



Voltage Supervisor SOT23 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in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates.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, microID, MPLAB, PIC, PICmicro, PICSTART, PRO MATE, PowerSmart, rfPIC and SmartShunt are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

AmPLab, FilterLab, Migratable Memory, 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, ECAN, ECONOMONITOR, FanSense, FlexROM, fuzzyLAB, In-Circuit Serial Programming, ICSP, ICEPIC, Linear Active Thermistor, Mindi, MiWi, MPASM, MPLIB, MPLINK, PICKIT, PICDEM, PICDEM.net, PICLAB, PICtail, PowerCal, PowerInfo, PowerMate, PowerTool, REAL ICE, rFLAB, rfPICDEM, Select Mode, Smart Serial, SmartTel, Total Endurance, UNI/O, 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.

© 2006, 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 Mountain View, California. The Company's quality system processes and procedures are for its PICmicro® 8-bit MCUs, KEELOQ® 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.



VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD USER'S GUIDE

Table of Contents

Preface	1
Chapter 1. Product Overview	5
1.1 Introduction	5
1.2 What is the Voltage Supervisor SOT23 Evaluation Board ?	5
1.3 What the Voltage Supervisor SOT23 Evaluation Board Kit Includes	5
Chapter 2. Installation and Operation	7
2.1 Introduction	7
2.2 Features	7
2.3 Getting Started	8
2.4 Voltage Supervisor SOT23 Evaluation Board Description	12
2.5 Evaluating the Device	13
Appendix A. Schematic and Layouts	15
A.1 Introduction	15
A.2 Schematics and PCB Layout	15
A.3 Board Schematic 1	16
A.4 Board Layout - Top Layer With Silk Screen	17
Appendix B. Bill Of Materials (BOM)	19
Appendix C. Microchip Analog SOT-23 Device Compatibility	21
C.1 Introduction	21
C.2 PCB Compatibility	21
C.3 Ideas on Evaluating An LDO	22
Worldwide Sales and Service	24

Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:



VOLTAGE SUPERVISOR SOT23 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) 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.

INTRODUCTION

This chapter contains general information that will be useful to know before using the Voltage Supervisor SOT23 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 Voltage Supervisor SOT23 Evaluation Board as a development tool. The manual layout is as follows:

- **Chapter 1. “Product Overview”** – Important information about the Voltage Supervisor SOT23 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 Voltage Supervisor SOT23 Evaluation Board.
- **Appendix B. “Bill Of Materials (BOM)”** – Lists the parts used to build the Voltage Supervisor SOT23 Evaluation Board.
- **Appendix C. “Microchip Analog SOT-23 Device Compatibility”** – Explains how this board (PCB) may be used with other Microchip Analog devices in the SOT-23-3 package.

Voltage Supervisor SOT23 Evaluation Board User's Guide

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...

RECOMMENDED READING

For more information regarding the Voltage Supervisor and Voltage Detector devices, the specific device data sheet is recommended reading. Table shows the device and associated Data Sheet literature number. These documents can be downloaded from the Microchip web site at: www.microchip.com.

DEVICES AND DATA SHEET LITERATURE NUMBERS

Device	Literature #	Device	Literature #	Device	Literature #
MCP100	DS11187	MCP809	DS11194	TC1277	DS21383
MCP101	DS11187	MCP810	DS11194	TC1278	DS21384
MCP102	DS21906	TC51	DS21429	TC1279	DS21384
MCP103	DS21906	TC54	DS21434	TCM809	DS21661
MCP111	DS21889	TC1272	DS21382	TCM810	DS21661
MCP112	DS21889	TC1272A	DS21877		
MCP120	DS11184	TC1273	DS21382		
MCP121	DS21906	TC1274	DS21382		
MCP130	DS11184	TC1275	DS21383		
MCP131	DS21906	TC1276	DS21383		

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
- **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
- Development Systems Information Line

Customers should contact their distributor, representative or field application engineer 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 B (July 2006)

- Add disclaimer to Bill of Materials regarding RoHS-Compliant part numbers
- Removed Appendix D and incorporated information here.

Revision A (September 2004)

- Initial Release of this Document.

Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:

Chapter 1. Product Overview

1.1 INTRODUCTION

This chapter provides an overview of the Voltage Supervisor SOT23 Evaluation Board and covers the following topics:

- What is the Voltage Supervisor SOT23 Evaluation Board ?
- What the Voltage Supervisor SOT23 Evaluation Board kit includes

1.2 WHAT IS THE VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD ?

The Voltage Supervisor SOT23 Evaluation Board allows the system designer to quickly evaluate the operation of Microchip Technology's Voltage Supervisors and Voltage Detectors in the SOT-23-3 (3-pin SOT-23) package.

The Voltage Supervisor SOT23 Evaluation Board PCB supports the four different SOT-23-3 pinouts for the product family. This board has been made generic so that other devices may be supported with this board.

1.3 WHAT THE VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD KIT INCLUDES

This Voltage Supervisor SOT23 Evaluation Board Kit includes:

- Five Voltage Supervisor SOT23 Evaluation Board Printed Circuit Boards (PCBs)
- Five MCP112 device samples (MCP112T-270E/TT) that can be installed on the Voltage Supervisor SOT23 Evaluation Board PCBs
 - 2.63V Trip Point (Typical)
 - Extended Temperature
 - SOT-23-3 Package
- Voltage Supervisor SOT23 Evaluation Board User's Guide (Electronic Version on CD)
- Analog and Interface Products Demonstration Boards CD-ROM (DS21912)

Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:

Chapter 2. Installation and Operation

2.1 INTRODUCTION

The blank Printed Circuit Board (PCB) allows the desired voltage supervisor or voltage detector device to be installed along with other desired passive components (resistor and capacitors) and connection posts.

