EXPERIMENT NO. - 2

Aim of the Experiment:

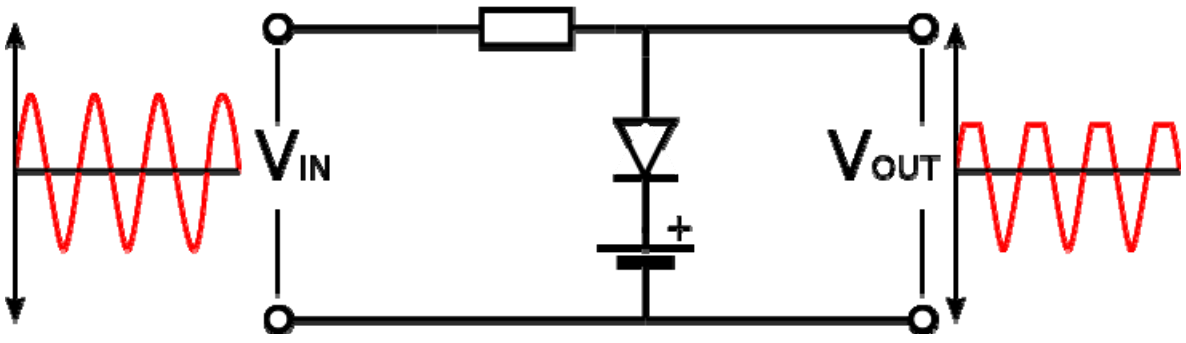
Design, assemble and testing of Clipper circuit using diode

Theory:

In electronics, a clipper is a device designed to prevent the output of a circuit from exceeding a predetermined voltage level without distorting the remaining part of the applied waveform.

A clipping circuit consists of linear elements like resistors and non-linear elements like junction diodes or transistors, but it does not contain energy-storage elements like capacitors. Clipping circuits are used to select for purposes of transmission, that part of a signal wave form which lies above or below a certain reference voltage level.

Thus a clipper circuit can remove certain portions of an arbitrary waveform near the positive or negative peaks. Clipping may be achieved either at one level or two levels. Usually under the section of clipping, there is a change brought about in the wave shape of the signal.



Clippers may be classified into two types based on the positioning of the diode.

- **Series Clippers**, where the diode is in series with the load resistance, and
- **Shunt Clippers**, where the diode is shunted across the load resistance.

The diode capacitance affects the operation of the clipper at high frequency and influences the choice between the above two types. High frequency signals are attenuated in the shunt clipper as the diode capacitance provides an alternative path to output current. In the series clipper, clipping effectiveness is reduced for the same reason as the high frequency current passes through without being sufficiently blocked.

Clippers may be classified based on the orientation(s) of the diode. The orientation decides which half cycle is affected by the clipping action.

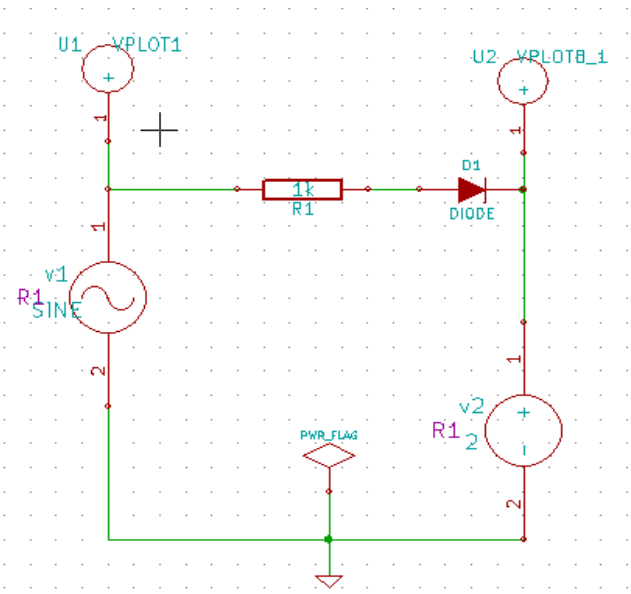
The clipping action can be made to happen at an arbitrary level by using a biasing elements (potential sources) in series with the diode.

