



LM70 10-bit + Sign MICROWIRE/SPI Temperature Sensor Evaluation Kit Manual

1.0 General Description

The LM70 Evaluation Kit allows quick connection and evaluation of the LM70 10-bit plus Sign Digital Temperature Sensor integrated circuit. The Evaluation Board connects to and derives all of its power from the parallel printer port of a PC. The software was written using Visual Basic 6.0 and is compatible with Windows 95 and Window 98.

With the LM70 Evaluation board and software you can:

- Read the LM70 temperature register and view its contents in Celsius and Fahrenheit scale
- View the last, lowest, and highest temperature read
- Save the LM70 temperature measurements in a file
- Read the temperature in a loop, with user-selected sample interval
- Quickly gain knowledge of the LM70 operation and how to use it

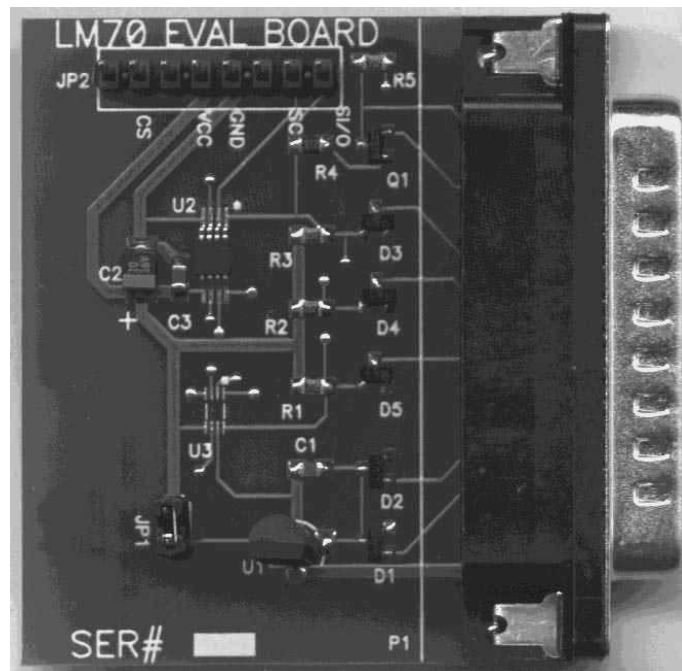


Figure 1: LM70 Evaluation Board

2.0 Installation

The LM70 Evaluation Kit is comprised of the LM70 Evaluation Board, an individual LM70 digital temperature sensor (MSOP package), installation software (two 3.5" diskettes), and this instruction manual. The following steps describe how to install and run the LM70 Evaluation Program.

- 2.1 Refer to the target system's display settings to verify that the desktop area is at least 800 by 600 pixels.
- 2.2 Refer to the target system's port address settings to determine the address of the parallel port to which the LM70 evaluation board will be installed.
- 2.3 Insert the floppy disk number 1 of 2 into the 3.5" floppy drive of the PC.
- 2.4 Install the software in Windows by selecting Run and type in the name of the drive followed by "setup". For example type *a:\setup*.
- 2.5 Follow the prompts to complete the setup.
- 2.6 Make sure jumper JP1 is installed on the LM70 Evaluation Board as shown in Figure 1.
- 2.7 Connect the board to the parallel printer port of the PC, either directly or through a cable not longer than 3 feet.
- 2.8 Run the evaluation software.
- 2.9 Select the parallel printer port address that your system uses before powering up the board.
- 2.10 Click on the "Power Up" button to turn activate the power to the board. A message box will be displayed saying "Communication Successful. Board Model is LM70." Click the "Okay" button.*
- 2.11 You may now utilize various read and logging options, including: a single read of the temperature register, looping for periodic reading with user-selected loop delays, and logging the data to a user-selected destination directory and file name.**
- 2.12 Before removing the LM70 Evaluation Board from the parallel port, it is important to click the "Power Down" button in order to deactivate the power to the board.

3.0 LM70 Evaluation Board Schematic

The LM70 Evaluation Board schematic is at the end of this manual, in Figure 2. The software was pre-configured to run with the JP1 jumper installed as shown in Figure 1. The descriptions of each of the jumpers and pins are listed in Tables 1 and 2.

Jumper	Function
JP1	Supply Voltage
JP2	Mapped to the corresponding pin on the LM70 (see Table 2)

Table 1: Jumper Functions

* If the parallel port has not been selected properly or the power is not being applied to the board, the appropriate message will advise of such.