The Voltage Supervisor SOT23 Evaluation Board PCB supports four different SOT-23-3 pinouts. Three of these pinouts are used by the Voltage Supervisor or Voltage Detector product family, while the fourth is used by other Microchip analog products (see **Appendix C. "Microchip Analog SOT-23 Device Compatibility"**). This board has been made generic so that other devices may be supported with this board. However, the silk screen markings are designed for ease-of-use with the voltage supervisor devices.

2.2 FEATURES

The Voltage Supervisor SOT23 Evaluation Board has the following features:

- Connection terminals may be either through-hole or surface-mount
- Four SOT-23-3 pinouts supported
- Optional passive components for:
 - Power Supply Filtering
 - Output Filtering
 - Output Pull-up Resistor
 - Output Pull-down Resistor
 - Output Loading Resistor
 - Output Series Resistor
- Silk screen area to write specifics of implemented circuit, such as MCP111, 2.7V, 10 k Ω (to indicate that the device is the MCP111 with the 2.7V trip point and an external 10 k Ω pull-up resistor on the output)

Voltage Supervisor SOT23 Evaluation Board User's Guide

2.3 GETTING STARTED

The Voltage Supervisor SOT23 Evaluation Board is a blank PCB that allows the user to configure the circuit to their exact requirements. The Passive components use the surface mount 805 package layout. Figure 2-1 shows the board circuit. Table 2-1 shows which circuit option needs to be used for a given voltage supervisor/voltage detector. There are currently no voltage supervisors/voltage detectors that use the Option 3 pinout. For other Microchip Analog Devices, please refer to **Appendix C. "Microchip Analog SOT-23 Device Compatibility"**.

