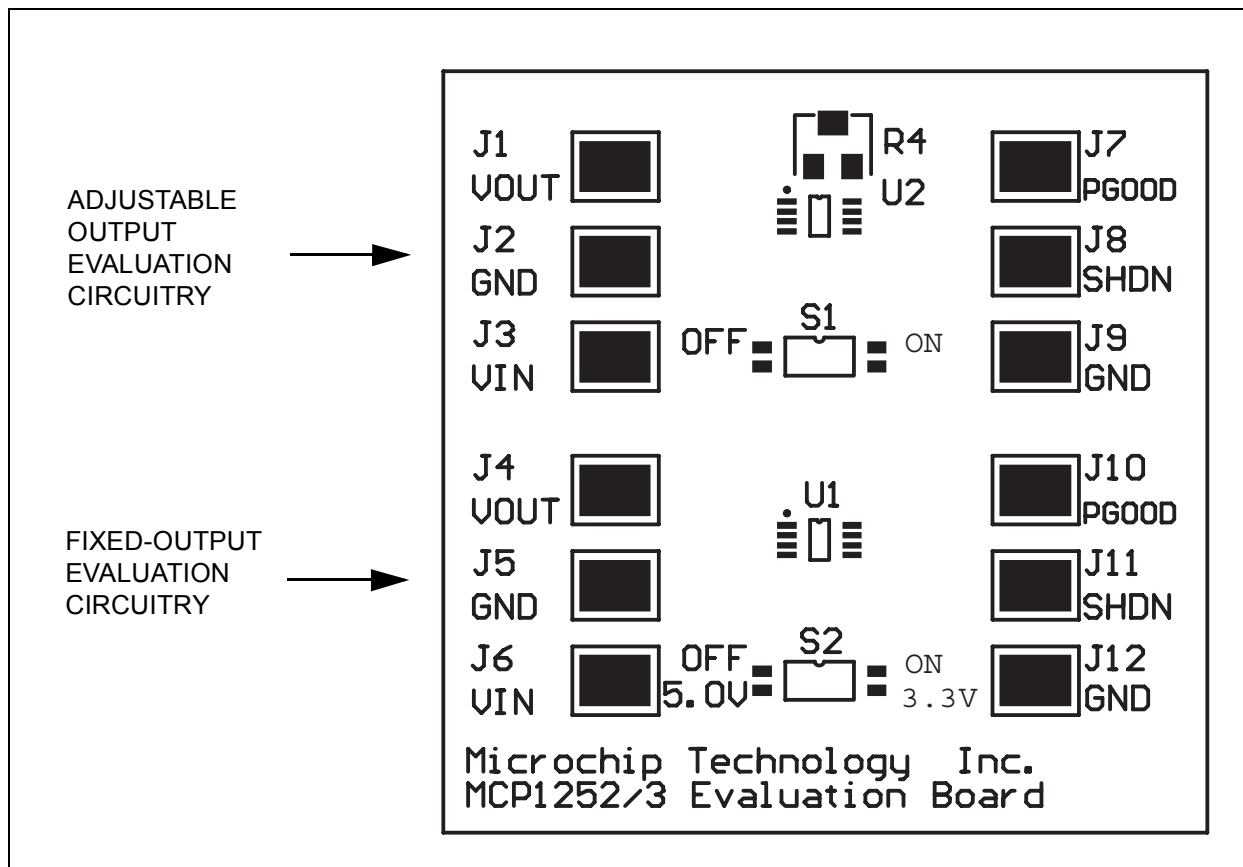


FIGURE 1-1: Setup Configuration Diagram.

1.3 DETAILED DESCRIPTION

Two independent circuits are provided for evaluation of the selectable, fixed output, or adjustable output versions. The evaluation board is provided with the MCP1252-33X50 and MCP1253-ADJ installed for evaluation. Evaluation of the alternative versions can be performed by substituting the appropriate device in the circuit.

