

Electronic Repair

How To Easily Make Your Own UC3842 PWM IC Tester

If you have been repairing switch mode power supplies (SMPS), I'm sure you have definitely come across the famous UC3842 Pulse Width Modulation (PWM) IC. This IC generates a pulse waveform to switch the Power Mosfet Transistor. Whenever a SMPS have problem one of the component that we directly replaced was the UC3842 IC. The reason we directly replace the IC is because we can't test the power IC with meter. Although there were some suggestion saying that one could test the power IC by measuring the internal transistor at pin 5, 6 and 7 but many times the internal transistor were tested good and yet failed when the IC was in the circuit. Due to this I did not use the above method to test on the UC3842 IC.

Do you know that we could have wasted lots of money simply by replacing the power IC without knowing it whether it has problem or not. Many repair technicians will not use back the power IC whenever they found problem like a shorted power FET in the power primary side. The reason for it was the original power IC could blow up the new replacement of the power FET thus they directly replaces it. This is very true but in actual SMPS repair, not

necessary the power IC will breakdown when found that the power FET already shorted.

Now with the help of this simple UC3842 IC Tester, you can test whether the IC is good or bad. I got this project from a member and have redrawn the diagram for easy fixing. Here are the part lists of this project:

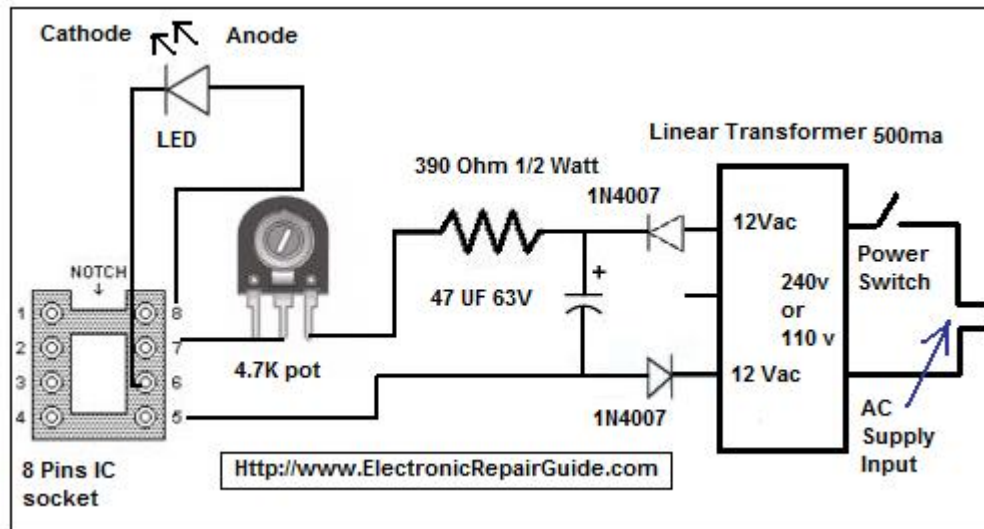
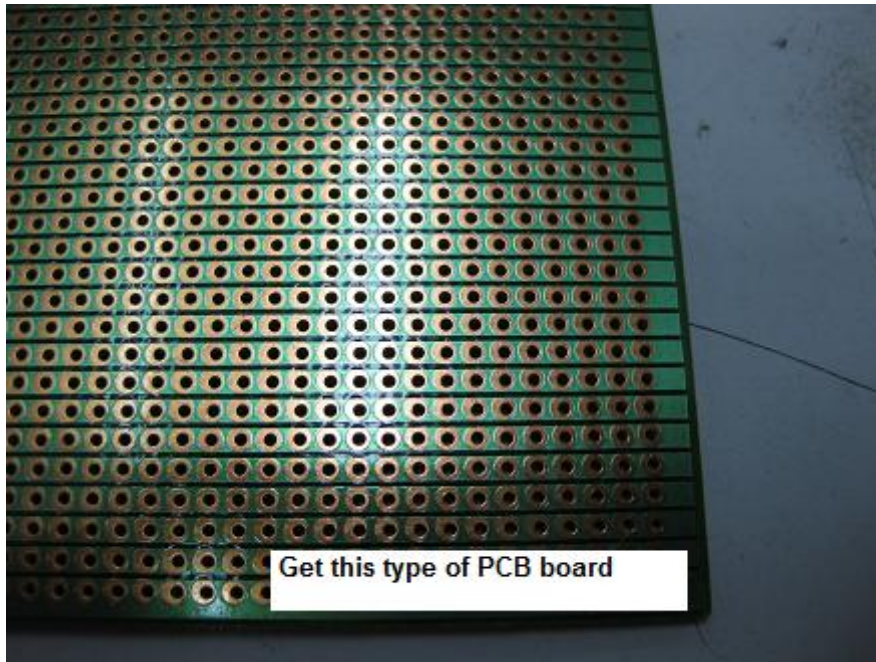


