

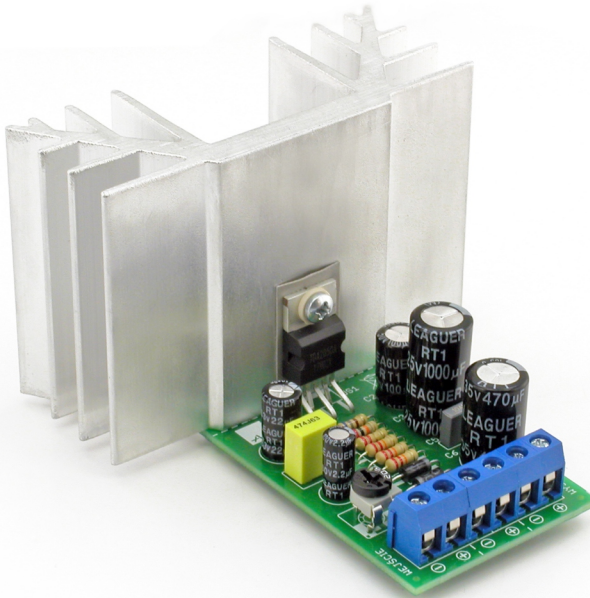
AVT 1597

Audio amplifier with output power of 35 W

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Audio amplifier module with output power of 35 W, based on integrated circuit TDA2050. The correct application of the TDA2050 requires only a few external components. Small PCB size is the reason, why the module is ideal replacement for the power amplifier in the old audio equipment.

Specifications

- output power 35W at 4Ω/30V DC
- single channel
- shortcut, overvoltage and overheat protected
- small PCB size
- power supply 9-30V DC

Functional description

The schematic diagram of the amplifier module is shown in Figure 3. Figure 1 shows the distortion characteristics as a function of output power at load 4Ω and 8Ω. The TDA2050 is a monolithic integrated circuit, intended for use as an audio class-AB audio amplifier.

The manufacturer equipped it with short-circuit protection between the output and ground, between any lead and ground, against overvoltage that could occur on the power line, and against overheating.

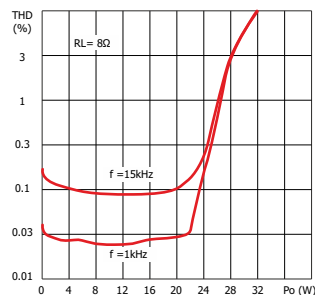
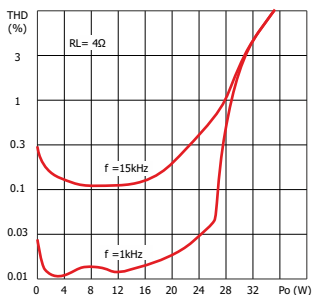


Figure 1. Distortion vs. output power

Audio amplifier with output power of 35 W

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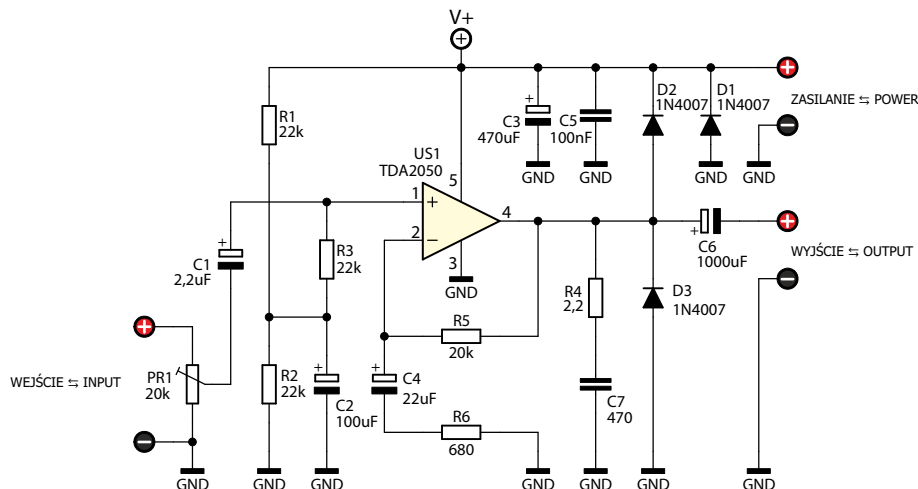


Figure 1. Schematic diagram

Assembly and test

The amplifier assembly diagram is shown in Figure 2. The assembly starts with the soldering of the lowest elements. At the beginning, resistors, diodes D1...D3, potentiometer P1, capacitors, screw connectors and integrated circuit should be soldered. Finally, the

integrated circuit of the amplifier should be provided with a heat sink. After properly assembling and connecting the power supply, the amplifier is ready for operation. It can be loaded with a 4Ω or 8Ω impedance loudspeaker.

