Experiment 8

Objective: To build peak detector, clipping, clamping, and voltage doubler circuits.

Equipment Required: CRO, Function Generator

Components Required: Diodes (general purpose diodes (2), Zener diode (1)), Resistances (100 Ω, 100 KΩ), and Capacitors (10 μF, 100 μF (2)).

Positive Peak Detector:

The circuit for positive peak detector is as shown below.

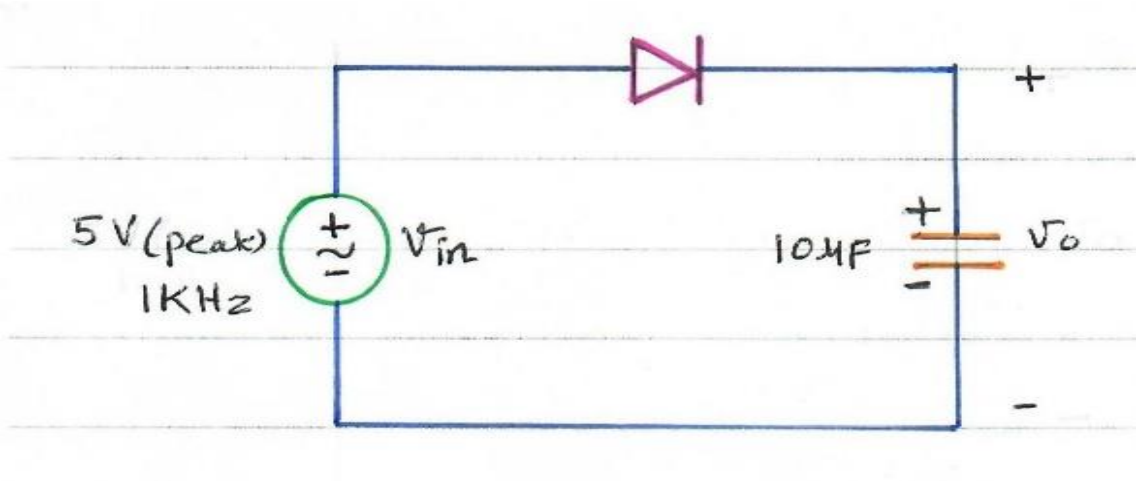

Fig. 1: Positive Peak Detector

- **Procedure to build Positive Peak Detector**

1. Connect the circuit as shown in Fig. 1.
2. Generate a sinusoidal signal of 5 V (peak) and frequency of 1 KHz and apply as input to the circuit.
3. Put both Channel-1 and Channel-2 in DC Mode.
4. Press the ground button of CRO and adjust grounds of both Channel-1 and Channel to coincide with central horizontal axis. After proper adjustment, release the ground button.
5. Connect Channel-1 and Channel-2 of CRO to input and output respectively.
6. Observe input and output voltage on CRO.
7. Note down the input and output voltage waveforms.

Negative Peak Detector:

The circuit for negative peak detector is as shown below.

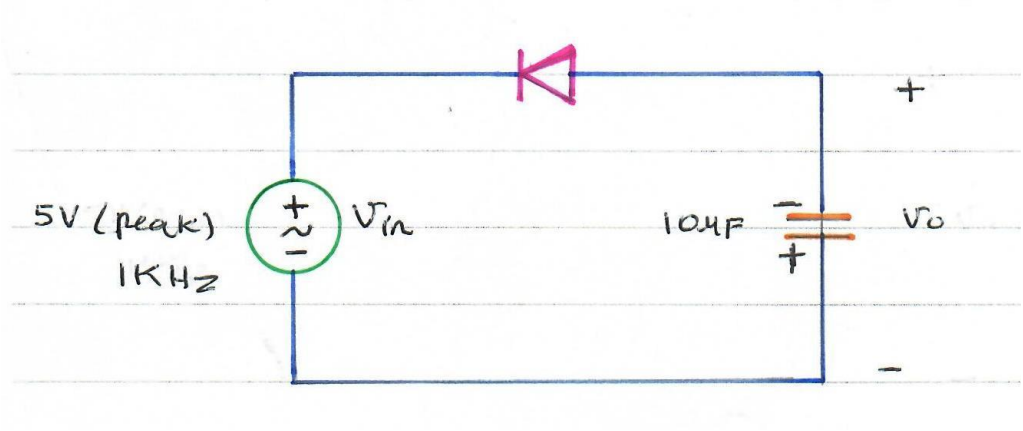

Fig. 2: Negative Peak Detector

Connect the circuit as shown in Fig. 2 above and follow the same procedure as earlier.