Diagram of the UC3842 PWM IC Tester

- 1) 1 X 12V-0-12V linear transformer
- 2) 1 X 8 pins IC socket
- 3) 1 X 390 ohm $\frac{1}{2}$ watt resistor
- 4) 1 X 4.7 K ohm potentiometer (pot)
- 5) 2 X 1N4007 diode
- 6) 1 X 47 microfarad 63 Volt capacitor
- 7) 1 X power switch
- 8) 1 X 3 pin plug
- 9) 1 X 3 feet power cable
- 10) 1X LED
- 11) 2 X Grommets (optional)
- 12) 1 X PCB Board

Here are the photos of the project



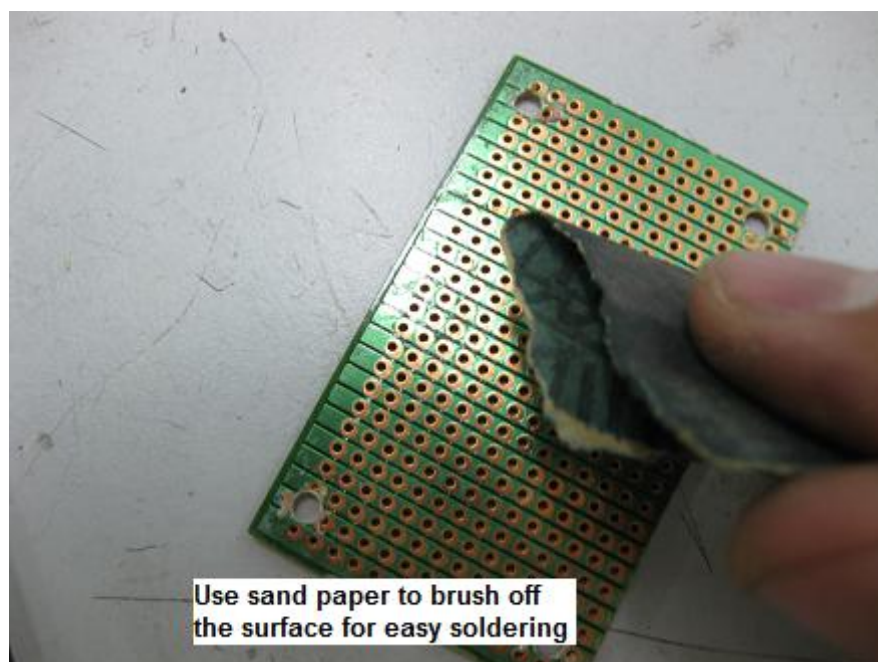
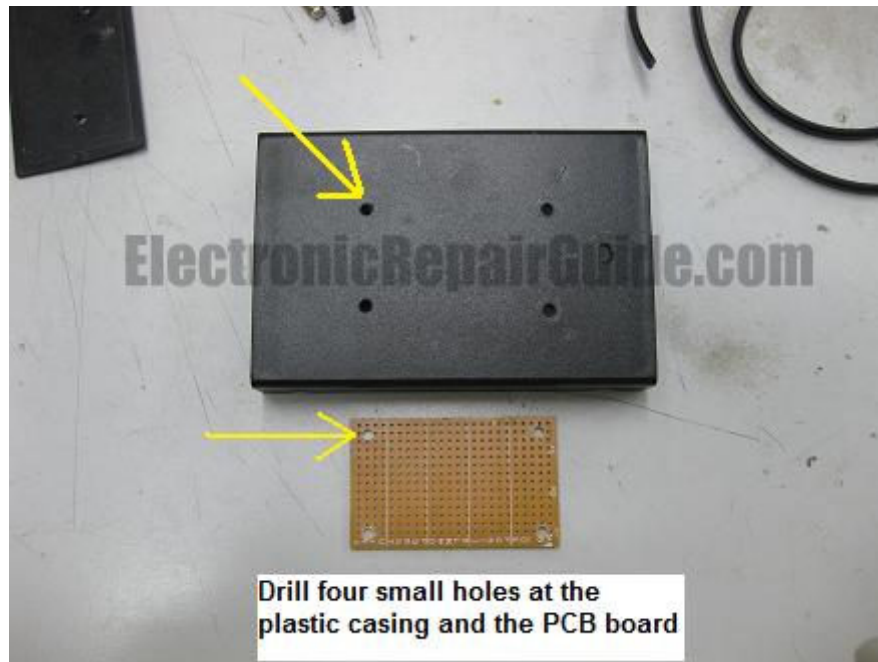