FIGURE 2-1: VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD SCHEMATIC

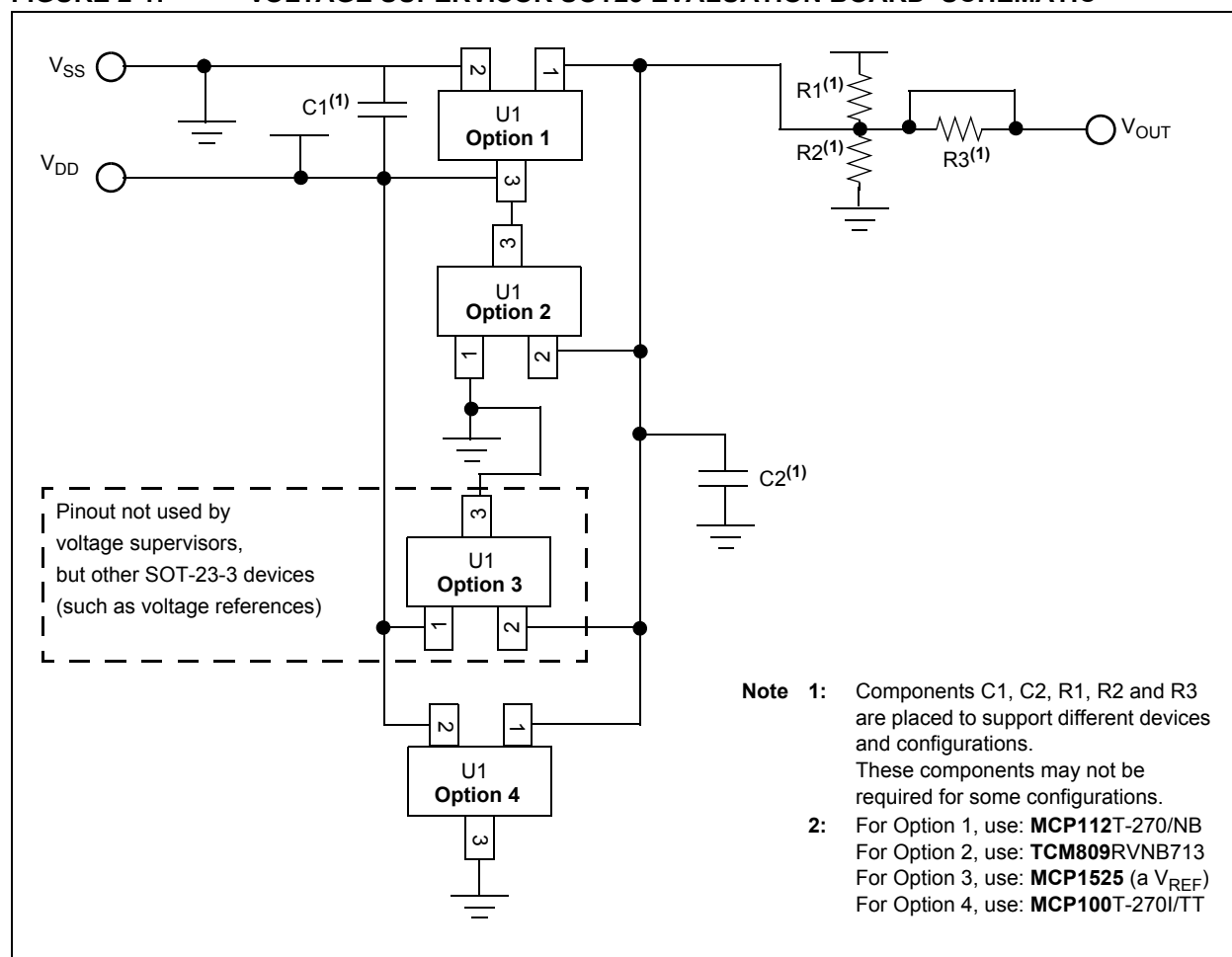


TABLE 2-1: VOLTAGE SUPERVISOR / VOLTAGE DETECTOR DEVICES AND EVAL BOARD CIRCUIT/FOOTPRINT OPTION

Device	Supported on	Output Signal (Active State)	Output Type	Comment/Recommended component values
MCP111	Option 1	V _{OUT} (L)	Open-Drain	R1 = 100 kΩ
MCP112	Option 1	V _{OUT} (L)	Push-Pull	
TC54VC	Option 1	V _{OUT} (L)	Push-Pull	
TC54VN	Option 1	V _{OUT} (L)	Open-Drain	R1 = 270Ω
TC51	Option 1	$\overline{V_{OUT}}$ (L)	Open-Drain	R1 = 47 kΩ
MCP103	Option 2	$\overline{RST}$ (L)	Push-Pull	
TCM809	Option 2	$\overline{RESET}$ (L)	Push-Pull	
TCM810	Option 2	RESET (H)	Push-Pull	
MCP809	Option 2	$\overline{RESET}$ (L)	Push-Pull	C1 = 0.1 μF
MCP810	Option 2	$\overline{RESET}$ (L)	Push-Pull	C1 = 0.1 μF
MCP102	Option 4	$\overline{RST}$ (L)	Push-Pull	
MCP121	Option 4	$\overline{RST}$ (L)	Open-Drain	with Internal Pull-up
MCP131	Option 4	$\overline{RST}$ (L)	Open-Drain	R1 = 100 kΩ
TC1275	Option 4	$\overline{RESET}$ (L)	Push-Pull	C1 = 0.1 μF
TC1276	Option 4	$\overline{RESET}$ (L)	Open-Drain	C1 = 0.1 μF R1 = 47 kΩ
TC1277	Option 4	RESET (H)	Push-Pull	C1 = 0.1 μF
TC1278	Option 4	RESET (H)	Open-Drain	with Internal Pull-up
TC1279	Option 4	$\overline{RESET}$ (L)	Open-Drain	with Internal Pull-up
TC1272	Option 4	$\overline{RESET}$ (L)	Push-Pull	C1 = 0.1 μF
TC1272A	Option 4	$\overline{RESET}$ (L)	Push-Pull	C1 = 0.1 μF
TC1273	Option 4	$\overline{RESET}$ (L)	Open-Drain	C1 = 0.1 μF R1 = 47 kΩ
TC1274	Option 4	RESET (H)	Push-Pull	C1 = 0.1 μF
MCP100	Option 4	$\overline{RESET}$ (L)	Push-Pull	
MCP101	Option 4	RESET (H)	Push-Pull	
MCP120	Option 4	$\overline{RESET}$ (L)	Open-Drain	C1 = 0.1 μF R1 = 47 kΩ
MCP130	Option 4	$\overline{RESET}$ (L)	Open-Drain	with Internal Pull-up C1 = 0.1 μF

Voltage Supervisor SOT23 Evaluation Board User's Guide

2.3.1 The Hardware

Figure 2-2 shows the layout of the Voltage Supervisor SOT23 Evaluation Board. This is a small board (1"x1.2" (25.4 mm x 30.5 mm)) that is single-sided. There are three connection points (V_{DD} , V_{SS} and V_{OUT}) that can use either through-hole or surface-mount connector posts. Additionally, a test point is available on the device V_{OUT} , which may be useful if Resistor R3 is installed.

The different SOT-23-3 layout options are outlined in the diagram below, with Opt 1, Opt 2, Opt 3 and Opt 4 indicating the layout option of that SOT-23-3 footprint.

Resistor R1 is a pull-up resistor that may need to be installed for devices with an open-drain output. Though resistor R2 is not currently required, it was placed for possible future requirements. Resistor R3, too, is not required, but may be useful if this board is to be interfaced into existing circuits. If resistor R3 is to be installed, remember to cut the trace that "shorts out" R3. Capacitors C1 and C2 are bypass capacitors that may be required to be installed, depending on the device selected and the system requirements (such as the noise present on the power supply). Table 2-2 describes the components.