1.3.1 Input Source

The MCP1252/3 Evaluation Board is designed to provide output currents up to 120 mA at output voltages above or below the input source. Refer to the device datasheet for the appropriate operating range. An adjustable 5V, 2W input source should be utilized to power the evaluation kit. The positive side of the input source should be tied to the appropriate V_{IN} connection: J3 for evaluation of the adjustable output version or J6 for evaluation of the fixed-output version. The negative side of the input source should be tied to the appropriate GND connection: J2 for evaluation of the adjustable output version or J5 for evaluation of the fixed output version. Both versions can be powered simultaneously by connecting the positive and negative connections together, respectively: J3 to J6 and J2 to J5.

1.3.2 Shutdown Control

The devices can be placed into a low power shutdown mode by manually placing switch S1-1 or S2-1 in the OFF position. Alternatively, with the switches in the OFF position, each device can be enabled or disabled through microcontroller control at the SHDN connection J8 or J11, respectively.

1.3.3 Output Voltage Selection - Fixed Version

A 3.3V output or 5.0V output can be selected for device U1, MCP1252-33X50. The desired output is obtained by placing switch S2-2 in the appropriated position.

1.3.4 Output Voltage Adjustment - Adjustable Version

The output voltage of device U2, MCP1253-ADJ, can be adjusted by varying potentiometer R4. A counter-clockwise rotation of the potentiometer lowers the output voltage. A clockwise rotation of the potentiometer raises the output voltage.

1.3.5 Power Good Indication

J7 and J10 are provided to monitor when the output voltage of each device is in regulation. The status can be monitored with a digital multimeter, oscilloscope, or microcontroller.

MCP1252/3 Eval. Kit User Guide

NOTES:

Appendix A. Schematic

A.1 INTRODUCTION

This appendix contains the schematics and layouts for the MCP1252/3 Evaluation Board.

