

After the AC voltage is filtered by the full-wave rectifier capacitor, the DC voltage is about 1.414 times that of the AC voltage.

For example, after the AC voltage of 10V is filtered by the full-wave rectifier capacitor, the DC voltage is approximately equal to 14V. Selection of relay switching point:

The AC input voltage minus 5V equals the switching voltage.

For example transformer tap 0-15V-25V-35

Then the switching voltage of the first stage is $15V - 5V = 10V$, that is, it switches to the 25V tap at 10V.

The switching voltage of the second stage is $25V - 5V = 20V$, that is, it switches to the 35V tap at 20V.

Whether the relay is switched or not can be judged by measuring the voltage across R17. The R17 voltage (DC) divided by 1.414 is approximately equal to the current tap voltage (AC).

Preparation before adjustment:

After the installation is checked and correct (the capacitor and diode at the output end must be installed; the TIP3055 should be installed on a large radiator), if you do not have an ammeter connected, please short-circuit the ammeter contact "A", and then turn on the power.

Please refer to the schematic diagram:

Measure the voltage of C1 and C2, it should be normal at 12-25V.

Measure the voltage of C11, it is normal if it is less than 30V.

Measure C15 voltage, 12V is normal.

If the above voltage is abnormal, please check whether the transformer is powered, whether the tap is connected incorrectly, and whether the components are installed incorrectly. Repeat the above steps until the voltage is normal.

Adjustment process:

Adjust VR3 and VR4 so that the voltage of pins 2 and 6 of U2 chip is above 10V

(Take pin 4 of U2 as the reference point).

The voltage across R17 should be the voltage after rectification and filtering by the first-stage tap of the transformer.

The A-RP current knob is adjusted to the middle, and the constant current indicator LED1 should not be on at this time.

Adjust V-RP, the voltage can be adjusted around 0-18V (R17 voltage), it is normal.

The output voltage is adjusted to the switching point voltage of the first-level relay

(If you don't understand, go to the "Relay Switching Point Selection" above), adjust VR3 to make RL1 pull in, RL2 should not pull in at this time, and the voltage of R17 should be the voltage after rectification by the second-stage tap.

Adjust the output voltage to the switching point voltage of the second-level relay (if you don't understand, go to the "Relay Switching Point Selection"), adjust VR4 to make RL2 pull in, at this time, the voltage of R17 should be the voltage after the third-level tap rectification.

Adjust the output voltage and see if the 2 relays will pick up near the switching point. Repeat the above steps if it cannot be pulled in, and continue to be able to pull in.

Adjust V-RP to see the voltage output range, adjust V-RP to make the output voltage maximum, if the maximum voltage is not 30V, adjust VR2 to make the maximum voltage 30V.

Adjust constant current:

First, make sure that the adjustment tube has a large enough radiator and good heat dissipation.

Adjust the voltage to 5V, use the ammeter to tentatively short-circuit the output, and see if the constant current indicator LED1 is on?

If it does not light, there is a problem with the constant current circuit, check whether the components are installed incorrectly, and see if the LED1 is installed.

If it is on, it is short-circuited, adjust A-RP to the maximum short-circuit current, if the maximum current is not 5A, adjust VR1 to make the current to 5A.

Regarding the VR5 of the temperature-controlled fan, when the radiator is hot to a certain extent, you think the cooling fan needs to work, and you can adjust the VR5 to make the fan work. At this point, your power supply is ready to go.