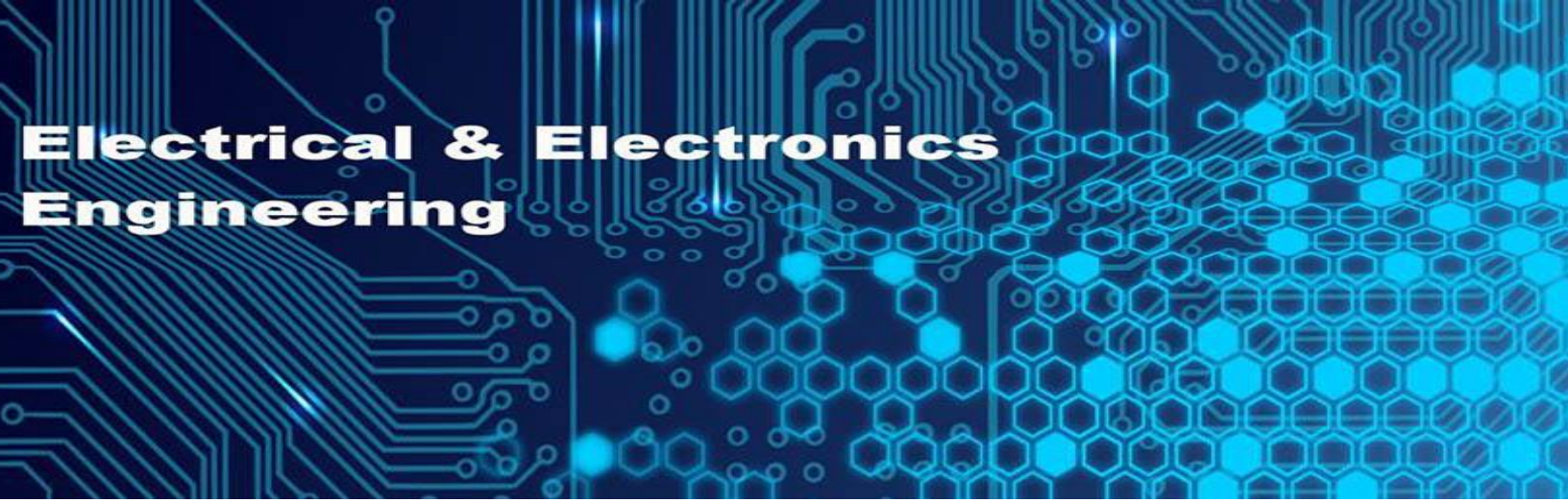



# EEE Lab Report

Course: Electronic Devices and Circuits & Pulse Techniques Lab
Course Code: EEE 204

Experiment No: 02
Experiment Name: Clipping and Clamping Circuits
Date of Performance: 25/02/2021
Date of Submission: 04/03/2021

| Submitted By: | Submitted To: |
|---|---|
| Md. Omor Faruk<br>Id No: 192002006<br>Section: 192 DB<br>Department of Computer Science & Engineering<br>Green University of Bangladesh | Mr. Sharif Nafis Mahmood<br>Lecturer<br>Department of EEE<br>Green University of Bangladesh |

**Signature and Date**
**Mr. Sharif Nafis Mahmood**
**Lecturer**
**Department of EEE**
**Green University of Bangladesh**

Experiment No: 02

Experiment Name: Clipping and Clamping Circuits

## Object:

To steady the diode applications in a clipping and clamping circuits.

## Apparatus:

1. Function Generator
2. Oscilloscope
3. DC Power Supply
4. Breadboard
5. Diodes
6. Capacitors and
7. Resistor.

## Theory:

This experiment studies the applications of the diode in the clipping and clamping

operations.

## 1. Clipping Circuits:

The figure (1) shows a biased clipper, for the diode to turn in the input voltage must be greater +V, when $V_m$ is greater than +V, the diode acts like a closed switch (ideally) & the voltage across the output equals +V, this output stays at +V as long as the input voltage exceeds +V.

When the input voltage is less than +V, the diode opens and the circuit acts as a voltage divider, as usual, $R_L$ should be much greater than R, in this -way, most of input voltage appears across the output.

