

EE420 - project - simple audio amp

You have been working on this project for a while. This handout formalizes the requirements to hand in.

1 Specifications:

- Voltage gain = 25, at 1 KHz, with 4 ohm load.
- Output = as much as you can into 4 ohm load. Minimum is 1 watt with 10 volt supply, with no clipping. With a good design, you should be able to get 3 watts with no clipping.
- Power supply – 12 volts nominal, it should work over a range of 10-15 volts.
- Use a 3 stage design, with 2 voltage gain stages and a quasi-complementary class AB output stage, with PNP power transistors.
- It should have an output bias adjustment. Adjust the bias to the minimum current that eliminates the crossover notch.
- Frequency response should be within 3 dB from 20 Hz to 20 KHz, reference to 1 KHz.

2 What to hand in:

Your report should contain the following sections:

2.1 Executive summary, on cover

Show a schematic and important specifications. The important measurements are power output, -3 dB low and high frequencies, slew rate, input impedance.

2.2 More detailed summary

Write a paragraph describing the experience. Compare measured performance to predicted (calculated and simulated) performance.

2.3 Calculations

Enclose your calculations leading to your design.

2.4 Measurements

Enclose a record of your lab measurements, with enough detail that someone else can repeat the measurements. Show scope pictures when appropriate.

2.5 Simulation

Simulate the circuit to verify its performance. Enclose the simulation runs, with enough information that someone else can repeat the simulation.

3 Due date:

The project is due 6th Monday.