

How To Completely Test LCD Inverter Transformer

By [admin](#) on January 5, 2015



The function of LCD TV/Monitor high voltage transformer is to produce high AC voltage (from few hundreds to more than a thousand AC volt) to light up the CCFL backlight. If this transformer have problem it will cause the LCD screen to light up for a second and then shutdown or to have dim display problem. Basically the high voltage transformer can have four types of problems such as:

- 1) Open circuit especially the secondary winding

- 2) Shorted in secondary winding
- 3) Increase in resistance in secondary winding
- 4) Breakdown when under load

Note: The primary winding seems to be quite robust and rarely give problem.

How are we going to know if the high voltage transformer have problem or not? The answer for it is to use the right test equipment to check it.

1) **Open circuit especially the secondary winding**

All secondary winding should have resistance between several hundred to several thousand Ohms. Just place your Ohmmeter at the secondary pins and you should get the Ohm reading. If you did not get any reading means the secondary winding already open circuit.



An open secondary winding can cause display to shutdown in few seconds or dim display depending on how many transformer is used in the circuit design. This means if the circuit design is only using one high voltage transformer to support one backlight and if the secondary winding is open circuit then there will be dim display problem. If it is uses two transformers and

one of the transformers secondary winding has an open circuit then the symptom would be display shutting down in a second or two.

Note: Primary winding also has resistance and the Ohm value is very small.

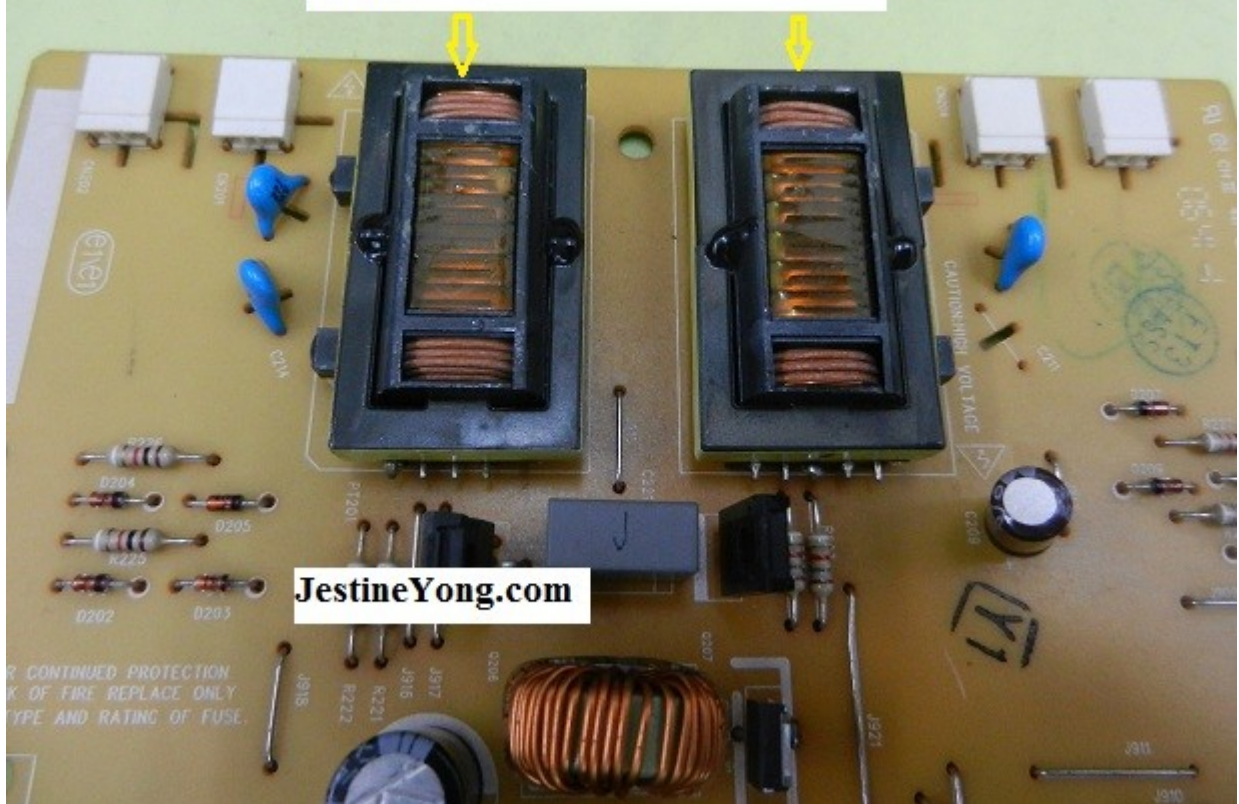
2) Shorted in secondary winding

If there is a shorted secondary winding, a normal multimeter would not be able to detect it. You need to use a coil tester such as the [Blue Ring Tester](#). For a much bigger high voltage transformer you can expect at least 4 LEDs will light up. If the tester did not light up at all means the secondary winding is shorted.



Note: You also have to take note that a slightly small high voltage transformer secondary winding may not be able to read by the Blue Ring Tester. The tester could read up until 2 or 3 LED lights only. However, if the LCD inverter has more than one high voltage transformer then it would be easy to judge the result (comparison test).