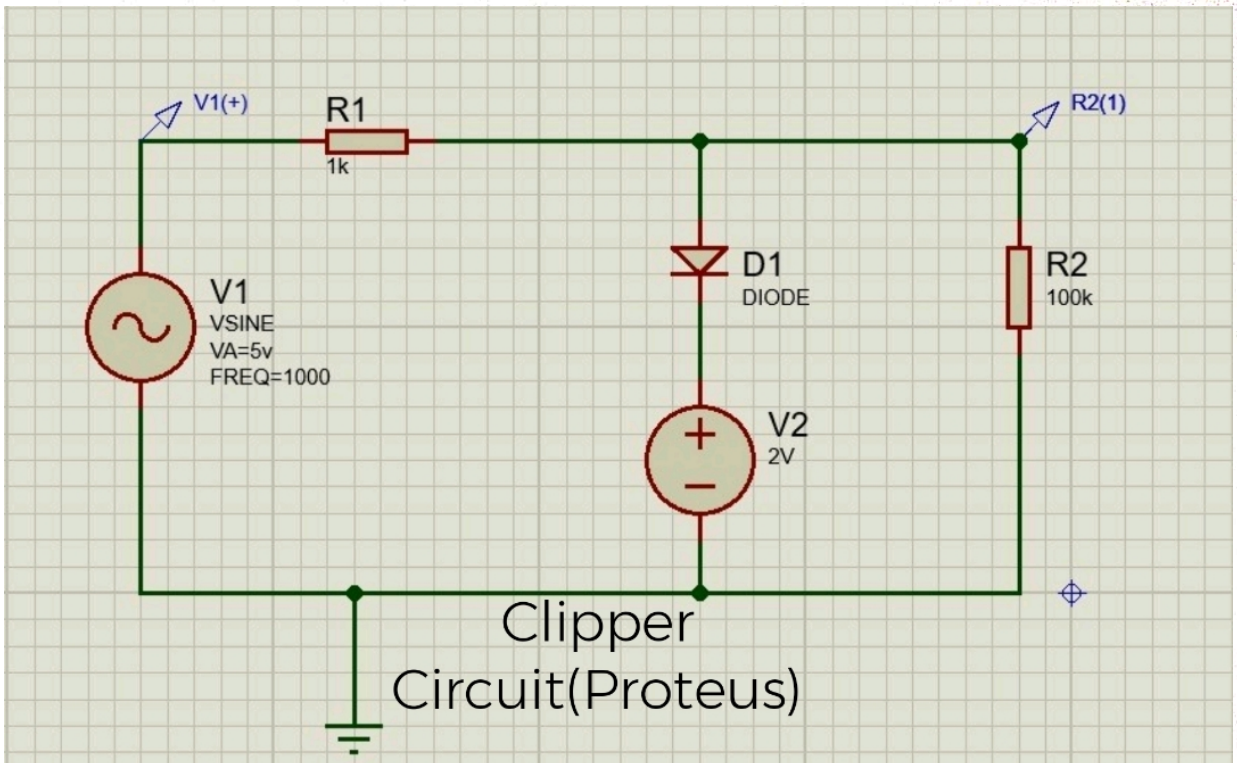
The output waveforms of Figure (1) summarize the circuit action. The biased

Clipper removes all signals above the (+V) level.

