North South University

Department of Electrical & Computer Engineering

LAB REPORT

Spring 2021

Course Code : EEE 111

Course Title: Analog Electronics - I

Section: 7

Experiment Number: 03

Experiment Name:

Clipper and Clamper circuits.

Experiment Date: 23 / 03 / 2021

Date of Submission: 12 / 04 / 2021

Course Instructor: Syeda Sarita Hassan

Submitted To: Fatema Zahra

Name of experiment: Clipper and clamper circuits.

Objective: Study of clipper and clamper circuits.

Equipments and Components:

1) P-n junction diode -IN4007 - 1 piece
2) Resistor - 100kΩ - 1 piece.
3) Capacitor - 0.1 μF - ~~1 piece~~ 1 piece
4) signal generator - 1 unit
5) trainer board - 1 unit
6) DC power supply - 1 unit
7) osilloscope - 1 unit
8) Digital Multimeter - 1 unit
9) chords and wire - as required.

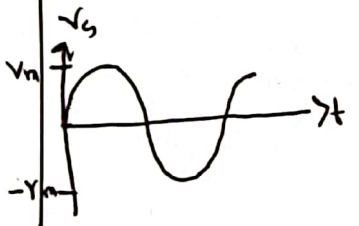
Theory:

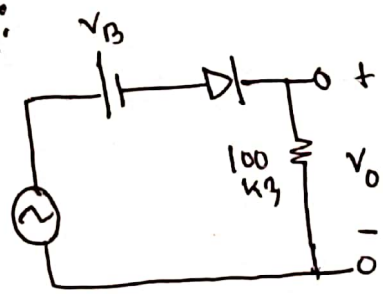
To remove signal voltage above or bellow a specified level a clipper is used. There are many ways to create a clipper circuit. A half wave rectifier is also a clipper circuit. forward and reverse diode position

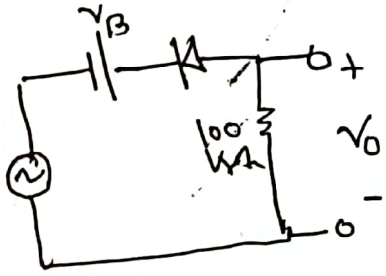
determines positive or negative clipoff.

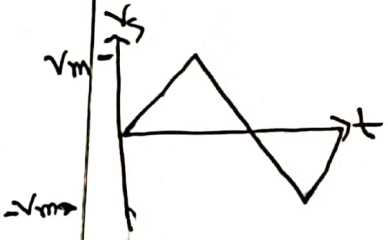
A circuit that adds a DC voltage to the input signal is called a DC clamper circuit. if the DC clamper is positive it'll ~~~~ create output that swing from 0V to +V(depending on input). And a DC negative clamper will swing from 0 to -V (depending on input).

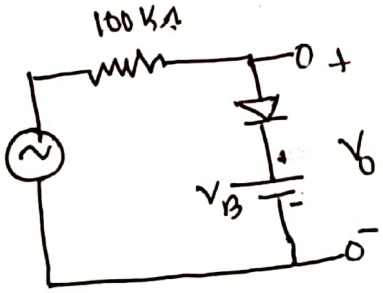
Circuit Diagrams:

