

Single Phase Half Wave Rectifier Using Diode with R, RL Load

Objective

- To use diodes to construct a half-wave rectifier.
- To perform the experiment using a diode testing kit.
- To learn and understand the operation of the diode testing kit.

Circuit Diagrams

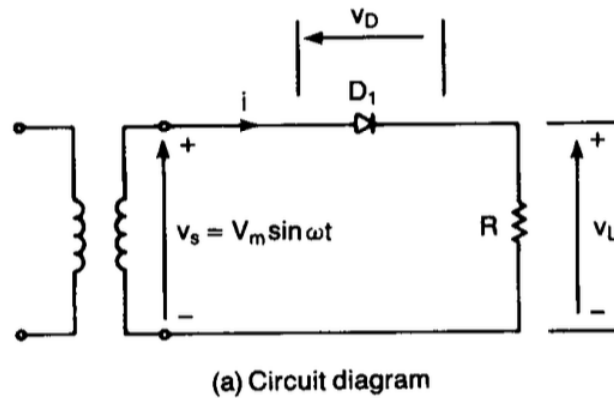


Figure 1: Diode Rectifier Circuit [1]

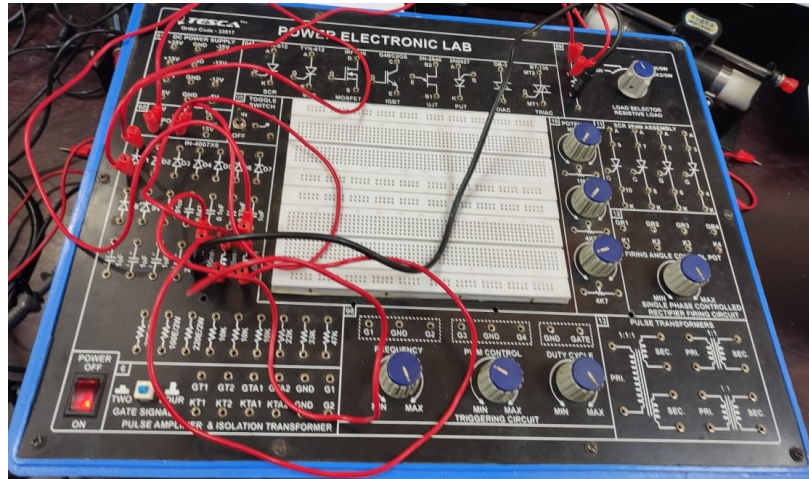


Figure 2: Diode Rectifier Circuit [1]

Observations

- Constructed a half-wave rectifier using a diode and testing kit.
- Analyzed waveforms for R and RL loads on an oscilloscope.
- Observed smoother transitions and delays in RL load due to inductance.
- Confirmed diode's unidirectional conduction, blocking negative half-cycles.

Outputs

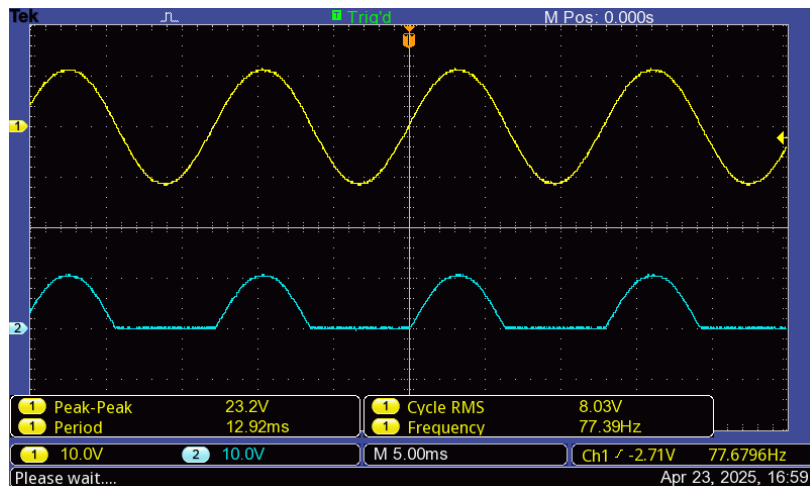


Figure 3: Half wave rectifier output for R load

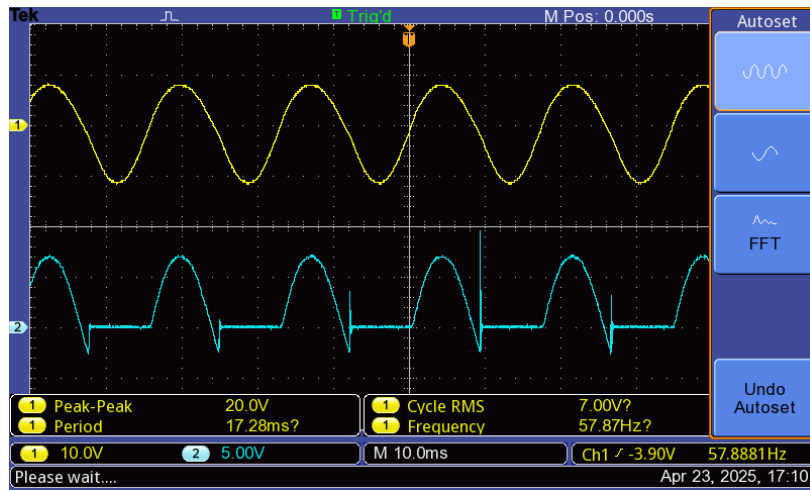


Figure 4: Half wave rectifier output for RL load

References

- [1] M. H. Rashid, *Power Electronics: Circuits, Devices, and Applications*, 4th ed. Pearson, 2013.