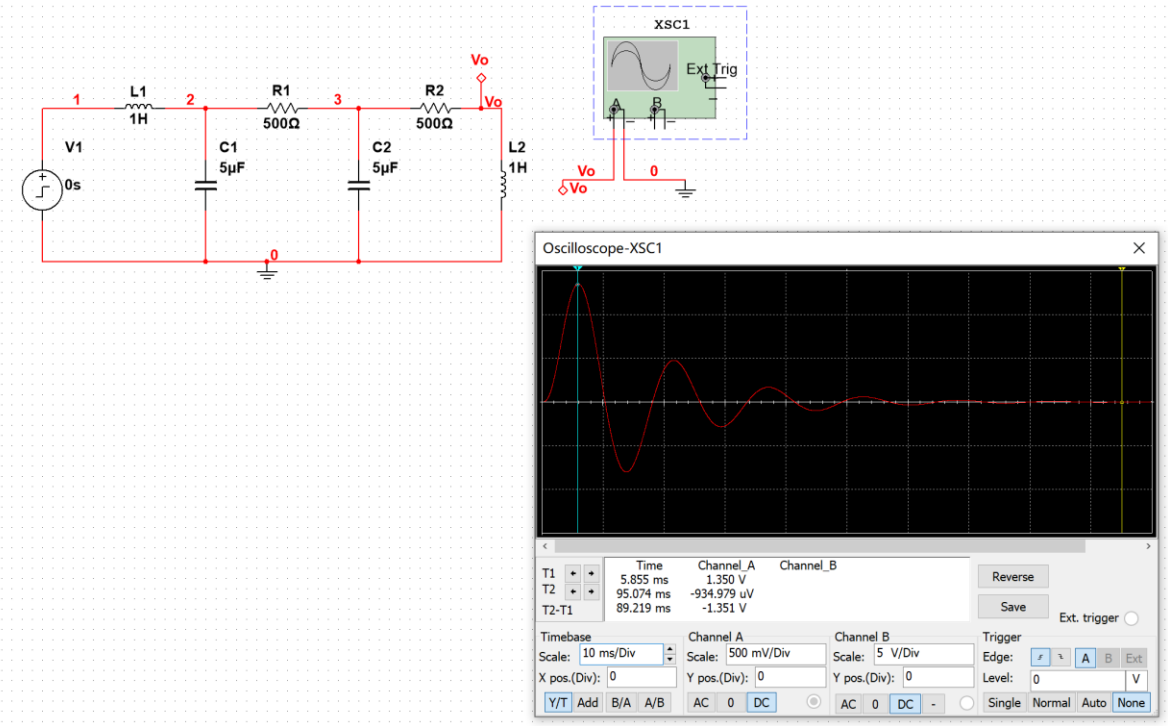
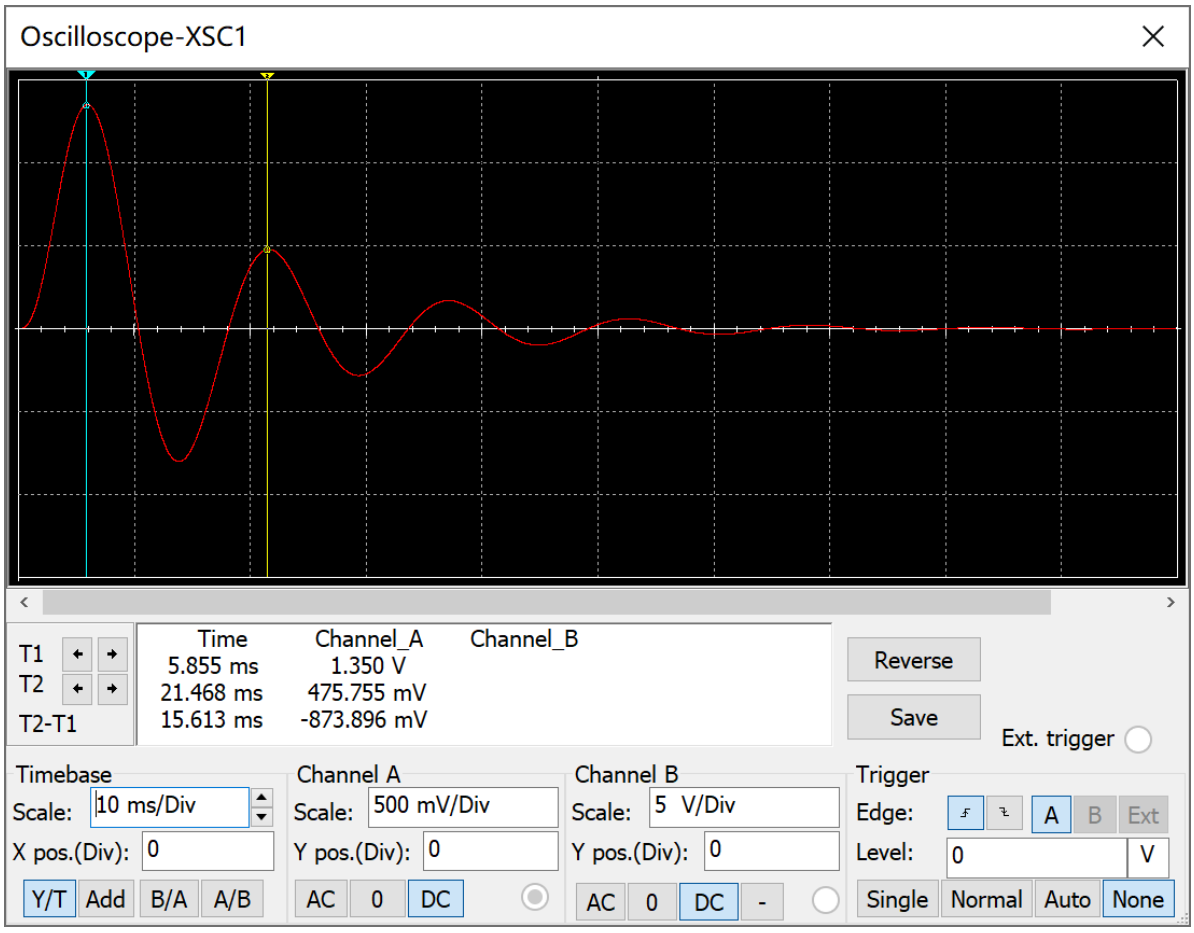
