UNIVERSITY OF CALIFORNIA AT BERKELEY
College of Engineering
Department of Electrical Engineering and Computer Sciences
EE 105 Fall 2025 Lab Experiments

# Experiment 2: Non-Ideal Op-Amps, Pre-Lab Worksheet

Student name:

Lab group:

## 2. Pre-Lab

### 2.1. Introduction to LTSpice

What feedback resistor value gave that?
What kind of circuit are you simulating?
Attach the plot to your pre-lab report.

### 2.2. DC Open Loop Transfer Characteristic

Open loop gain A0:
Voltage offset Voffset ≡ −Vshift:
Plot of the DC Open Loop Transfer Characteristic:

## 2.3. Slew Rate in Unity Gain Configuration

Slew Rate:
Is it reasonable based on the datasheet?
Plot of Vout and Vin versus time:

Is the slew rate different for rising and falling voltages?

## 2.4. Gain and Bandwidth in Unity Gain Configuration

Gain A0:
Bandwidth f3dB:
Plot of the gain vs frequency (log-log scale):

For 100KHz input at what amplitude the amplifier will start slewing?
Plot of the input and the output for this amplitude, and for twice this amplitude, on the same plot:

## 2.5. Gain and Bandwidth in Non-Inverting Amplifier Configuration

| | |
|---|---|
| R=10kΩ | Gain A0: |
| | Bandwidth f3dB: |
| R=100kΩ | Gain A0: |
| | Bandwidth f3dB: |

Plot of magnitude response of the voltage gain in log-log scale for the two non-inverting amplifier circuits and the circuit from Problem 2.5 on the same plot:

At approximately what frequency and gain do the three curves intersect on the plot? What does this mean?

With R=10kΩ, for 10KHz input at what amplitude the amplifier will start slewing?

Plot of the input and the output for this amplitude, and for twice this amplitude, at the same plot: