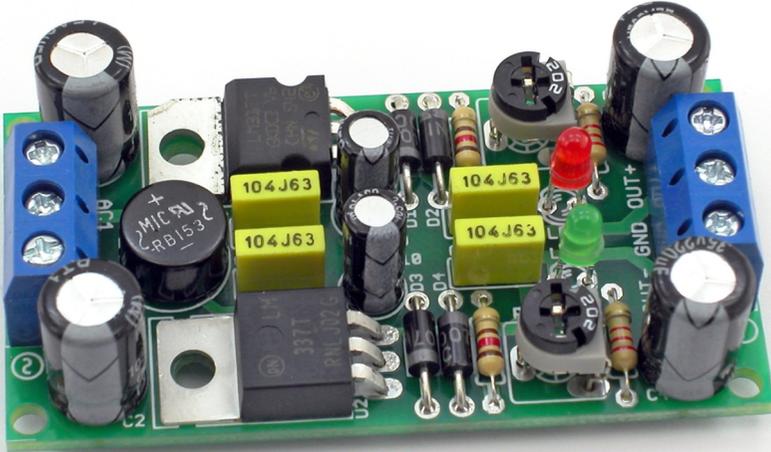




AVT 1882



ASSEMBLY DIFFICULTY



The power supply is indispensable when commissioning and testing electronic circuits that require a dual symmetrical supply voltage source. It is useful for powering operational amplifiers, audio circuits, etc.

Specifications

- positive and negative output voltages
- maximum continuous output current: 2×300 mA
- regulated output voltages 1.2-24 VDC
- output voltage indicators - LEDs
- short-circuit and thermal protection
- supply voltage 2×24 VAC
- board size 33×62 mm

Circuit description

A schematic diagram of the proposed solution is shown in Figure 1. The power supply is a standard application of LM317 (positive voltage regulator) and LM337 (negative voltage regulator), in which virtually all the components of high-end voltage regulators are housed. Stabiliser circuits need only a few external components to work properly, and their basic application has been extended to include a bridge rectifier along with capacitors to filter the input voltage. The LM317 and LM337 circuits incorporate protection in their structure to prevent them from overheating and damage caused by a shorted output. The presence of voltage at the PSU output is indicated by LED1 and LED2. The output voltage is determined by potentiometers PR1 and PR2. Schematic diagram of the device is shown in Figure 2. The entire circuit was mounted on a double-sided PCB measuring 33 × 62 mm. Start assembling the

circuit by soldering resistors, rectifier diodes and other small components onto the board, and finish by fitting electrolytic capacitors and screw connectors. Assembled from functioning components, the power supply does not require any commissioning steps and is immediately ready for operation once the input voltage is applied. Configuration of the device is shown in Figure 3. The U1 and U2 circuits have not been fitted with heat sinks, so the module has been designed to operate with a relatively low load current despite the maximum current capacity of the stabilisers being significantly higher. This is since a power loss in the form of heat is given off on each running stabiliser. When operating at higher currents without adequate heat dissipation, the temperature of the structure can increase significantly.

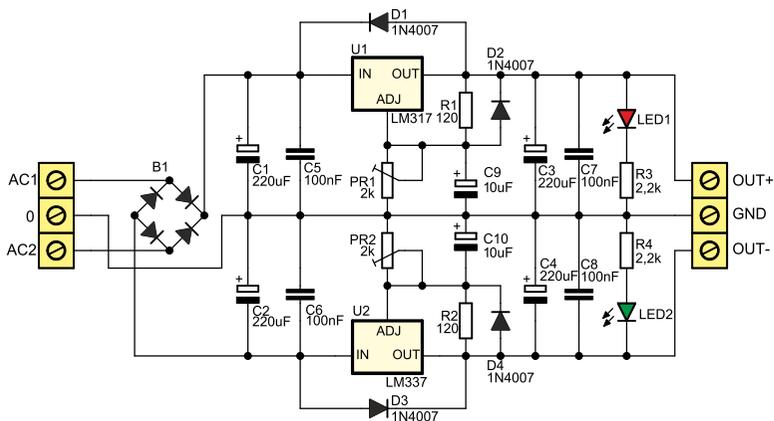


Fig. 1 Schematic diagram

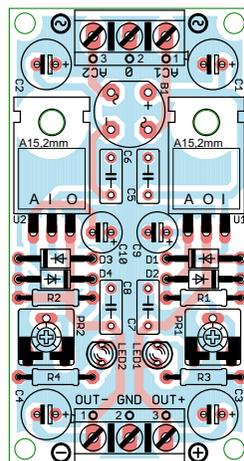


Fig. 2 Mounting diagram

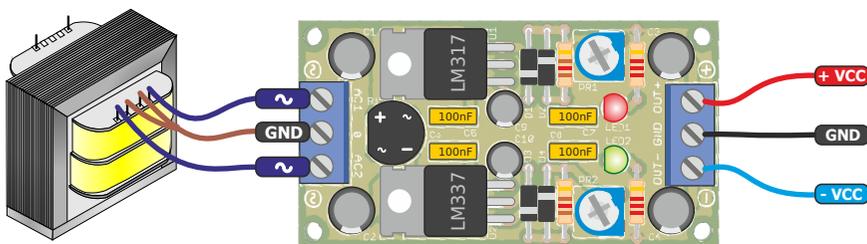


Fig. 3 Connecting the power supply to the transformer

List of elements

Resistors:

R1, R2:120 Ω
 R3, R4:2,2 kΩ
 PR1, PR2:mounting potentiometer 2 kΩ

Capacitors:

C1-C4:220 μF / 35 V
 C9, C10:10 μF / 35 V
 C5-C8:100 nF

Semiconductors:

U1:LM317
 U2:LM337

D1-D4:1N4007

LED1:LED f3mm red
 LED2:LED f3mm green
 B1:Rectifier bridge

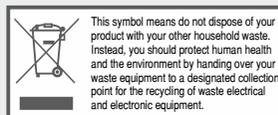
Other:

Connector ARK3/500 - 2 pcs



AVT SPV Sp. z o.o.

Leszczynowa 11 Street,
 03-197 Warsaw, Poland
<https://sklep.avt.pl/>



AVT SPV reserves the right to make changes without prior notice. Installation and connection of the appliance not in accordance with the instructions, unauthorised modification of components and any structural alterations may cause damage to the appliance and endanger persons using it. In such a case, the manufacturer and its authorised representatives shall not be liable for any damage arising directly or indirectly from the use or malfunction of the product. The self-assembly kits are intended for educational and demonstration purposes only. They are not intended for use in commercial applications. If they are used in such applications, the purchaser assumes all responsibility for ensuring compliance with all regulations