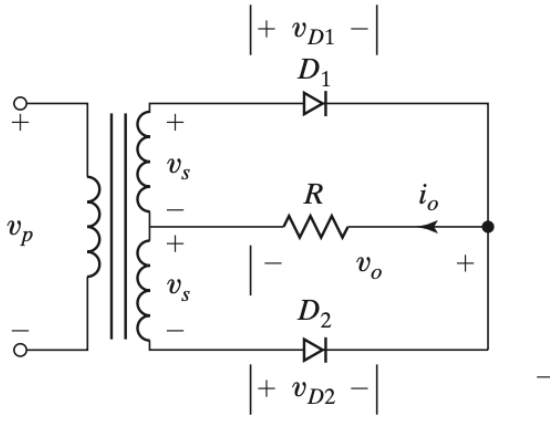
Single Phase Full Wave Rectifier Using Centre Tap Transformer & Diode

Objective

- To construct a single-phase full-wave rectifier using a center-tap transformer and diodes.
- To analyze the output waveforms for resistive and inductive loads.
- To understand the working principle of a full-wave rectifier.

Circuit Diagrams



(a) Circuit diagram

Figure 1: Diode with Resistive Load [1]

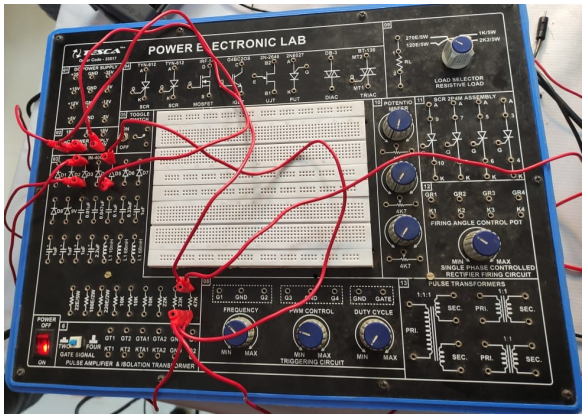


Figure 2: Diode with Resistive Load [1]

Observations

- Built a full-wave rectifier with a center-tap transformer and diodes.
- Observed waveforms for R and RL loads on an oscilloscope.
- Verified continuous conduction for both half-cycles.
- Confirmed smoother DC output than a half-wave rectifier.

Outputs

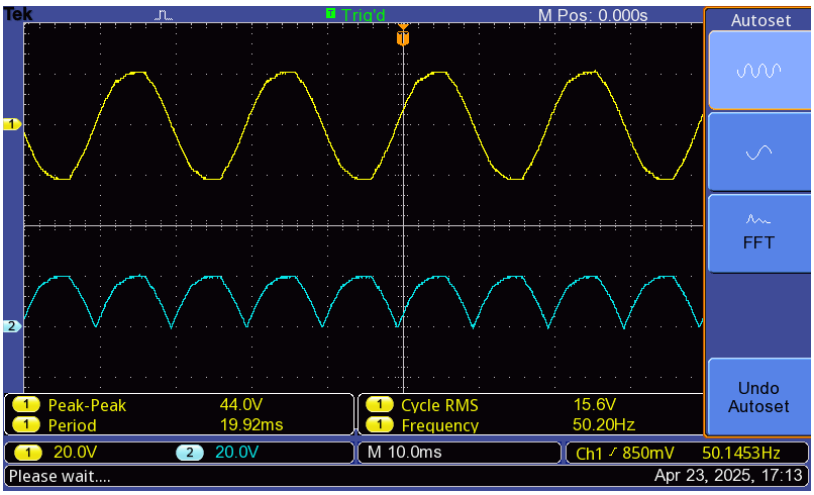


Figure 3: Full wave rectifier output for R load 1

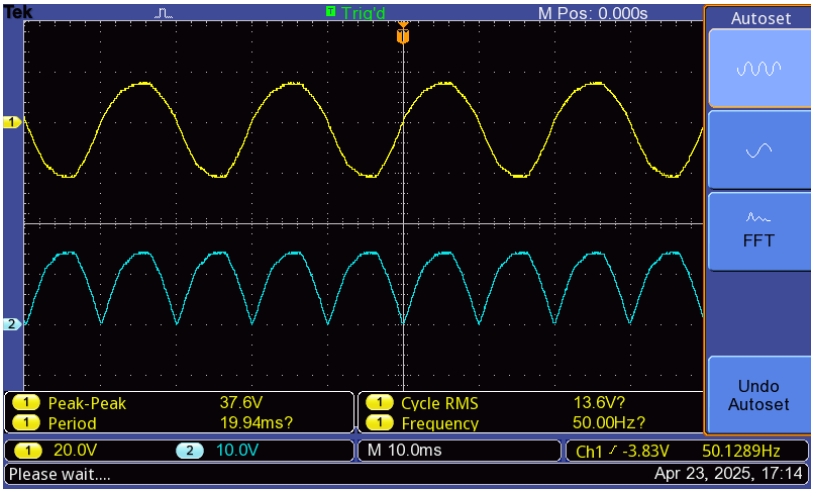


Figure 4: Full wave rectifier output for R load 2

References

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