

±5V Power Supply Operation with TC7106A/7107A

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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).

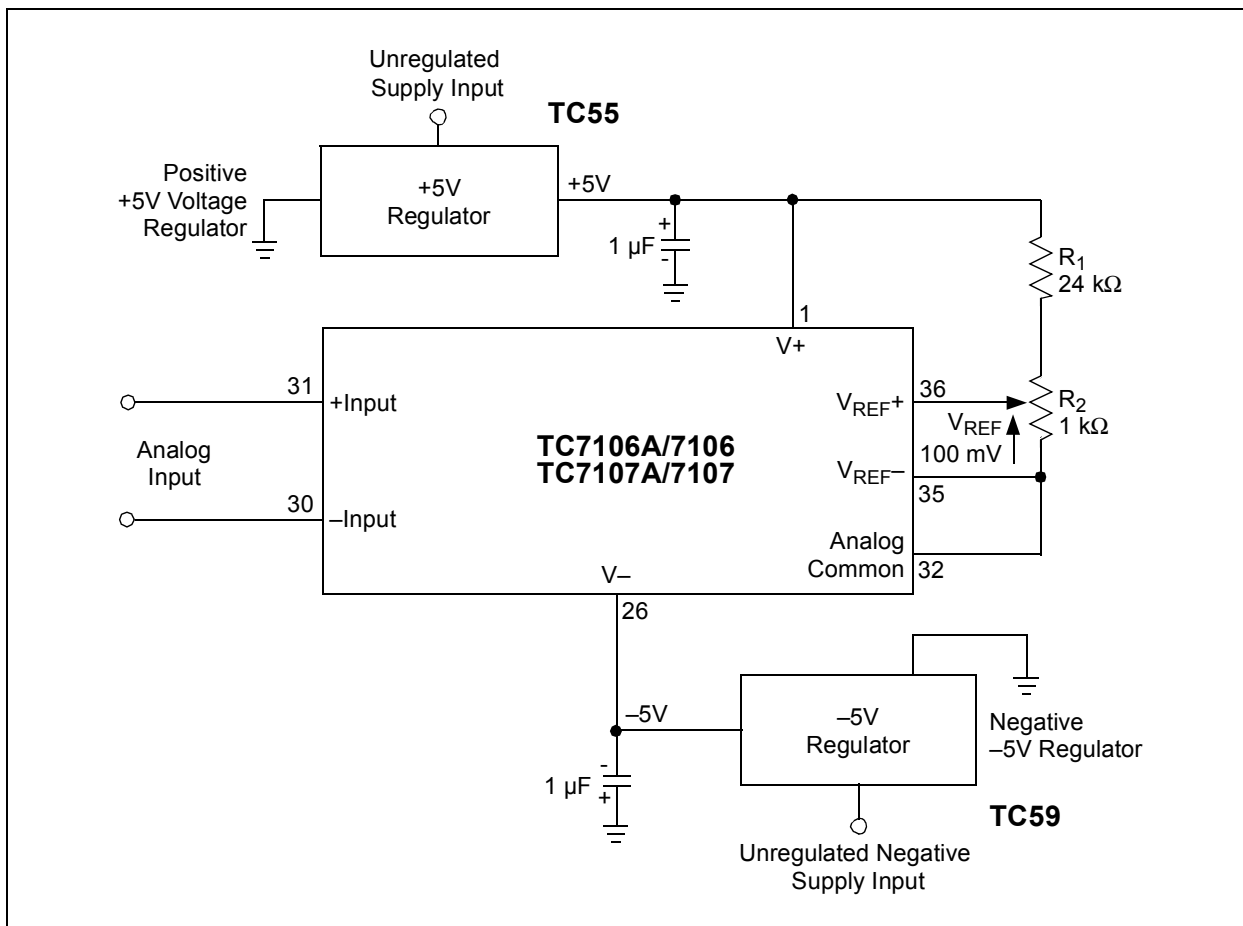


FIGURE 1: Positive and Negative Power Supply Operation.