- Positively Biased Diode Clipper
- Negatively Biased Diode Clipper

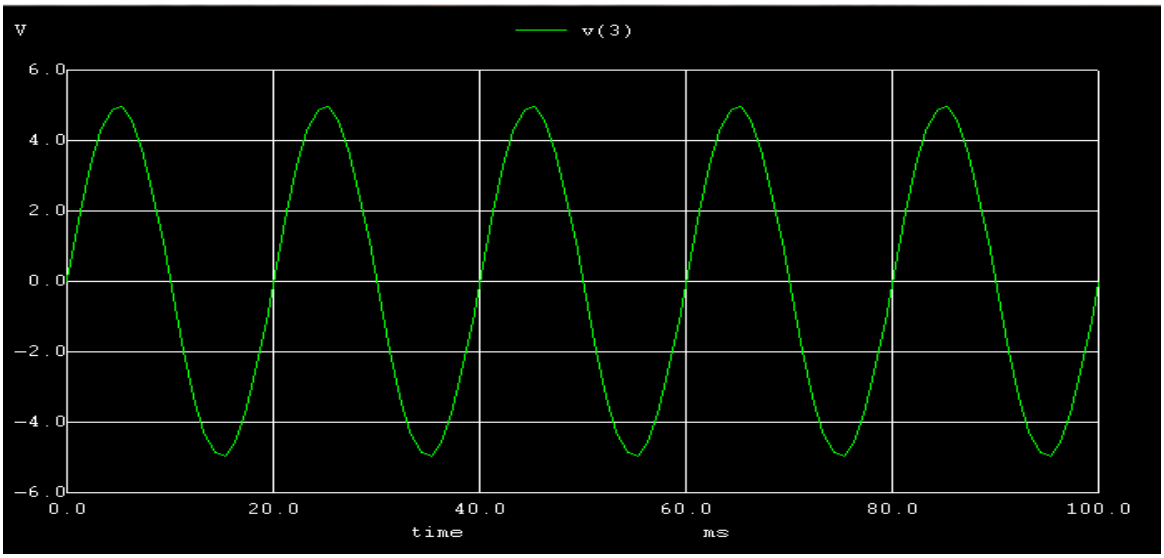
The signal can be clipped to between two levels by using both types of diode clippers in combination. This clipper is referred to as

- Combinational Diode Clipper or Two-Level Clippers

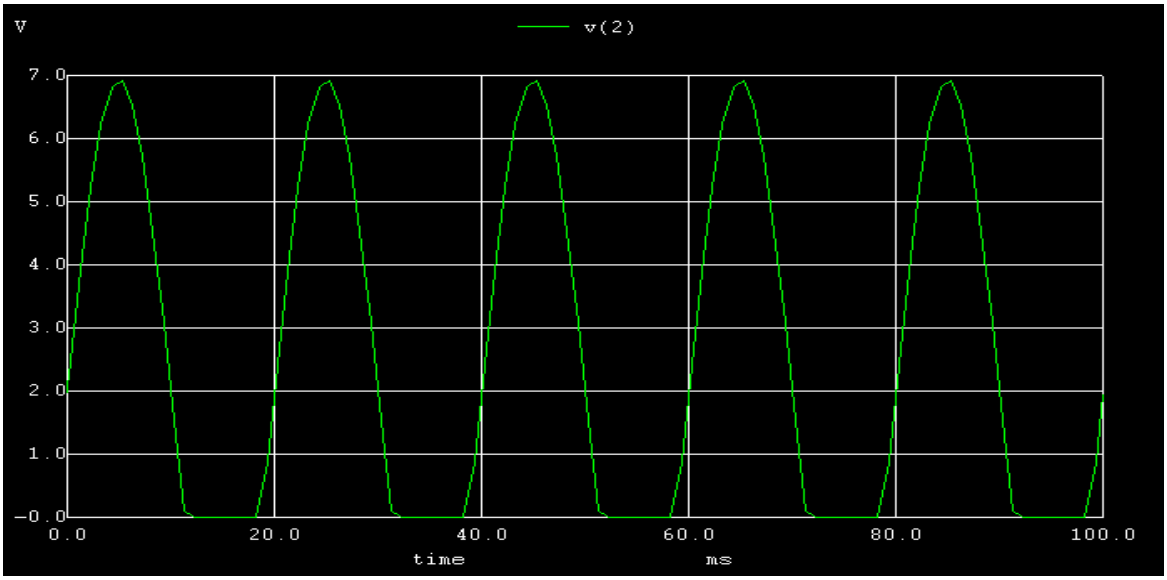
Schematic Circuit:



Input Waveform:



Output Waveform:



Conclusion:

Date: **Signature of the Student**

NAME:

ROLL NO.:

GROUP ID:

SUB GROUP NO.:

Experiment Mark: **/ 20** **Instructor's Signature**