NeoLoch   5101-A Tester

Assembly Instructions

Your kit should contain the following items. If you find a part missing, please contact NeoLoch for a replacement.

Kit contents:
- 1 – Printed Circuit Board
- 1 – 28 Pin ZIF Socket
- 1 – 40 Pin Socket
- 1 – 6-pin Right Angle Strip Header
- 1 – 7805 5 Volt Voltage Regulator
- 1 – 0.33uF Capactitor
- 4 – 2x5mm Green LEDs
- 4 – 2x5mm Red LEDs
- 4 – 390 Ohm Resistors (Orange White Brown)
- 2 – 0.1uF Ceramic Capacitors
- 1 – 1K Ohm Resistor (Brown Black Red)
- 1 – 10K Ohm Resistor (Brown Black Orange)
- 1 – Tactile Momentary Contact Switch
- 1 – PIC16F883 Microcontroller
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When assembling the board you'll notice that some pads are square while the others are round. The square pad is a pin 1 indicator and will aid in the board's assembly.

Preliminary

Step One – Resistors and Switch
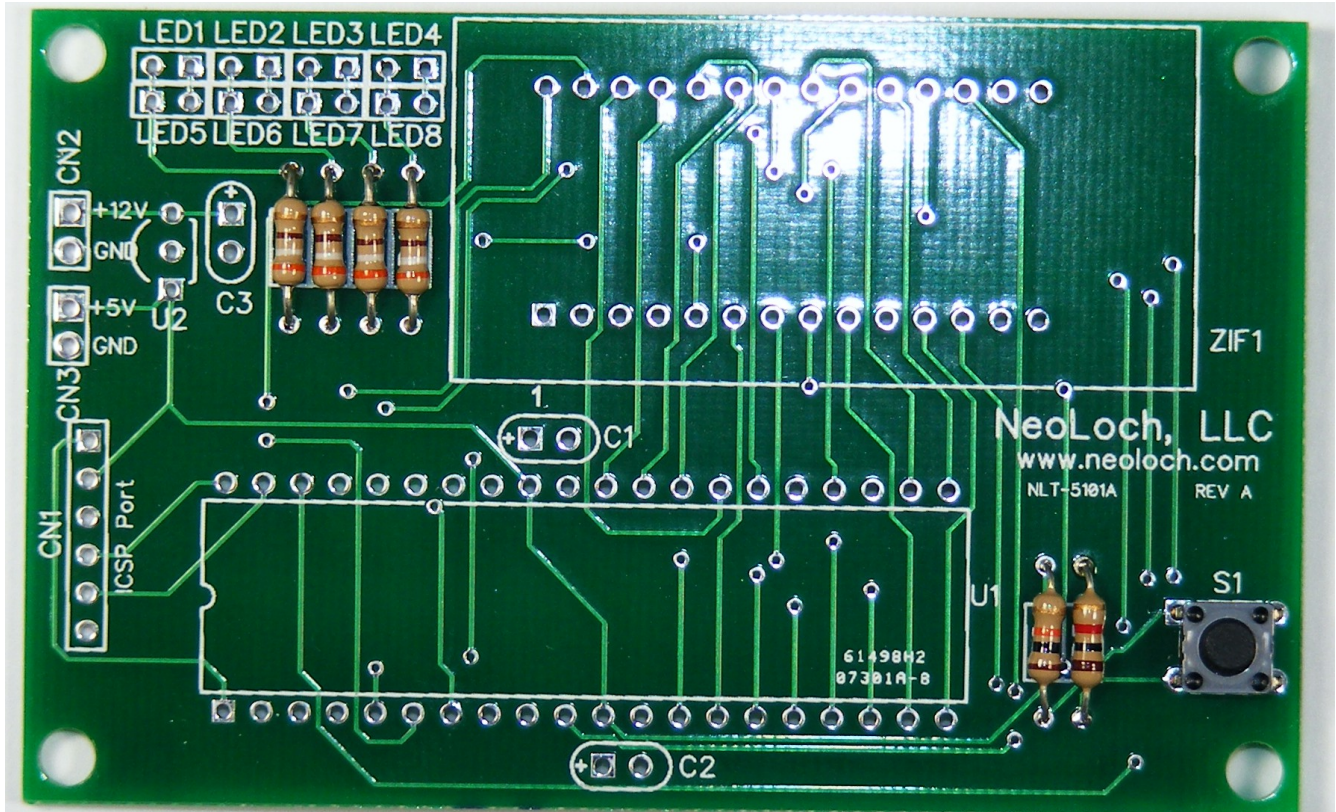
Most of the board will progress from the lowest profile parts to the highest. So we'll begin with installing the resistors.

