INTRODUCTION

The TC7106A/7106 3-1/2 digit analog-to-digital (ADC) converters with liquid crystal display drive can be easily powered from ±5V power supplies. Low cost voltage regulators, such as the TC55 (+5V) and TC59 (–5V), power the TC7106A/7106 in Figure 1. Analog common, internally referenced to 3V below the positive supply potential, is used to supply the converter reference.

If only +5V is available, the low cost TC7660 DC-to-DC converter easily generates the –5V supply, as shown in Figure 2. A TC7107A/7107 LED display converter can also be powered by a TC7660.

An external voltage reference replaces the internal reference in Figure 3. Chip temperature variations caused by changing LED display drive current can cause full-scale drift if the internal reference does not have a low temperature coefficient. Input signal magnitude and the corresponding seven segment display code determine how many LED segment drivers are active. The TC7107A features an improved low temperature drift internal voltage reference.

The TC7107A is directly pin compatible with the first generation ICL7107 device and lowers temperature induced full-scale drift. See the TC7107A Data Sheet (DS21455).

FIGURE 1: Positive and Negative Power Supply Operation.
FIGURE 2: Positive Power Supply Operation with Negative Bias Generation.
SUMMARY

±5V power supply operation with the TC7106A/7106 and TC7107A/7107 3-1/2 digit, analog-to-digital (ADC) converters has been shown. The simplistic nature of this operation makes the TC7106A/7106 or TC7107A/TC7107 an ideal choice for applications where ease of use is essential. Applications include, but are not limited to, the measurement and display of analog data such as pressure, voltage, current, resistance or temperature.
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 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, KEELLOQ, 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, rfPIC, 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.