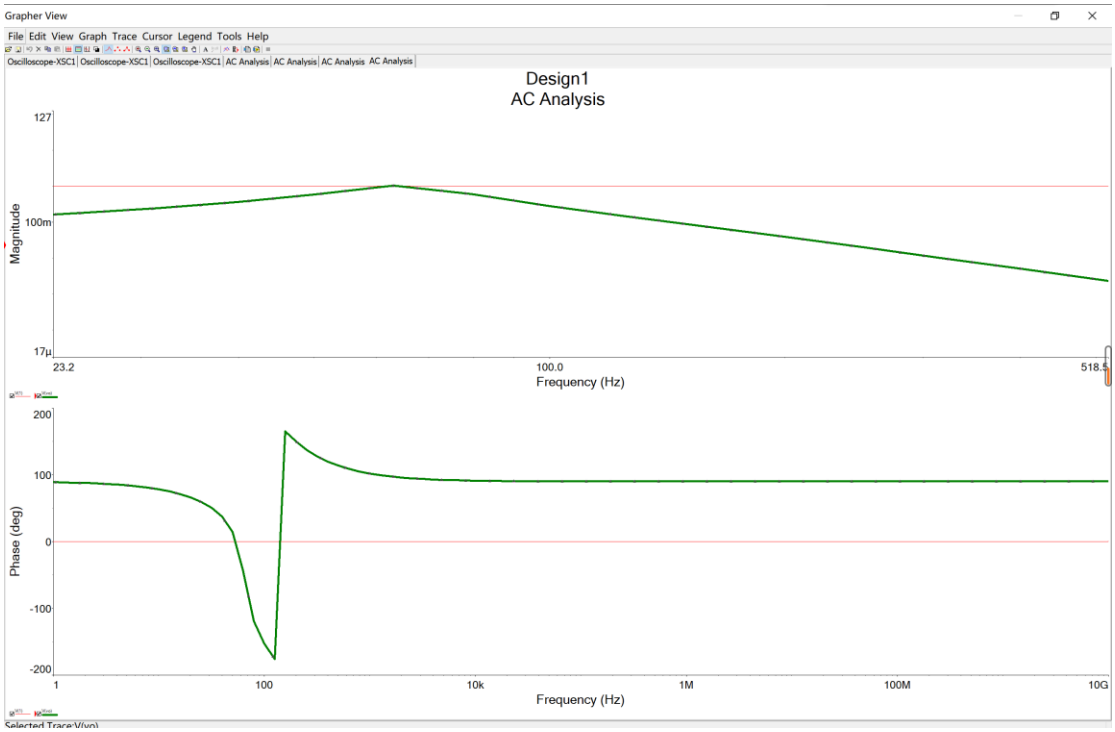
T2（4a）



