Relevant sections of textbook:
Chapter 2 Operational Amplifiers
  2.7 Bandwidths of Inverting and Noninverting Amplifiers

1 Introduction

In this experiment, the frequency response of the LF356 and LM741 op amps will be measured for different
gains in inverting and non-inverting configurations.

2 Experimental Procedure

1. Assemble a unity gain (“voltage follower”) amplifier circuit as shown in Figure 2 using the 741 op
amp. Note that the pin-out for the 741 is the same as for the 356, and the pins are numbered as shown
in Figure 1. Tabulate gain vs. frequency for frequencies from 100 Hz to the unity-gain frequency (1

\[ f = \frac{1}{2\pi R_L C_L} \]

MHz for the 741; 5 MHz for the LF356). Plot the gain in decibels vs. \( \log_{10}(frequency) \).

![Figure 1: Top view of “dual-inline-pin (DIP) integrated circuit package](image)

2. Connect a non-inverting amplifier with a gain of 10, as shown in Figure 3, by appropriate choice of
\( R_1 \) and \( R_2 \). Tabulate gain vs. frequency from 100 Hz to the same unity-gain frequency as determined
in section 1. Plot gain vs. \( \log_{10}(f) \) on the same axes as the plot in section 1.
3. Repeat section 2 using a non-inverting amplifier with a gain of 100.

4. Repeat section 2 using an inverting amplifier with a gain of -1.

5. Repeat sections 1 through section 4, this time using the LF356.

3 Conclusion

In this lab, you investigated the frequency response inherent in operational amplifiers. In your write-up, discuss which op amp would make the best wide-band amplifier and why. Based on the unity-gain frequencies of each, what did you expect?