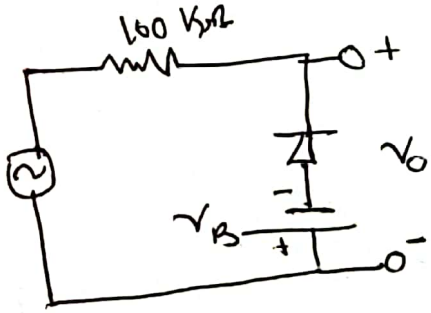


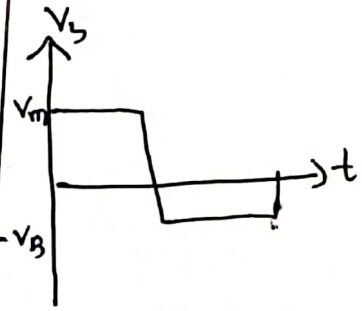


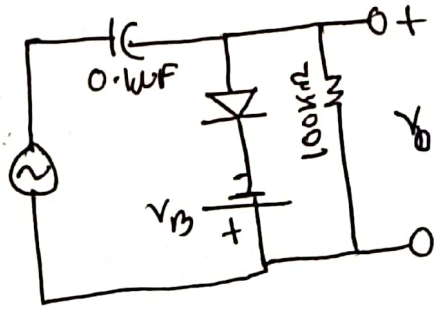


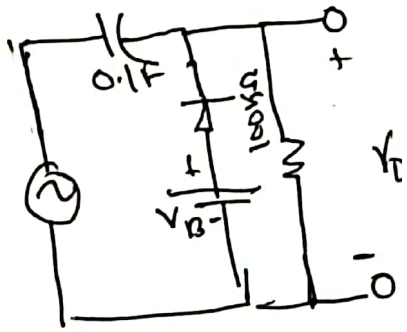












Question/Answer :