Two transformers were used in this design.



You can use the comparison method on the two transformers and locate the faulty one

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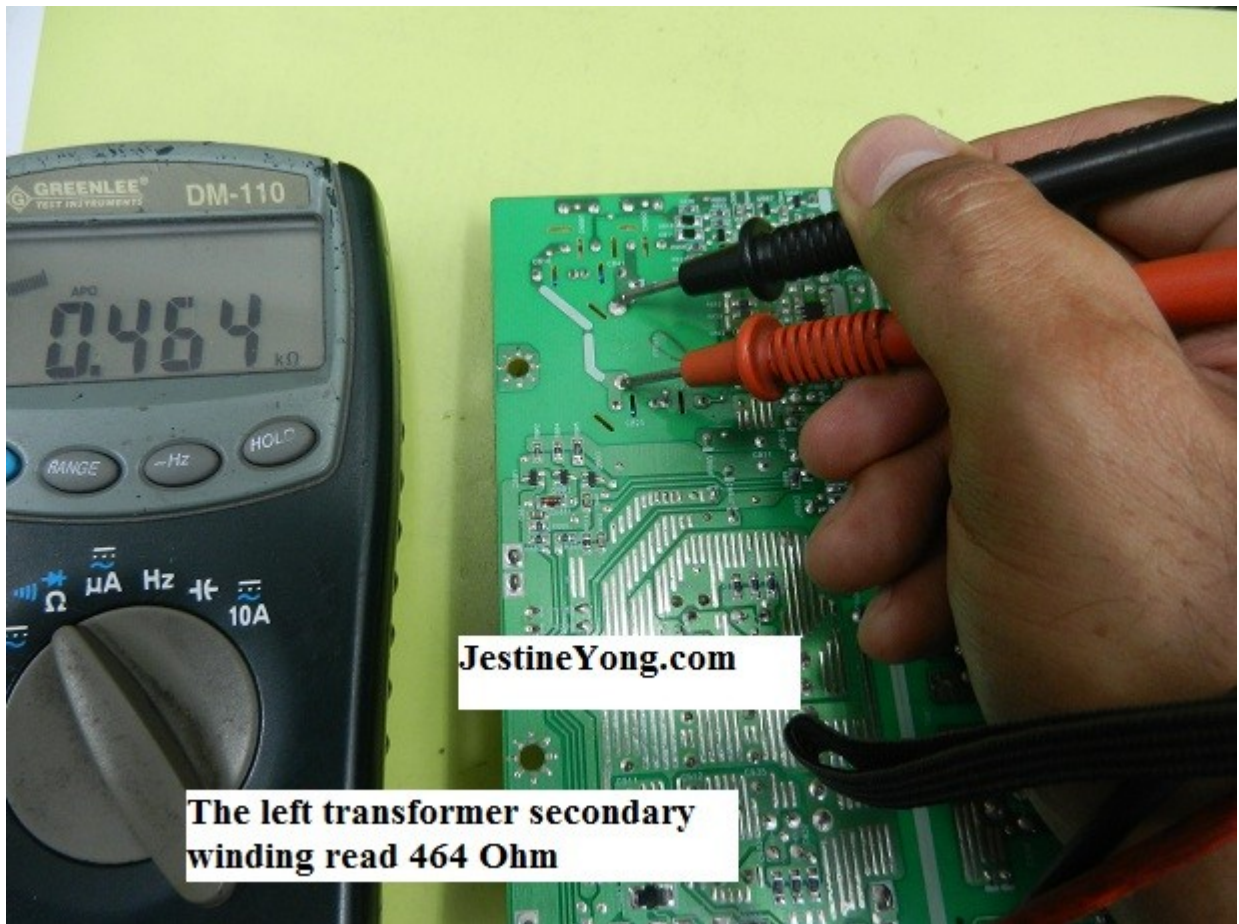


