Circuits II practical project

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Tutorial: T5 IET

Circuit Type:

Non-inverting low pass filter

Supervised by:

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The components we used are :

* 1X Amplifier LM324
* 1X 1nF Capacitor
* 1X 16kΩ Resistor
* 2x 10kΩ Resistor
* 1X VAC
* 2X VDC (20V)
* 1X VDC (10V)

1-We chose F_o = 10KHz & C=1nF

Accordingly $R=1/2\pi F_o C \approx$ 16kΩ

2- We chose Gain A= 2

Accordingly R2/R3=1

R2/R3=1 → R2=R3=10kΩ

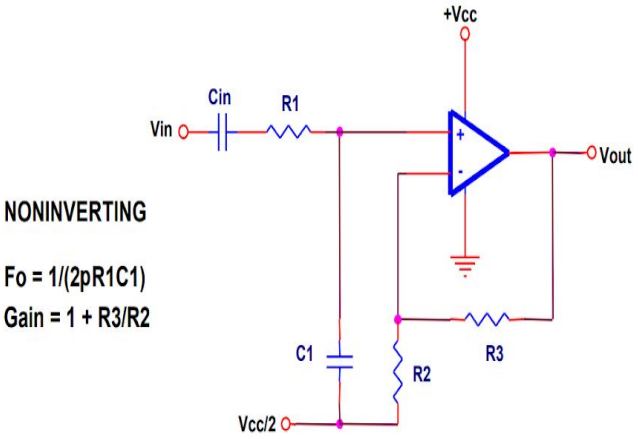
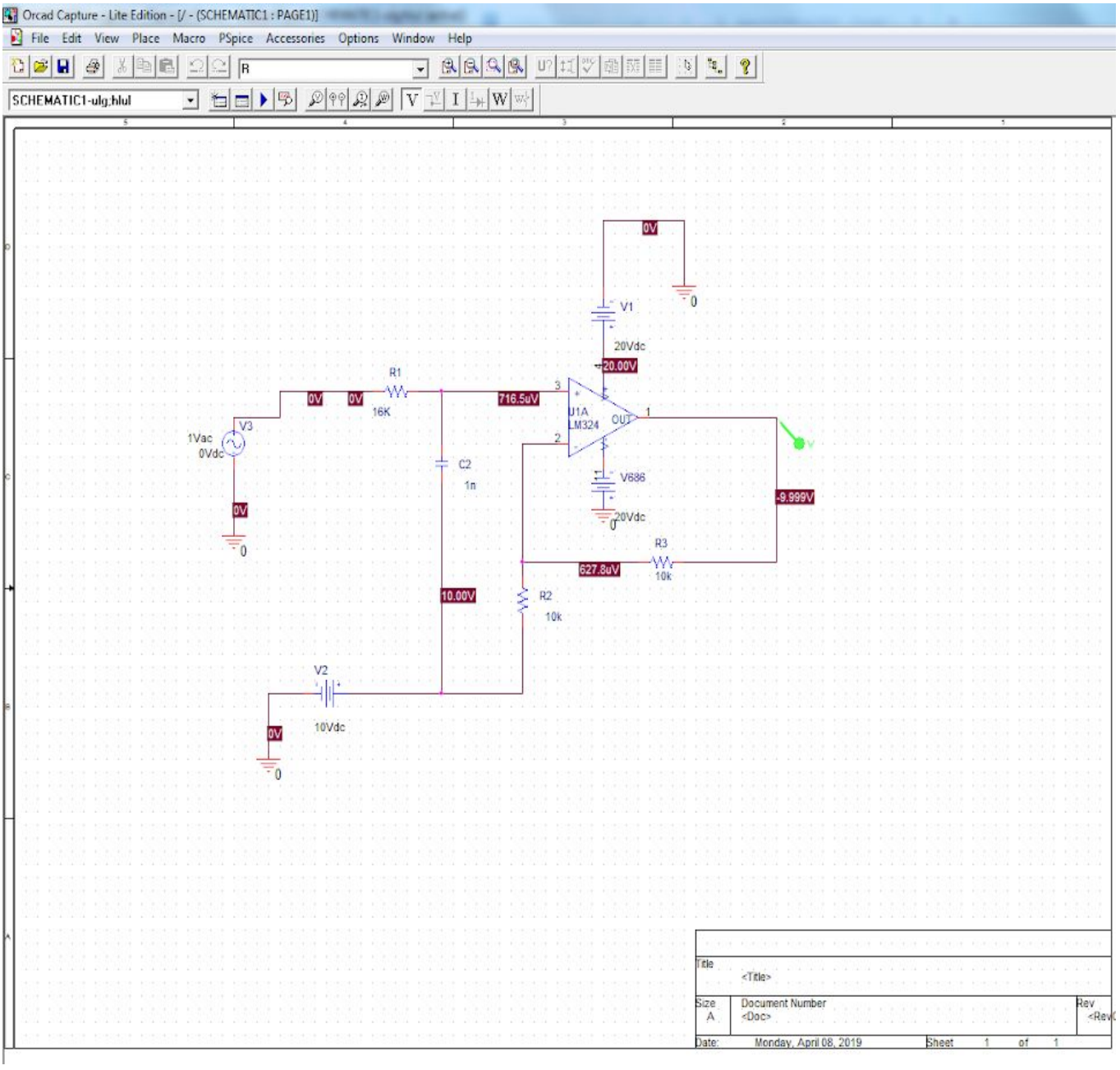