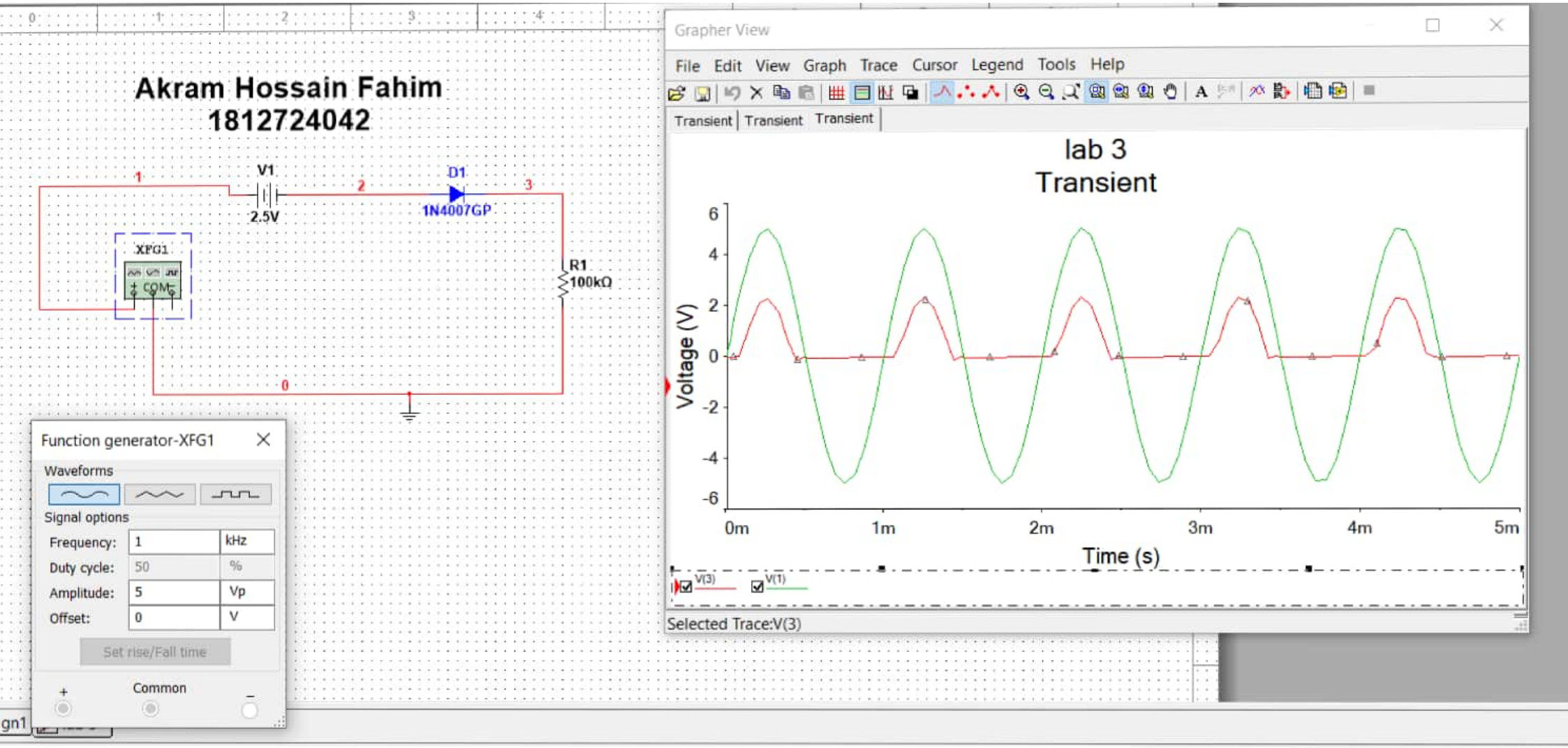
Ans: to the Question no: 01

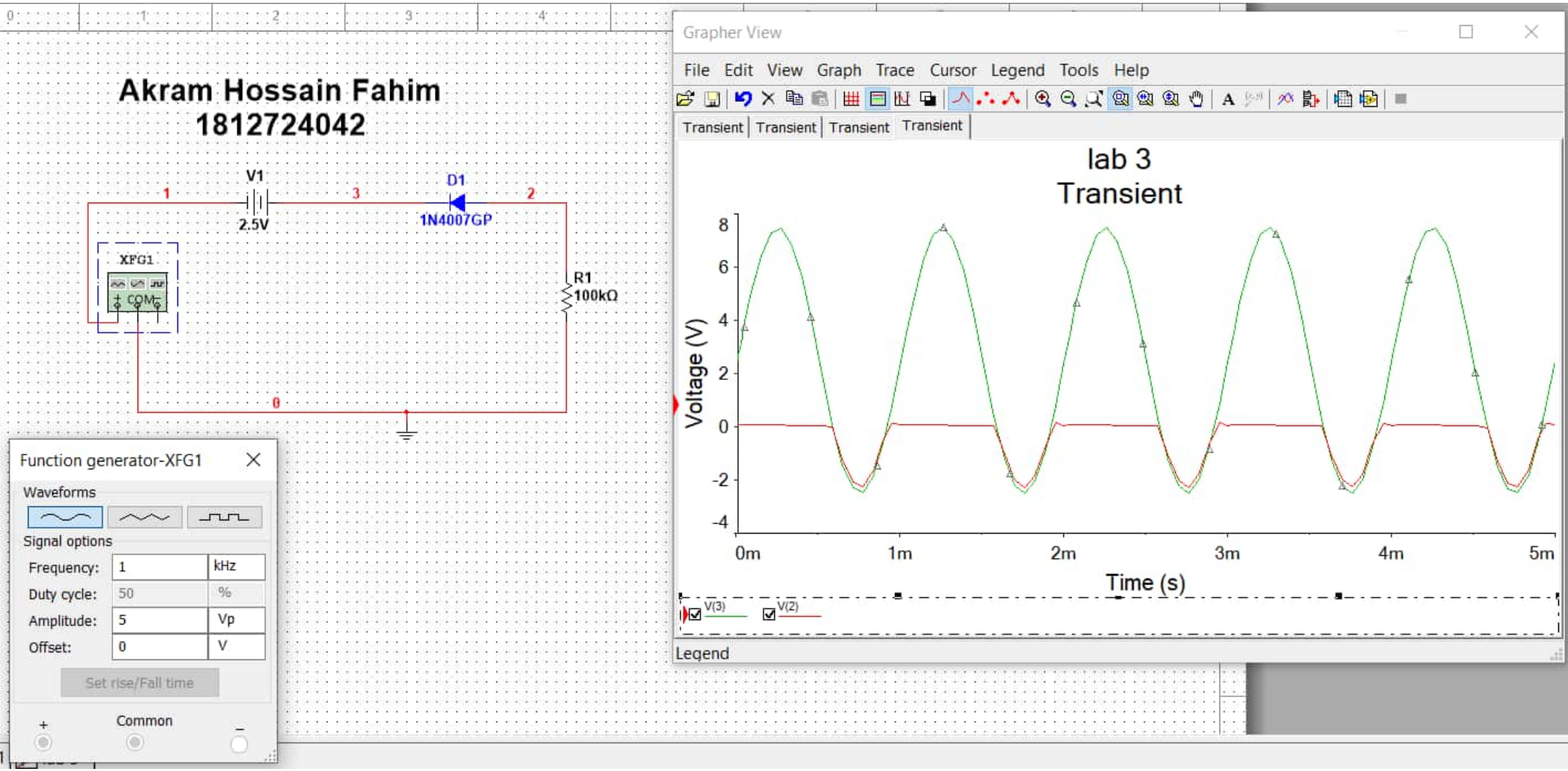
The simulation part contains all of the wave forms observed in the experiment.