**Only one transformer
in this inverter design**

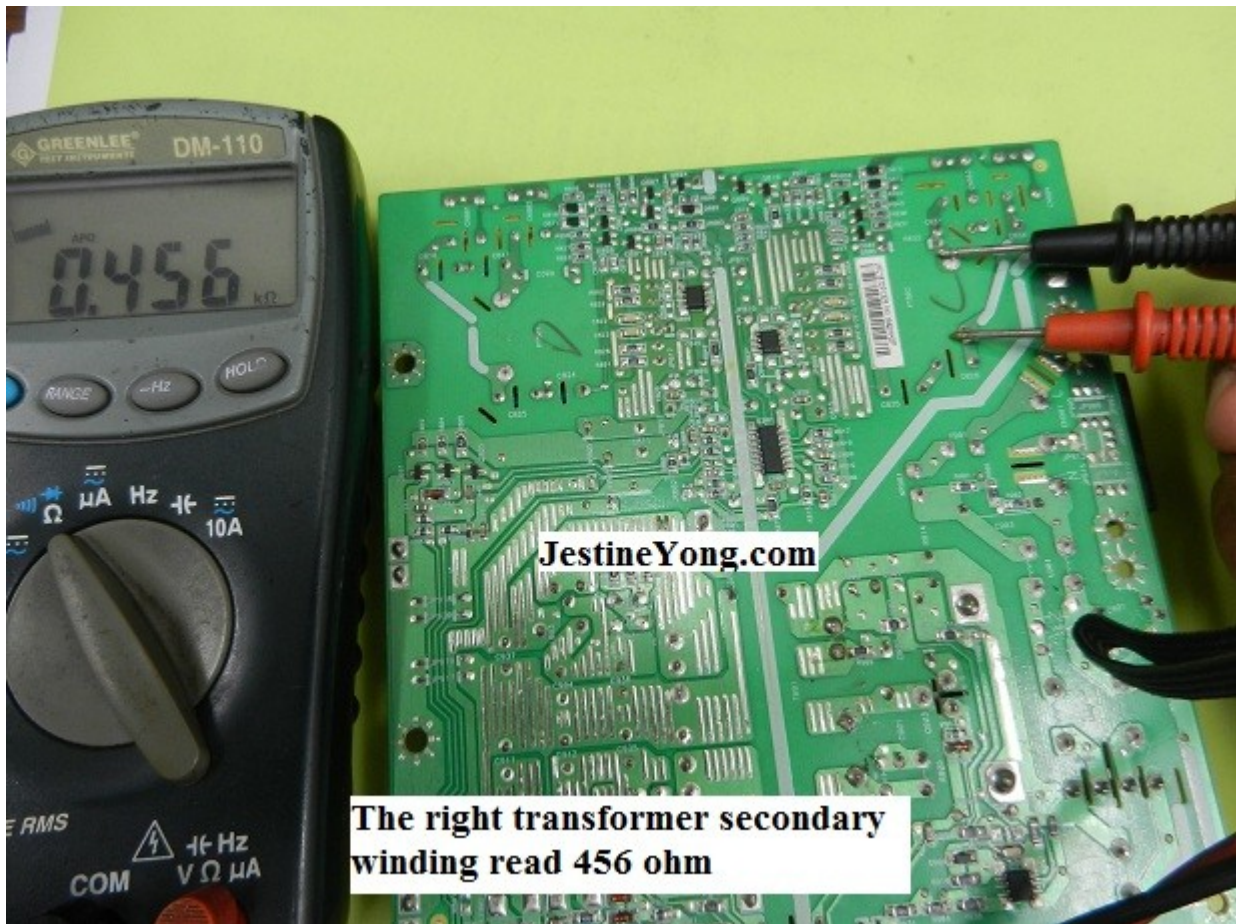
Some designs only have one transformer but you still can compare the winding because the above transformer have one primary winding and two secondary windings

3) Increase in resistance in secondary winding

You will be surprised that the resistance in secondary can increase when there is a problem. It is due to a prolong increasing in temperature in the high voltage transformer.



The left transformer secondary winding read 464 Ohm



If you notice a vast different in Ohm's reading (usually higher resistance) meaning to say the transformer is bad.

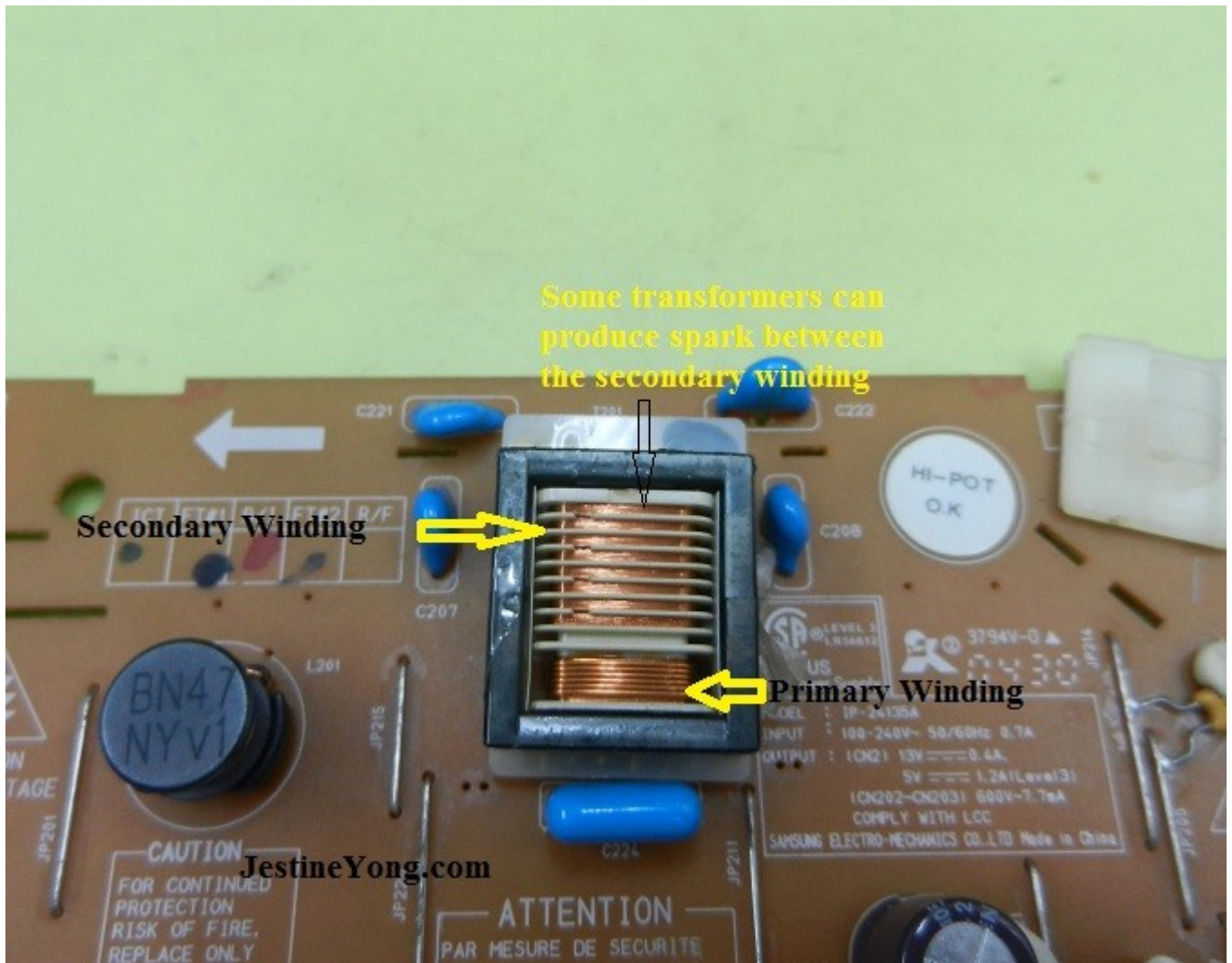
I have found many LCD high voltage transformers problem are due to increase in resistance in secondary winding in one of the transformers.