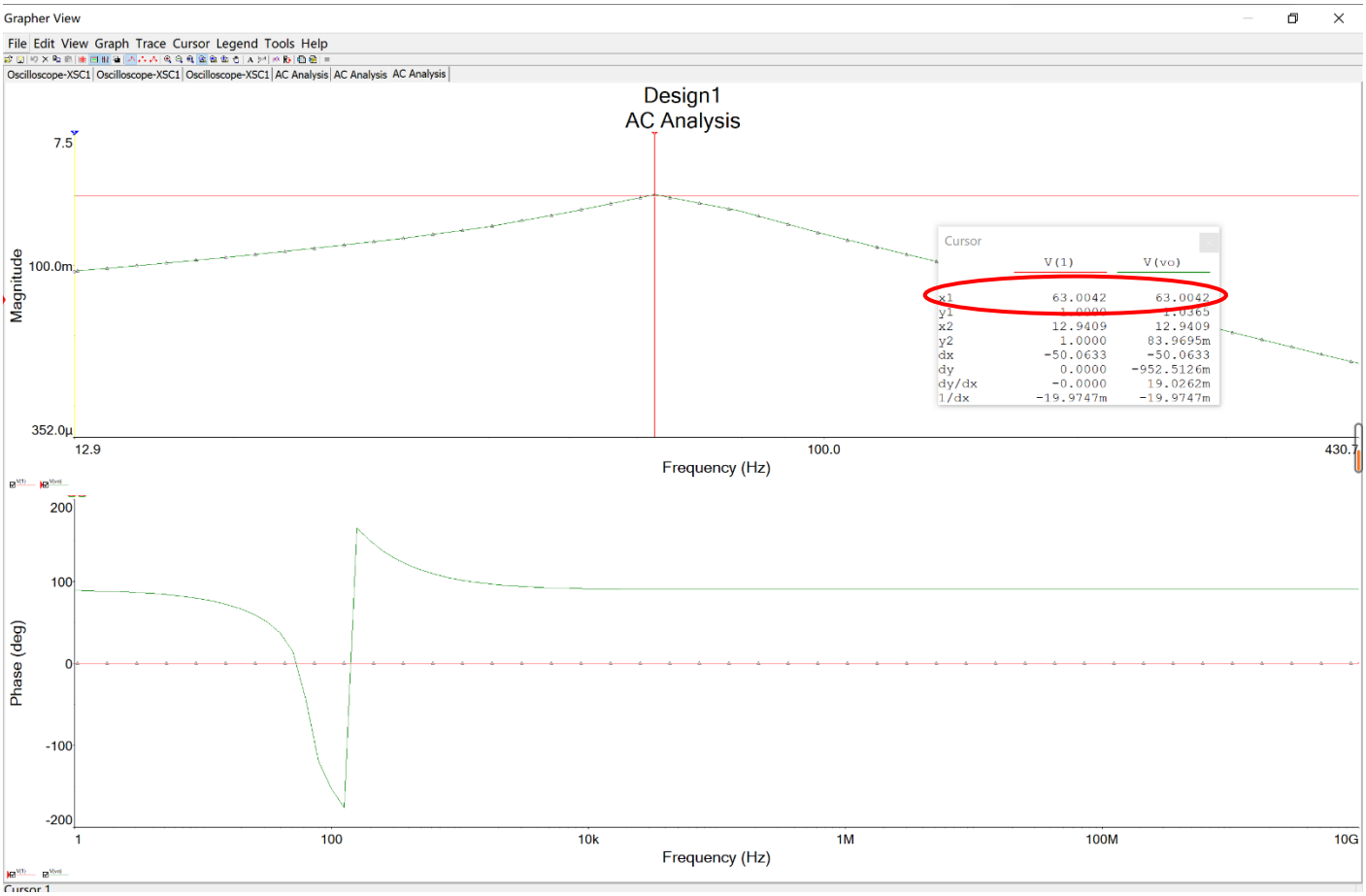
（4b）如图，T≈15ms，则频率v≈66.67Hz



（5a）



（5b）幅频响应最大时对应的频率约为 63Hz



T3（4）

T1B_T3.m

```
syms C R Rf Vi s;
A = [2*s*C+1/R, -s*C, 0;...
    s*C, -s*C-1/R-s*C/(1+s*C*R), 0;...
    0, s*C/(1+s*C*R), 1/Rf];
B = [s*C*Vi; 0; 0];
V = A\B;
Vo = V(3);
H = simplify(Vo/Vi);
```

命令行窗口

不熟悉 MATLAB? 请参阅有关快速入门的资源。

```
>> T1B_T3
>> H

H =

-(C^3*R^2*Rf*s^3)/(C^3*R^3*s^3 + 6*C^2*R^2*s^2 + 5*C*R*s + 1)
```

（5）

```
%%
% a = R*C; b = Rf/R;
a = 2e-7;b = 30;
num = [-a^3*b, 0, 0, 0];
den = [a^3, 6*a^2, 5*a, 1];
figure(1);
bode(tf(num, den));
```

命令行窗口

不熟悉 MATLAB? 请参阅有关快速入门的资源。

```
>> T1B_T3
>> H

H =

-(C^3*R^2*Rf*s^3)/(C^3*R^3*s^3 + 6*C^2*R^2*s^2 + 5*C*R*s + 1)
```