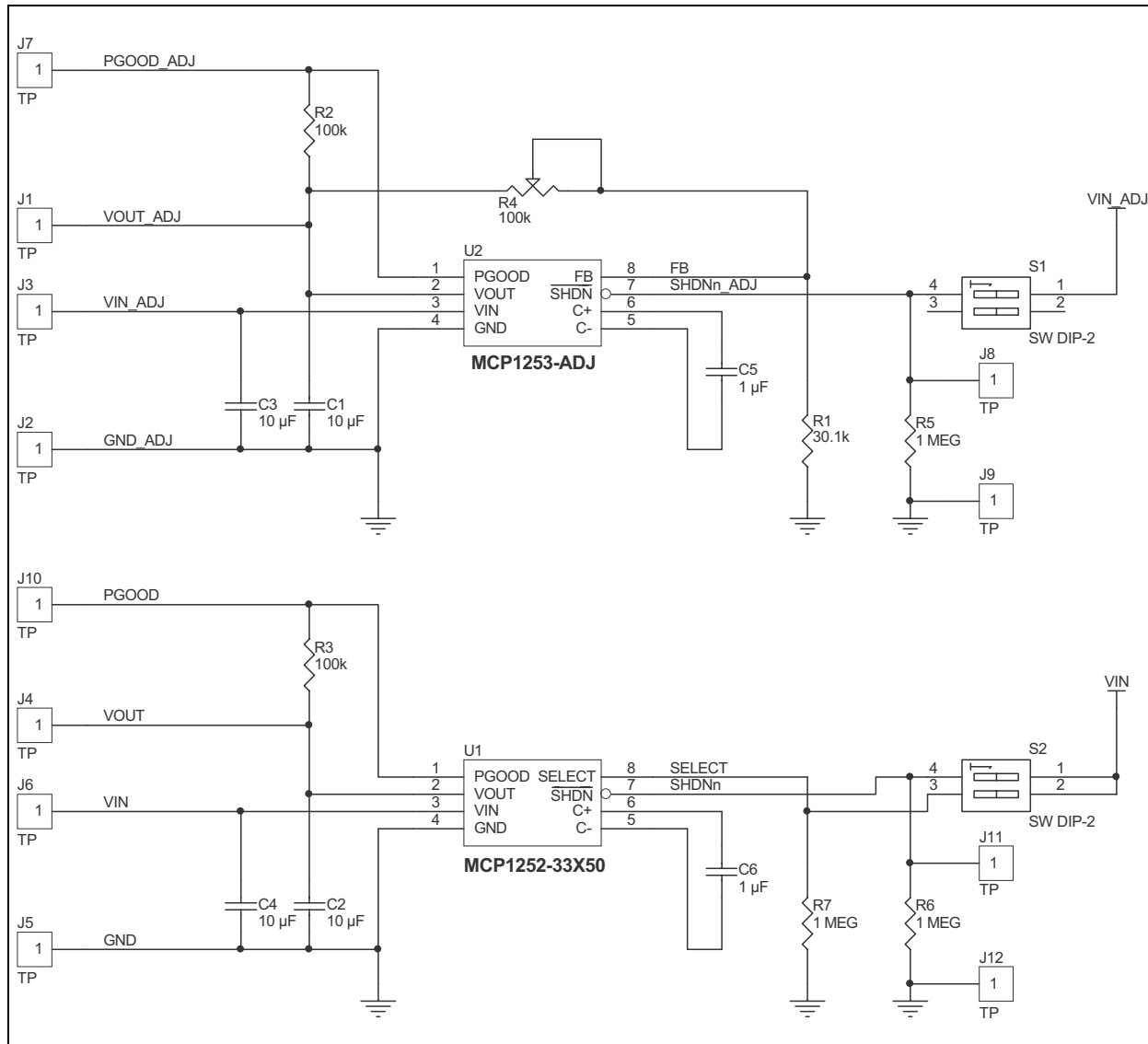
A.1.1 Highlights

Diagrams included in this appendix:

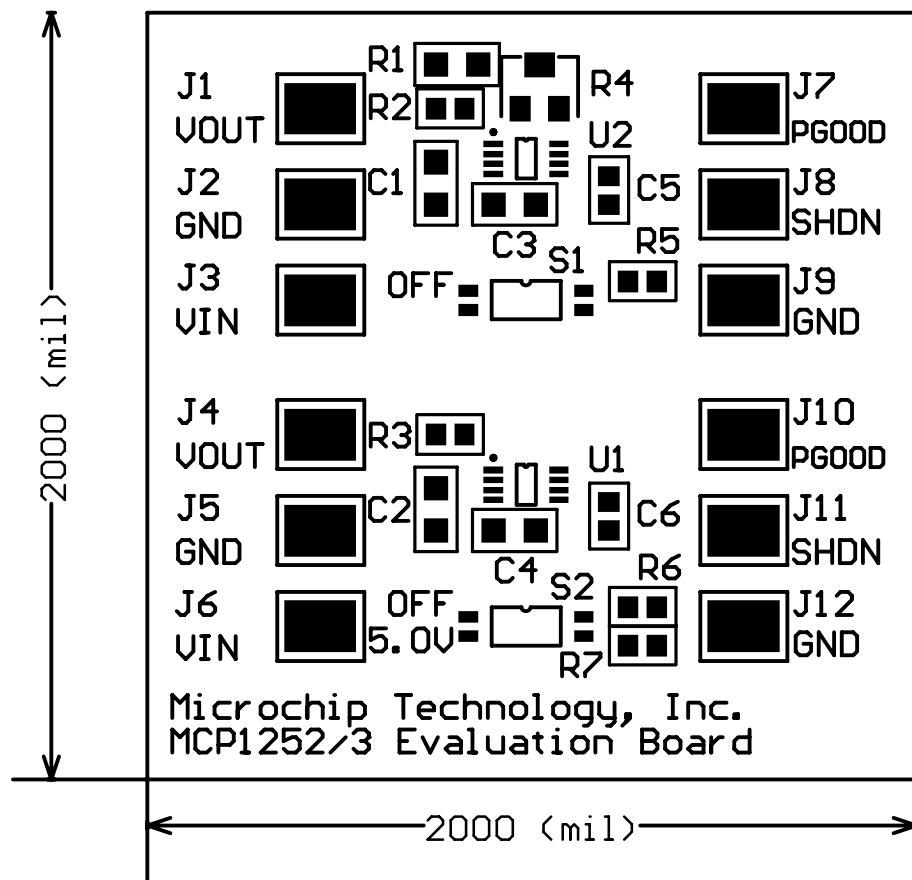
- Board Schematic
- Board - Top Assembly
- Board - Top Layer