1) Solder the 390Ω (orange, white, brown) resistors into R1 – R4 and the solder these in place.
2) Solder the 1K Ohm resistor (brown, black, red) into R5
3) Solder the 10K (brown, black, orange) ohm resistor into R6.
4) Solder the switch into S1.

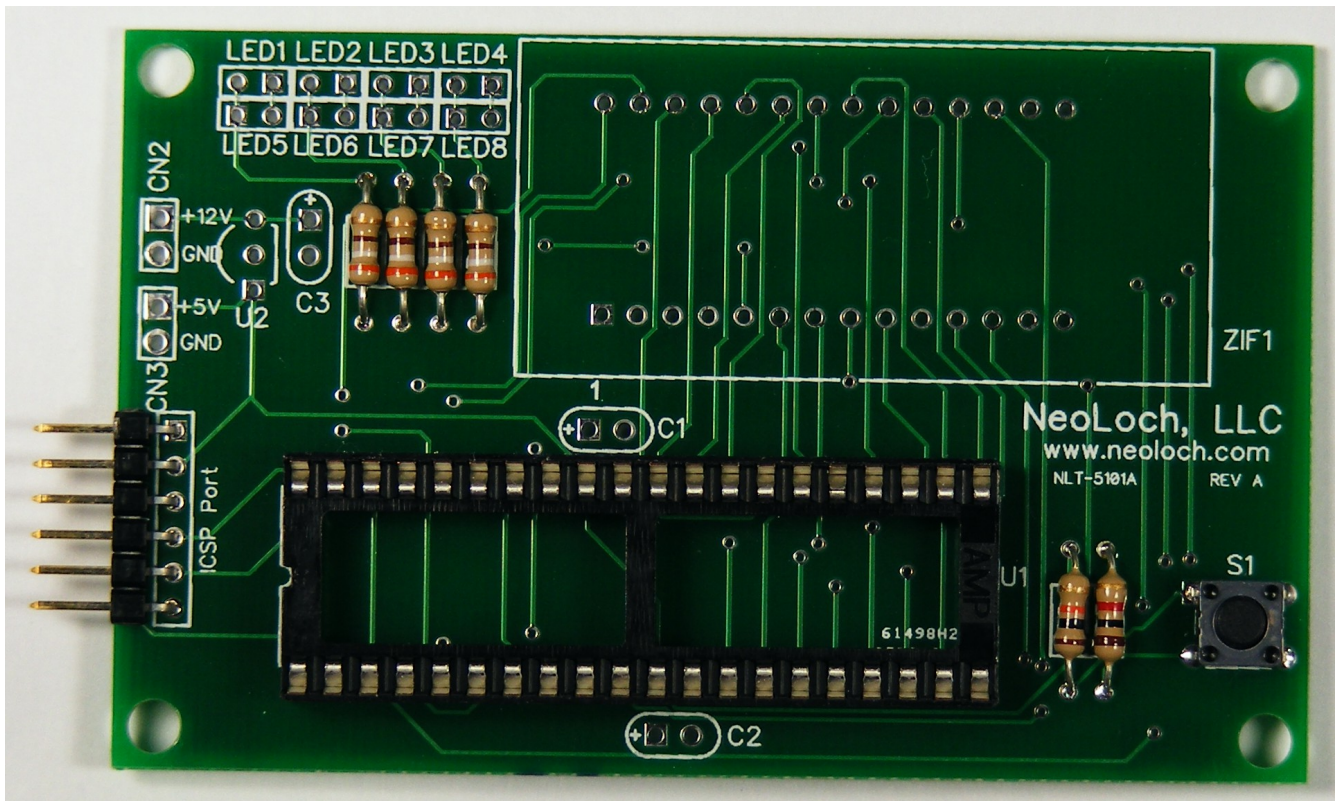# Step Two – ICSP Header (optional)
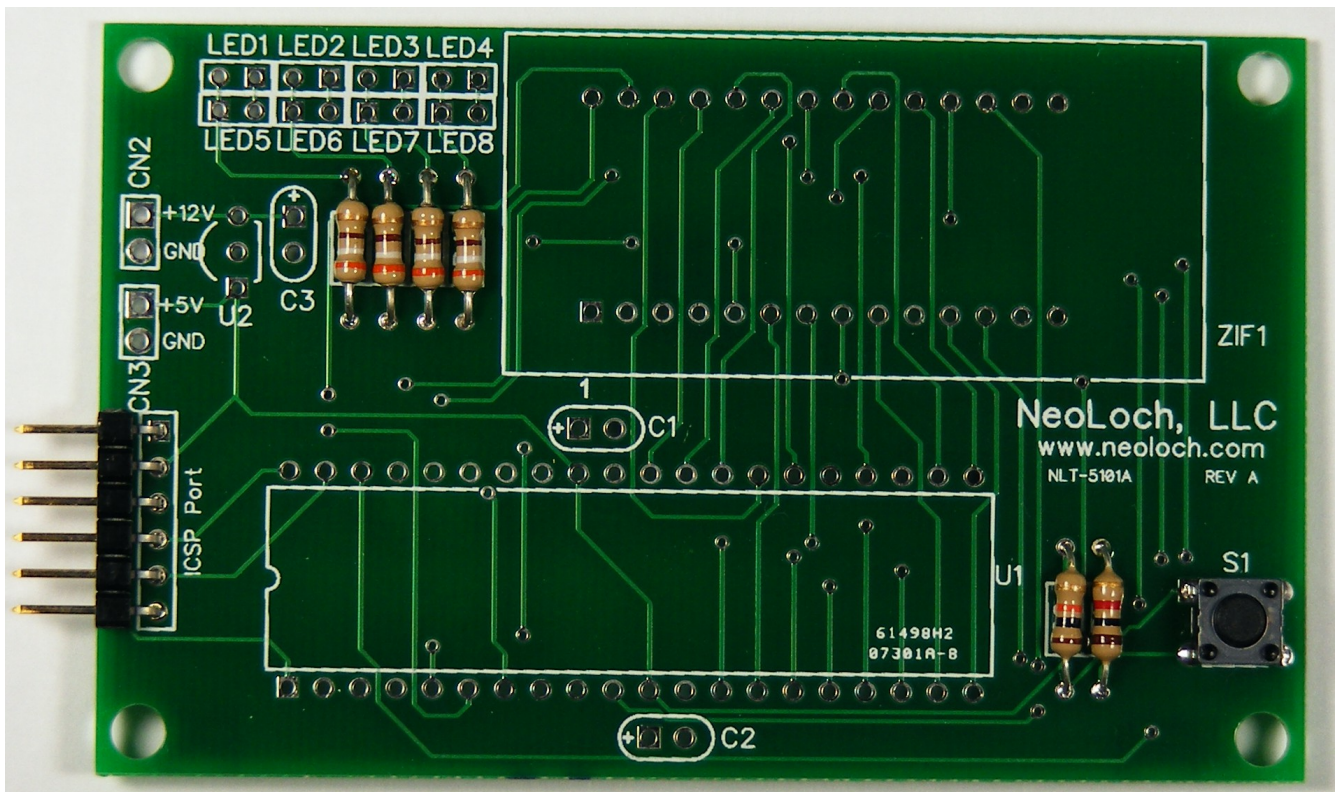
If you plan on writing your own programs for the tester, you'll want to solder in the right angle pin strip header to the ICSP port.