Note: A slight different in resistance reading is acceptable when checking on two similar transformers.

Most of the LCD inverter boards have more than one high voltage transformer thus it would be easy to compare the secondary winding and find out the problematic one.

4) Breakdown when under load

Although is rare, I did came across one before. On top of the secondary winding I saw a very tiny spark while the LCD Monitor inverter was working. It caused intermittent display shutdown. When I took out the transformer and test it, it seems to be working fine. A replacement brought the LCD Monitor back to life again.



The question now, what if the transformer is fully covered and you can't see the spark. In this case, it would be a little bit tough to solve it. What you can do is to make sure there is no bad components in the inverter circuit and all the CCFL lights are good (you can test them with a CCFL backlight tester). Check the transformer for good resistance reading and make sure no shorted reading (test it with a Blue Ring Tester). This means if you have checked all the parts and the LCD Monitor or the TV still have intermittent display shutdown problem then there is a possibility one of the high voltage transformers could be breaking down when under load.

Conclusion- I hope the above article will help you in solving LCD problem that is related to the inverter high voltage transformer. If you have additional method in testing/checking of the high voltage transformer please do leave your comment below-thanks.

LCD TV and LCD Monitor Shutdown Problem

By [admin](#) on June 25, 2013



I have Samsung lcd tv Model No: P2470HD First tv works for 20 minutes then picture disappears but sound ok. Turn off the set and again turn on the set then works fine..but again picture disappear 10 minutes,then 2 minutes finally it was 1 second. I replace all the capacitors in secondary side of the SMPS . What should I do sir?

A typical example in the below picture of an LCD Monitor Power Supply/Inverter Board



Answer:

The common solutions for any LCD TV/Monitor are:

- 1) Unstable power supply output voltage due to bad filter caps. The caps can be bulged or have high ESR value.
- 2) One of the high voltage transformers is bad. The secondary winding can go shorted, increase in resistance, open circuit or breakdown when under load. Sometimes you could see a small arc in between the transformer secondary winding. Once the arc happened the equipment will immediately shutdown.
- 3) Bad ballast capacitors- The problem with the ballast capacitor is the capacitance value run and breaking down under load. This is quite rare and it can happen.
- 4) One of the backlights have problem. The chances for bad backlight is very high as compare to the first top 3. You can use a good backlight for comparison or use a backlight tester to find out the fault.

5) Bad Inverter IC- If the inverter IC itself have problem then it will shutdown. It is not common to see bad Inverter IC.

6) Bad surrounding/corresponding components. If one of the components have problem in the inverter or backlight feedback circuit, the LCD TV or LCD Monitor display will shutdown.

If you wish to know more about LCD TV/Monitor repair then I suggest that you check out the [LCD resources HERE](#).

