Experiment name:

Study of clipper and clamper circuit.

Theory:

Clipper Circuit: A circuit which removes the peak of a waveform is known as a clipper. A clipper circuits clips a fraction of its input signal keeping the remaining part of the signal unchanged. The circuit limits an input voltage to certain minimum and maximum values. During the positive half cycle of V_i, the diode is reverse biased. The diode does not conduct. It is as if the diode were not there. The positive half cycle is unchanged at the output wave. During the negative half cycle of the sine wave (V_i), the diode is forward biased, that is conducting. The negative half cycle of the sine wave is shorted out. The negative half cycle of output wave would be clipped at 0 V for an ideal diode.

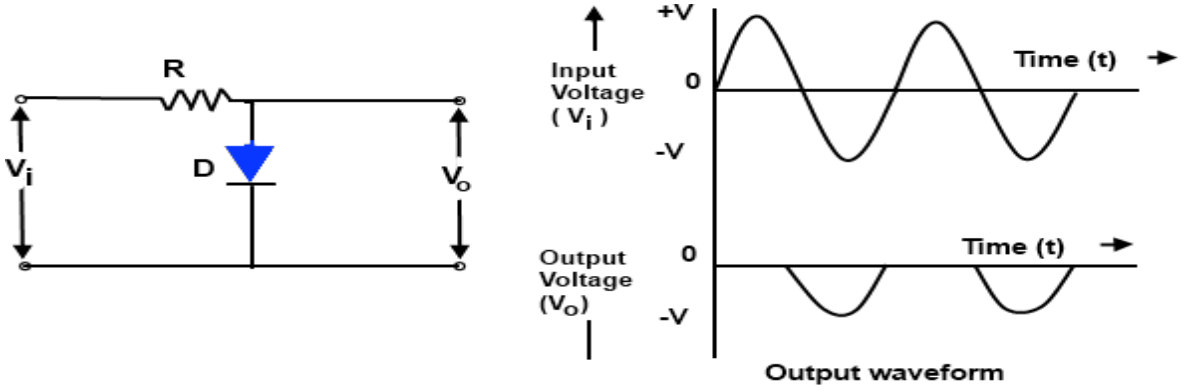
Clamper Circuit: A Clamper Circuit is a circuit that adds a DC level to an AC signal. Clamper circuits consist of energy storage elements like capacitors. A simple clamper circuit comprises of a capacitor, a diode, a resistor and a dc battery if required. A Positive Clamper circuit is one that consists of a diode, a resistor and a capacitor and that shifts the output signal to the positive portion of the input signal. During the positive half cycle, the capacitor is charged to negative Vm while the diode gets forward biased and gets short circuited. A Negative Clamper circuit is one that consists of a diode, a resistor and a capacitor and that shifts the output signal to the negative portion of the input signal During the negative half cycle, the diode gets reverse biased and gets open circuited.

Apparatus:

1. Resistor.
2. Diodes.
3. Connecting ware.
4. Oscilloscope.
5. Capacitor
6. Function Generator

Circuit Diagrams:

1.



2.