Step Three – 40 Pin Socket

    A socket is included for the microcontroller to sit in. Though this part is optional, it will allow you to not only use the tester as a programmer for a wide range of Microchip 40 pin microcontrollers, but also upgrade the tester to a more powerful microcontroller. It is therefor recommended that the socket be installed.

Step Four – Voltage Regulator and Capacitors.

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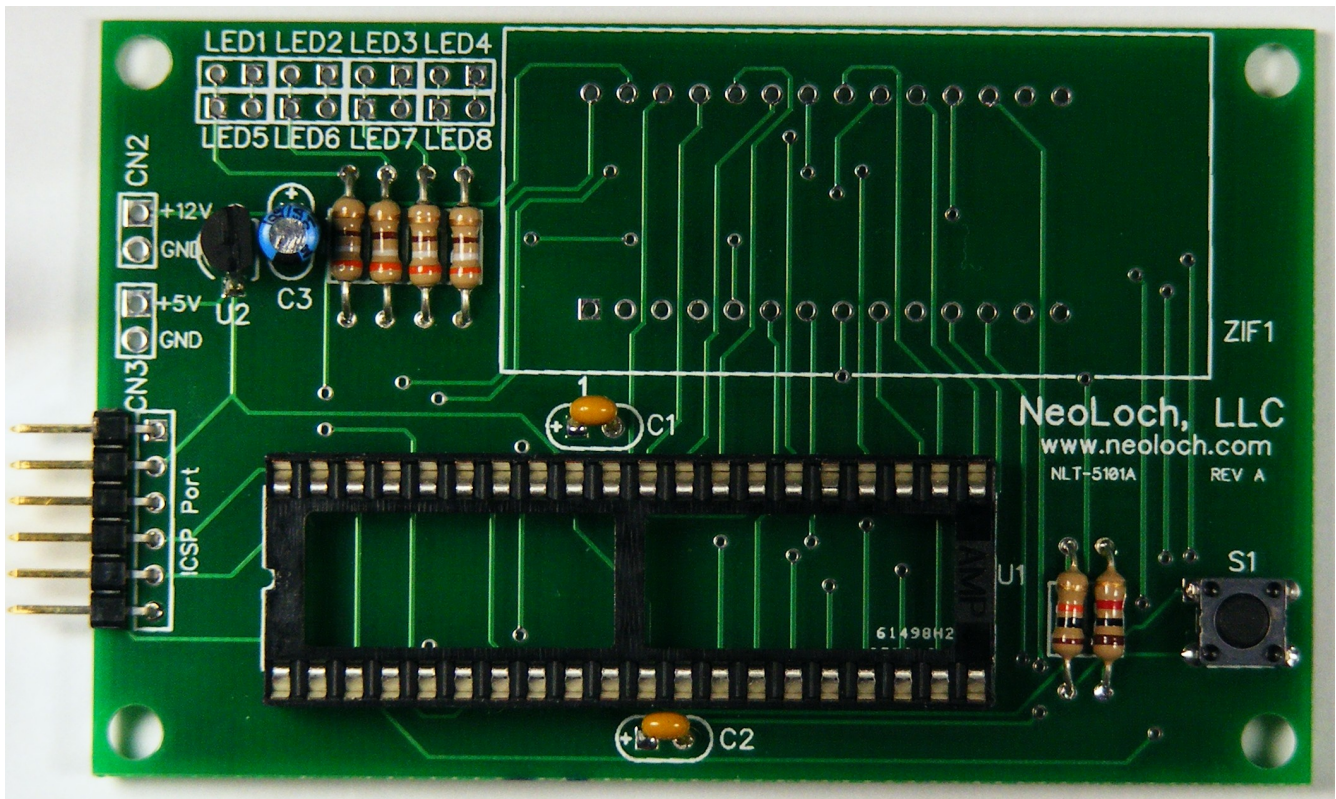

Install the following components:

1) The 7805 Voltage Regulator, orient this part so that it matches the silkscreen on the PC board. Be very careful not to over heat this part, excessive heat can and most probably will damage the regulator. The best way to do this is solder one pin of the regulator, allow the part to cool for 5 seconds and the solder the next pin. Repeat this process for the last pin.
2) Solder in the 0.33uF capacitor, if you receive an electrolytic capacitor, make sure to solder the positive lead to the positive hole.
3) Solder in the .1uF capacitors, these are ceramic MLCC capacitors and are not polarized.