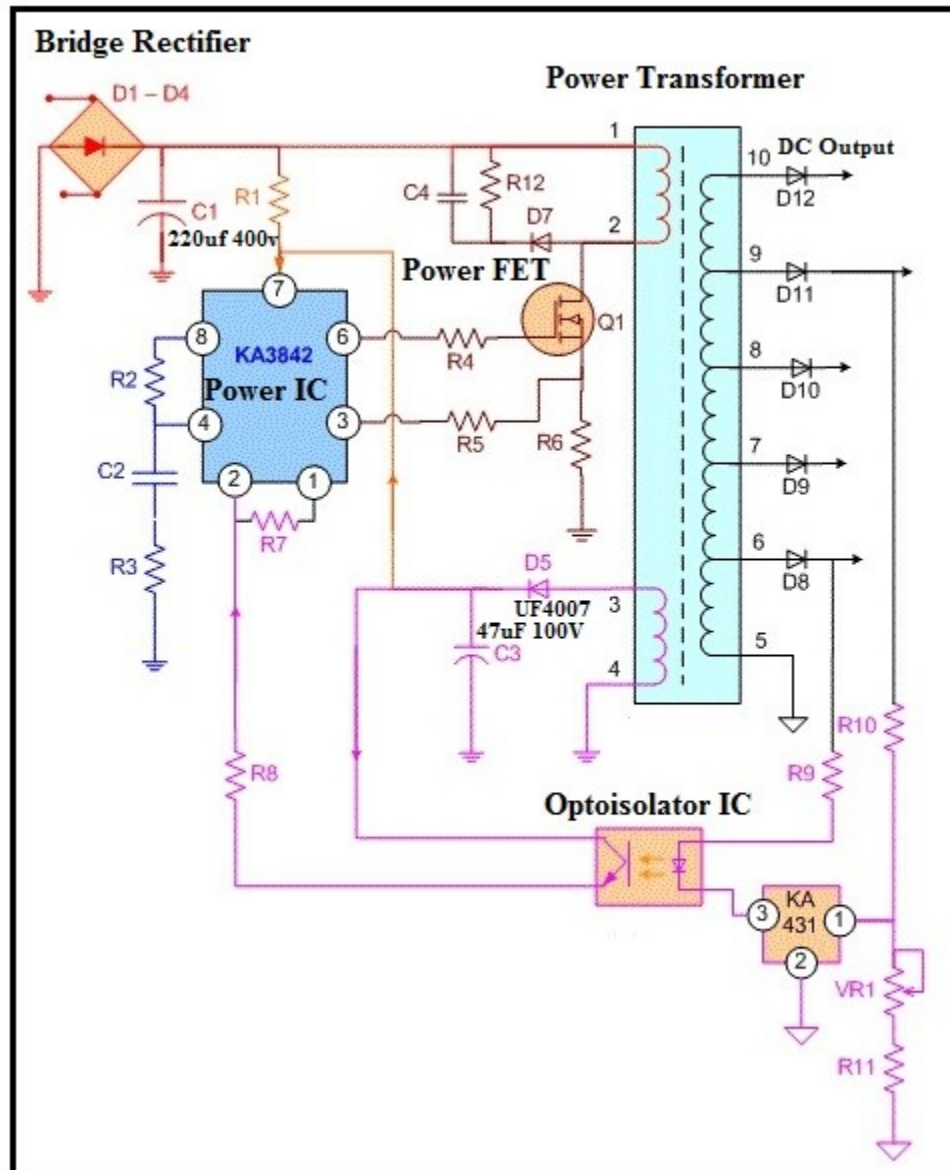
Who Else Wants to Discover the Small Switch Mode Power Supplies Modification Secrets That Will Skyrocket Your Income?

Every Repair Technicians Should Know How To Modify A Small Switch Mode Power Supplies (SMPS) To Increase The Repair Rate Thus Making Them Lots Of Money.