FIGURE 2-2: VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD LAYOUT

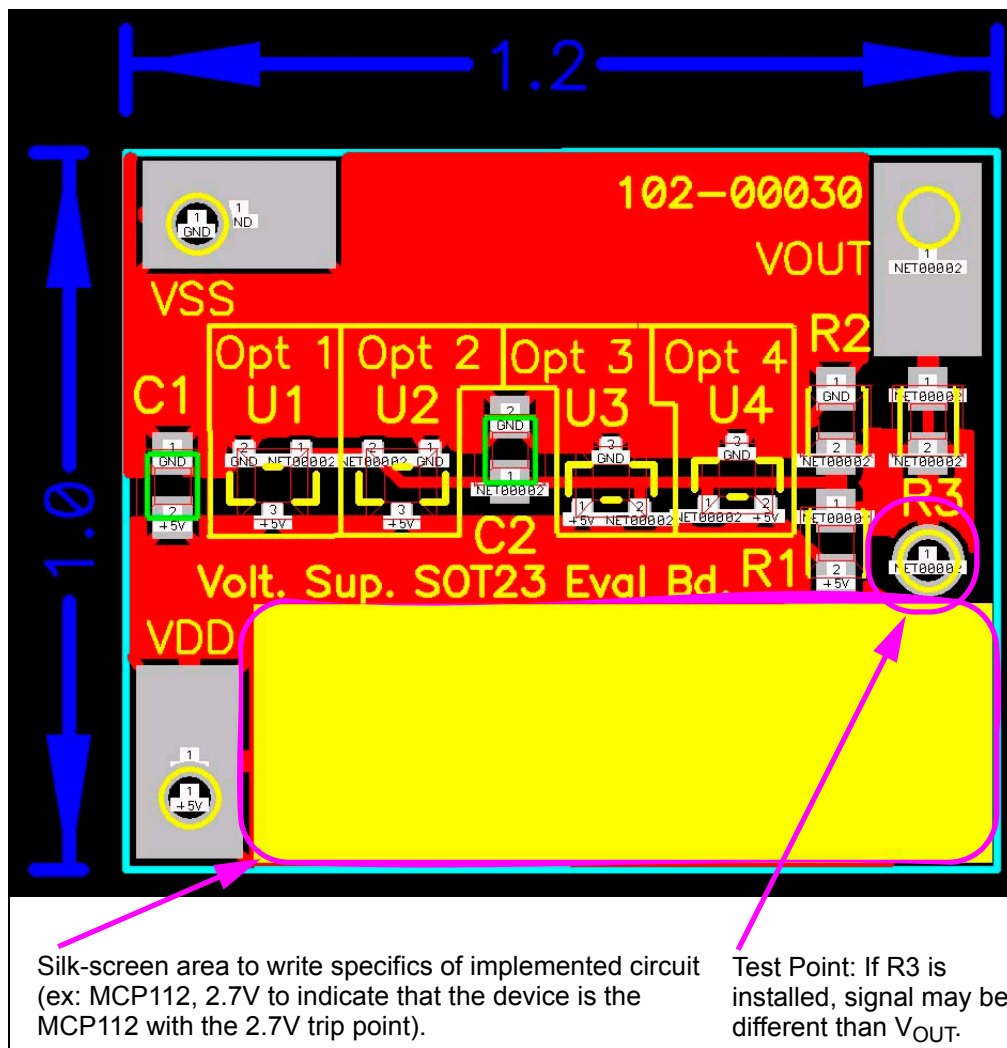


TABLE 2-2: OPTIONAL PASSIVE COMPONENTS

Device	Comment
C1	Power Supply Bypass Capacitor
C2	Output Filter Capacitor
R1	Pull-up Resistor
R2	Pull-down Resistor
R3	Inline Resistance of Device output

Voltage Supervisor SOT23 Evaluation Board User's Guide

2.4 VOLTAGE SUPERVISOR SOT23 EVALUATION BOARD DESCRIPTION

The Voltage Supervisor SOT23 Evaluation Board PCB is designed to be flexible in the type of device evaluation that can be implemented.

The following sections describe each element of this evaluation board in further detail.

2.4.1 Power and Ground

The Voltage Supervisor SOT23 Evaluation Board can have connection posts installed for the power (V_{DD}) and ground (V_{SS}) planes. The layout allows either through-hole or surface-mount connectors.

For device evaluation, the use of an external variable power supply or waveform generator is required. The type of equipment used will determine the evaluation that may be performed.

2.4.2 Output (V_{OUT})

The Voltage Supervisor SOT23 Evaluation Board can have a connection post installed for the output (V_{OUT}) signal. The layout allows either a through-hole connector or a surface mount connector.

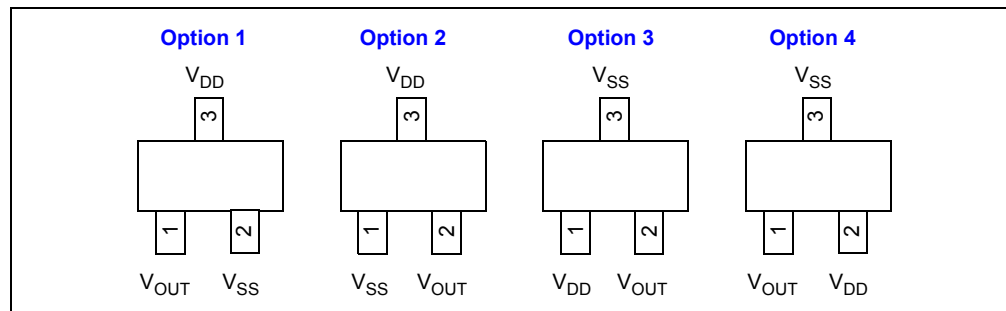
For device evaluation, the use of an oscilloscope or digital volt meter (DVM) is required. The type of equipment used will determine the evaluation that may be performed.

2.4.3 SOT-23-3 Footprints

There are four SOT-23-3 pinout options that the Voltage Supervisor SOT23 Evaluation Board PCB supports. Figure 2-3 shows these four pinouts. Some devices may use different nomenclature for the pin names, such as GND instead of V_{SS} , V_{IN} instead of V_{DD} and RESET (or $\overline{\text{RESET}}$) or RST instead of V_{OUT} .

Other Microchip analog devices may be used with this PCB if the power and ground pins match one of these four options. **Appendix C. "Microchip Analog SOT-23 Device Compatibility"** discusses other Microchip analog devices that may be used with this PCB.

FIGURE 2-3: PINOUT OPTIONS



2.4.4 Passive Components (C1, C2, R1, R2 and R3)

The footprints for these components are present to allow maximum flexibility in the use of this PCB to evaluate a wide range of SOT-23-3 devices. The purpose of these components may vary depending on the device under evaluation and how it is to be used in the desired circuit. Please refer to the device data sheet for the components that should be used when using that device.