Ans: to the Question no: 02

The value of the capacitor used in the clamping circuit plays a very important role in order to obtain proper clamping because the value of the capacitor determines the offset value of the signal. So increasing or decreasing it produces more accurate signal level.

~~Discuss:~~
Discussion: In this experiment we learned about how the clipper and clamper circuits work. And how the circuits wave forms differ for each other. The circuits were easy to implement in the multisim. some functions were difficult to understand. But with some practice was able to complete the simulation.


Akram Hossain Fahim
1812724042
V1
2.5V
D1
1N4007GP
XFG1
R1
100kΩ
1
2
3
0
Function generator-XFG1
Waveforms
Signal options
Frequency: 1 kHz
Duty cycle: 50 %
Amplitude: 5 Vp
Offset: 0 V
Set rise/Fall time
Common
Grapher View
File Edit View Graph Trace Cursor Legend Tools Help
Transient Transient Transient
lab 3
Transient
Voltage (V)
Time (s)
0m 1m 2m 3m 4m 5m
6 4 2 0 -2 -4 -6
V(3) V(1)
Selected Trace:V(3)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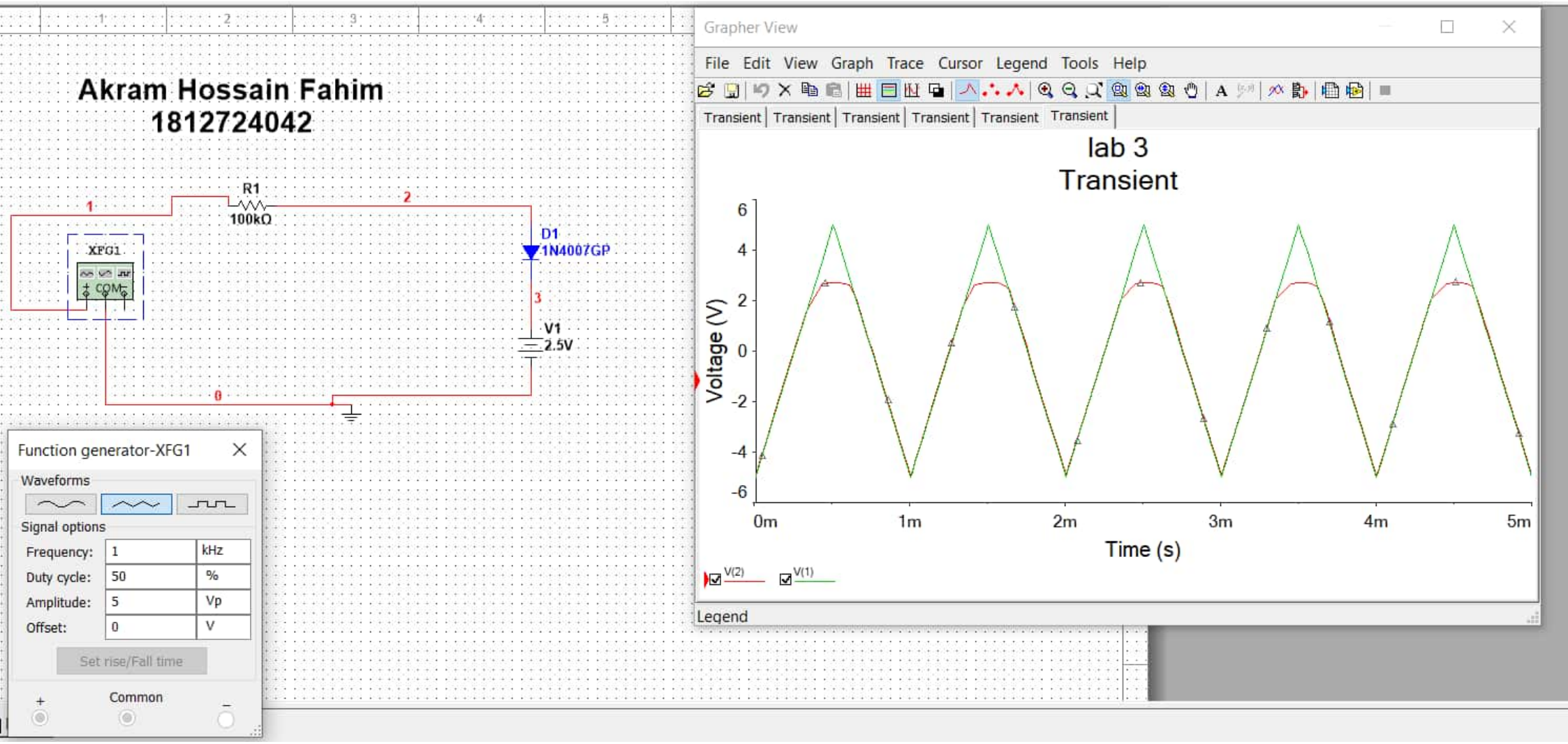
Transient Transient Transient Transient
lab 3
Transient
Voltage (V)
Time (s)
0m 1m 2m 3m 4m 5m
8 6 4 2 0 -2 -4
V(3) V(2)
Legend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Transient Transient Transient Transient Transient Transient
lab 3
Transient
Voltage (V)
6
4
2
0
-2
-4
-6
0m
1m
2m
3m
4m
5m
Time (s)
V(2)
V(1)
Legend

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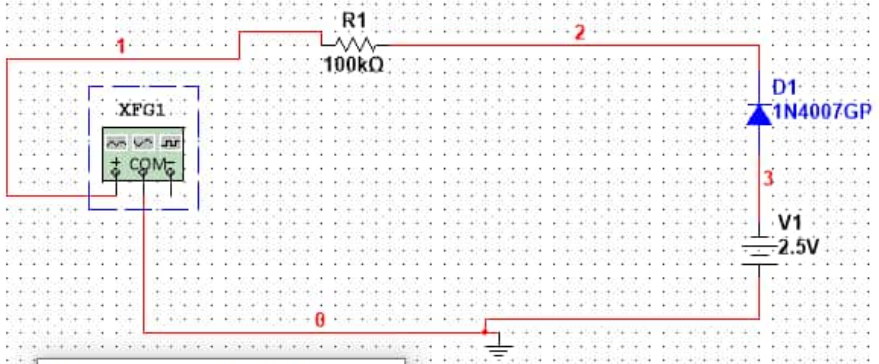