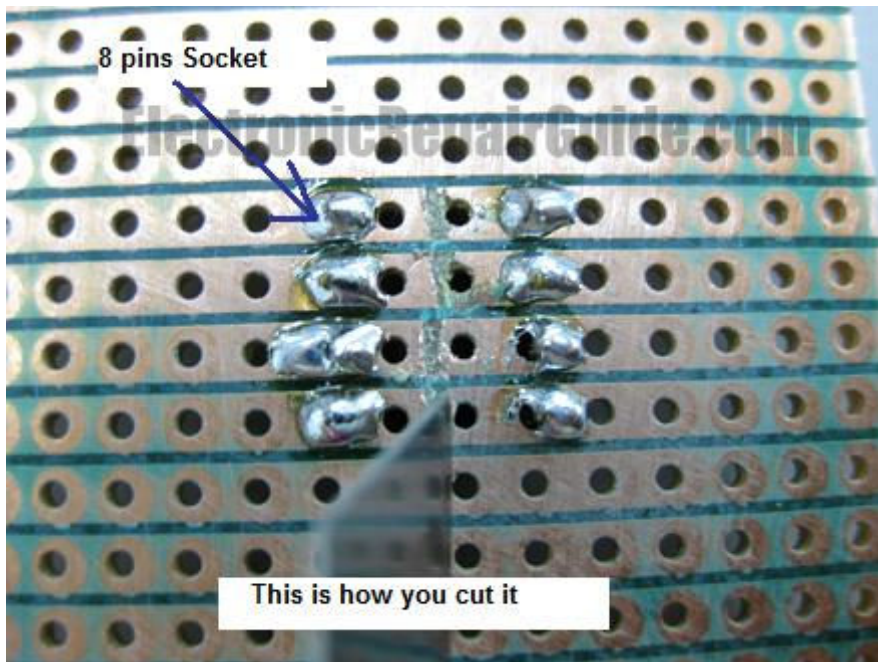
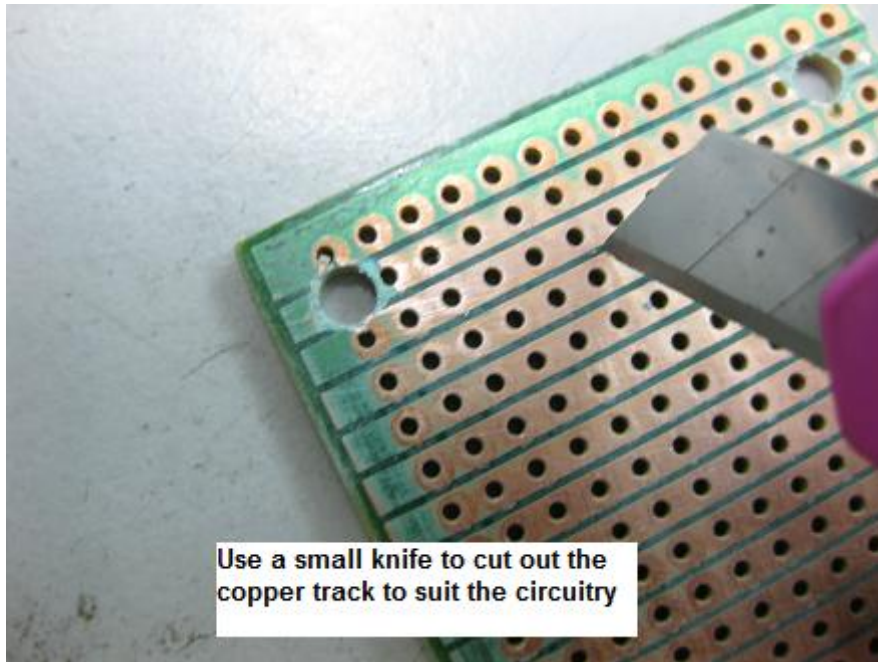
Get this type of PCB board