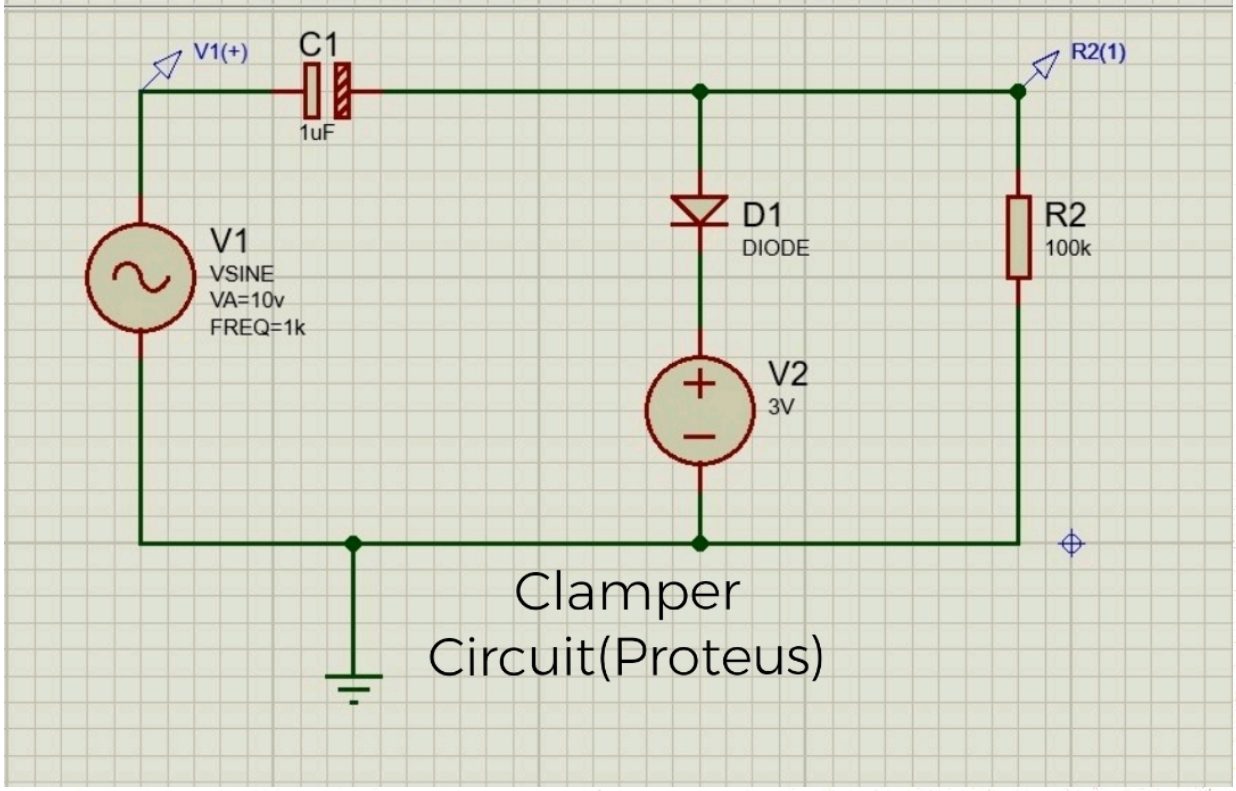
## 2. Clamping Circuits:

A clamper does is adding a DC component to the signal. In figure (2) the input signal is a sinewave, the clamper pushes the signal is preserved, all that happen is a vertical shift of the signal. We described an output signal for a positive damper - On the Figure (2) shown represents a positive clamper ideally here how it is -works. On the first negative half cycle of input voltage, the diode turns on. At the negative peak, the capacitor must change to $V_p$ -with polarity shown. Slightly beyond the negative peak, the diode shunts off.

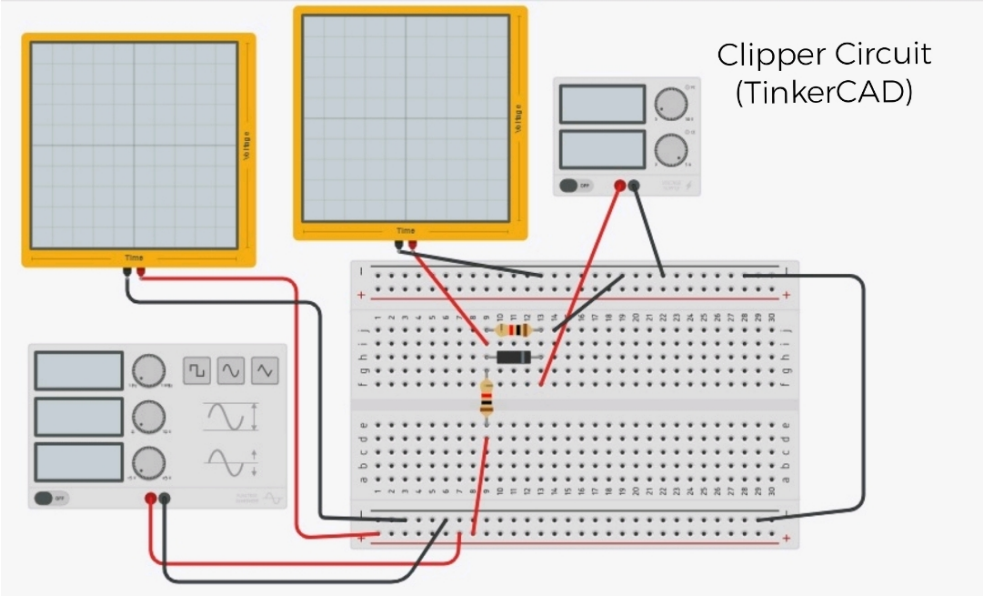
# Circuit Diagram:

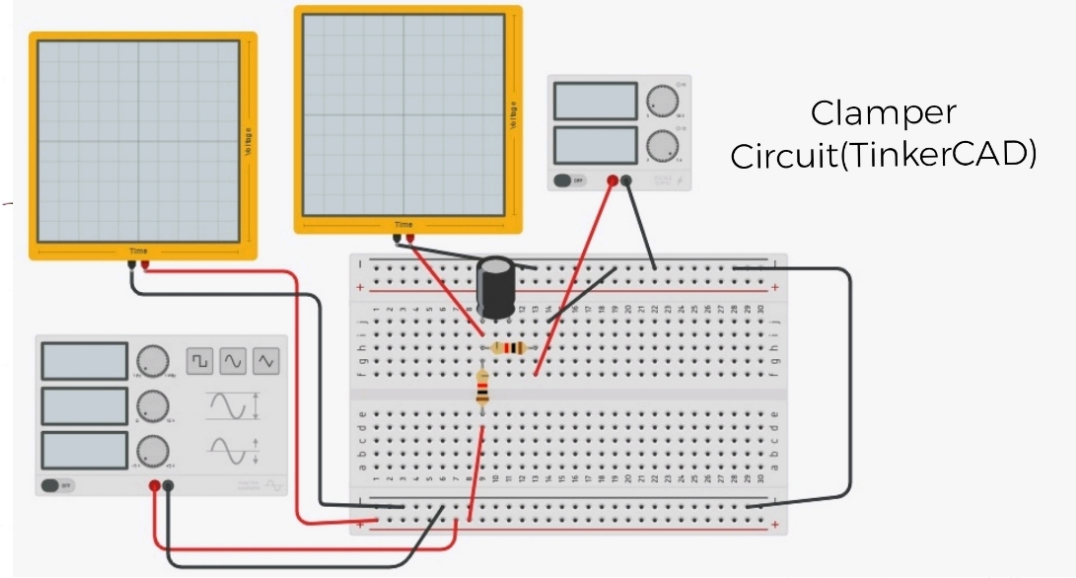



Clipper Circuit(Proteus)

