

DUAL OUTPUT POWER SUPPLY

ASSEMBLY INSTRUCTIONS

1. Install & solder all Resistors
2. Install & solder all Capacitors
3. Install & solder Bridge Rectifier, B1
4. Connect the power transformer
 - a. X1-2 & X1-3 to secondary
 - b. X1-4 or X1-1 to secondary CT (center tap)
 - c. Wire primary to AC Power Plug
5. Plug in 110 VAC & verify
 - a. 16-17 VDC at R1
 - b. Negative 16-17 VDC at R6

If electrolytic capacitors are mistakenly reversed then you might hear sizzling sounds...
IMMEDIATELY UNPLUG!

6. Install & solder 3 Terminal Regulators (IC1 & IC2) and Reference Zeners (D1, D2)
7. Plug in 110 VAC & verify
 - a. +12 VDC on pin 7 of IC3 or IC4
 - b. -12 VDC on pin 4 of IC3 or IC4
 - c. 6.2 VDC on R12 and R11
8. Install & solder Transistors & Op Amps
9. Plug in 110 VAC & verify
 - a. R10 changes Positive Output (between X3 and X2) from 0-15 VDC
 - b. R11 changes Negative Output (between X3 and X2) from 0-15 VDC

NOTE: The max output voltage is determined by the power transformer secondary. For 0-20 VDC an AC/AC transformer with a minimum secondary of 30 VAC CT (15 VAC from CT to each secondary output). Higher secondary voltages may be used at the cost of lower power supply efficiency.

10. CURRENT LIMIT SETUP PROCEDURE

Using a variable load, verify that the circuit current limits (output voltage drops off) noting the current at which current limit occurs

11. Using a Resistor Substitution Box in parallel with R7 & R8 select a value that sets current limit to 130% of max output design current (for the Dual Output using the TO-220 Pass Transistors set the current limit to ~0.65 A)
12. Install & solder the closest standard value resistor for R4 & R5 (must be selected individually)
13. Verify current limit and if current limit is ok then short the output and observe that the Output voltages returns to normal when short is removed

NOTE: Power Transformer in the kit is rated at 25 VAC 2 A. While the current limit could be set higher the primary use case for the Dual Output Power Supply is circuit design and normally 0.5 A is more than sufficient for prototypes & higher currents may result in charred/burnt parts!

14. MECHANICAL

- a. Decide what heat sink solution to use
 - i. Mount TO-220 to chassis?
 - ii. Mount individual TO-220 heat sinks?
 - iii. Other?
- b. Decide on mechanical packaging
 - i. Install AC/DC & Regulator in a chassis?

15. ACCESSORIES

- a. Add a volt/current meter?
- b. Add a power switch?