

Notes for plotting frequency response

- The theoretical, perfect, frequency response is shown via the Matlab code which uses the element values and the mathematical transfer function
- The experimental data is shown second. Note the amplitude plot from Excel is **not** in units of dB.

Matlab code for Lab 6 Bode Plot for Vc/Vs

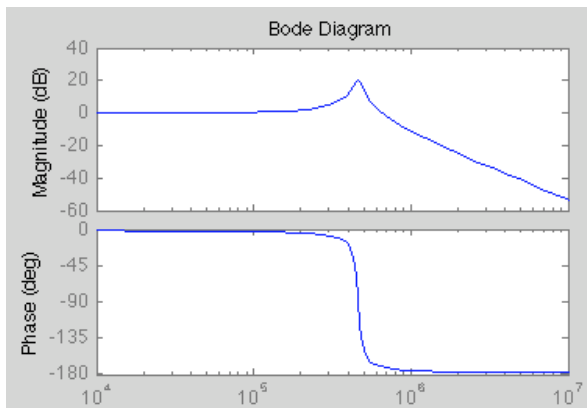
```
>> L = 47E-3
>> C = 100E-12
>> R = 2000
>> g = tf([1/(L*C)], [1 R/L 1/(L*C)]) → 'tf' = transfer function
```

Transfer function:

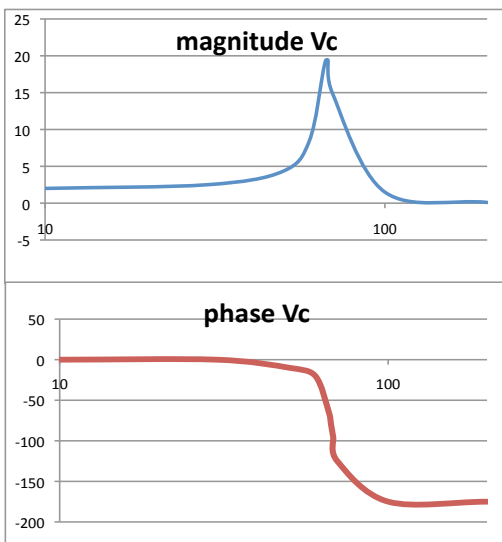
2.128e11

 $s^2 + 4.255e04 s + 2.128e11$

```
>> bode(g)
```



Excel plot from lab data (Lab6 BodeData.xlsx)



f	magnitude Vc	phase Vc
10	2.0V	0
30	2.5V	0
50	4.3V	-10
60	8.5V	-20
66	18.2V	-65
67	19.4V	-80
68	19.4V	-95
70	15.0V	-125
100	1.5V	-175
200	0.1V	-175