MCP1252/3 Eval. Kit User Guide

A.2 BOARD SCHEMATIC

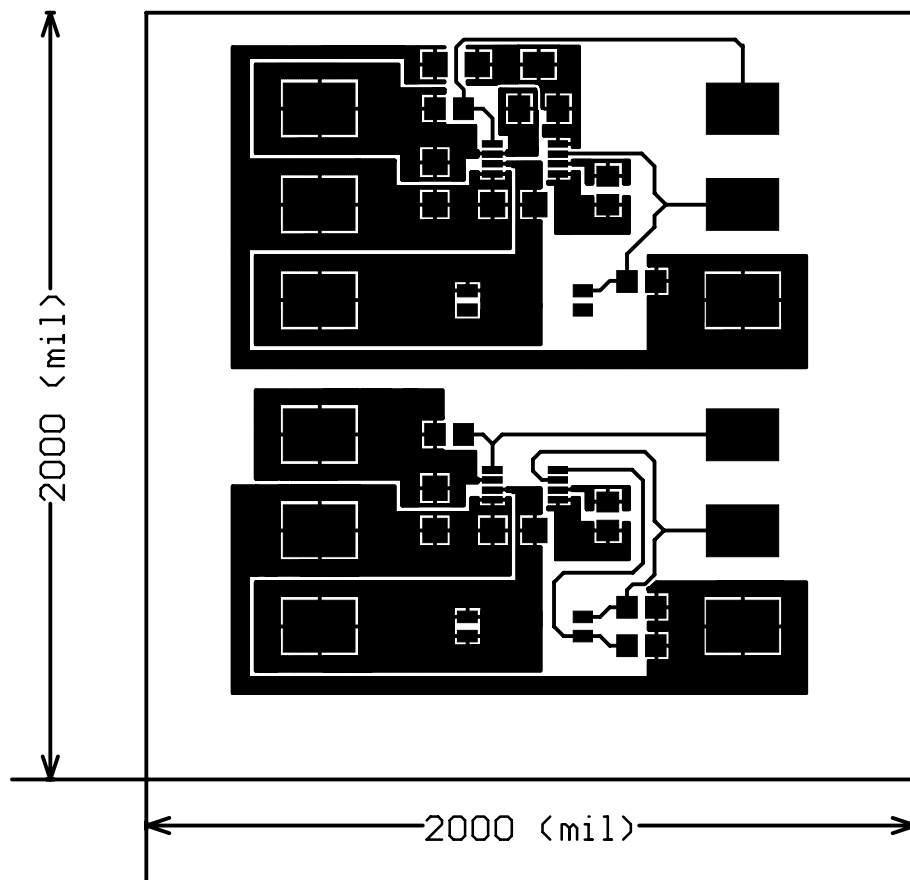


A.3 BOARD - TOP ASSEMBLY



MCP1252/3 Eval. Kit User Guide

A.4 BOARD - TOP LAYER



Appendix B. Bill of Materials (BOM)

