

Experiment 5:

Diode Rectifier Circuits

Post-Lab Report

A. Rectifier Design Characteristics

- How is the current rating of the transformer secondary calculated?

- Compare the three circuits for each of the characteristics 1 to 6 listed in the theory section. What is the regulation mainly due to?

- Under what conditions would each of the circuits be most advantageous?

B. Full Wave Rectifier with Capacitor (Fig.4)

- Does V_{DC} increase appreciably with C for all values of C ?

- Does V_r decrease appreciably with C for the values of C used in the experiment?

- Under what conditions are the approximate relations in the Theory section adequate for calculating V_r and V_{DC} ?

- How does the presence of the capacitor affect the regulation of the circuit?

- What additional current rating of diodes must be considered for the capacitor filter?

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- For a certain required ripple voltage and DC voltage/current at the load: what should be the RMS voltage rating of the secondary of the transformer? what should be the value of the capacitor?