

# Re: Voltage Regulators

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Abstract Dissonance wrote:

I'm tried to do my ps but I'm having some problems. I ended up burning out one of the regulators for some reason but the real issue is that the regulators don't seem to be regulating.

If I setup a very basic transformer->rectifier->filter->regulator

then with no load I get the right voltage but with a 2.2k ohm + LED load the voltage drops from 8 to 4. Its a MC78M08 regulator and surely it shouldn't drop 4 volts at that load? I don't use any of the "extra" stuff such as protection diodes and ripple reducing capacitors and the voltage I'm putting in is about 35 volts.

The transformer is a 25.2VCT and I'm using the full secondary. The bridge is 4A@600V and the filter cap is a 200V @ 1mF(I know I could use a larger one but surely it is enough).

As far as I can tell I'm not getting any.....

hmmmmmm

WTF. I just switched my DMM down to 20V cause I was measuring it on 200 and now its reading 7.74V with variations going from +- 1V about every second.

I didn't know I had to choose the right voltage range on my DMM to get an accurate reading ;/ Is this true? That really sucks if so ;/

i.e., turning the switch to 200V gives me a reading of 4.4V and switching it to 20V gives a reading of 7.74V. Any reason why it would do this? Low battery? Messed up meter? Or do I just need to make sure to select the proper range?(which seems kinda odd cause you would have to know it ~ before hand).

Thanks,  
Jon

## Re: Voltage Regulators

Hi, Jon. Take a deep breath, and look at things one at a time.

Before anything else, check your meter. It shouldn't change readings between the 20V and 200V range. Get a known good 9V battery, and measure 9V on the 20V and 200V ranges. If they don't agree, replace the battery on the meter and try it again. If the meter still doesn't agree between ranges with a fresh battery, junk it and get another one for \$10 or \$15 at the hardware store. You need a known good meter to troubleshoot.

First, you want to look at your unregulated, filtered power supply. To see if it's working properly, try putting a load on the supply before the regulator. As a rule of thumb, you should figure that, for a 60Hz supply (120Hz ripple), 8,000uF will give you 1V of ripple per amp of current. That means a 1,000uF cap will give you 8V of ripple per amp. On your DVM, that 8V will look like a 4VDC reduction per amp, because the ripple is roughly a triangle wave. So