Function generator-XFG1

Waveforms

Signal options

Frequency:	1	kHz
Duty cycle:	50	%
Amplitude:	5	Vp
Offset:	0	V

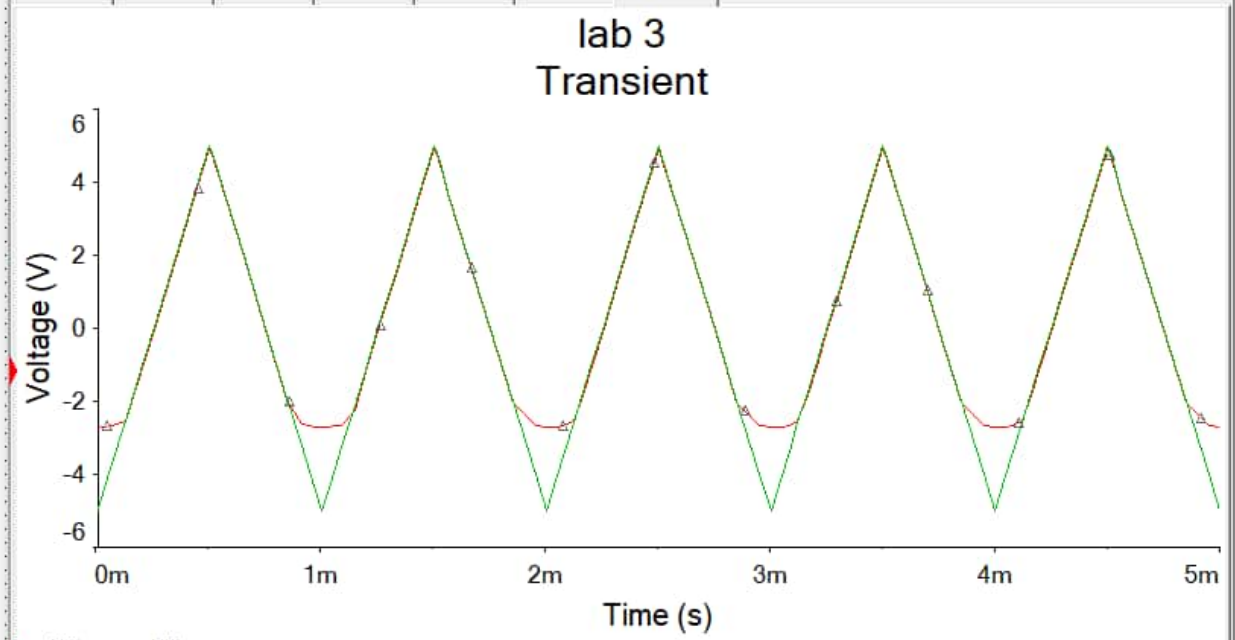
Set rise/Fall time

\+ Common −

Grapher View

File Edit View Graph Trace Cursor Legend Tools Help

Transient | Transient | Transient | Transient | Transient | Transient | Transient



Legend

lab

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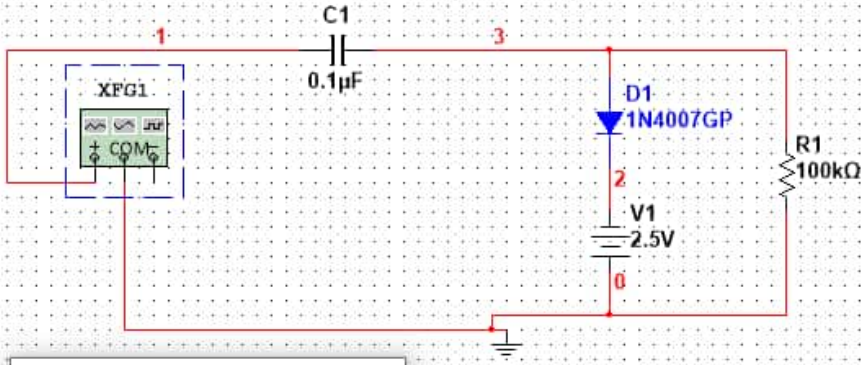