B.1 INTRODUCTION

TABLE B-1: BILL OF MATERIALS

Reference Designator	Qty	Description	Manufacturer	Manufacturer Part Number
R1	1	30.1 k Ω , 1/8W, 1%, Thick Film Chip, 1206	Panasonic [®]	ERJ-8ENF3012V
R2, R3	2	100 k Ω , 1/10W, 1%, Thick Film Chip, 0805	Panasonic [®]	ERJ-6ENF1003V
R4	1	100 k Ω potentiometer, multi-turn, 4 mm	Bourns [®]	3214W-1-104E
R5, R6, R7	3	1 M Ω , 1/10W, 1%, Thick Film Chip, 0805	Panasonic [®]	ERJ-6ENF1004V
C1, C2, C3, C4	4	10 μ F, 6.3V, X5R Ceramic, 1206	Kemet [®]	C1206C106K9PACT
C5, C6	2	1 μ F, 10V, X7R Ceramic, 0805	Kemet [®]	C0805C105K8RACT
S1, S2	2	DIP Switches, 2 Position, SPST	C&K [®]	TDA02H0SK1
J1 - J12	12	Test Points	Keystone [®]	5016
U1	1	120 mA, Positive regulated charge pump, fixed output, MSOP 8	Microchip Technology Inc.	MCP1252-33X50I/MS
U2	1	120 mA, Positive regulated charge pump, adjustable output, MSOP 8	Microchip Technology Inc.	MCP1252-ADJI/MS
	4	Bumpers - Protective Products	3M [®]	SJ5003-0



WORLDWIDE SALES AND SERVICE

AMERICAS

Corporate Office

2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 480-792-7200 Fax: 480-792-7277
Technical Support: 480-792-7627
Web Address: <http://www.microchip.com>

Rocky Mountain

2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 480-792-7966 Fax: 480-792-4338

Atlanta

3780 Mansell Road, Suite 130
Alpharetta, GA 30022
Tel: 770-640-0034 Fax: 770-640-0307

Boston

2 Lan Drive, Suite 120
Westford, MA 01886
Tel: 978-692-3848 Fax: 978-692-3821

Chicago

333 Pierce Road, Suite 180
Itasca, IL 60143
Tel: 630-285-0071 Fax: 630-285-0075

Dallas

4570 Westgrove Drive, Suite 160
Addison, TX 75001
Tel: 972-818-7423 Fax: 972-818-2924

Detroit

Tri-Atria Office Building
32255 Northwestern Highway, Suite 190
Farmington Hills, MI 48334
Tel: 248-538-2250 Fax: 248-538-2260

Kokomo

2767 S. Albright Road
Kokomo, Indiana 46902
Tel: 765-864-8360 Fax: 765-864-8387

Los Angeles

18201 Von Karman, Suite 1090
Irvine, CA 92612
Tel: 949-263-1888 Fax: 949-263-1338

San Jose

Microchip Technology Inc.
2107 North First Street, Suite 590
San Jose, CA 95131
Tel: 408-436-7950 Fax: 408-436-7955

Toronto

6285 Northam Drive, Suite 108
Mississauga, Ontario L4V 1X5, Canada
Tel: 905-673-0699 Fax: 905-673-6509

ASIA/PACIFIC

Australia

Microchip Technology Australia Pty Ltd
Suite 22, 41 Rawson Street
Epping 2121, NSW
Australia
Tel: 61-2-9868-6733 Fax: 61-2-9868-6755

China - Beijing

Microchip Technology Consulting (Shanghai)
Co., Ltd., Beijing Liaison Office
Unit 915
Bei Hai Wan Tai Bldg.
No. 6 Chaoyangmen Beidajie
Beijing, 100027, No. China
Tel: 86-10-85282100 Fax: 86-10-85282104

China - Chengdu

Microchip Technology Consulting (Shanghai)
Co., Ltd., Chengdu Liaison Office
Rm. 2401-2402, 24th Floor,
Ming Xing Financial Tower
No. 88 TIDU Street
Chengdu 610016, China
Tel: 86-28-86766200 Fax: 86-28-86766599

