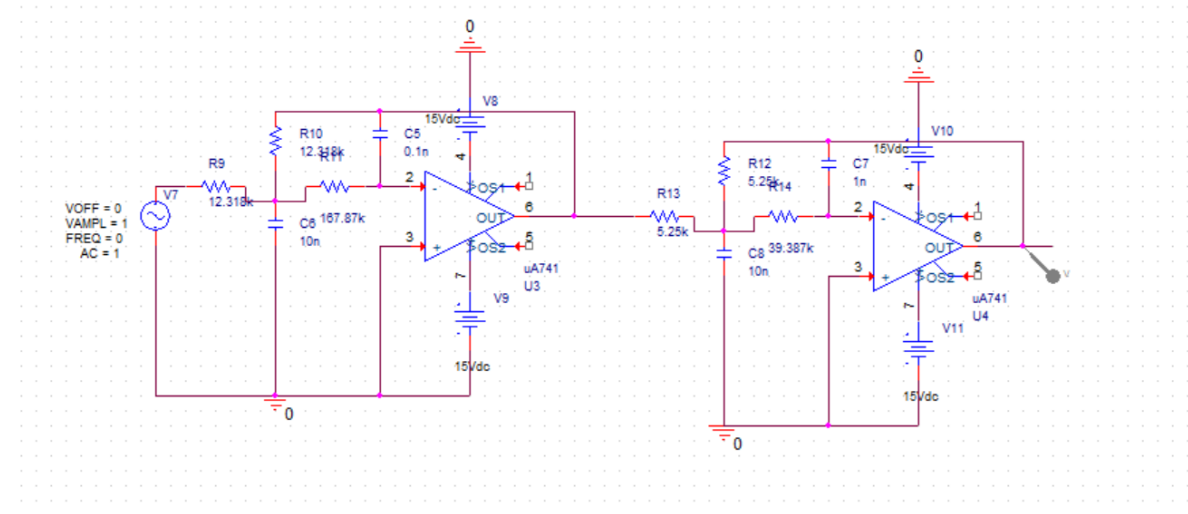B06602035 李晴妍
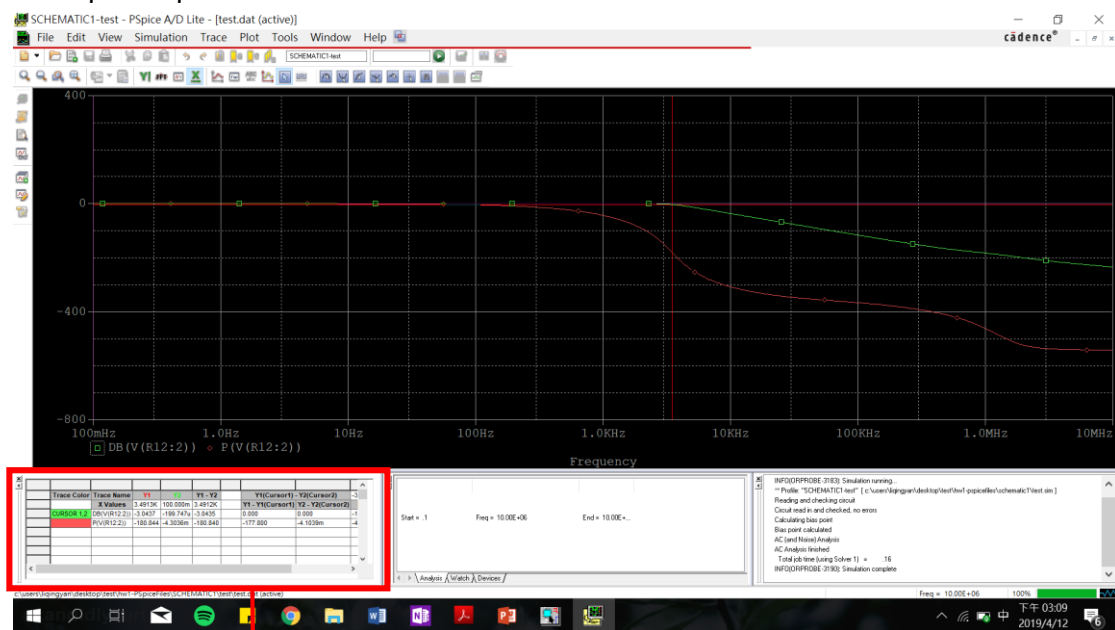2019/4/13

DP1

Schematics:



Bode plot & phase:



Marker 3dB:

| | Trace Color | Trace Name | Y1 | Y2 | Y1 - Y2 | Y1(Cursor1) - Y2(Cursor2) | | -3 |
|---|---|---|---|---|---|---|---|---|
| | | X Values | 3.4913K | 100.000m | 3.4912K | Y1 - Y1(Cursor1) | Y2 - Y2(Cursor2) | |
| | CURSOR 1,2 | DB(V(R12:2)) | -3.0437 | -199.747u | -3.0435 | 0.000 | 0.000 | -1 |
| | | P(V(R12:2)) | -180.844 | -4.3036m | -180.840 | -177.800 | -4.1039m | -4 |

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Resistor & capacitance value:

| normalize | | | denormalize | | | normalize | | | denormalize | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| s | 0.7654 | | | | | s | 1.8478 | | | | |
| R9 | 3.36E+02 | 1.23E+01 | 3.357311E+05 | 1.231807E+04 | | R13 | 7.88E+01 | 5.25E+00 | 7.8775E+04 | 5.2498E+03 |
| R11 | 6.16E+00 | 1.68E+02 | 6.159035E+03 | 1.678655E+05 | | R14 | 2.62E+00 | 3.94E+01 | 2.6249E+03 | 3.9387E+04 |
| R10 | 3.36E+02 | 1.23E+01 | 3.357311E+05 | 1.231807E+04 | | R12 | 7.88E+01 | 5.25E+00 | 7.8775E+04 | 5.2498E+03 |
| C6 | 2.20E-01 | | 1.00E-08 | | | C8 | 2.20E-01 | | 1.00E-08 | 10n |
| C5 | 2.20E-03 | | 1.00E-10 | | | C7 | 2.20E-02 | | 1.00E-09 | 1n |
| scaling | 1000 | | | | | scaling | 1000 | | | |
| cut-off f | 3500 | | | | | cut-off f | 3500 | | | |
| a | 21991148.58 | | | | | a | 21991148.58 | | | |

Calculation:

先決定 s=0.7654, scaling=1000, cut-off f=3500, C6(denormalize)=10n,
C5(denormalize)=0.1n

Normalize calculation:

a=2*pi*scaling*cut-off f

C6 = C6(denormalize)*a

C5 = C5(denormalize)*a

R9 = s/2/C5+SQRT((s*C6)^2-8*C6*C5)/2/C6/C5

R10 = R9

R11 = 1/R9/C6/C5

Denormalize calculation:

R9(denormalize)=R9*scaling

R10(denormalize)=R10*scaling

R11(denormalize)=R11*scaling

右邊同樣方式。