Step Five – ZIF Socket
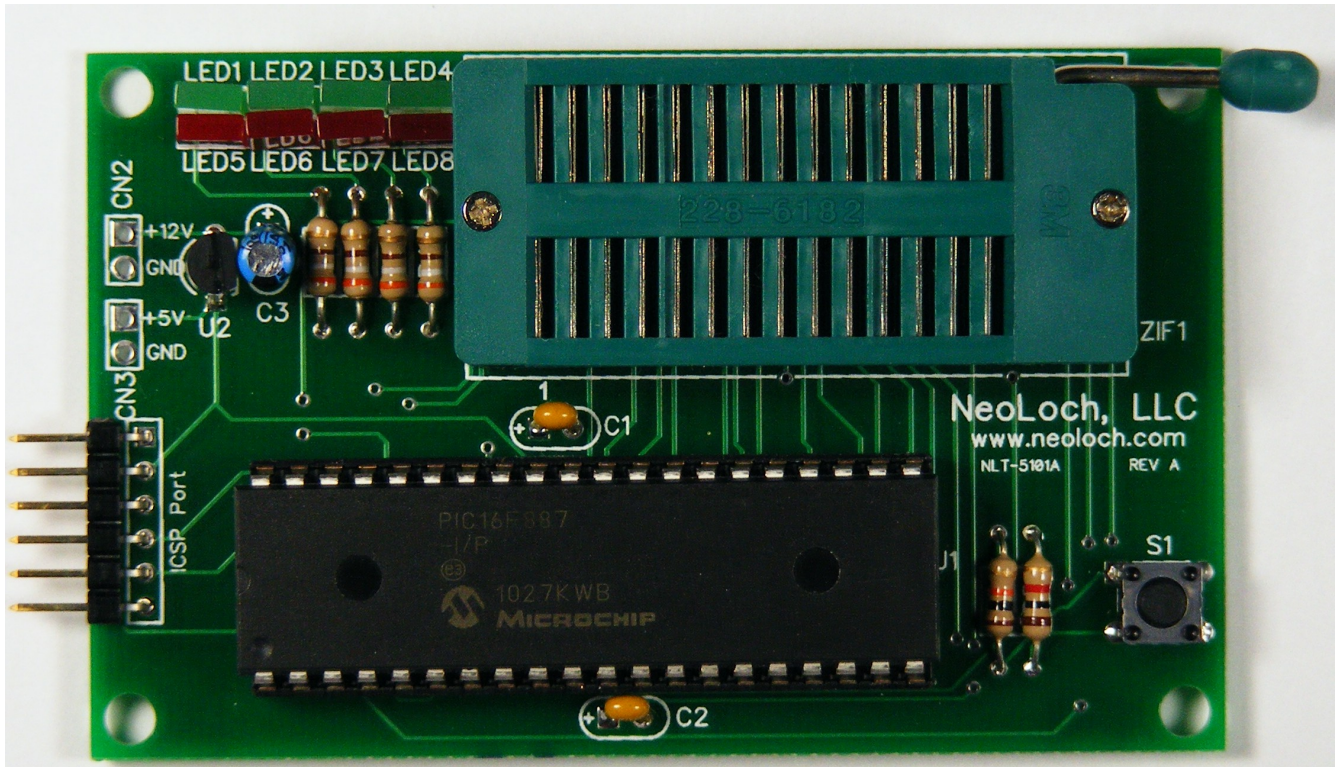
Here is where we break from our lowest profile part to the highest. Since the spacing between the ZIF socket and LED4 & LED8 is so close, it's advised that you install the ZIF socket first and then install the LEDs.

In the above image you'll notice that the LEDs are already installed, that's because I originally installed the LEDs first and then the ZIF socket and it was at this time that I encountered the problem with the spacing. And why I'm now recommending that you install the ZIF socket first and then the LEDs.

