Class A Audio Amplifier - Ricky Mannion

Team Members

- Ricky Mannion (rmannio2)

Abstract

Modern professional audio equipment is commonly designed using operational amplifiers (Op Amps) for gain stages. Op Amps are very useful for their consistent behavior and low power consumption, however they also introduce a type of distortion called 'crossover distortion' which is inherent to their operation. Since Op Amps trade reduced distortion for higher efficiency, they are considered 'Class B' or 'Class AB' amplifiers. By contrast, a 'Class A' amplifier is significantly less efficient than an Op Amp but does not introduce any crossover distortion. For this reason, Class A amplifiers are highly desirable in audio applications where high efficiency is not required.

I plan to design and fabricate a development Printed Circuit Board (PCB) for testing small Class A amplifier designs, as well as a power supply module capable of delivering the increased power necessary for these amplifiers. The Development board will be configured for dual-channel 'Stereo' operation using balanced XLR input and output connections.

Project Goals

First Demonstration:

By the first demonstration, I plan to have completed the design of the Power Supply module and begin the manufacture/fabrication of this PCB.

Second Demonstration:

By the second demonstration, I plan to have completed the design of the Development board and begin the manufacture/fabrication of this PCB.

Final Demonstration:

By the final demonstration, I plan to have assembled a Class A amplifier using the completed Development board and Power Supply module.

Tentative Schedule

Monday: 1:00pm - 4:00pm
Tuesday: 4:00pm - 7:00pm
Wednesday: 1:00pm - 4:00pm

Final Report and Project Files

File                  Modified

No files shared here yet.