

Experiment# 8: Study of a Diode Clamper Circuit

CKT diagrams:

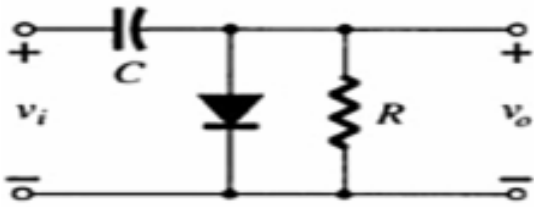


Fig. 1: Diode clamper with 0V reference voltage

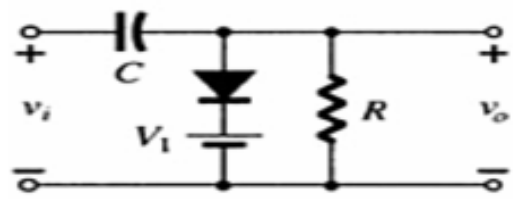


Fig. 2: Diode clamper with V_1 reference voltage

Apparatus:

1. Capacitor (1 pc; $C = 10\mu\text{F}$)
2. Diode (1 pc)
3. Resistor (1 pc; $R = 10\text{K}\Omega$)

Procedure:

For both figures (set $V_1 = 2\text{V}$) –

1. Apply sine wave (10V p-p 50 Hz) as input and observe the output in the oscilloscope.
2. While applying the previous sine wave, decrease the p-p value around 6V in input and observe the output in the oscilloscope.
3. Apply square wave (10V p-p 50 Hz) as input and observe the output in the oscilloscope.

In Fig. 2,

1. Reverse the diode and do all the previous steps.
2. Reverse V_1 and do all the previous steps.

Question:

1. What is the purpose of using R in Fig. 2?
2. Which one between the designs in Fig. 1 and Fig. 2 is generally used in real circuits? Why?
3. How can you construct a two-level (for example, at 2V and -3V) clamper using diodes?

Report:

Report should cover the following points:

1. Objective
2. Circuit diagram and input-output wave shapes
3. Answer to the questions
4. Discussion of the findings
5. Applications of your study