

Pspice Assignment #2

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EECE2412

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1 Amplifier

In the last problem of Homework 4–5, we looked at a multi-transistor amplifier, and analyzed it by hand. The assignment here is to complete the same analysis in PSPICE, and answer most of the same questions. Before beginning this project, review your homework assignment and our posted solution.

1.1 Overview

Describe the circuit. This narrative description will include answers to the questions

- What are the amplifier stages?
- What does each one do?
- What is the purpose of C_1 and C_3 ?

1.2 DC Performance

Complete a bias detail analysis of the circuit. Compare voltages and currents with what you found in the homework problem (Section 6.2).

1.3 AC Performance

Measure the AC performance of each stage of the amplifier. What are the voltage and current gains? Include appropriate plots to demonstrate your results. Discuss how your results compare with those you obtained in the homework problem.

What does C_2 accomplish? (Hint: Try the circuit with and without it. What analysis mode do you need to answer this question?)

1.4 Transient Analysis

Perform a transient analysis. At what input level does distortion or saturation become visually evident.

2 Write-up

Your report should be typed and in a report format. The student is expected to provide a detailed explanation and analysis of the results. Embed the plots and figures in your document. Please, ensure your graphs and plots are clearly labeled with the appropriate captions and figure numbers. If they are not labeled, we will not try to guess where they belong and the problem will be marked wrong. Include a copy of your schematic in the report. Try to use the same component labels that are in the assignment otherwise the grader cannot figure out where your mistake was made. Feel free to leave white space in your report for any equation you want to write and then fill it in by hand. Make sure your report contains a carefully labeled circuit diagram as one of the figures.