Using fixed power supplies – Part 2

Components

I published a construction article in the April 2024 edition of Practical Wireless Magazine.

Electronic viewing of the magazine, as part of a subscription, is here: https://pocketmags.com/eu/practical-wireless-magazine

Here is some guidance on the components I used. I have lots of components left over from projects but as they mostly come from Radionics or Mouser I can identify the part number used by these two suppliers to give you guidance. Beware that I do make mistakes so please check everything to your own satisfaction before buying or making anything. Prices are as at December 2023.

Buy original parts

I had a bag of 7805 regulators that I bought off EBay. They do not appear to have the current limiting circuitry that is specified in the specification sheet – I can draw 2 or 3 amps without the current limiting kicking in. I can also burn them out as they do not appear to have the temperature cut-off that the specification sheet details.

I never got around to measuring their accuracy or if they match the other parameters – such as line or load regulation as I threw them in the WEEE dump bin.

The enclosure

I used Model Z40W made by Kradex and sold my TME for €3.70 - https://www.tme.eu/ie/en/details/z40w-abs/power-supplies-enclosures/kradex/z40w-abs/ - comes with four screws and two cable grommets.

TME is a nice distributor in Poland so stuff arrives without duty in Ireland – may not be the case if you are in the UK.

The banana sockets

The 4mm banana sockets are made by CLIFF, are the 48mm model and are supplied by TME and cost €2.93.

Black is part number CL159709

Red is part number CL159719
Yellow is part number CL159775

They also have the blue and green sockets if you wanted to colour code sockets for each voltage.

Heatsinks

The heatsink on Q1 is an OHMITE model RA-T2X-25E. I got mine from Mouser on part number 588-RA-T2X-25E and they cost €1.71 each.

The heatsink on U2 is an OHMITE model WA-T220-101E, these also come from Mouser on part number 588-WA-T220-101E and they cost €2.10 each.

Fuse

The resettable fuse is made by Bourns with part number MF-R160. I got mine from Mouser on part number 652-MFR160 and they cost €0.353 each.

Power connectors

H1 and H2 are fixed terminal blocks with a 5mm pin spacing – I have a large bag full. TE Connectivity part number 284093-3 sold by Mouser under 571-284093-3 for €0.791 each seem to be the right ones. I like to use these connectors when I am playing around as I can connect and disconnect to my heart's content. You can of course just solder the wires straight into the PCB and do away with the connectors.

Wire

To connect the PSU to the fixed power supply via banana plugs I use 2-core mains cable (2×0.5 mm^2). I buy it is 5 lengths from TME under part number OP-YTLY1-2000 for €3.23. https://www.tme.eu/ie/en/details/op-dc-2x0.50-wh/power-cords/espe/op-ytly1-2000/ .

I have no personal connection with or financial interests in TME or Mouser.

Samuel