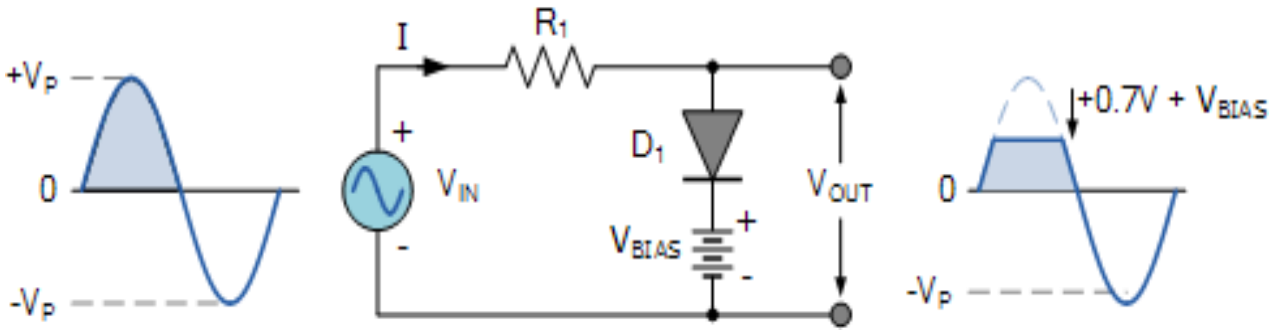


Figure: Clipper Circuits

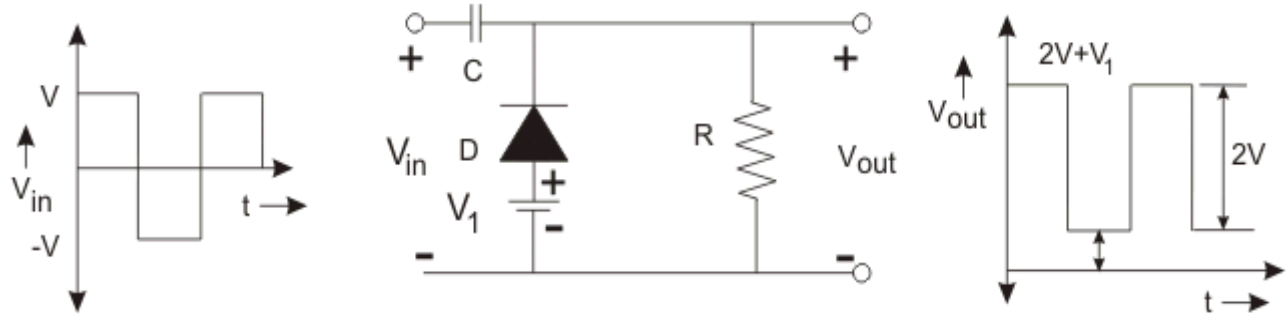
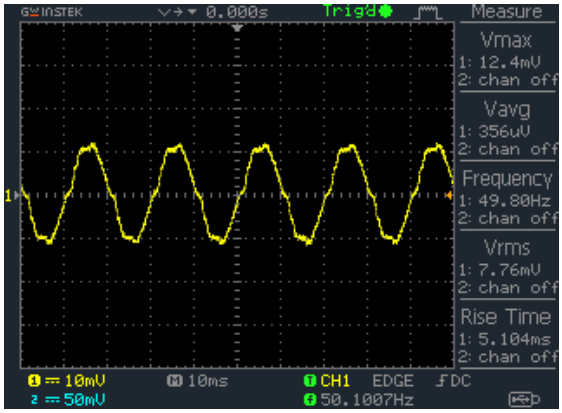
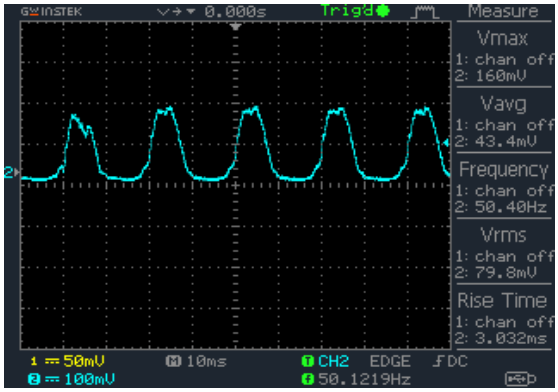
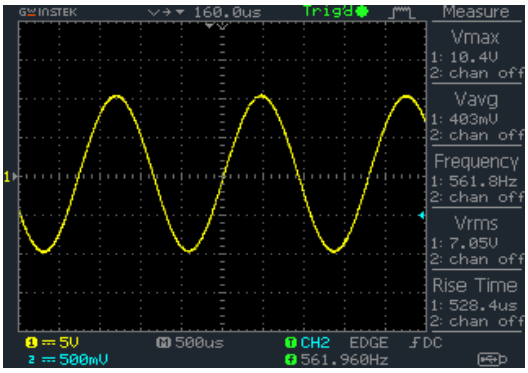