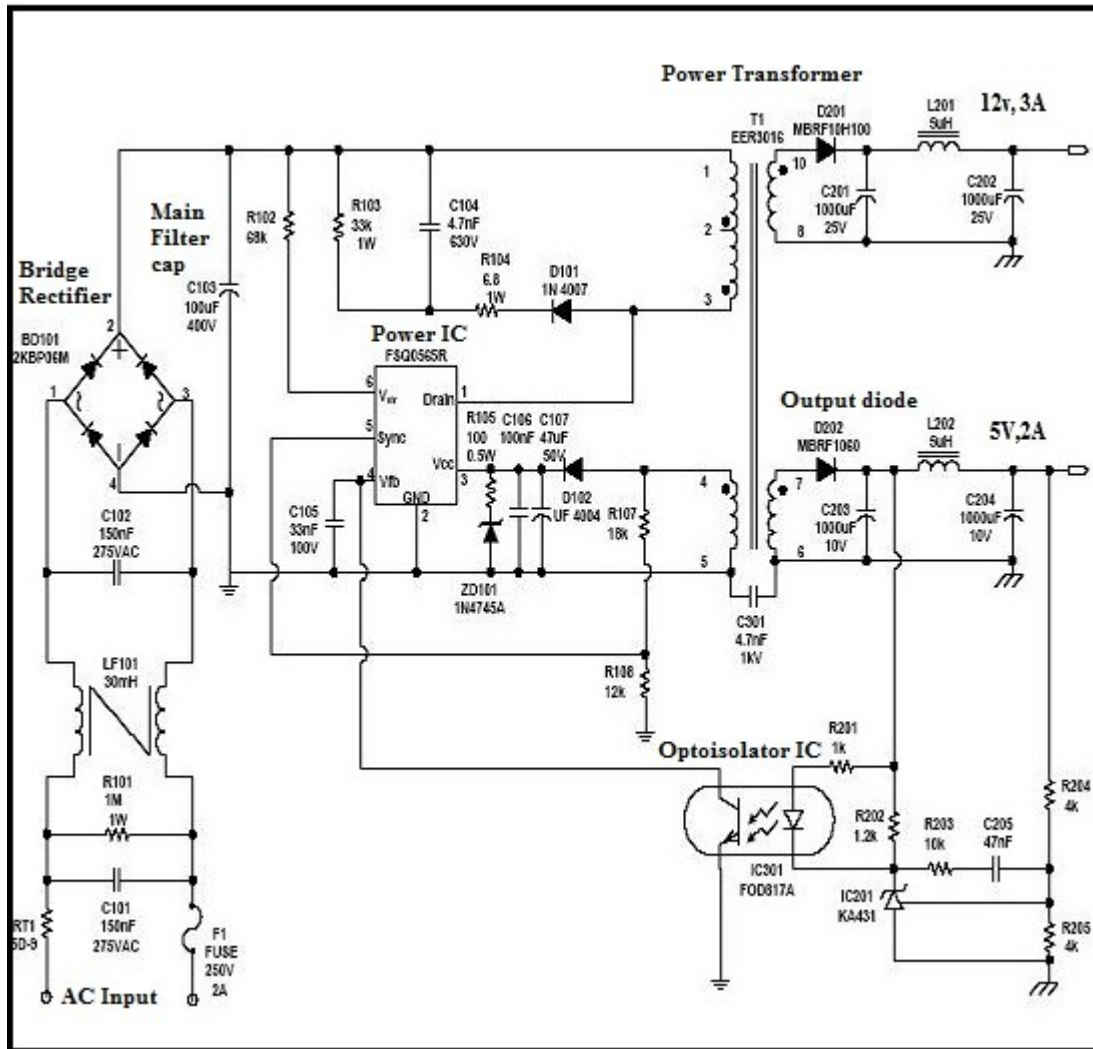
Jan 5 2015

Dear Fellow Electronic Repairers,

Let me share with you, the small SMPS modification is very simple. What you need to do is to read the information that I have laid out in the ebook and follow it step by step. You will be surprised how easy it is to perform such modification. DVDs players, LCD/LED Monitors, Satellite Receivers, Set Top Box, small size power adapters and etc as long as they are under 80 watt and using the below power supplies topologies, they can be modified.



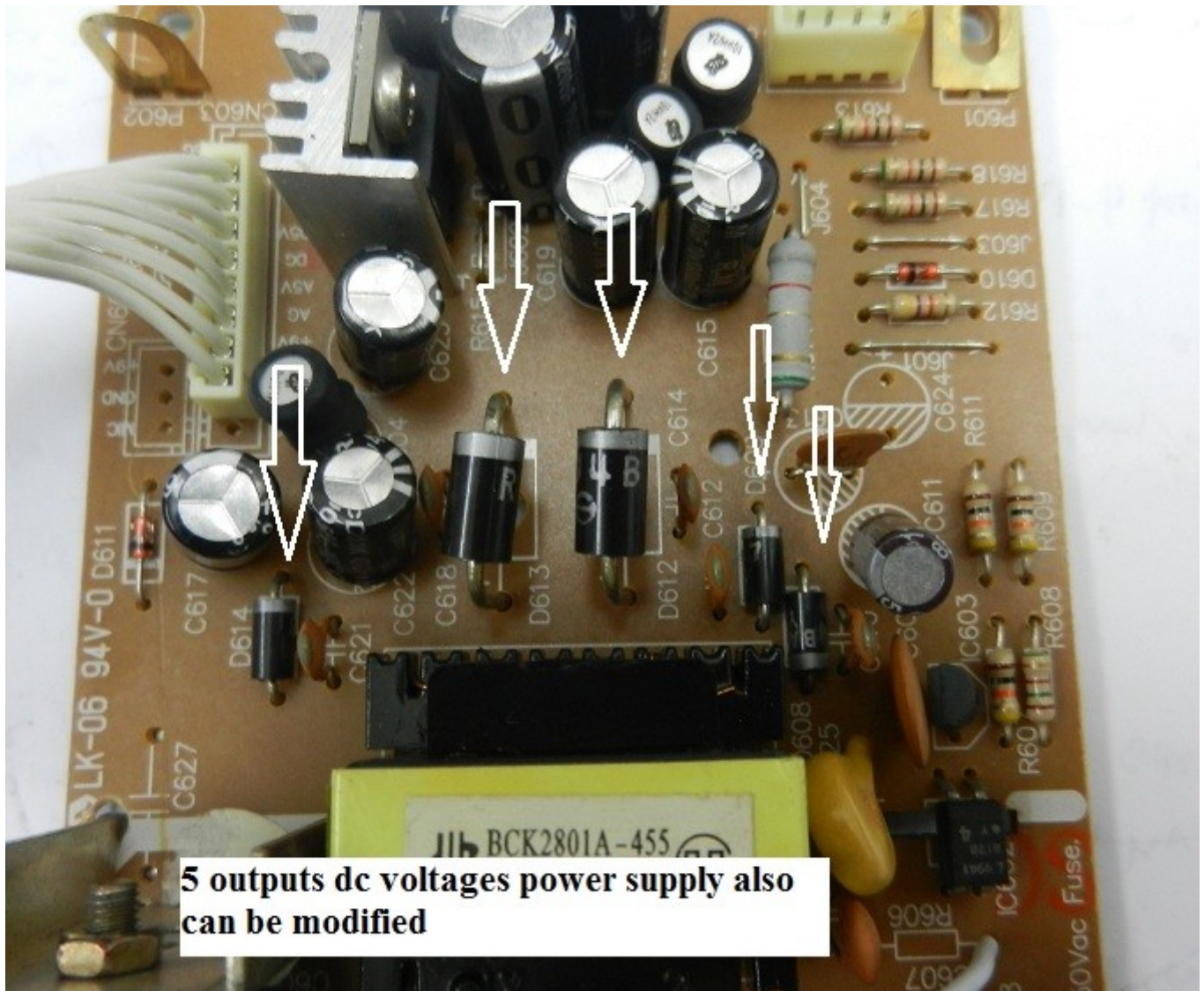
Power supply consist of one Power IC, Power FET, Power Transformer and an Optoisolator IC can be modified