** The accuracy of the delay loop is 50 ms. Therefore, whatever delay time is selected will be accurate to within ± 50 ms of that time

Pin Number	Description
1	SI/O
2	SC
3	NC
4	GND
5	VCC
6	NC
7	CS
8	NC

Table 2: JP2 Description

4.0 LM70 Evaluation Board Bill of Materials

<u>Item</u>	<u>Qty</u>	<u>Reference</u>	<u>Description</u>
1	2	C3,C1	0.1 μ F Capacitor (0805)
2	1	C2	10 μ F Capacitor
3	5	D1,D2,D3,D4,D5	Diode, BAT54 (SOT23) or 1N5711 (th. hole)
4	1	JP1	2x1 Header
5	1	JP2	8x1 Header
6	1	--	Jumper Shorting Block, 2x1
7	1	P1	DB25 Connector
8	1	Q1	Transistor, 2N3904 (SOT23)
9	4	R1,R2,R3,R5	Resistor, 2k Ω (0805)
10	1	R5	Resistor, 5.1 k Ω (0805)
11	1	U1	LP2950CZ-3.3
12	1	U2	LM70CIMM-3 (MSOP)

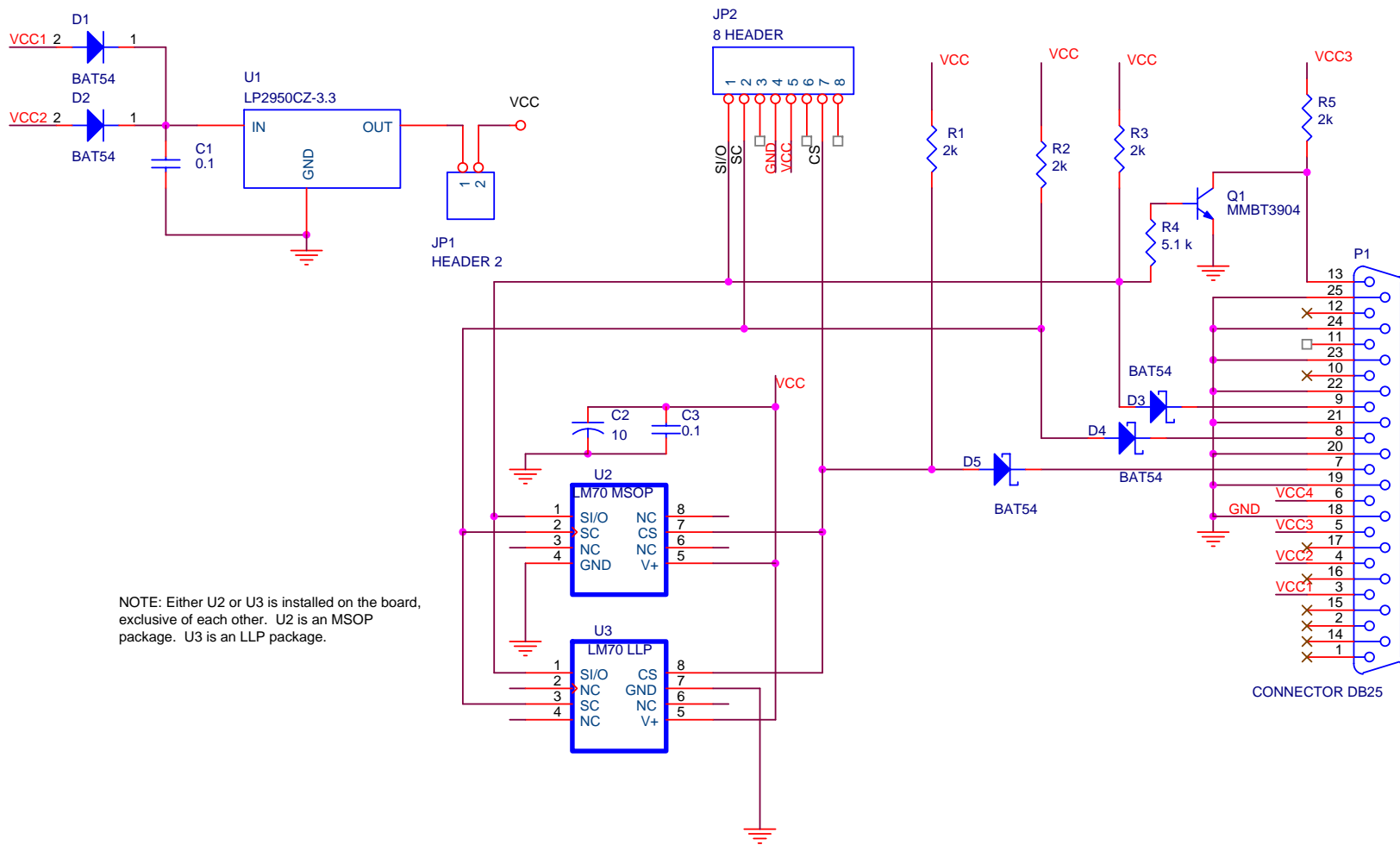


Figure 2: LM70 Evaluation Board, Revision 1.0