EDUCATIONAL ELECTRONIC KITS

2×45 W power amplifier with STK4182

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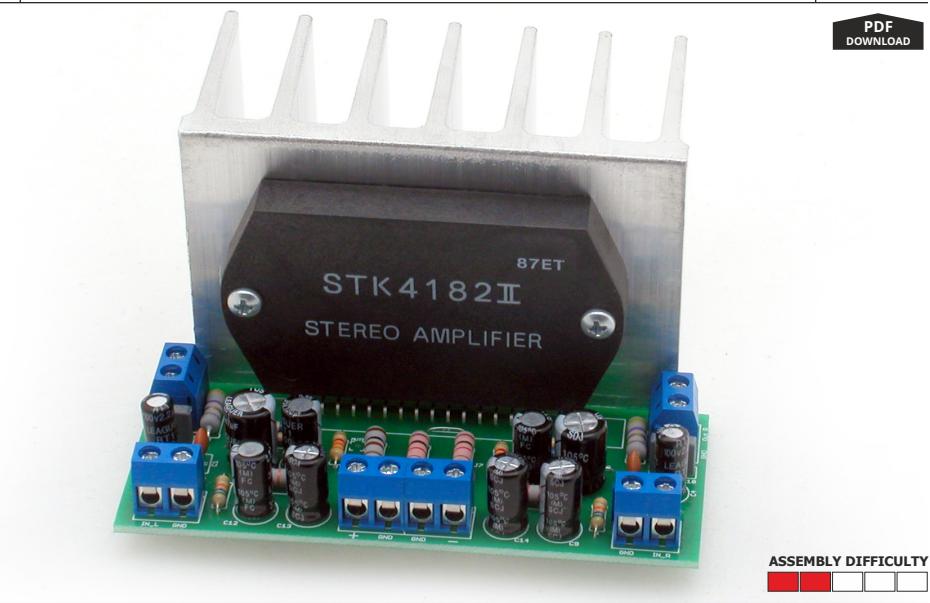
AVT 1594



ASSEMBLY DIFFICULTY

Stereo power amplifier (with quite a punch) with versatile applications. It can replace a damaged amplifier or be part of a new sound system built from scratch. The small size of the board and the small number of components make the kit very easy to assemble.

Characteristics

- output power 2×45 W (for Vcc ±33 V, Rl=8 Ω)
- input impedance 55 kΩ (for f=1 kHz)
- THD=0,4 % (for Pwy=45 W, Rl=8 Ω)
- output noise voltage <1,2 mVrms
- MUTE input
- power supply ±33 V DC
- board dimensions 89×38 mm

Circuit description

The STK4182 chip is a hybrid stereo power amplifier manufactured by SANYO. Fig. 1 shows the schematic diagram of the amplifier. A single STK4182 chip amplifies the stereo signal. The R1, C1, C3, R3 (for the left channel) and R2, C2, C4, R4 (for the right channel) elements act as filters to prevent excitation. Elements R5, R7, C7, R6, R8, and C8 shape the gain characteristics as a function of frequency. They were selected so that it would be flat over the widest possible range of transmitted frequencies.
The assembly diagram of the amplifier is presented in Fig. 2. The board was made on a single-sided laminate, which made it necessary to use several jumpers.
We start assembling the components by soldering the jumpers, and finish by soldering the STK4182 chip.

When assembling, pay attention to the correct polarity of the components.
The circuit, assembled from proven components, works as soon as the power is turned on. The amplifier is powered by symmetrical voltage. The resting current for a supply voltage of 33,5 V should be in the range of 20...100 mA. The AVT1505 or AVT3233 kit can be used for power supply
All of the amplifier's power and output paths have not been coated with varnish, allowing them to be tinned or soldered to increase their cross-section. The STK4182 chip should be screwed to the heat sink with screws.

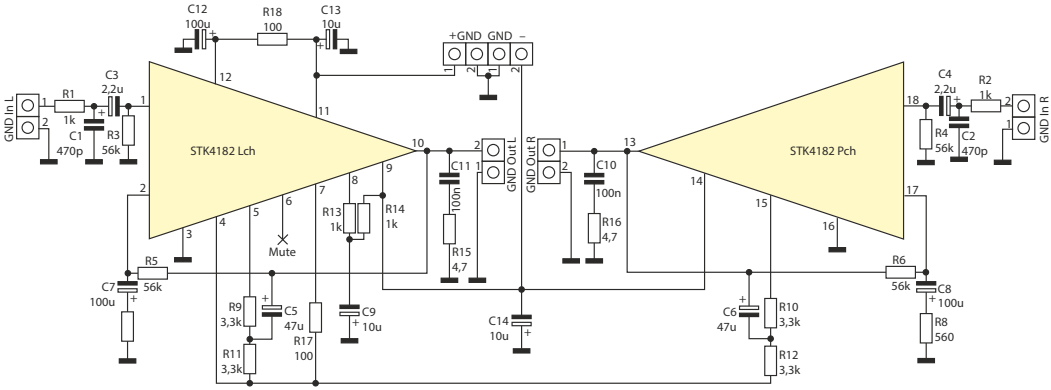


Fig. 1 Schematic diagram

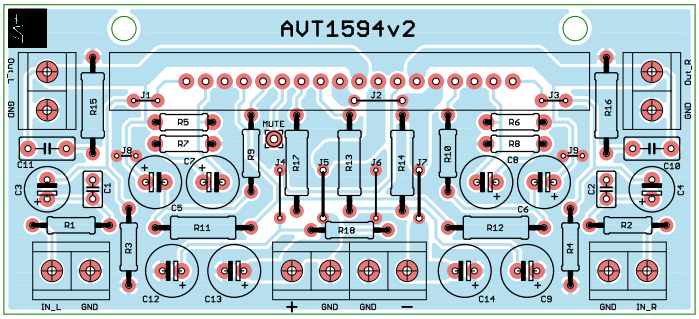


Fig. 2 Layout of the components on the circuit board

List of elements

Resistors:

R1, R2:.....1 kΩ
R3-R6:.....56 kΩ
R7, R8:.....560 Ω
R9, R10: .....3,3 kΩ
R11, R12:.....3,3 kΩ / 1 W
R13, R14:.....1 kΩ / 1 W
R15, R16:.....4,7 Ω / 1 W
R17:.....100 Ω / 1 W
R18:.....100 Ω

Capacitors:

C1, C2:.....470 pF
C3, C4:.....2,2 uF / 63 V
C5, C6:.....47 uF / 63 V
C7, C8, C12:.....100 uF / 35 V
C9, C13, C14: .....10 uF / 63 V
C10, C11:.....100 nF

Semiconductors:

U1:.....STK4182

Other:

Screw connectors – 6 pcs. Heat sink + screws

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