

Radio Shack 3 Amp Power Supply Conversion

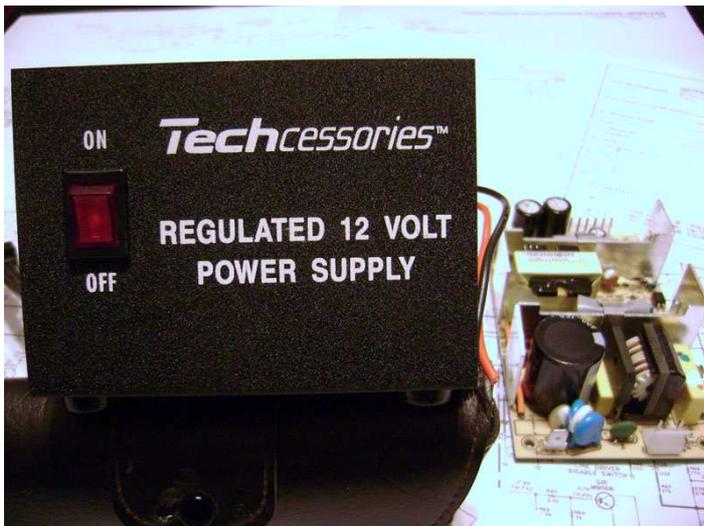
26-Dec-2012

I had a few Radio Shack "Techcessories" 3 Amp power supplies kicking around. Most don't have enough filtering to provide 3 Amps without generating a lot of ripple. I noticed that Digikey has a 12 V 4.2 Amp switching supply that fits very nicely into the case.

The supply is the Triad ALS50-12, Digikey part # 237-1291-ND currently priced at \$17.21 CAN.

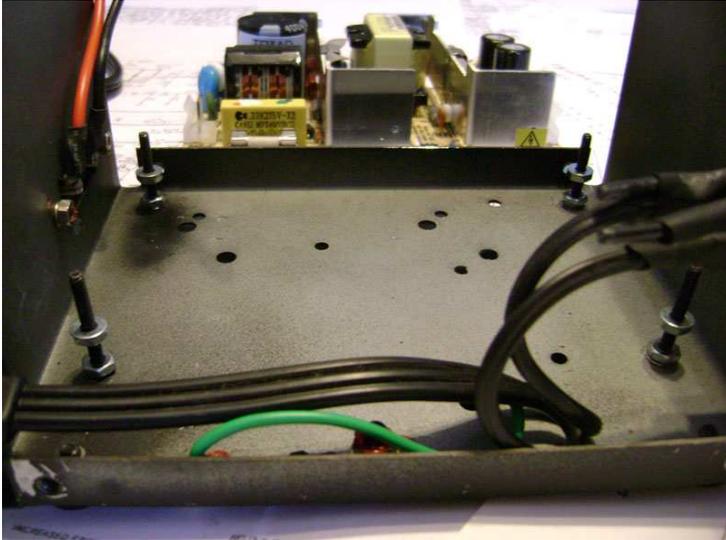
Digikey also has a 6.2 Amp supply; the Triad ALS75-12, Digikey part # 237-1295-ND that has the same footprint and will fit just as nicely into the Techcessories case. It is priced at \$19.20.

The following photo is the front panel of the Radio Shack supply with the Triad beside it.



I removed the old linear supply from the case. The transformer was mounted with rivets which I was able to drill out by holding the inside part of the rivets with pliers.

The mounting holes for the Triad fit exactly on the spacing of the holes in the case for the feet. I removed 2 feet and put the Triad on the outside bottom of the case, lined up with the feet holes, and marked the other 2 holes. I drilled the new holes to clear #4 and also drilled out the feet mounting holes to #4.



I put 1" #4 screws in the 4 holes with lock washers and nuts on the inside. 4 more nuts and washers are used to space the board 10 mm above the bottom of the case. This spacing is required to allow the top cover screws to clear the board.



I got connectors for AC input and DC output from old computer bits and left is the completed supply.

I left the original screw terminals for DC output, but it wouldn't be a bad idea to mount a powerpole or 2 on the case. I haven't added any noise filtering yet.

There is a voltage adjustment pot which I have adjusted to 13 Volts. There is a Zener across the output to prevent over voltage on the output. It is spec'd at 105% of output.

At 4.2 Amps, the voltage drops from 13.0 to 12.9V.

The spectrum analyzer shows that the supply produces no noticeable noise above 30 MHz, but below 30MHz, there is a peak with my setup every 50 KHz about 20 db above background. I had about 20" of wire on the spectrum analyzer input, routed close to the AC and output leads of the supply. The noise level varies a bit with output current. The HF rig with outside antenna was not picking up anything noticeable.

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