Lab 12 Report

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Objective:

The purpose of this lab is to design a multi-stage MOSFET amplifier based on a list of specifications.

Introduction:

First, we build the circuits in Multisim to give us a rough estimation on what the values should be. Then, we go through and build each circuit based on the values of the resistances that we calculated, and measure the input and output voltages. To measure this, we look at the transient responses of each circuit as well as using the voltmeter function of the analog discovery 2 to find the voltage drop across resistors.

Calculations

Simulation Plots

Experimental Plots

Conclusion:

My calculations were a little off from my simulations. However, this can be attributed to some of the equations being only approximations and general mistakes made in calculations. The simulation values were different from my experimental measurements. This is definitely attributed to me not being able to use the exact calculated resistance values. Many of my resistance values were off by 300 Ohms, which threw off many of the voltage readings as well as other readings from the circuit. Also, for some reason, I was unable to actually get my simulations to work for certain portions of it. My THD matched my simulations but I would get a gain of 0 in simulations while I would get a gain of 22 in my measurements. My input resistances matched as well. But my Bode and Transient responses never matched because my simulation would return a 0 gain.