2.5 EVALUATING THE DEVICE

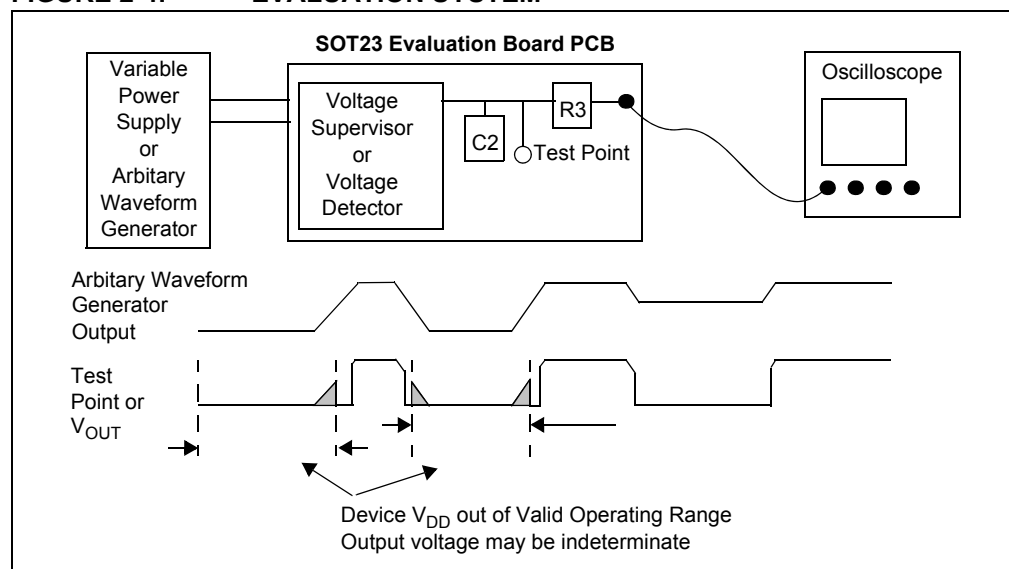
When evaluating a Voltage Supervisor or Voltage Detector device, a minimum set of test equipment should be available. Table 2-3 shows the recommended test equipment.

TABLE 2-3: TEST EQUIPMENT

Hardware	Connect to:	Comment
Variable Power Supply	V_{DD} , V_{SS}	This allows the voltage to the SOT23 Evaluation Board to be varied so the device output can be monitored.
Arbitrary Waveform Generator	V_{DD} , V_{SS}	This is like a variable power supply, but allows programmability into the input signal that the device will be subjected to. This also allows a particular waveform to be repeated (such as a 60 Hz sine wave that varies from 1V to 5V)
Digital Multi-Meter (D.M.M.)	V_{OUT}	Used to indicate the output state (Low or High) of the Voltage Supervisor/Voltage Detector.
Oscilloscope	V_{OUT}	Allows the device conditions and response to be better evaluated due to the ability to capture this information. This is useful for faster signals and cases where small spikes need to be detected.
Test Light (LED)	V_{OUT}	Used to visually indicate the output state (low or high) of the Voltage Supervisor/Voltage Detector. Ensure that the current requirements of this light can be supplied by the device's output pin.

A typical system that would be used to evaluate the voltage supervisor or voltage detector device is shown in Figure 2-4. Figure 2-4 also shows an example input and output waveforms for a voltage supervisor or voltage detector device.

FIGURE 2-4: EVALUATION SYSTEM



Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:

Appendix A. Schematic and Layouts

A.1 INTRODUCTION

This appendix contains the schematics and layouts for the Voltage Supervisor SOT23 Evaluation Board . Diagrams included in this appendix:

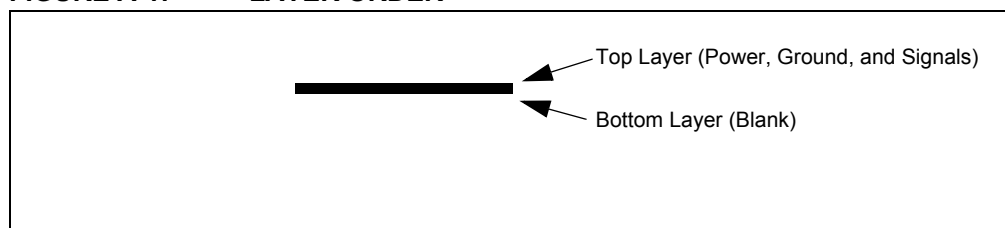
- Board Schematic - Digital Circuitry
- Board - Top Layer

A.2 SCHEMATICS AND PCB LAYOUT

Figure A.3 shows the schematic of the Voltage Supervisor SOT23 Evaluation Board .