Step Six – LEDs
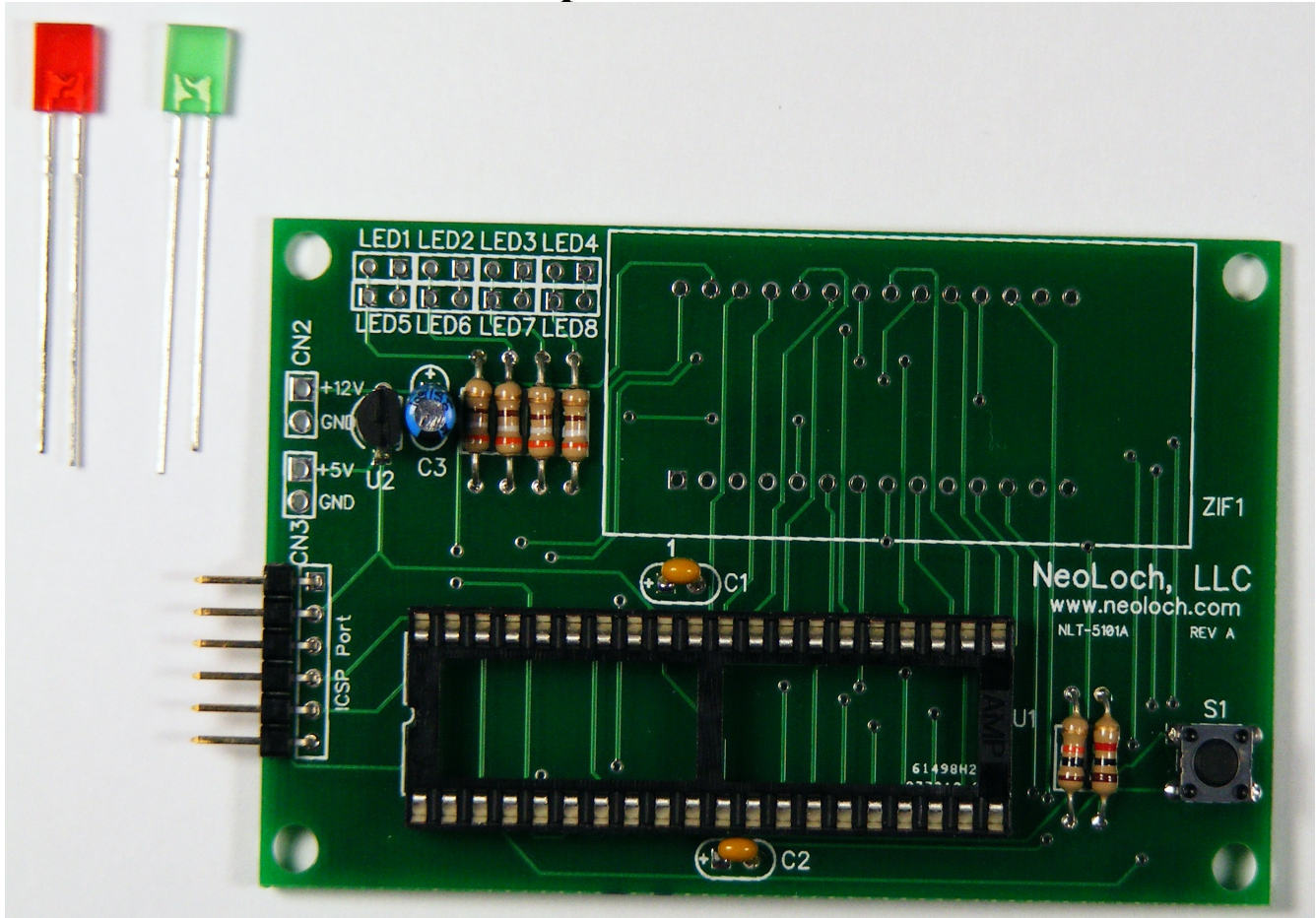
    You're kit should contain a total of 8 LEDs, four green and four red. The red LEDs go in the top row while the green go in the bottom row. It's important to orient the LEDs correctly or they will not operate properly. Each LED has a lead that is shorter than the other, and this indicates with lead is the anode and which is the cathode. The cathode is typically considered pin 1 and will go in the square pin on the PCB.
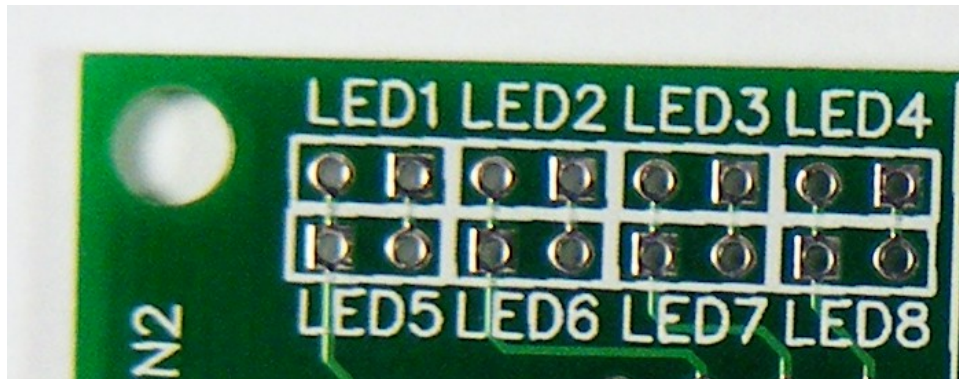
Step Seven – Testing
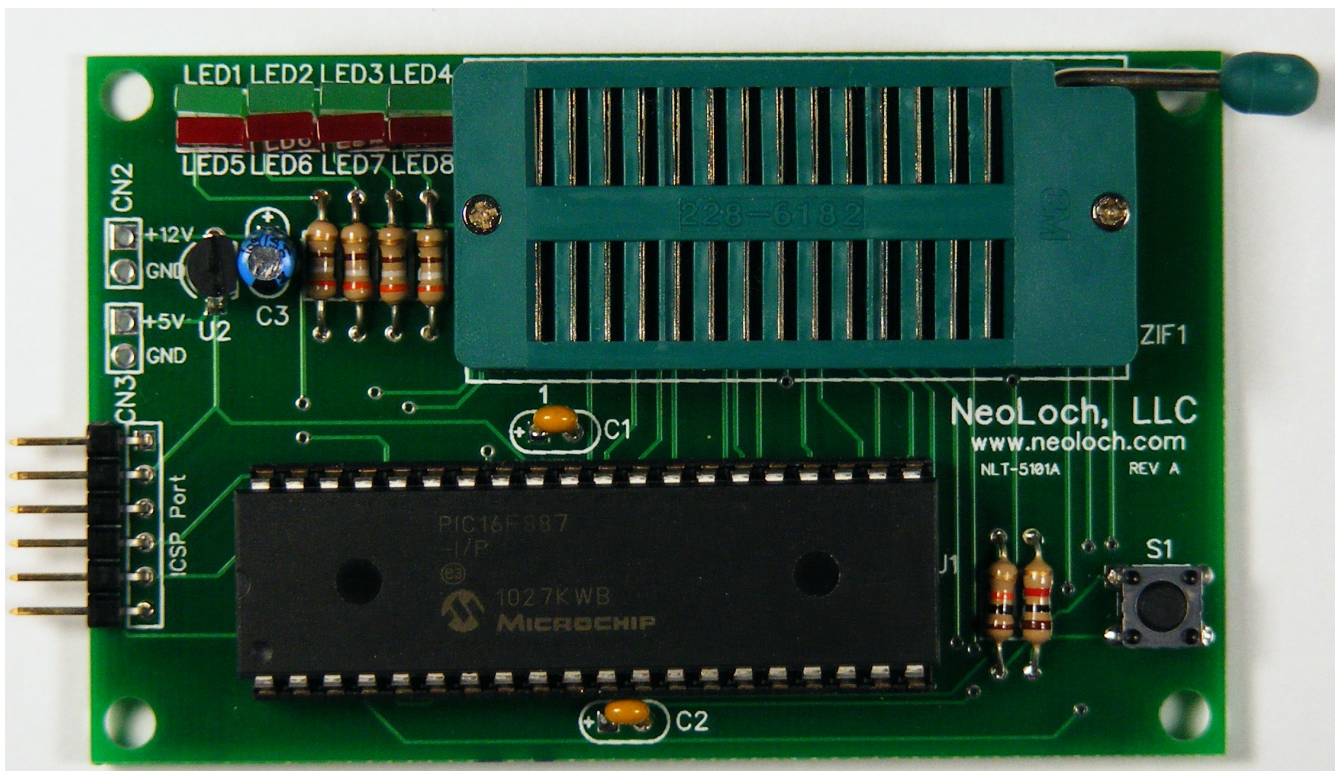
Once the unit is assembled, it's time to test and make sure it's working. For this you'll need to supply either a 5V power source to the 5V input or 7V to 12V on the 12V input. DO NOT put more than +5V on the 5V input, this can and probably will damage the tester.

After the unit is powered the version number will be displayed on the red LEDs and the leftmost LED (LED1 or LED5) will begin blinking. This indicates the unit is ready. To test a 5101 RAM IC, place it into the ZIF socket with pin 1 of the RAM IC aligned with the PIN 1 indicator on the PC Board (right above C1). Then press the button and the RAM chip will be tested. If all goes well the LEDs will light up indicating which portions of the RAM IC have passed or failed. For more information on the testing process and what the LEDs mean, please see the datasheet.

Troubleshooting

If your board doesn't work, try these solutions before contacting NeoLoch for assistance.

1. Check to make sure that the ground and power pin are being supplied correctly. Check for proper voltage supply.
2. Check all the solder joints to make sure nothing was missed. If even 1 pin isn't soldered correctly on the ZIF socket or the 40 pin socket, the tester won't work correctly.
3. If the tester still doesn't work, it's possible your PIC isn't programmed. Though we make every effort to make sure the processor is programmed before leaving, a mistake does happen from time to time. If you have access to a PICkit, try programming the PIC with the current firmware available from our website. You can find it on the information page for 5101 RAM tester . If you don't have access to a programmer, then contact NeoLoch directly for further assistance.