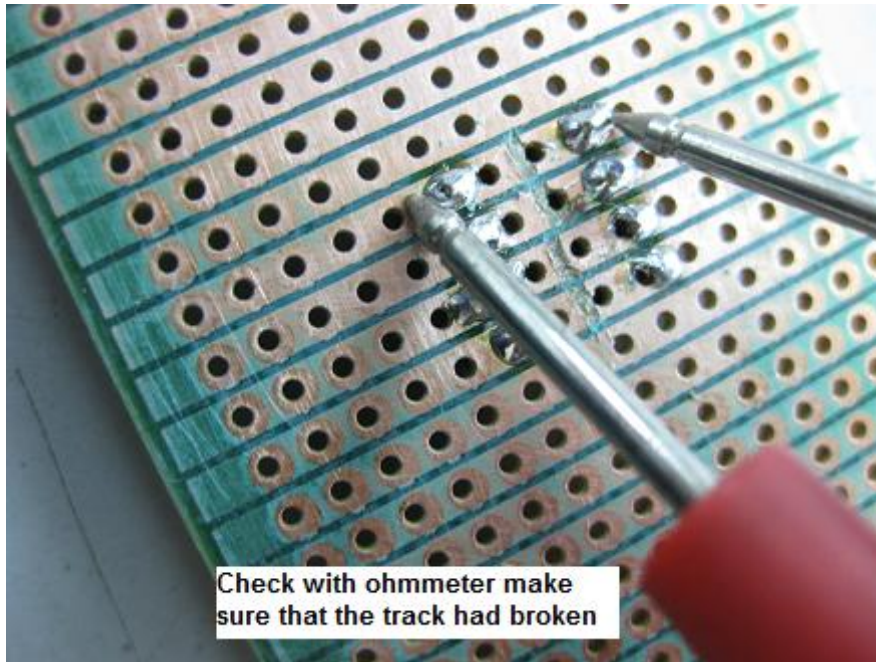


ElectronicRepairGuide.com

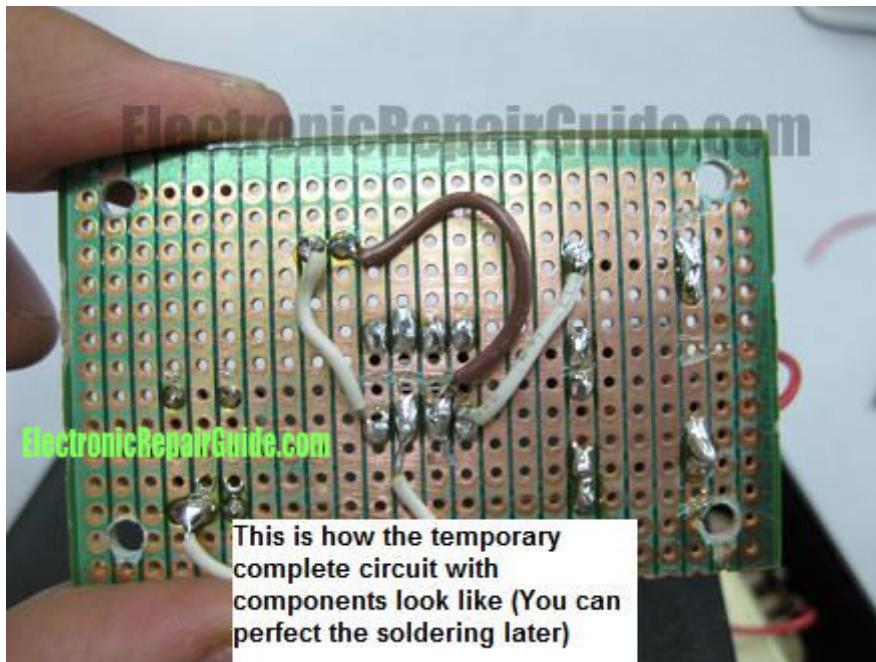
Cut the PCB board into