

Example 7 Bode plot frequency response from experimental data

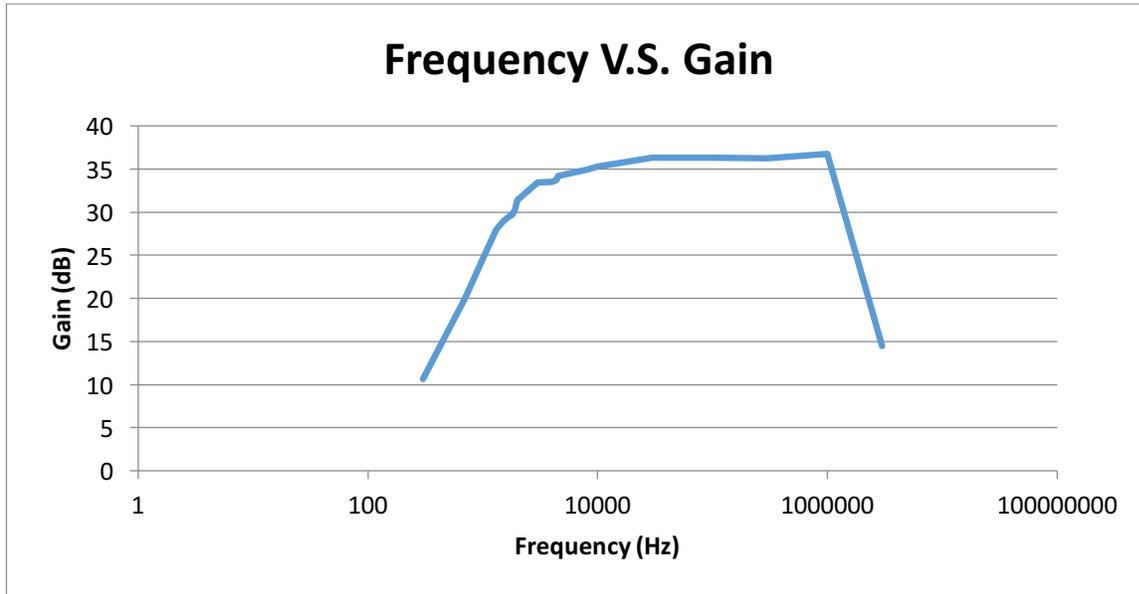


Figure 13. Experimental Data for frequency V.S. gain. Notice the drop off towards the mega frequencies as C_{Miller} begins to take over. Reference Figure 15 for comparison with simulated results.

Here is another graph similar to that of Example 6 above. This one has more things wrong. First, there should be no title above the figure; there will already be a title below it. Titles above are for viewgraphs in presentations. In papers, figure numbers and titles are below the figure. Here, the figure title has another problem. It is too long! The writer tried to have the figure title substitute for text in his paper. A figure title should be short, identifying with sufficient precision what is being shown. Explanations should be made in the text, preferably. If

an explanatory note is needed in the figure proper, it should be included as an annotation in the figure itself. Also, the abbreviation for “versus” is “vs.,” not “V.S.”

There are no vertical grid lines; there should be. The horizontal axis should start at 100 Hz, not 1 Hz. Whether individual data points are marked (as in the previous example, but not here), that is a choice of the author. When the number of data points is small, they are usually shown. When they are numerous, they can add confusion and clutter, and may be omitted, perhaps with error bars or other methods used to show scatter if applicable. As with the previous case, the frame should be omitted, and frequency notation in KHz or MHz at higher frequencies is better though not easily accomplished.