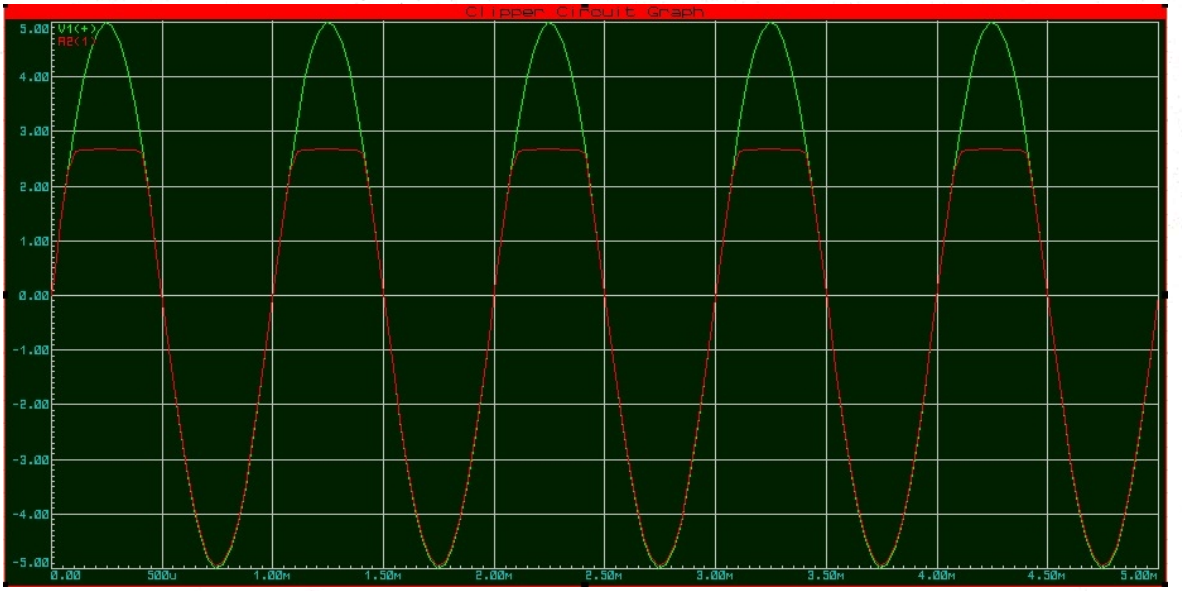



Clamper Circuit(Proteus)

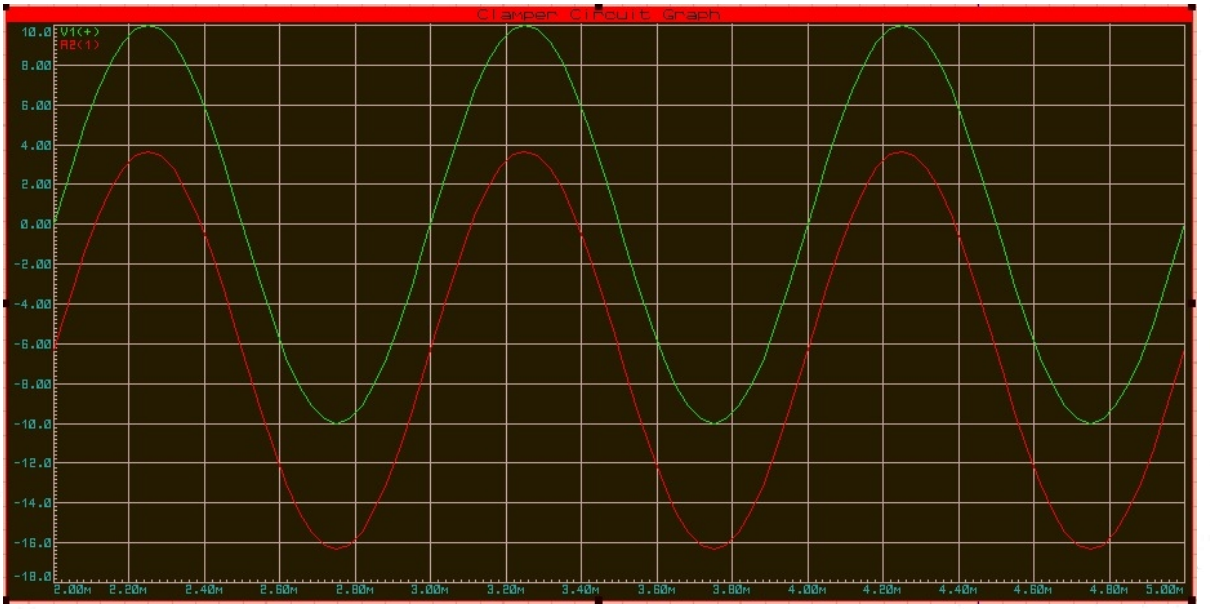


## Graph:




Graph: Clipper Circuit




Graph: Clamper Circuit.

Discussion: A clipper circuit is an electronic device which is used to evade the output of a circuit to go beyond the present value (voltage value) without varying the remaining part of the input waveform on the otherhand, an electronic circuit that is used to alter the positive peak or negative peak of the input signal to a definite value by shifting the entire signal up or down to obtain the output signal peaks at the desired level is called a clamper circuit.

In this lab, we observed the clipper circuit and clamper circuit and we realize the difference between clipper and clamper circuit. The

major difference between clipper and clamper is that clipper is a limiting circuit -which limits the output voltage -while clamper is a circuit -which shifts the DC level of output voltage. The clipper and clamper circuits are exactly opposite to each other regarding their -working principle.

Finally -we can say that, this experiment is more effective to gain knowledge about clipper circuit and clamper circuit.

## References:

[1] Lab Manual for EEE 204 Course [Made and Edited by Mr. Sharif Nafis Mahmood, Lecturer, Dept. of EEE,

Green University of Bangladesh]