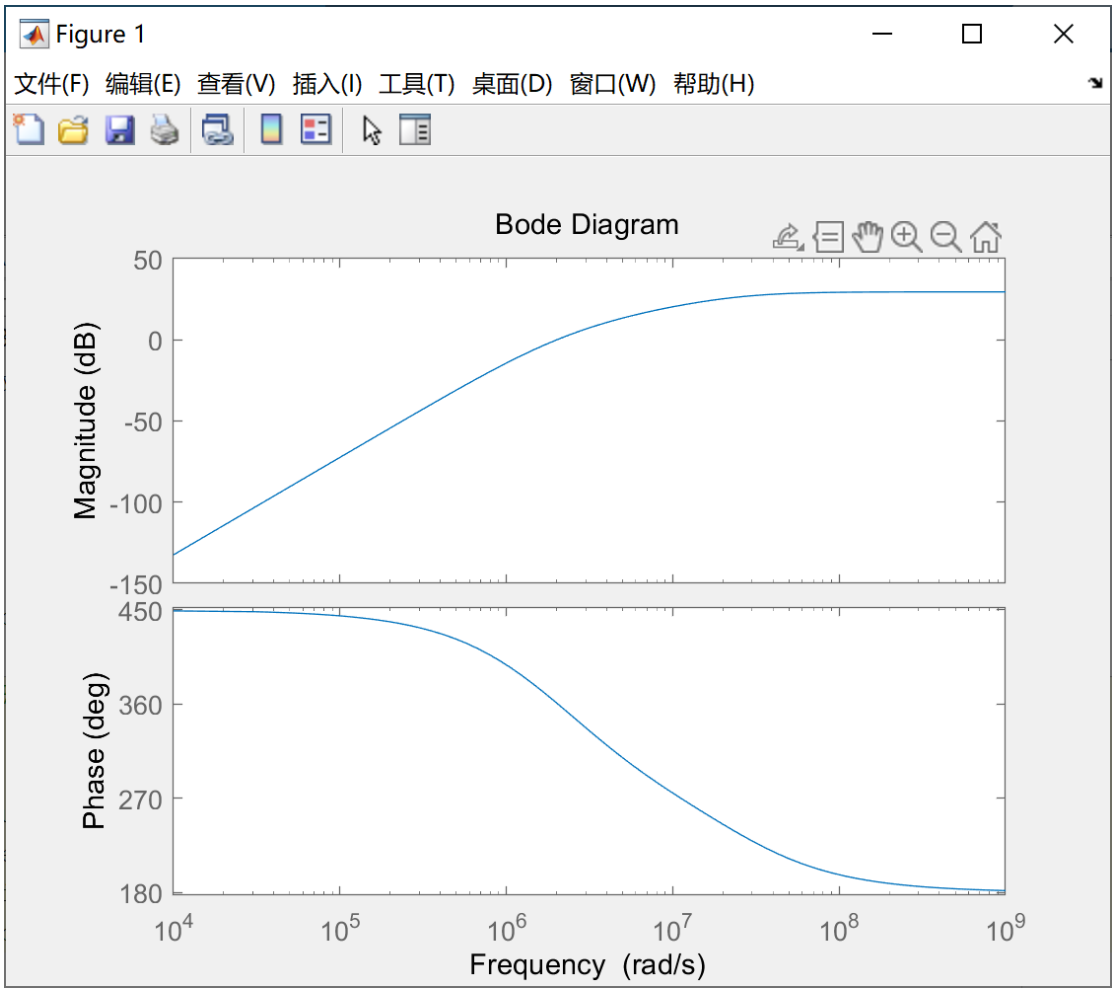


Figure 1
文件(F) 编辑(E) 查看(V) 插入(I) 工具(T) 桌面(D) 窗口(W) 帮助(H)
Bode Diagram
Magnitude (dB)
50
0
-50
-100
-150
Phase (deg)
450
360
270
180
10^4
10^5
10^6
10^7
10^8
10^9
Frequency (rad/s)

(6)

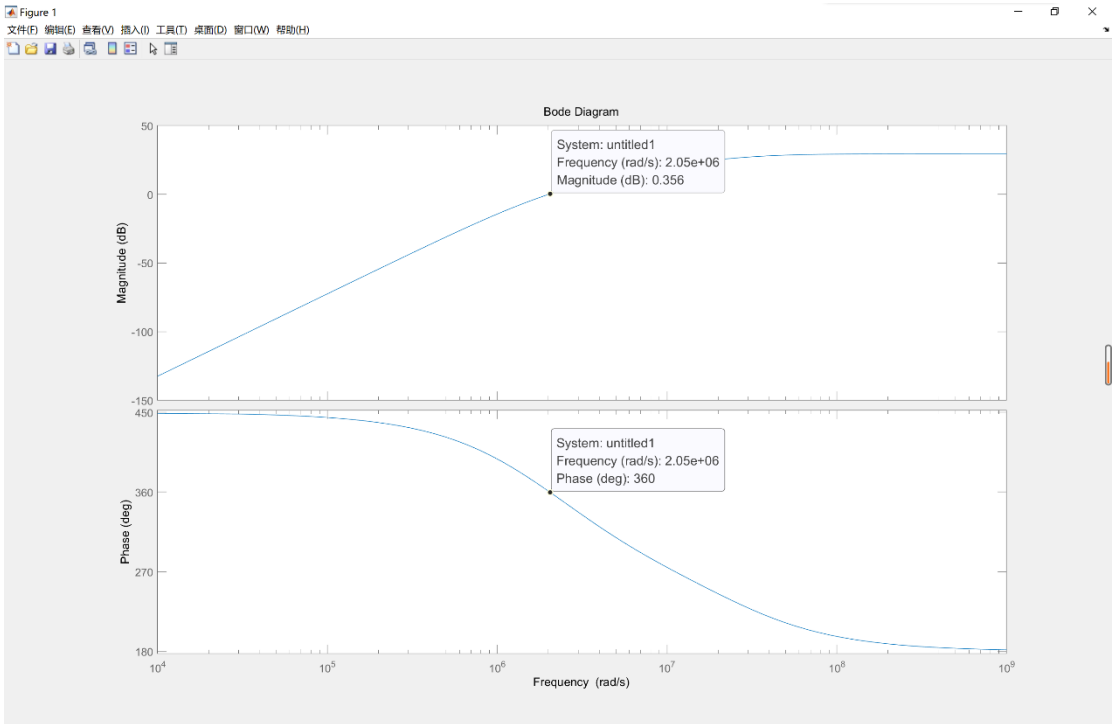


Figure 1
文件(F) 编辑(E) 查看(V) 插入(I) 工具(T) 桌面(D) 窗口(W) 帮助(H)
Bode Diagram
System: untitled1
Frequency (rad/s): 2.05e+06
Magnitude (dB): 0.356
Magnitude (dB)
System: untitled1
Frequency (rad/s): 2.05e+06
Phase (deg): 360
Phase (deg)
Frequency (rad/s)