Power supply consist of one Power IC (built in Power FET), Power Transformer and an Optoisolator IC can be modified

In this guide I'm showing 3 true repair cases how I have successfully modified and repaired power supplies using the modification method. In two of the repair cases other repair technicians considered it as beyond repair but I could repaired both.

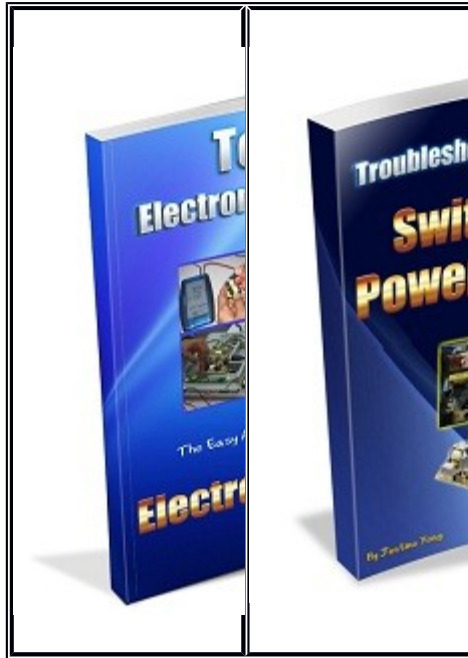
The good news is whether your small switch mode power supplies has 2, 3, 4 or even 5 outputs this method of modification still can be applied.



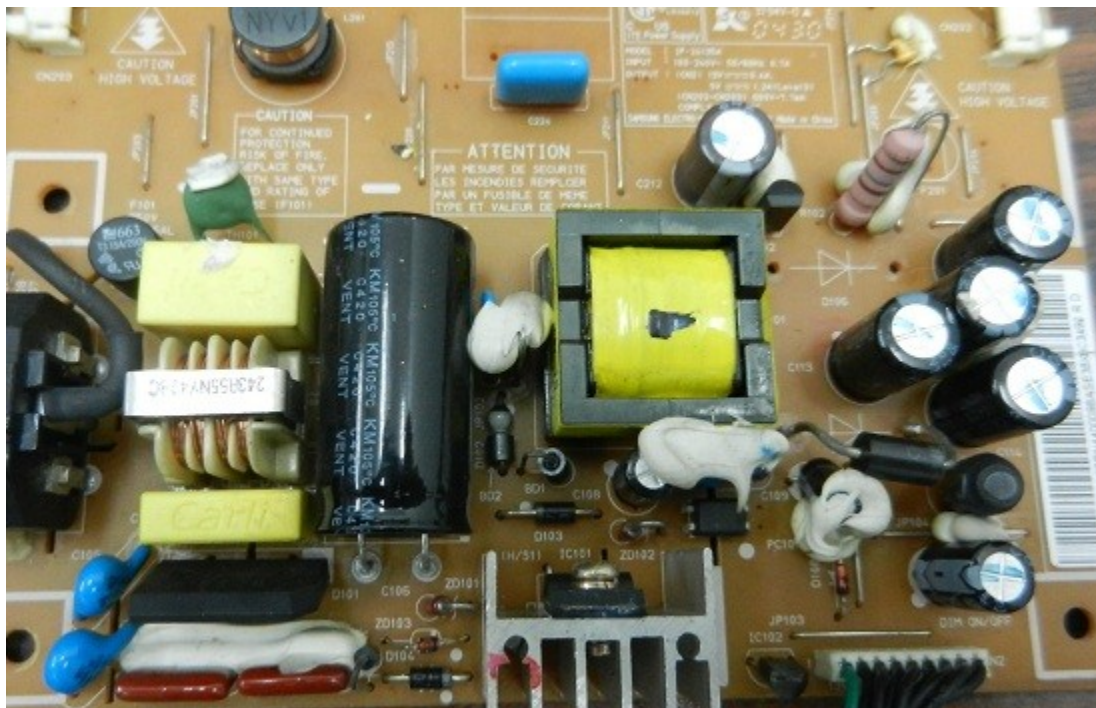
This Ebook consist of **42 pages** of solid information. This ebook is great for anyone trying to find a quick repair tip for repairing small switch mode power supplies.