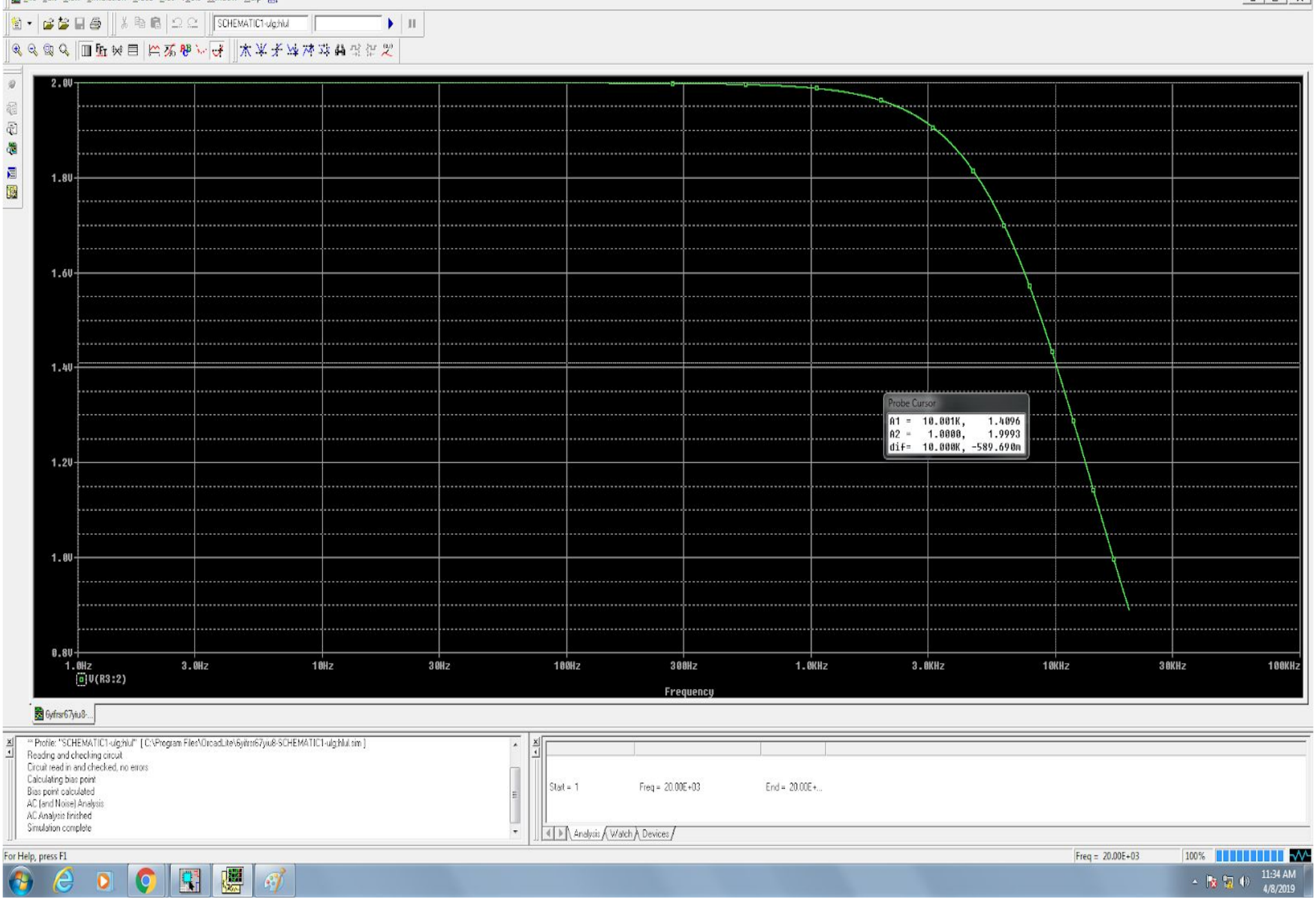
Figure 13. Low-Pass Filter Circuits

3.1.2 High Pass Filter Circuits

Typical high-pass filter circuits are shown in Figure 14.


Orcad Capture - Lite Edition - [/ - (SCHEMATIC1 : PAGE1)]
File Edit View Place Macro PSpice Accessories Options Window Help
SCHEMATIC1-ulg:hlul
0V
V1
20Vdc
20.00V
R1
16K
0V
0V
716.5uV
U1A
LM324
OUT
V3
1Vac
0Vdc
C2
1n
V686
20Vdc
-9.999V
R3
10k
627.8uV
10.00V
R2
10k
V2
10Vdc
Title
<Title>
Size
A
Document Number
<Doc>
Rev
Date:
Monday, April 08, 2019
Sheet
1
of
1

AT Fo --> V=Vm/√2


SCHEMATIC1-ulg:hlul
2.0V
1.8V
1.6V
1.4V
1.2V
1.0V
0.8V
1.0Hz
3.0Hz
10Hz
30Hz
100Hz
300Hz
1.0KHz
3.0KHz
10KHz
30KHz
100KHz
V(R3:2)
Frequency
Probe Cursor
A1 = 10.001K, 1.4096
A2 = 1.0000, 1.9993
dif= 10.000K, -589.690m
6yftrsr67yiu8-...
** Profile: "SCHEMATIC1-ulg:hlul" [C:\Program Files\OrcadLite\6yftrsr67yiu8-SCHEMATIC1-ulg:hlul.sim]
Reading and checking circuit
Circuit read in and checked, no errors
Calculating bias point
Bias point calculated
AC [and Noise] Analysis
AC Analysis finished
Simulation complete
Start = 1
Freq = 20.00E+03
End = 20.00E+...
Analysis
Watch
Devices
For Help, press F1
Freq = 20.00E+03
100%
11:34 AM
4/8/2019