China - Fuzhou

Microchip Technology Consulting (Shanghai)
Co., Ltd., Fuzhou Liaison Office
Unit 28F, World Trade Plaza
No. 71 Wusi Road
Fuzhou 350001, China
Tel: 86-591-7503506 Fax: 86-591-7503521

China - Hong Kong SAR

Microchip Technology Hongkong Ltd.
Unit 901-6, Tower 2, Metroplaza
223 Hing Fong Road
Kwai Fong, N.T., Hong Kong
Tel: 852-2401-1200 Fax: 852-2401-3431

China - Shanghai

Microchip Technology Consulting (Shanghai)
Co., Ltd.
Room 701, Bldg. B
Far East International Plaza
No. 317 Xian Xia Road
Shanghai, 200051
Tel: 86-21-6275-5700 Fax: 86-21-6275-5060

China - Shenzhen

Microchip Technology Consulting (Shanghai)
Co., Ltd., Shenzhen Liaison Office
Rm. 1812, 18/F, Building A, United Plaza
No. 5022 Binhe Road, Futian District
Shenzhen 518033, China
Tel: 86-755-82901380 Fax: 86-755-82966626

China - Qingdao

Rm. B503, Fullhope Plaza,
No. 12 Hong Kong Central Rd.
Qingdao 266071, China
Tel: 86-532-5027355 Fax: 86-532-5027205

India

Microchip Technology Inc.
India Liaison Office
Divyasree Chambers
1 Floor, Wing A (A3/A4)
No. 11, O'Shaugnessey Road
Bangalore, 560 025, India
Tel: 91-80-2290061 Fax: 91-80-2290062

Japan

Microchip Technology Japan K.K.
Benex S-1 6F
3-18-20, Shinyokohama
Kohoku-Ku, Yokohama-shi
Kanagawa, 222-0033, Japan
Tel: 81-45-471-6166 Fax: 81-45-471-6122

Korea

Microchip Technology Korea
168-1, Youngbo Bldg. 3 Floor
Samsung-Dong, Kangnam-Ku
Seoul, Korea 135-882
Tel: 82-2-554-7200 Fax: 82-2-558-5934

Singapore

Microchip Technology Singapore Pte Ltd.
200 Middle Road
#07-02 Prime Centre
Singapore, 188980
Tel: 65-6334-8870 Fax: 65-6334-8850

Taiwan

Microchip Technology (Barbados) Inc.,
Taiwan Branch
11F-3, No. 207
Tung Hua North Road
Taipei, 105, Taiwan
Tel: 886-2-2717-7175 Fax: 886-2-2545-0139

EUROPE

Austria

Microchip Technology Austria GmbH
Durisolstrasse 2
A-4600 Wels
Austria
Tel: 43-7242-2244-399
Fax: 43-7242-2244-393

Denmark

Microchip Technology Nordic ApS
Regus Business Centre
Lautrup høj 1-3
Ballerup DK-2750 Denmark
Tel: 45 4420 9895 Fax: 45 4420 9910

France

Microchip Technology SARL
Parc d'Activite du Moulin de Massy
43 Rue du Saule Trapu
Batiment A - 1er Etage
91300 Massy, France
Tel: 33-1-69-53-63-20 Fax: 33-1-69-30-90-79

Germany

Microchip Technology GmbH
Steinheilstrasse 10
D-85737 Ismaning, Germany
Tel: 49-89-627-144 0 Fax: 49-89-627-144-44

Italy

Microchip Technology SRL
Centro Direzionale Colleoni
Palazzo Taurus 1 V. Le Colleoni 1
20041 Agrate Brianza
Milan, Italy
Tel: 39-039-65791-1 Fax: 39-039-6899883

United Kingdom

Microchip Ltd.
505 Eskdale Road
Winnersh Triangle
Wokingham
Berkshire, England RG41 5TU
Tel: 44 118 921 5869 Fax: 44-118 921-5820

12/05/02