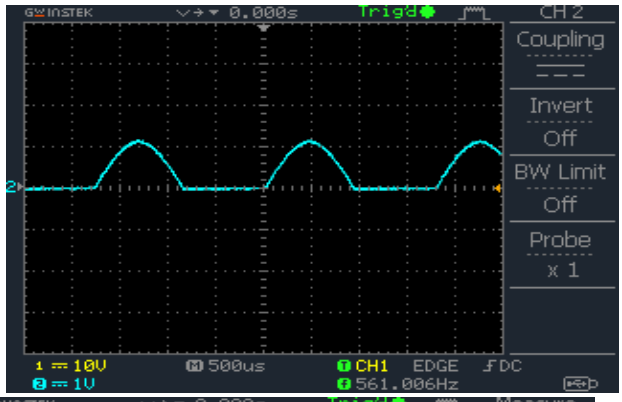
Figure: Clamper Circuit

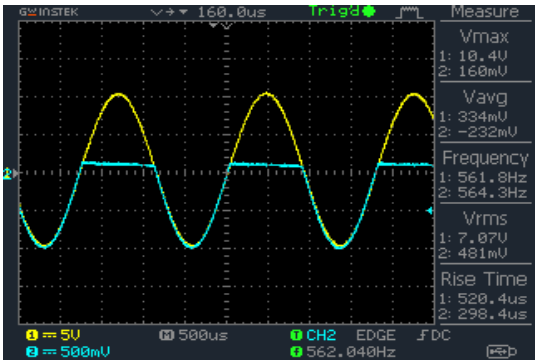
Figures: Clipper circuit

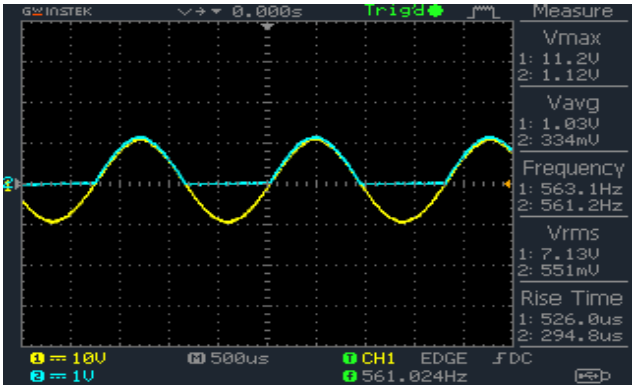


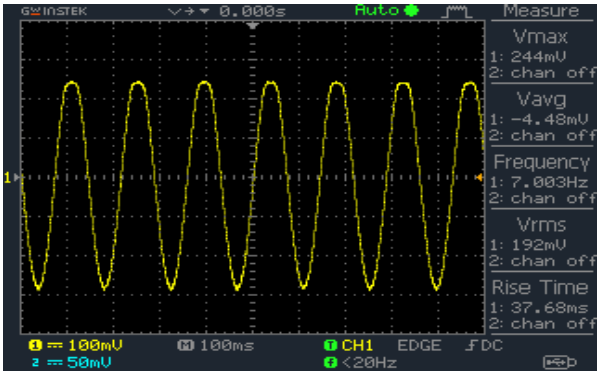


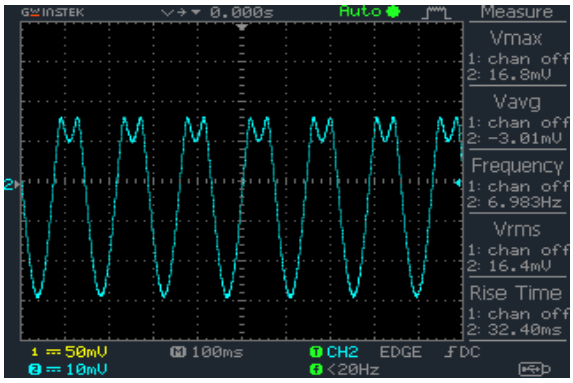




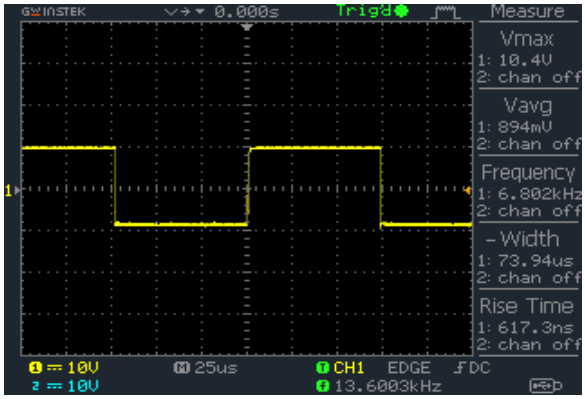


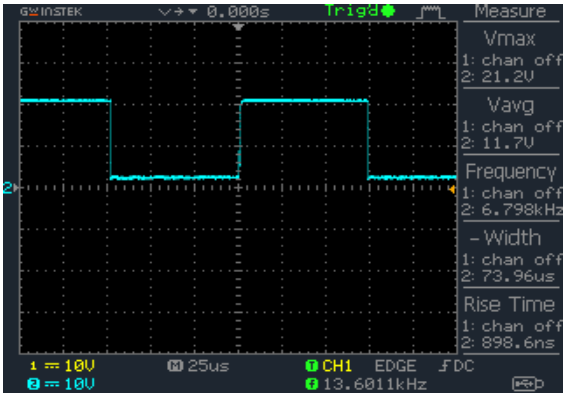


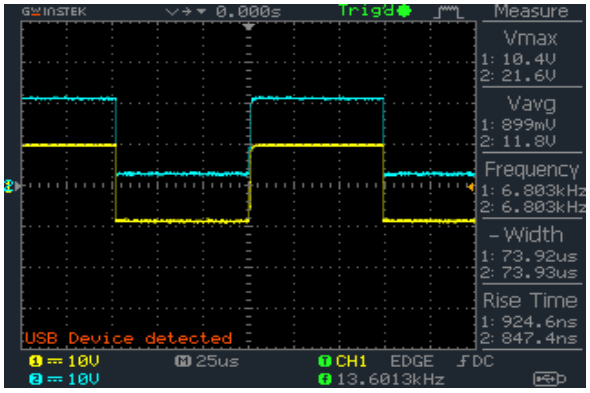




Clamper Circuit







Conclusion:

In this experiment we understand the operating principle of diode clipping and clamping circuit. Clipping is very widely used diode applications. In this experiment, we have constructed two clipper circuits, gave some input voltage and seen the output of the waveform in the oscilloscope. And we have constructed one clamper circuit as like clipper circuit gave some input voltage and seen the output of the waveform in the oscilloscope.

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BANGLADESH UNIVERSITY OF BUSINESS AND TECHNOLOGY

Lab Report on

Study of clipper and Clamper Circuit

Report No: 5

Course Code: EEE 212

Course Title: Electronic devices and circuits lab

Submitted to:

Name: Md. Mamunoor Rahman

Lecturer, Dept. of EEE

at Bangladesh University of Business and Technology.

Submitted by:

Name: Syeda Nowshin Ibnat

ID: 17183103020

Intake: 39

Section: 1

Program: B.SC. in CSE

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