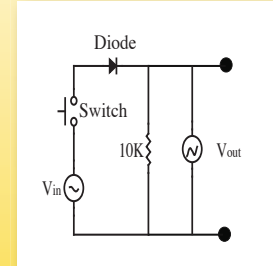
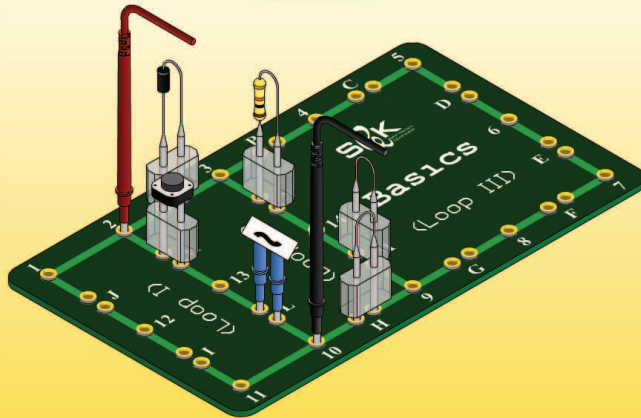


Experiment No. (29) The Half-Wave Rectifier Circuit with a Diode



Objectives:

1. The student will set up a half-wave rectifier circuit with a diode.
2. The student will investigate the behaviour of the half-wave rectifier circuit.

Apparatus:

- Basics Board
- Function Generator
- Oscilloscope
- Diode
- Resistor $1K\Omega$
- Resistor $10K\Omega$
- Jumpers



Notes:

- In this Experiment, you need to use some external devices like Oscilloscope and Function Generator.

Procedure and Conclusions:

1. Use Loop II on the Basics Board to set up a circuit by inserting a switch at the pair (K), a diode at the pair (A) in a way that its positive terminal will be towards the point (2), a resistor $10K\Omega$ at the pair (N), and jumpers at the pairs (M, H).

2. Adjust the function generator so that it gives you a 1 kHz triangle wave with a peak-to-peak voltage of 2 V_{pp}; connect its probes to the pair (L).
3. Connect the Oscilloscope leads to the points (2) and (10), press the switch button and see the waveform shape of the input signal on the Oscilloscope screen.
 - Draw the waveform shape as seen on the Oscilloscope screen.....

4. Connect the Oscilloscope leads to the points (3) and (14), press the switch button and see the waveform shape of the output signal on the Oscilloscope screen.
 - Draw the waveform shape as seen on the Oscilloscope screen.....

5. Reverse the diode at the pair (A) in a way that its positive terminal will be towards the point (13), watch the change in the output waveform on the Oscilloscope screen.
6. Insert a resistor 1KΩ on the pair (N) instead of the resistor 10KΩ, press the switch button and see the change in the output waveform on the Oscilloscope screen.



Discussion

1. Discuss advantage and disadvantage of single-phase half-wave rectifier.