This guide is **not for beginners** and if you are a beginner and wish to start in this electronics repair field I suggest that you check out my best seller [Testing Electronic Components Ebook](#) and [Power Supply Repair Guide](#).





The below photos are just some of the example of small switch mode power supplies that you can modify:



LCD Monitor Power Supply



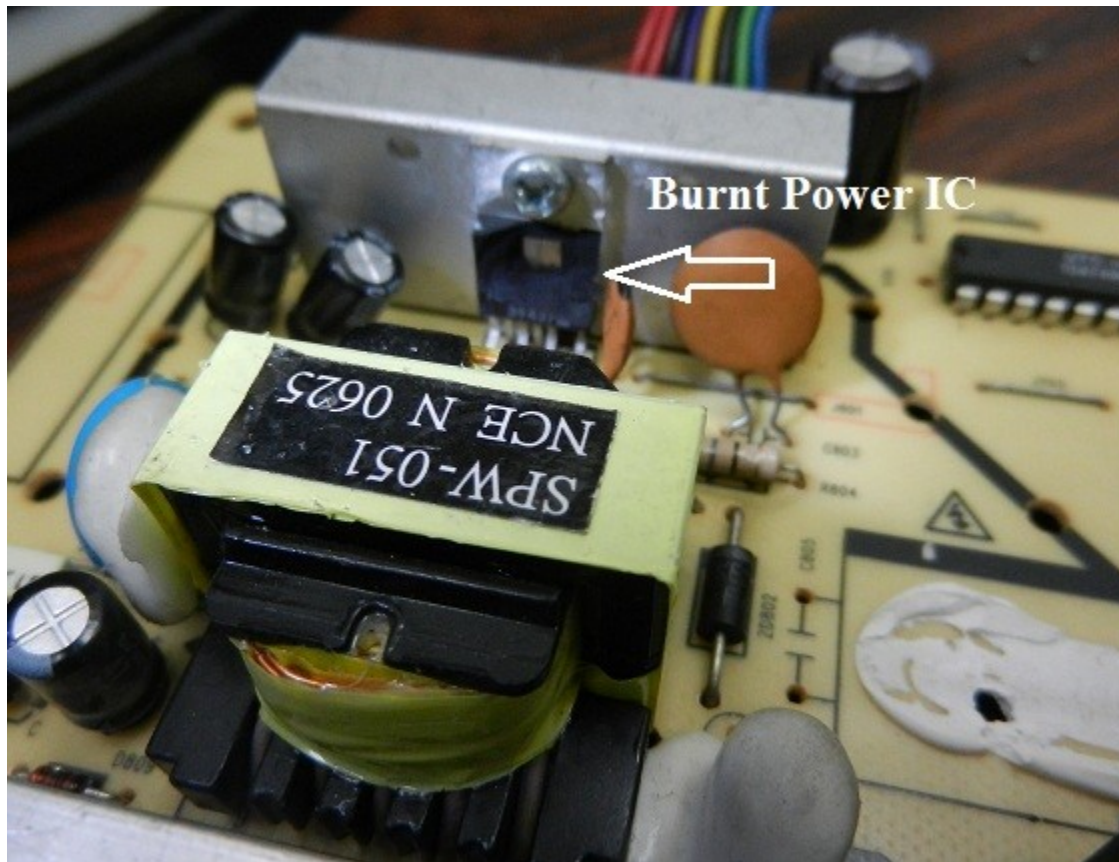
DVD Player Power Supply



Small Power Supply Adapter

Advantages Of Small Switch Mode Power Supplies Modification

- 1) When there is lightning strike on the power supplies, usually there will be some bad components. In some cases the power side components could burn beyond recognition. If there is no schematic diagram or same model of power supply to compare to locate the original parts value, it would be tough to repair the power supply.



- 2) The power IC and power FET in power supplies come with many different types of part numbers. If you can't locate the parts this mean you will not be able to repair it.
- 3) Save cost- In some power supplies, the price of power IC and the power FET can be quite expensive. You no longer have to keep stock for variety part numbers for power IC and power FET. This method can truly save the cost.
- 4) Save time- Sometime we spent too much time in troubleshooting the power supplies. Problems like no power, low power, too high power, power shut down, intermittent power problem and etc can be solved by using the method in this E-guide.
- 5) Easy to follow- It can be done in less than 20 to 25 minutes if you follow my steps.
- 6) The most important thing is the parts are quite cheap and I will share with you where to **buy those modification parts online**.

Having this repair guide will help you to successfully repair more power supplies thus bringing in more profit for you.