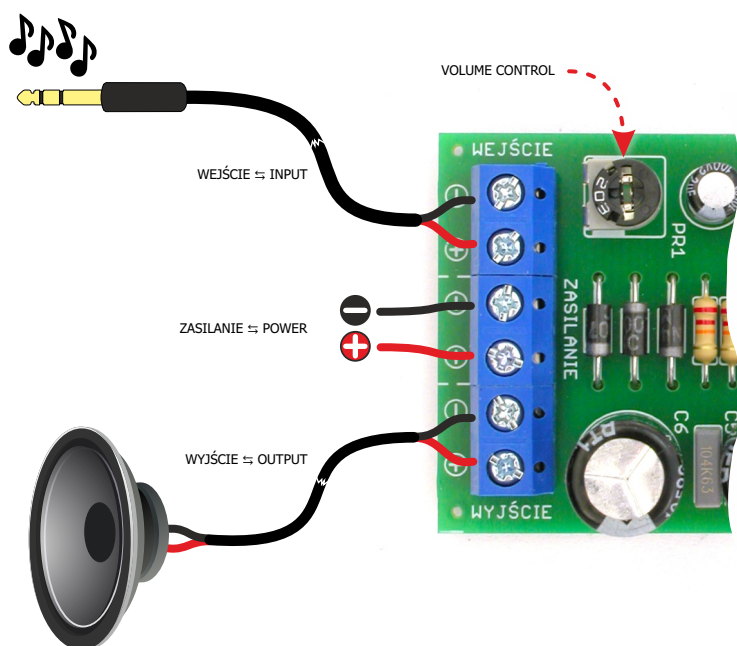


Figure 2. Connection example

Component list

Resistors:

R1-R3:22k Ω (red-red-orange-gold)
R4:2,2 Ω (red-red-gold-gold)
R5:20k Ω (red-black-orange-gold)
R6:680 Ω (blue-gray-brown-gold)
PR1:trimmer potentiometer 20k Ω

Capacitors:

C1:2,2 μ F !
C2:100 μ F !
C3:1000 μ F !
C4:22 μ F !
C5:100nF (marked as 104)
C6:470 μ F !
C7:470nF (marked as 404)

Semiconductors:

U1:TDA2050
D1-D3:1N4007

Others:

CON1-CON3:.....2-pin terminal block connector
heatsink + fixing elements

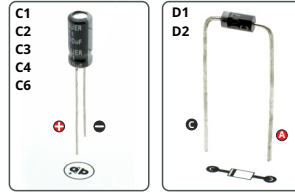


While assembling the components marked with an exclamation mark attention should be paid to their polarity. Symbols of the components on the PCB as well as photos of assembled sets may come in useful. To access high-resolution images, download the PDF file.

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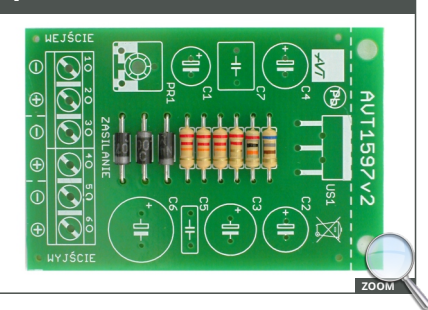
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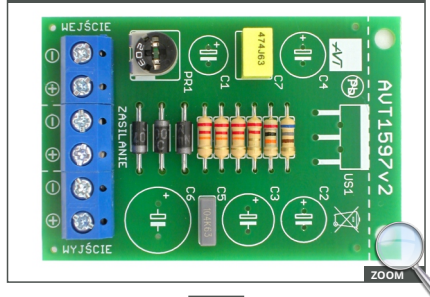
Start off by soldering the printed circuit elements in order from smallest to largest. The unit assembled flawlessly, using the supplied components will operate immediately after switching on the power supply.

Assembly in 4 steps

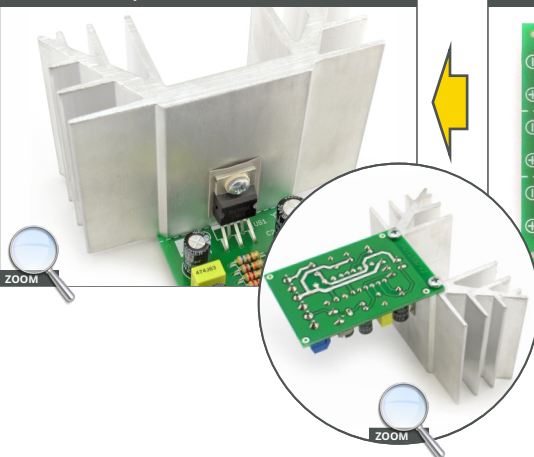
1 Solder resistors R1-R6 and diodes D1-D3



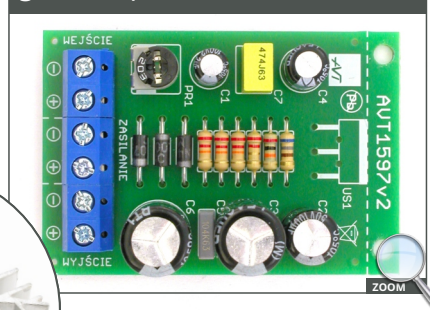
2 Solder capacitors C5, C7, trimmer PR1 and terminal block connectors



4 Screw US1 to the heat sink, solder US1 and screw pcb on the heat sink



3 Solder capacitors C1-C4 and C6



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- Battery or wall-adaptor are safe devices. They do not require special attention unless main voltage is connected to an output e.g. a relay.
- If the kit is used to switch currents greater than 24V it is necessary to have the installation and performed by a trained professional authorized for such work. The kit may only be used in such application if it was installed in a safe to touch enclosure.
- Never exceed the limits or ratings listed in the 'Specifications' section at the this user guide.
- If the kit is used in schools or educational facilities or similar institutions the operation must be supervised by trained and authorized staff.
- The product itself and all parts thereof (including packing material) are not suitable toys for children! (choking hazard, risk of electric shock, ...)



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Assembly and connection of the device not in accordance with the instructions, unauthorized modification of components and any structural modifications may cause damage to the device and endanger the person using it. In this case, the manufacturer and its authorized representatives shall not be liable for any damages arising directly or indirectly from the use or malfunction of the product.