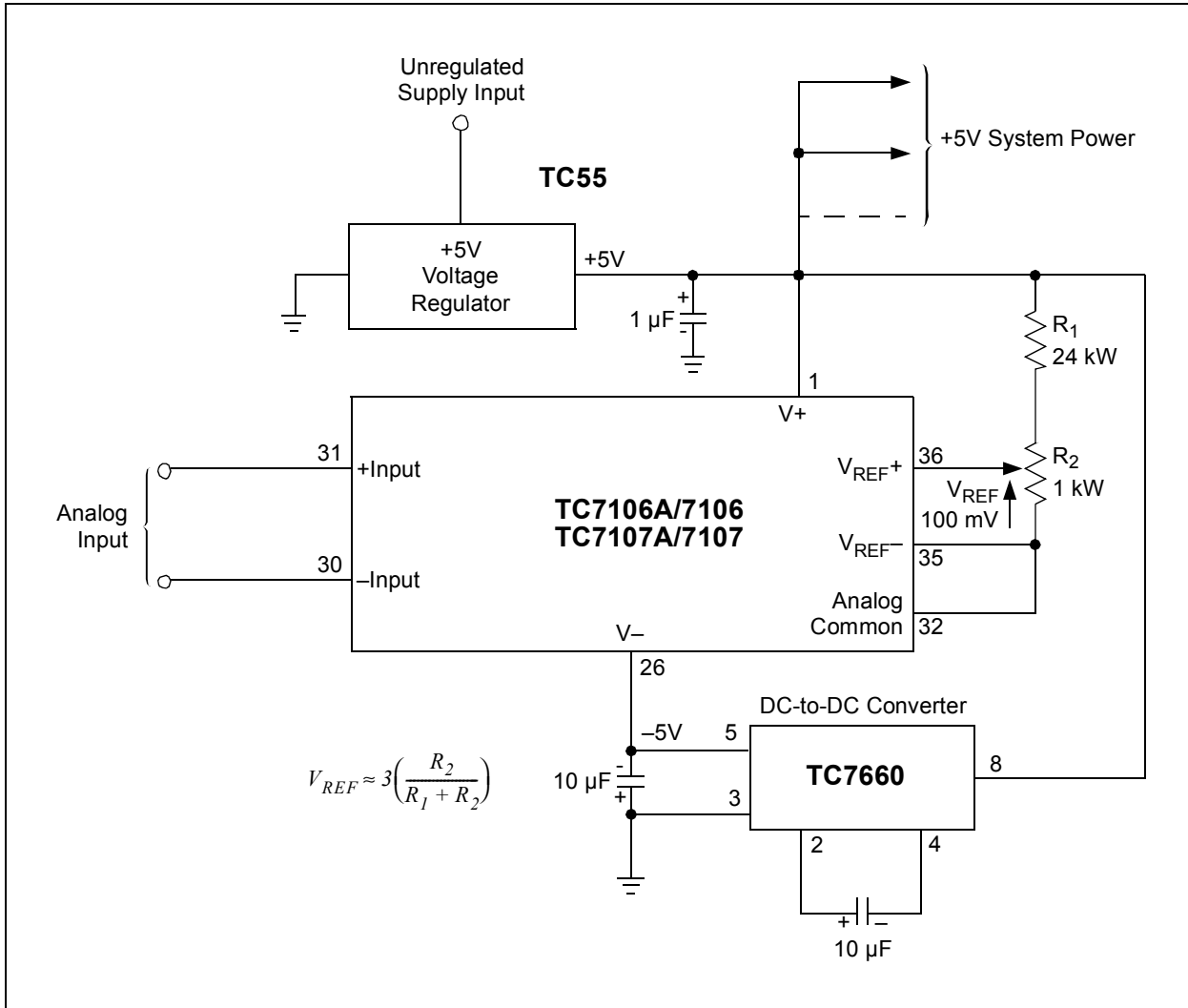


FIGURE 2: Positive Power Supply Operation with Negative Bias Generation.