Clamper-1

The circuit for clamper is as shown below.

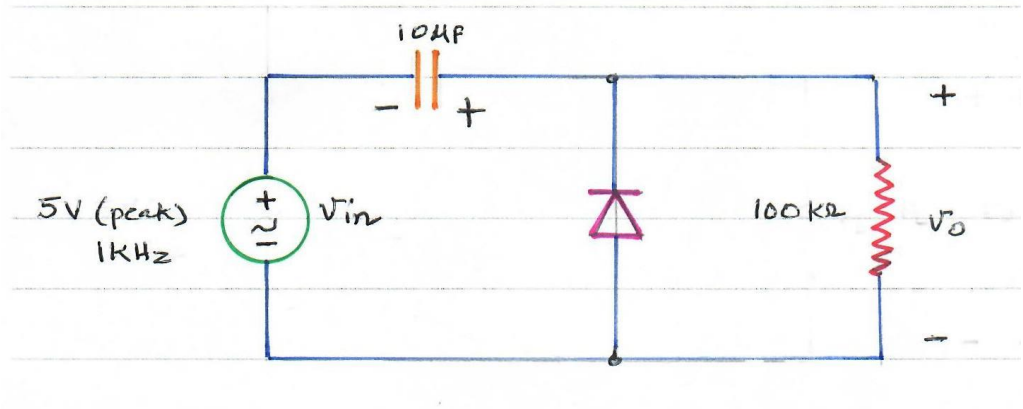

Fig. 3: Clamper-1

Connect the circuit as shown in Fig. 3 above and follow the same procedure as earlier.

Clamper-2

The circuit for clamper is as shown below.

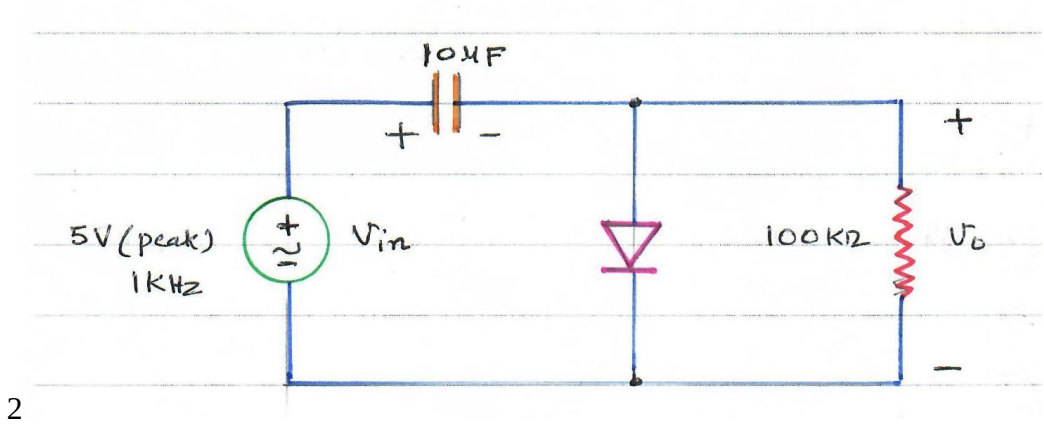

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Fig. 4: Clamper-2

Connect the circuit as shown in Fig. 4 above and follow the same procedure as earlier.

Clipper-1

The circuit for clipper is as shown below.