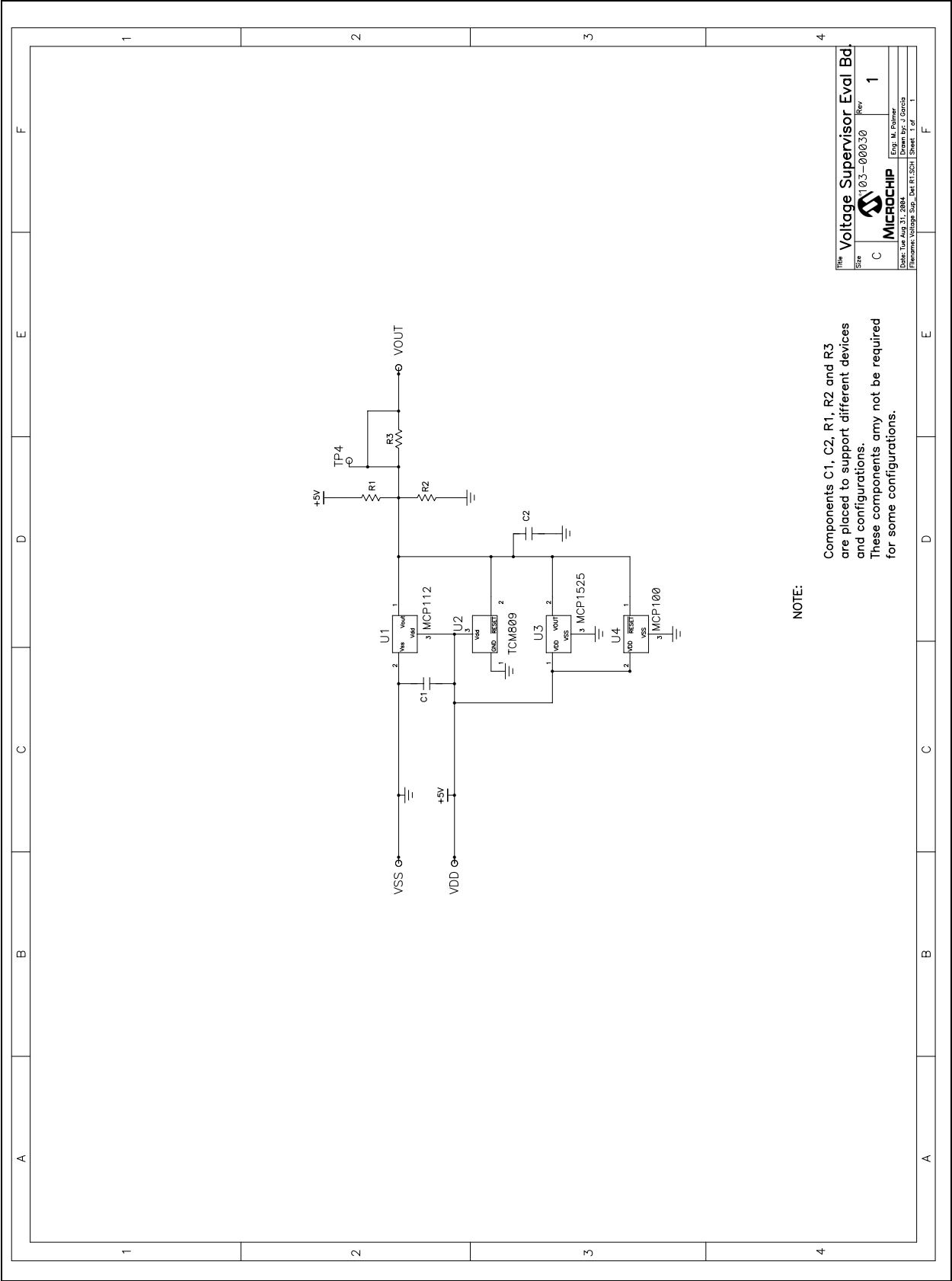
Figure A.4 shows the layout for the top layer of the Voltage Supervisor SOT23 Evaluation Board . The layer order is shown in Figure A-1.

FIGURE A-1: LAYER ORDER

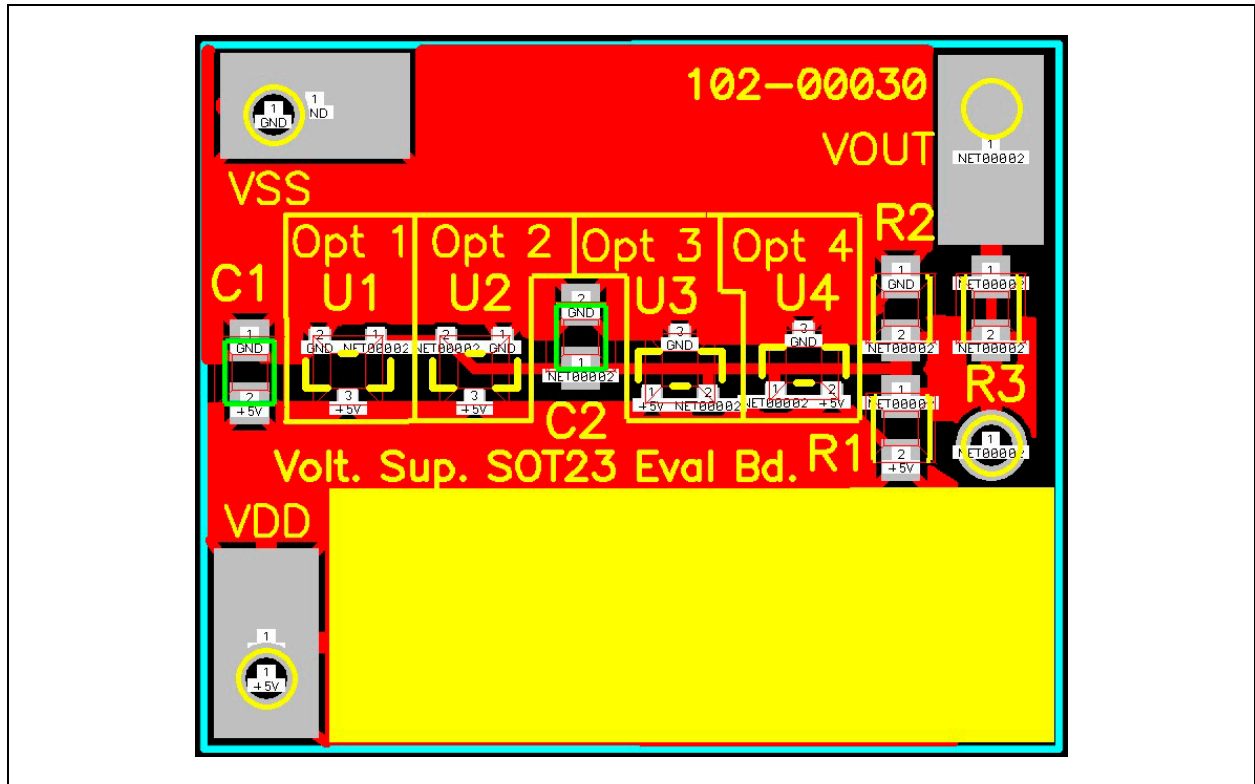


Voltage Supervisor SOT23 Evaluation Board User's Guide

A.3 BOARD SCHEMATIC 1



A.4 BOARD LAYOUT - TOP LAYER WITH SILK SCREEN



Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:

Appendix B. Bill Of Materials (BOM)

TABLE B-1: BILL OF MATERIALS

Qty	Reference	Description	Manufacturer	Part Number
1	PCB 103-00030	SOT23 Evaluation Board PCB	Microchip Technology Inc.	103-00030
0	U1, U2, U3, U4	SOT-23-3 Device (Only one of U1 - U4 installed per board)	Microchip Technology Inc.	User-specified
0	C1	Power Supply Bypass Capacitor Surface-mount (805 package) (Optional - Application-dependent)	—	User-specified
0	C2	Output Filter Capacitor Surface-mount (805 package) (Optional - Application-dependent)	—	User-specified
0	R1	Output Pull-up resistor Surface-mount (805 package) (Optional - Application-dependent)	—	User-specified
0	R2	Output Pull-down resistor Surface-mount (805 package) (Optional - Application-dependent)	—	User-specified
0	R3	Output inline resistor Surface-mount (805 package) (Optional - Application-dependent)	—	User-specified
0	V _{DD} , V _{SS} , V _{OUT}	V _{DD} , V _{SS} and V _{OUT} through-hole connector	Keystone Electronics®	5012
0	V _{DD} , V _{SS} , V _{OUT}	V _{DD} , V _{SS} and V _{OUT} surface-mount connector	Keystone Electronics	5016

Note 1: 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.

Voltage Supervisor SOT23 Evaluation Board User's Guide

NOTES:

Appendix C. Microchip Analog SOT-23 Device Compatibility

C.1 INTRODUCTION

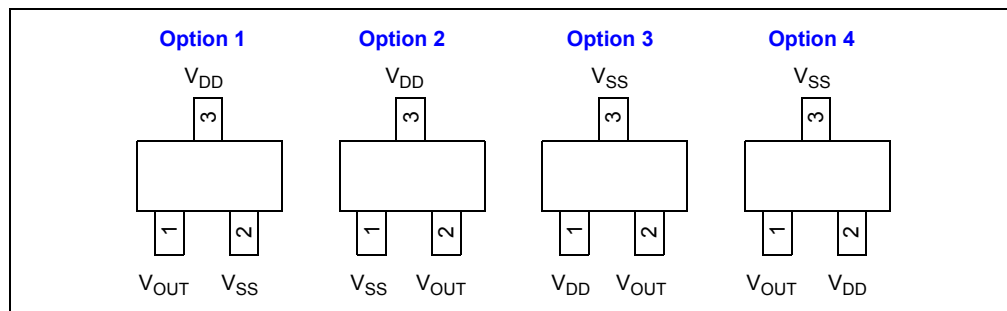
This appendix documents other Microchip analog devices that can be evaluated using this PCB. New devices may be introduced after the publication of this document that may be supported. Compare the pinout of the device to the PCB schematic/layout to determine compatibility of any SOT-23-3 (3-pin SOT-23) packaged device.

C.2 PCB COMPATIBILITY

There are four SOT-23-3 (3-pin SOT-23) pinouts that the Voltage Supervisor SOT23 Evaluation Board PCB supports. Figure C-1 shows these four pinouts. Other Microchip analog devices may be used with this PCB if the power and ground pins match one of these four options. Though these devices may use different nomenclature for the pin names, as long as the power and ground signals match one of the four options, this PCB should be able to be used to evaluate that device.

Table C-1 shows the Microchip analog device part number, the analog family the device belongs to, which footprint option to use and the recommended components to use for the circuit. Please refer to the device data sheet for complete information of the application circuit.

FIGURE C-1: SOT-23-3 PINOUT OPTIONS



Voltage Supervisor SOT23 Evaluation Board User's Guide

TABLE C-1: MICROCHIP ANALOG DEVICES AND SOT23 EVAL BOARD CIRCUIT/FOOTPRINT OPTION SELECTION

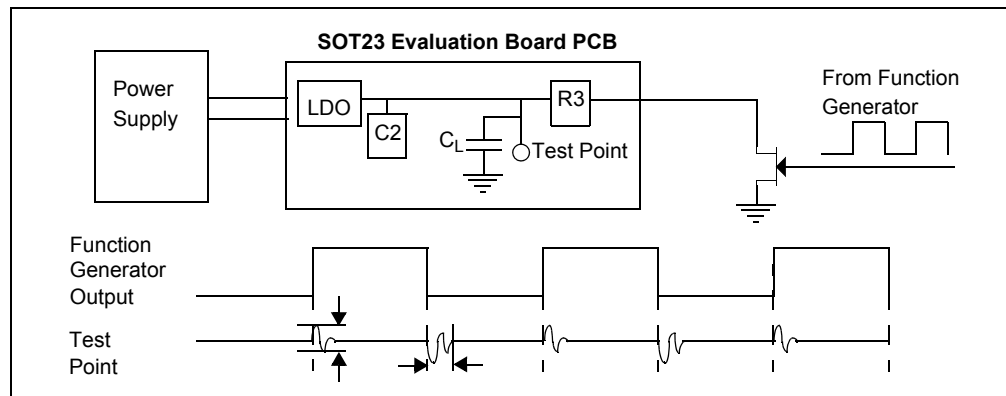
Device	Device Family	Supported on	Comment/ Recommended Component Values:
MCP1700	LDO	Option 2	C1 = 1 μ F Ceramic C2 = 1 μ F Ceramic
MCP1701	LDO	Option 2	C1 = 1 μ F Tantalum C2 = 1 μ F Tantalum
MCP1525	Voltage Reference	Option 3	C1 = 0.1 μ F C2 = 1 μ F to 10 μ F
MCP1541	Voltage Reference	Option 3	C1 = 0.1 μ F C2 = 1 μ F to 10 μ F
TC59	LDO	Option 4	C1 = 1 μ F Tantalum C2 = 1 μ F Tantalum