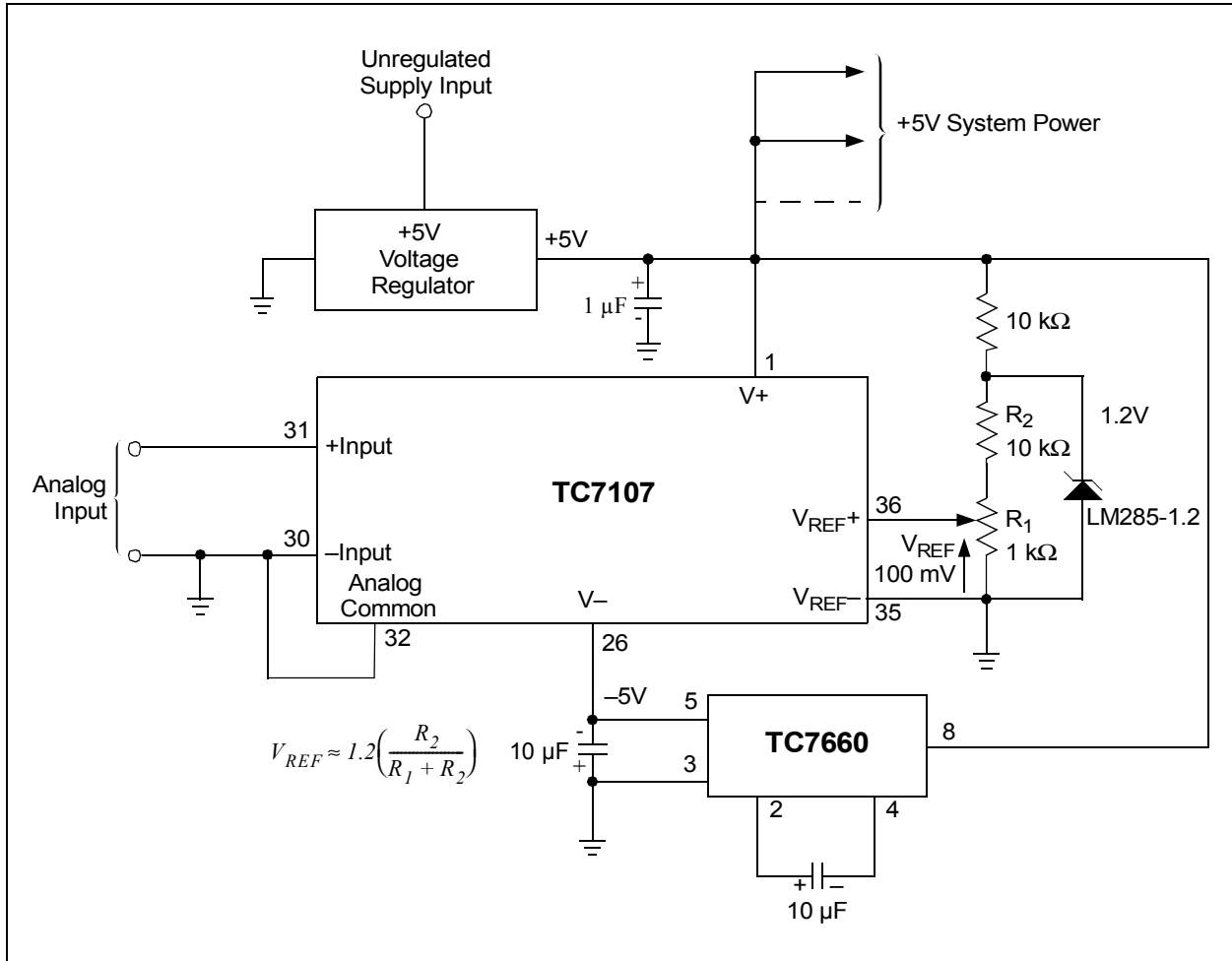


FIGURE 3: Improved Thermal Stability of TC7107.

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.

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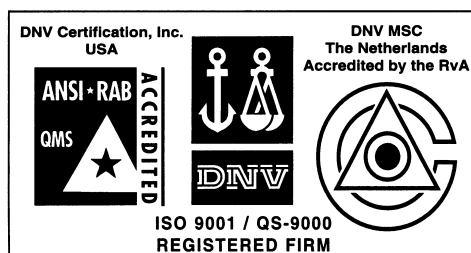
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