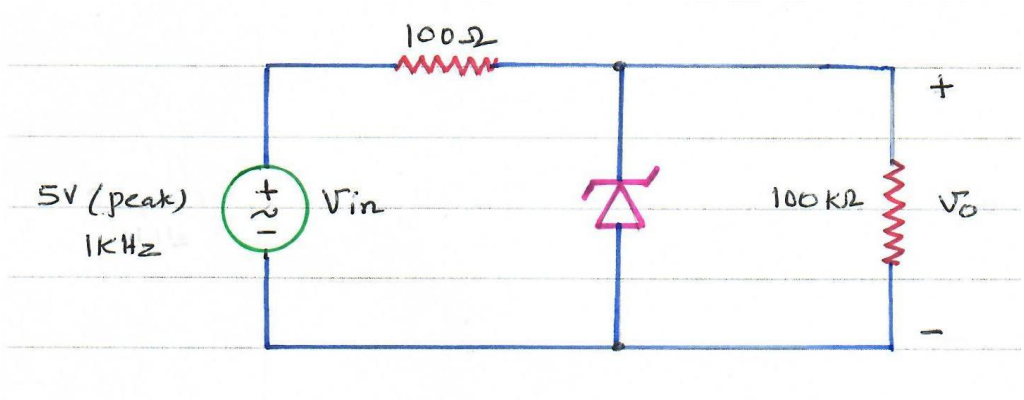

Fig. 5: Clipper-1

Connect the circuit as shown in Fig. 5 above and follow the same procedure as earlier.

Clipper-2

The circuit for clipper is as shown below.

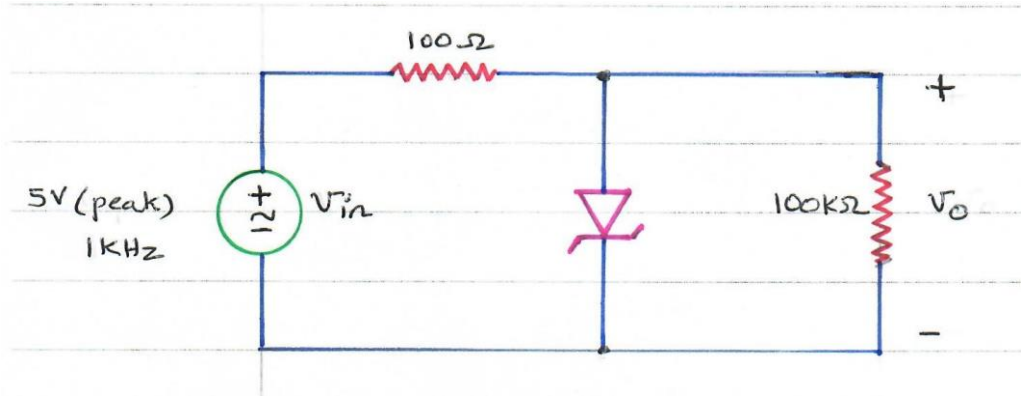

Fig. 6: Clipper-2

Connect the circuit as shown in Fig. 6 above and follow the same procedure as earlier.

Voltage Doubler

The circuit for voltage doubler is as shown below.

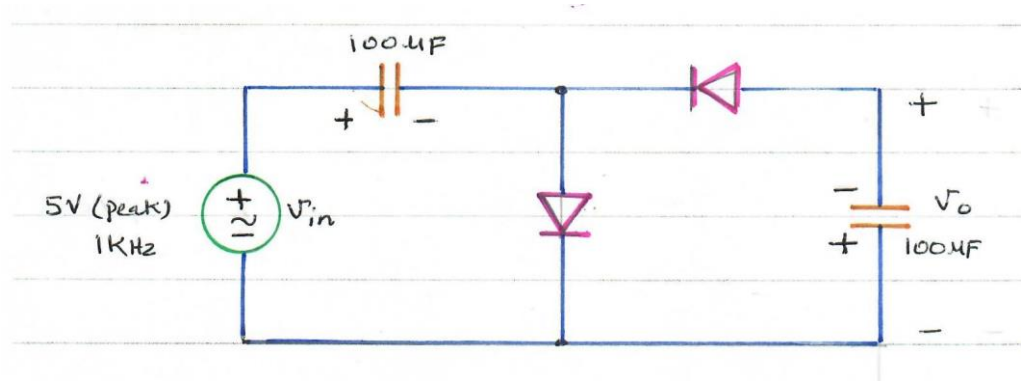

Fig. 7: Voltage Doubler

Connect the circuit as shown in Fig. 7 above and follow the same procedure as earlier.

Precautions to be taken:

1. Ensure that all the discrete components are working properly.
2. Make sure all the connections in the circuit are correct before giving supply to circuit.
3. Remove the supply before changing any connections in circuit.