smaller rectangular size and smoothen it with a file



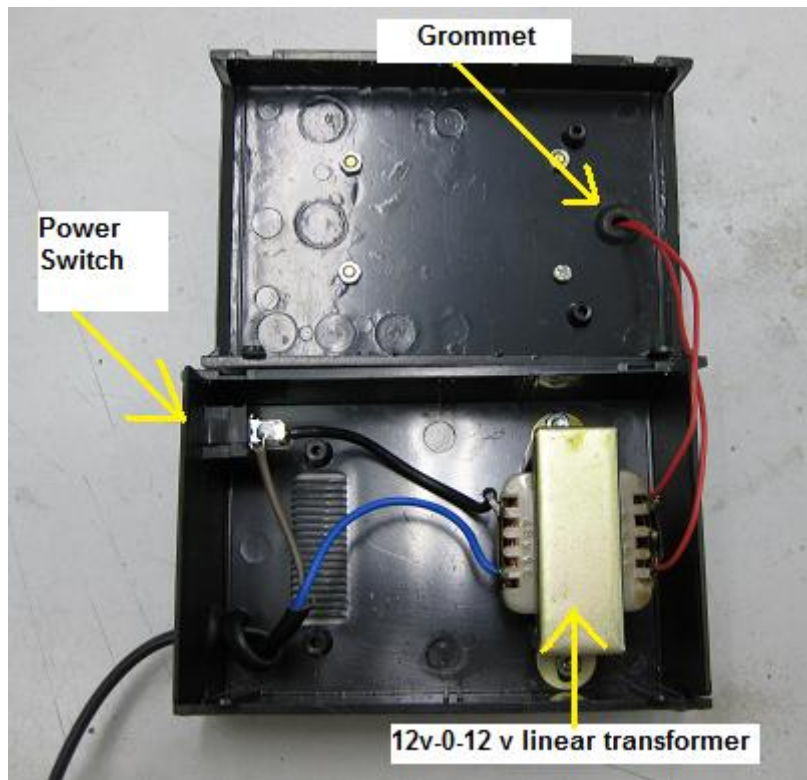
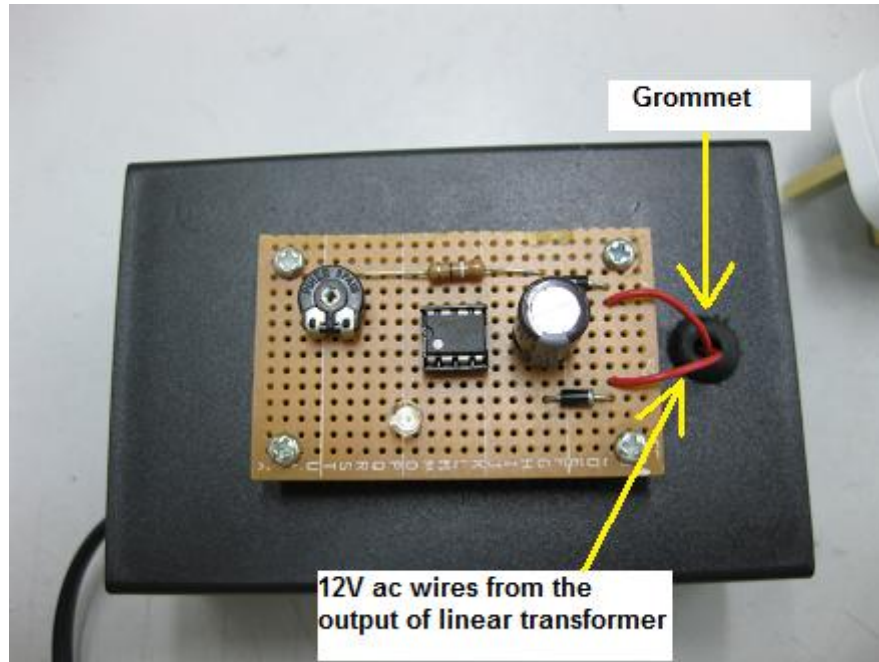




