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TripleRegulated EI38 supply – mounting instructions

This page contains the mounting instructions for the TripleRegulated EI38 supply. Assuming, you have bought this power supply pcb or kit, now the fun of mounting starts! Make sure you read the complete instructions before you start mounting. Assembling can be done by an experienced hobbyist in about one hour.

List of components

Please check if the list is complete. The kit should have the following components, if you bought the pcb, these components are suggested (or choose your own):

Qty	Value	Device	Parts
2	2-pin	Con-pcb-5.08	DOUT
2	3-pin	Con-pcb-5.08	AOUT
8	10nF	C-multi	C1, C4, C7, C8, C15, C16, C17, C18
6	100nF	C-multi	C10, C11, C12, C13, C21, C23
3	22uF	C-elec-7mm	C14, C20, C22
3	2200uF/25	C-elec-13mm	C2, C3, C9
1	2-pin	Con-pcb-7.62	AC
8	1N5158	DIODE	D1, D2, D3, D4, D5, D6, D7, D8
2	EI38	Transformer	TR1 (12VAC), TR2 (7.5VAC)
3	3mm	LED	LED1, LED2, LED3
2	LM317	Regulator	IC3, IC4
1	LM337	Regulator	IC2
3	270	R-0207	R2, R4, R5
1	820	R-0207	R6 (5V DOUT, others see schematic)
3	1k	R-0207	R7, R8, R9
2	2k2	R-0207	R1, R3 (12V AOUT, others see schematic)
1	160mA	Fuse+holder	F1

Tools

Required:

- Soldering iron and solder
- Multi-meter (voltage and resistance)
- Side-cutting pliers

Recommended:

- Adjustable dual power supply

Mounting

The easiest way of mounting is by starting with the components with the lowest height and build up the PCB in steps, where components of the same height are fitted and soldered in each step. So, solder in this order: resistors, diodes, multilayer capacitors, connectors, regulators, fuse, electrolytic capacitors, transformers.

Always double check all components before you solder them (especially the ones that are polarity dependent, diodes, electrolytic capacitors, etc), as it is difficult to remove them after soldering, much more time consuming and may break components or PCB.

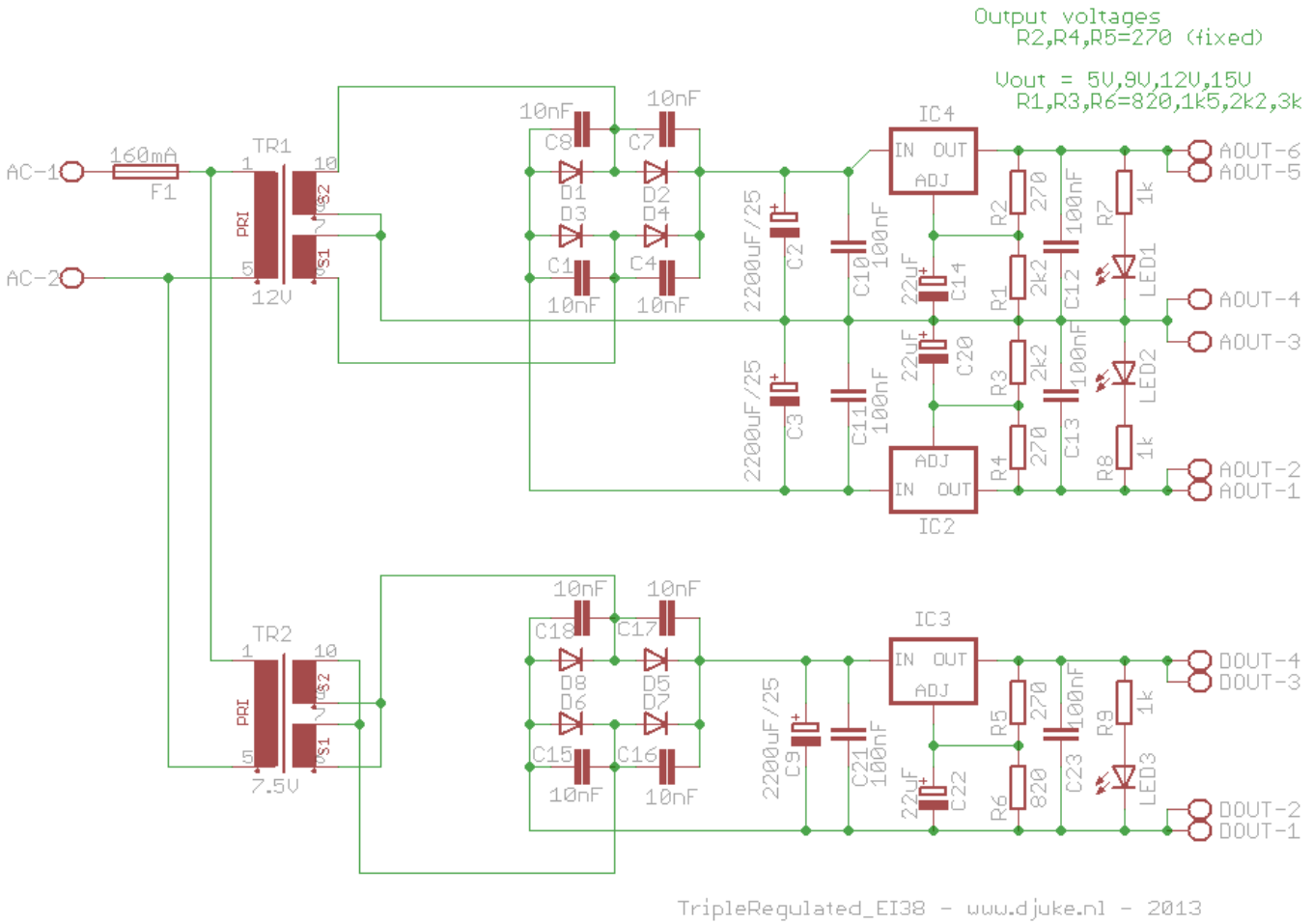
Hints

- The default transformers and value of R1, R3, R6 is for single 5V and dual 12V output. They can be simply changed if a different output voltage is desired (see the schematic and/or the LM317/LM337 datasheet). Suggested:
  - 5V output, TR=7.5VAC, R=820 ohm
  - 9V output, TR=9VAC, R=1k5 ohm
  - 12V output, TR=12VAC, R=2k2 ohm
  - 15V output, TR=14VAC, R=3k ohm
- Depending on the input voltage and current consumption, IC2, IC3 and IC4 might need to be connected to a heatsink!

Testing

- Double check that all components are mounted correctly before connecting the AC source
- After AC source has been applied, the different LEDS should light up to indicate presence of output voltage
- Measure the output voltage with a multi-meter

Schematic


Output voltages
R2,R4,R5=270 (fixed)
Vout = 5V,9V,12V,15V
R1,R3,R6=820,1k5,2k2,3k
AC-1
AC-2
160mA
F1
TR1
PRI
12V
TR2
7.5V
10nF
2200uF/25
22uF
100nF
IC4
IC2
IC3
IN OUT
ADJ
270
2k2
820
1k
LED1
LED2
LED3
AOUT-6
AOUT-5
AOUT-4
AOUT-3
AOUT-2
AOUT-1
DOUT-4
DOUT-3
DOUT-2
DOUT-1
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