INTRODUCTION

Many potential customers of the 24LC00 have expressed interest in the device, especially with it available in the ultra-small SOT-23 package. The one thing that has kept customers from designing in or qualifying the 24LC00 is the fact that it is a proprietary device without a second source. Because of this issue, Microchip Technology Inc. has put together this application note to assist customers in designing their applications to except a 24LC00 in a SOT-23 or a standard 1K-bit I²C device in an 8-lead, 150 mil SOIC package.

HARDWARE/LAYOUT CONSIDERATIONS

Figure 1 below shows a board layout having both packages to scale with respect to each other. One can see from the figure that if the 24LC00 is placed as shown, a board can be easily designed to accept both devices. The connection from SCL on the 24LC00 to the SCL pad location on a standard I²C device is shown as a dashed line as it runs underneath the 24LC00.

Since the 24LC00 does not have a WP pin, no connection was made from the 24LC00 to the WP pin of a standard I²C device. Most devices that contain WP pins require it to be tied to either Vcc or Vss, so a trace running to the WP pad will required for most applications.

FIGURE 1: BOARD LAYOUT ALLOWING SECOND SOURCING OF MICROCHIP'S 24LC00

SOFTWARE CONSIDERATIONS

The Microchip 24LC00 is the only 16 byte device on the market that has a full function I²C interface. That means standard software routines that have been written for I²C communication will work with the 24LC00 device. In addition, Microchip offers I²C communication application notes and source code available for download on our web site (www.microchip.com).

The 24LC00 does not include page-write capability found on most of the industry's 1K-bit and higher I²C Serial EEPROMs. Software written for the 24LC00 will be able to be utilized without modification in systems where an industry standard 1K I²C Serial EEPROM is used. The one caveat is that the 24LC00 will answer to any I²C memory address from 000 to 111. Some 1K I²C Serial EEPROMs in the market have active address inputs, and therefore answer only to the address that is specified by the state of the three address inputs. Care must be taken to make sure address inputs match the application software if a second source device with active address inputs is chosen.
Note the following details of the code protection feature on PICmicro® MCUs.

- The PICmicro family meets the specifications contained in the Microchip Data Sheet.
- Microchip believes that its family of PICmicro microcontrollers is one of the most secure products 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 PICmicro microcontroller in a manner outside the operating specifications contained in the data sheet. The person doing so may be 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 product.

If you have any further questions about this matter, please contact the local sales office nearest to you.

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, FilterLab, KEELOQ, microID, MPLAB, PIC, PICmicro, PICMASTER, PICSTART, PRO MATE, SEEVAL and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

dsPIC, ECONOMONITOR, FanSense, FlexROM, fuzzyLAB, In-Circuit Serial Programming, ICSP, ICEPIC, microPort, Migratable Memory, MPASM, MPLIB, MPLINK, MPSIM, MXDEV, PICC, PICDEM, PICDEM.net, rPIC, Select Mode and Total Endurance are trademarks of Microchip Technology Incorporated in the U.S.A.

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.

© 2002, 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. The Company’s quality system processes and procedures are QS-9000 compliant for its PICmicro® 8-bit MCUs, KEELOQ® code hopping devices, Serial EEPROMs and microperipheral products. In addition, Microchip’s quality system for the design and manufacture of development systems is ISO 9001 certified.