C.3 IDEAS ON EVALUATING AN LDO

One of the characteristics that a designer may wish to evaluate on a LDO is how the LDO responds to transient loads. Figure C-2 shows a system block diagram for evaluating a LDO and a typical waveform response (at test point) for the function generator signal. The output of the function generator connects to a BJT transistor to simulate the fast switching loads of the circuit.

The value of C2, R3 and C_L will depend on the LDO used and the load of the circuit. Look at both the worst-case amplitude load requirements for a loaded and unloaded system. As the output response of the LDOs become faster, the selection of a smaller (cheaper) output load capacitor (C_L) becomes possible (for the same system performance).

FIGURE C-2: LDO EVALUATION SYSTEM



Microchip Analog SOT-23 Device Compatibility

NOTES:



MICROCHIP

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:
<http://support.microchip.com>
Web Address:
www.microchip.com

Atlanta

Alpharetta, GA
Tel: 770-640-0034
Fax: 770-640-0307

Boston

Westborough, MA
Tel: 774-760-0087
Fax: 774-760-0088

Chicago

Itasca, IL
Tel: 630-285-0071
Fax: 630-285-0075

Dallas

Addison, TX
Tel: 972-818-7423
Fax: 972-818-2924

Detroit

Farmington Hills, MI
Tel: 248-538-2250
Fax: 248-538-2260

Kokomo

Kokomo, IN
Tel: 765-864-8360
Fax: 765-864-8387

Los Angeles

Mission Viejo, CA
Tel: 949-462-9523
Fax: 949-462-9608

Santa Clara

Santa Clara, CA
Tel: 408-961-6444
Fax: 408-961-6445

Toronto

Mississauga, Ontario,
Canada
Tel: 905-673-0699
Fax: 905-673-6509

ASIA/PACIFIC

Asia Pacific Office

Suites 3707-14, 37th Floor
Tower 6, The Gateway
Harbour City, Kowloon
Hong Kong
Tel: 852-2401-1200
Fax: 852-2401-3431

Australia - Sydney

Tel: 61-2-9868-6733
Fax: 61-2-9868-6755

China - Beijing

Tel: 86-10-8528-2100
Fax: 86-10-8528-2104

China - Chengdu

Tel: 86-28-8676-6200
Fax: 86-28-8676-6599

China - Fuzhou

Tel: 86-591-8750-3506
Fax: 86-591-8750-3521

China - Hong Kong SAR

Tel: 852-2401-1200
Fax: 852-2401-3431

China - Qingdao

Tel: 86-532-8502-7355
Fax: 86-532-8502-7205

China - Shanghai

Tel: 86-21-5407-5533
Fax: 86-21-5407-5066

China - Shenyang

Tel: 86-24-2334-2829
Fax: 86-24-2334-2393

China - Shenzhen

Tel: 86-755-8203-2660
Fax: 86-755-8203-1760

China - Shunde

Tel: 86-757-2839-5507
Fax: 86-757-2839-5571

China - Wuhan

Tel: 86-27-5980-5300
Fax: 86-27-5980-5118

China - Xian

Tel: 86-29-8833-7250
Fax: 86-29-8833-7256

ASIA/PACIFIC

India - Bangalore

Tel: 91-80-4182-8400
Fax: 91-80-4182-8422

India - New Delhi

Tel: 91-11-4160-8631
Fax: 91-11-4160-8632

India - Pune

Tel: 91-20-2566-1512
Fax: 91-20-2566-1513

Japan - Yokohama

Tel: 81-45-471-6166
Fax: 81-45-471-6122

Korea - Gumi

Tel: 82-54-473-4301
Fax: 82-54-473-4302

Korea - Seoul

Tel: 82-2-554-7200
Fax: 82-2-558-5932 or
82-2-558-5934

Malaysia - Penang

Tel: 60-4-646-8870
Fax: 60-4-646-5086

Philippines - Manila

Tel: 63-2-634-9065
Fax: 63-2-634-9069

Singapore

Tel: 65-6334-8870
Fax: 65-6334-8850

Taiwan - Hsin Chu

Tel: 886-3-572-9526
Fax: 886-3-572-6459

Taiwan - Kaohsiung

Tel: 886-7-536-4818
Fax: 886-7-536-4803

Taiwan - Taipei

Tel: 886-2-2500-6610
Fax: 886-2-2508-0102

Thailand - Bangkok

Tel: 66-2-694-1351
Fax: 66-2-694-1350

EUROPE

Austria - Wels

Tel: 43-7242-2244-3910
Fax: 43-7242-2244-393

Denmark - Copenhagen

Tel: 45-4450-2828
Fax: 45-4485-2829

France - Paris

Tel: 33-1-69-53-63-20
Fax: 33-1-69-30-90-79

Germany - Munich

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

Italy - Milan

Tel: 39-0331-742611
Fax: 39-0331-466781

Netherlands - Drunen

Tel: 31-416-690399
Fax: 31-416-690340

Spain - Madrid

Tel: 34-91-708-08-90
Fax: 34-91-708-08-91

UK - Wokingham

Tel: 44-118-921-5869
Fax: 44-118-921-5820

07/21/06