Function generator-XFG1

Waveforms

Signal options

Frequency:	1	kHz
Duty cycle:	50	%
Amplitude:	5	Vp
Offset:	0	V

Set rise/Fall time

Common

Grapher View

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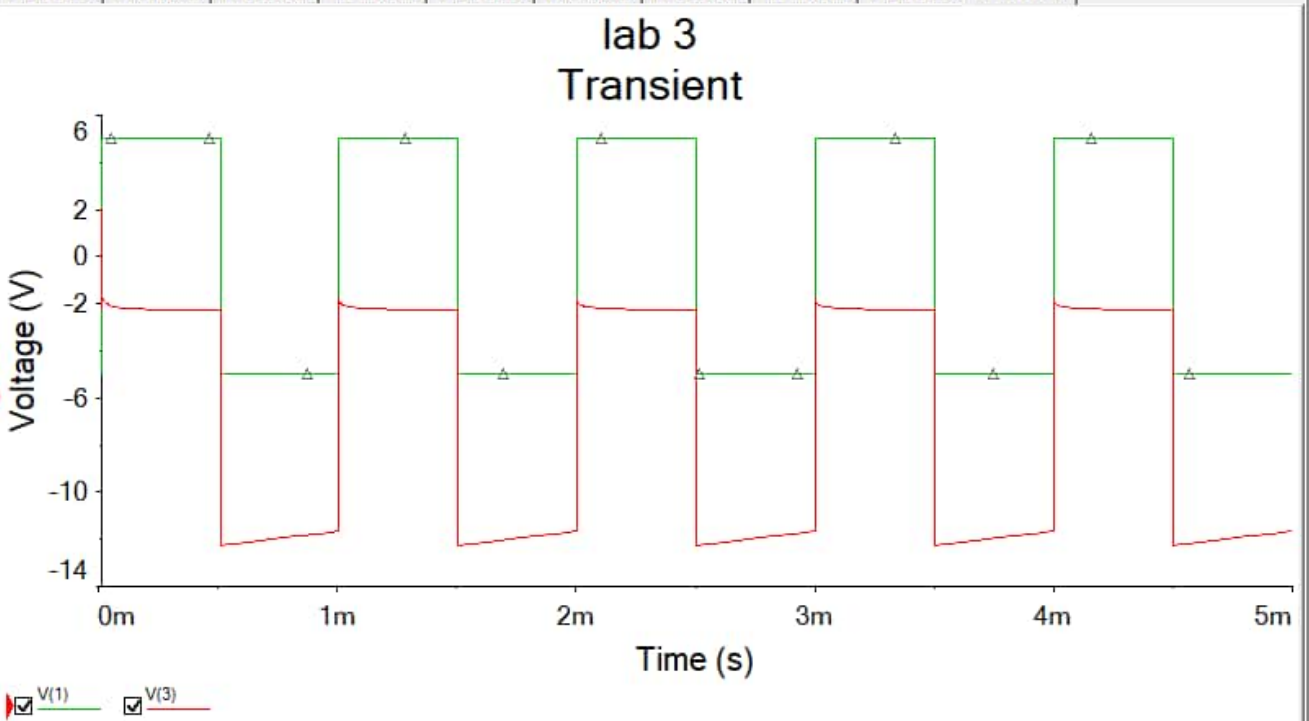
Transient | Transient | Transient | Transient | Transient | Transient | Transient | Transient | Transient | Transient