Check with ohmmeter make sure that the track had broken



This is how the temporary complete circuit with components look like (You can perfect the soldering later)





Testing Time

Just insert any PWM IC to the IC socket and power on. Whenever you turn the pot and the LED light changes accordingly then the IC is good (please read the tester disadvantages) and if there is no light the power IC is bad.





Advantages:

- 1) Cheap and easy to build
- 2) Could test on UC3842, UC3843, UC3844, KA3882, KA3883, KA3884 PWM IC's
- 3) Easy observation-LED light could indicate if the IC is good or bad
- 4) Easy to insert and remove IC under test (with the help of the IC socket)

Disadvantages:

1) Not 100% accurate because this circuit did not build to fully support all the necessary circuitry. Observe that pin1 to pin 4 have no connection where else in actual SMPS circuitry all these 4 pins are connected to circuit. Let's put this in a simple term: If the LED did not light up then you are 100% sure the power IC have problem and need replacement. If it is tested good and after putting back the IC to the SMPS and still the power did not come up, the best is direct replacement.

This explanation is same as when you use a flyback tester. If there is no LED lit when checking on the primary winding of the flyback transformer you are guaranteed that the winding had shorted. If all the LED lit and yet the flyback still would not work- then direct replace the flyback and retest again. Flyback could breakdown when under full

operating voltage similarly the power IC could breakdown when under full test in the SMPS circuit.

2) It can't support other types of part number power IC other than the one listed above.

Conclusion- Although this tester is not 100% accurate at least the accuracy is still better when comparing with the method of checking the power IC internal transistor as mentioned in the first paragraph. **Just imagine now you found a shorted power FET; you can easily test out the UC3842 IC whether it is good or bad in no time. If it is bad then get a new power IC-simple isn't it? If it is good (although not 100%) at least you will know that it won't blow the new power FET again upon power on.** Build one now and look forward to save your troubleshooting and repairing time

<http://electronicrepair.weebly.com/components-testers.html>