Example 8: Frequency Response Phase Plot

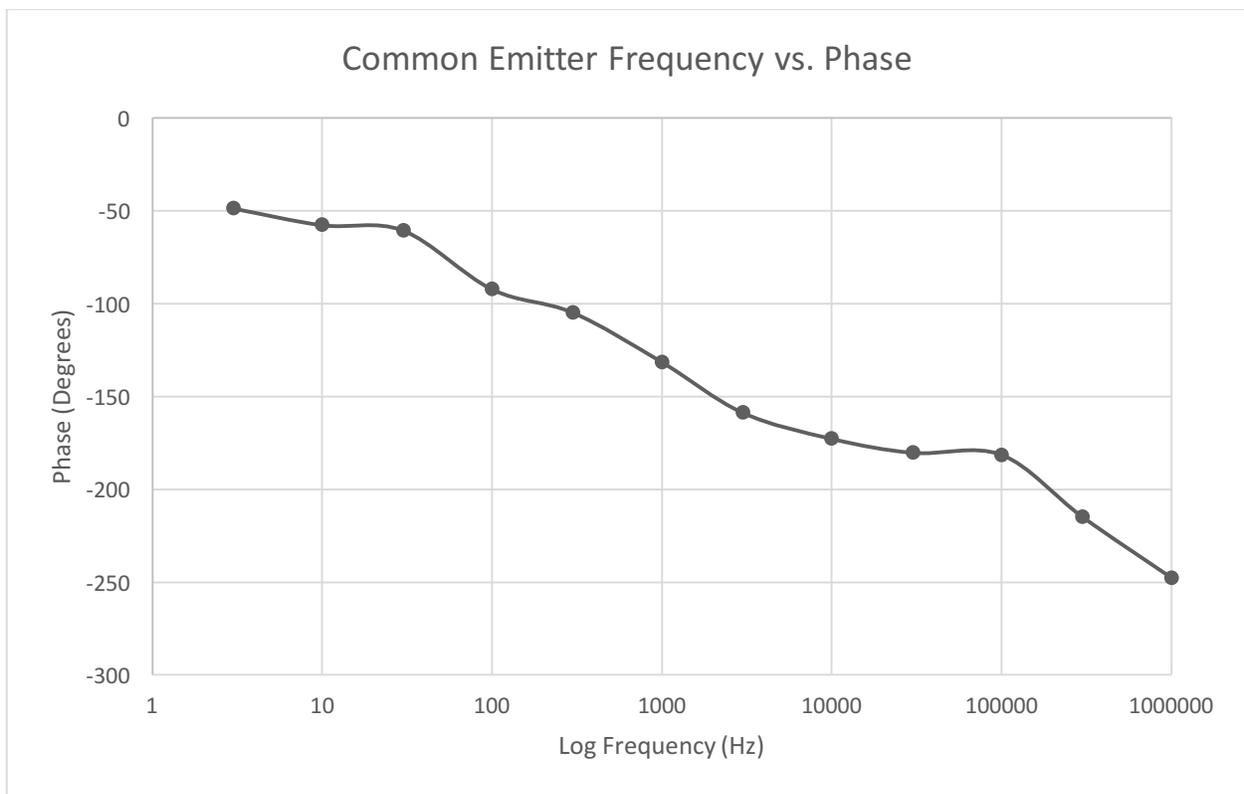


Figure 10. Measured common emitter phase response

Here, again, no title should appear above the figure. The figure should have no frame, and the axes and labeling should be in black. Light grey often disappears when printed or copied. As with earlier examples, higher frequencies in KHz or MHz is preferred. The author of this figure made an error, by labeling the frequency axis as the Log of frequency. That is incorrect; it is frequency, but on a log scale.

The phase angle labeling is technically correct. In this case it is indeed correct to start with 0 at the top, since phase shifts in a negative direction with increasing frequency. But it would have been better to configure Excel to label the frequency values in 90 or 45 degree

increments rather than 50 degree increments. It is most important to see where (at what frequencies) the phase is close to 180 degrees. Here, that is between 10KHz and 100KHz, but that isn't obvious. Similarly, if not every decade is to be represented by a grid line (as here), at least be sure to include 1KHz, 1MHz, etc. if those frequencies appear.