Selected Diagram:Transient

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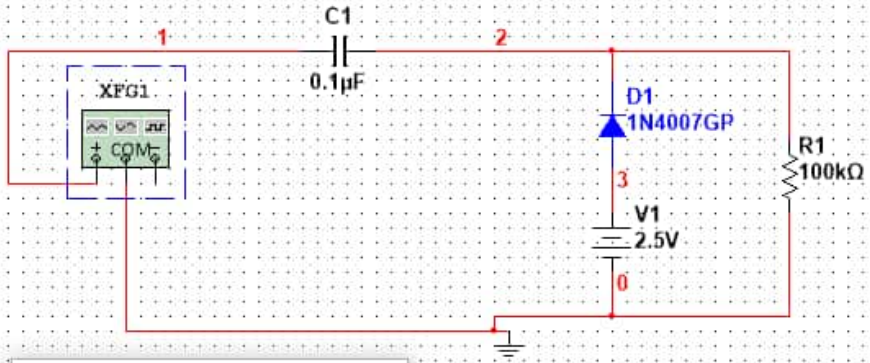

Function generator-XFG1

Waveforms

Signal options

Frequency:	1	kHz
Duty cycle:	50	%
Amplitude:	5	Vp
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Set rise/Fall time

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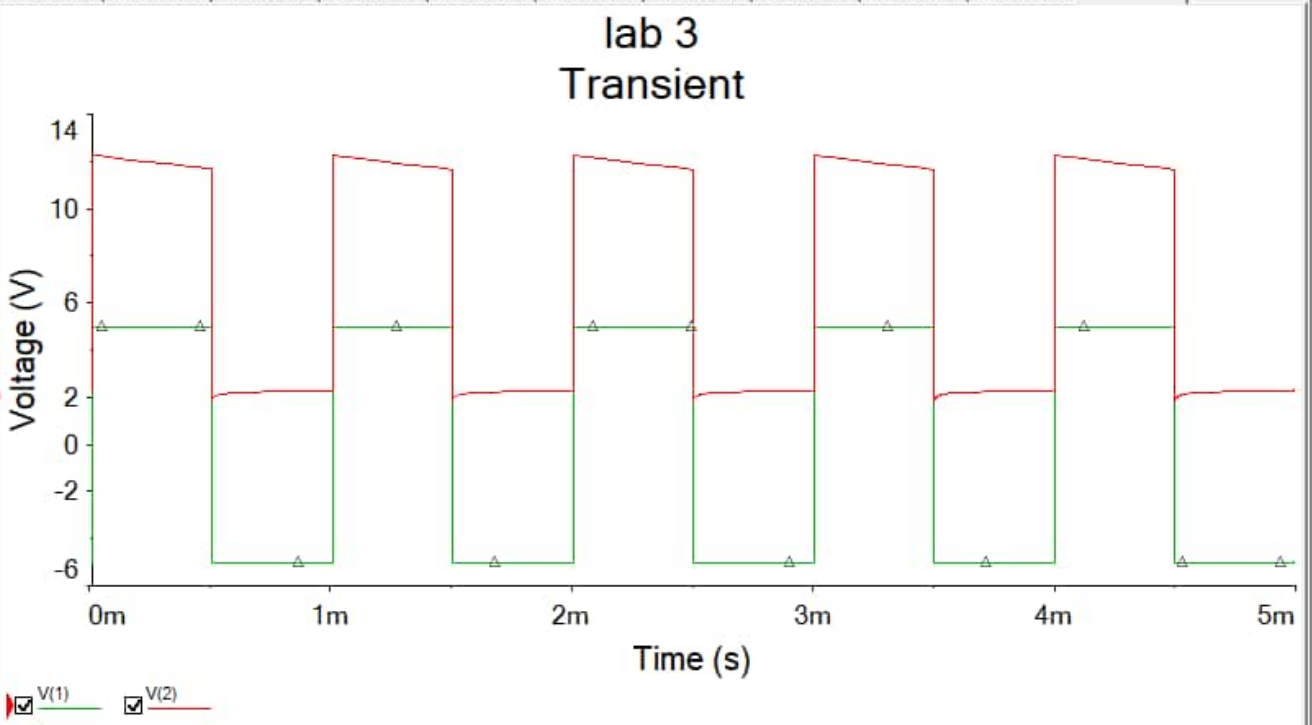

Trace: V(2)