

ShanghaiTech University
School of Information Science and Technology

EE112 Lab Experiments

Experiment 1: Non- Ideal Op-Amps

2. Pre-Lab

To make the plots more readable and to save on printer toner, change the background color of your plots to white before printing your plot.

2.1 DC Open Loop Transfer Characteristic

Open loop gain A_0 : _____

Voltage offset $V_{off} \equiv -V_{shift}$: _____

Attach your plot of the DC transfer characteristic to the end of the worksheet. Label it please.

2.2 Nulling the Offset Voltage

Draw the circuit used to null the offset voltage connected to the pinout diagram in the space below.

Why do we use a potentiometer to null the offset voltage?

2.3 Slew Rate Measurement in Unity Gain Configuration

Slew Rate: _____

Attach your plot of V_{out} and V_{in} versus time to the end of the worksheet.

2.4 Gain and Bandwidth in Unity Gain Configuration

Gain A_0 : _____

Bandwidth f_{3dB} : _____

2.5 Gain and Bandwidth in Non-Inverting Amplifier Configuration

$R = 10\text{ k}\Omega$: Gain A_0 : _____

Bandwidth f_{3dB} : _____

$R = 100\text{ k}\Omega$: Gain A_0 : _____

Bandwidth f_{3dB} : _____

Attach your plot of the magnitude responses $20\log|V_{out}/V_{in}|$ of the unity gain amplifier from Problem 2.4 and the two non-inverting amplifiers to the end of the worksheet.

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

2.6 DC sweep in Elvis II

Implement the DC sweep function in Elvis II by Labview programming. This will be used in deriving the dc open loop transfer characteristic in the lab.