

Basic Elec. Engr. Lab

ECS 204/210

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Office Hours:

BKD 3601-7

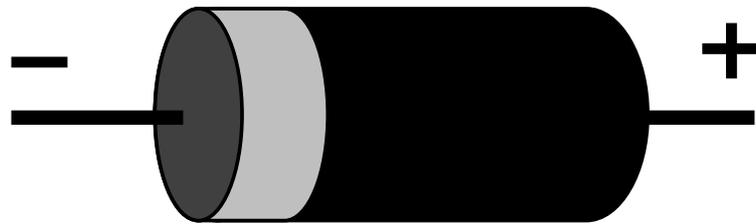
Tuesday 9:30-10:30

Friday 14:00-16:00

Lab 6

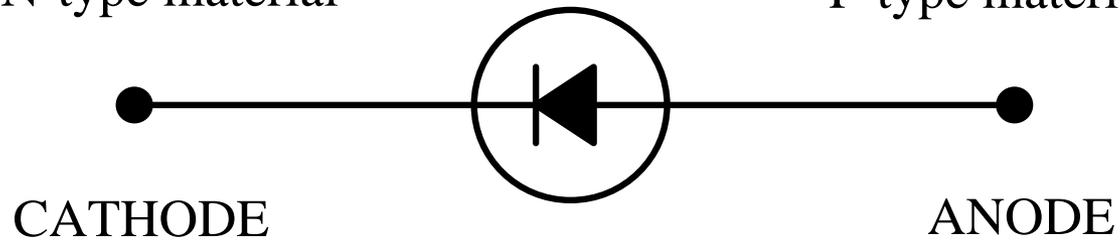
- Diode
- Rectifiers
- Electrolytic Capacitor

Diode



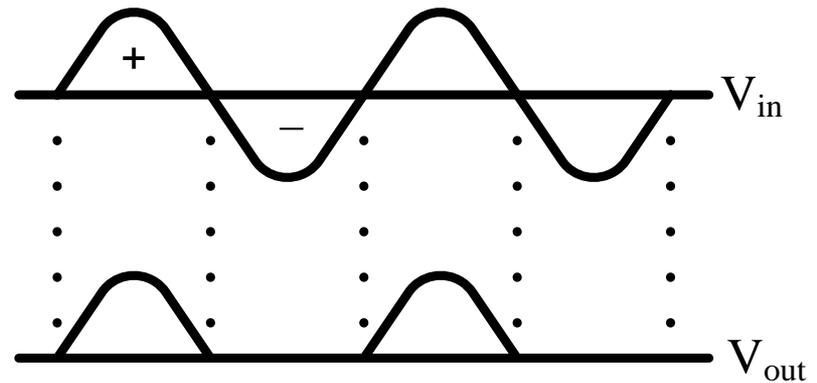
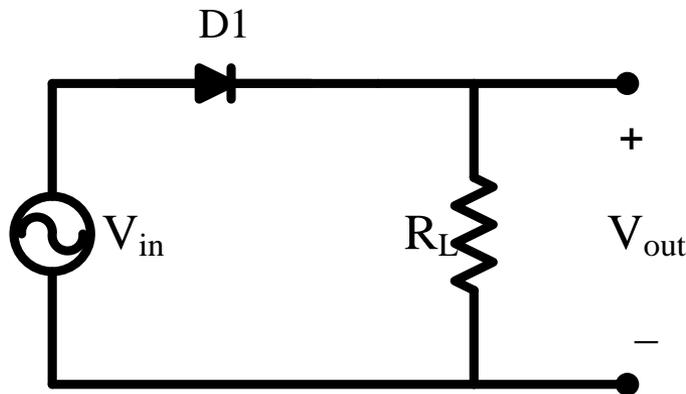
N-type material

P-type material

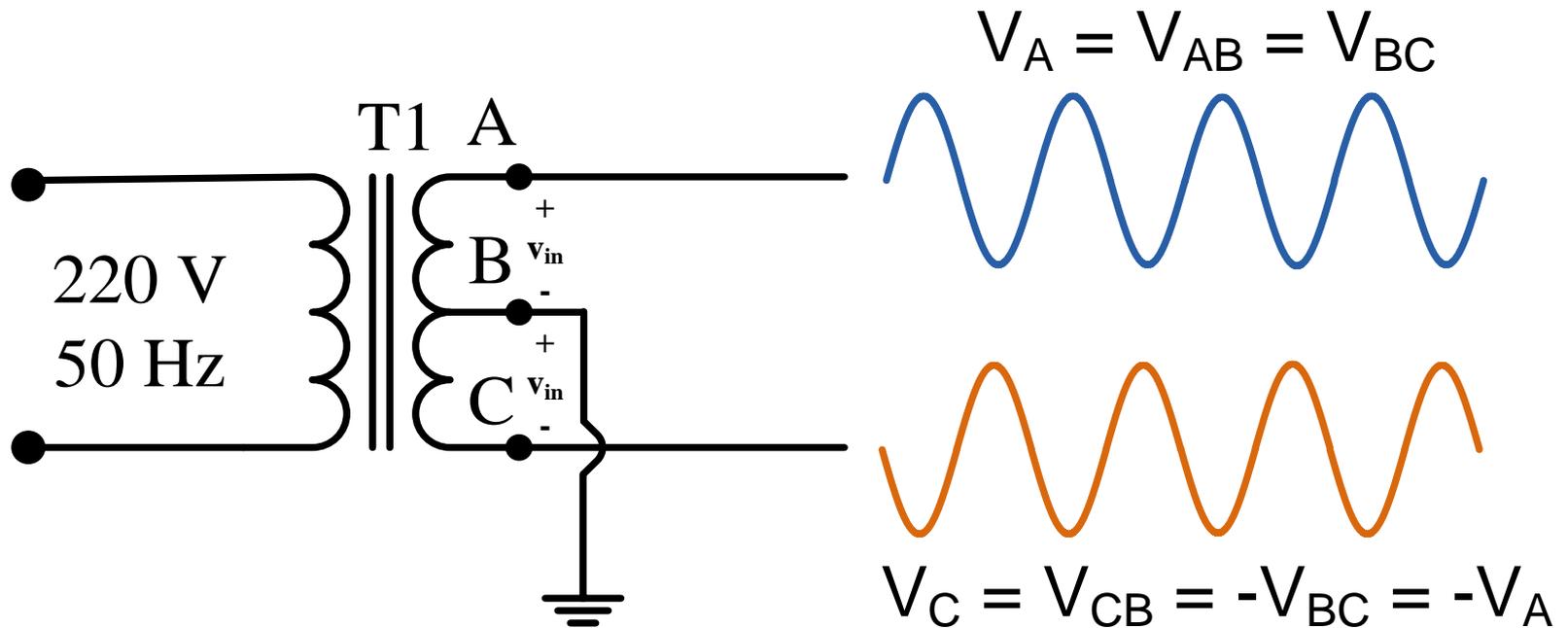


Unidirectional current characteristics

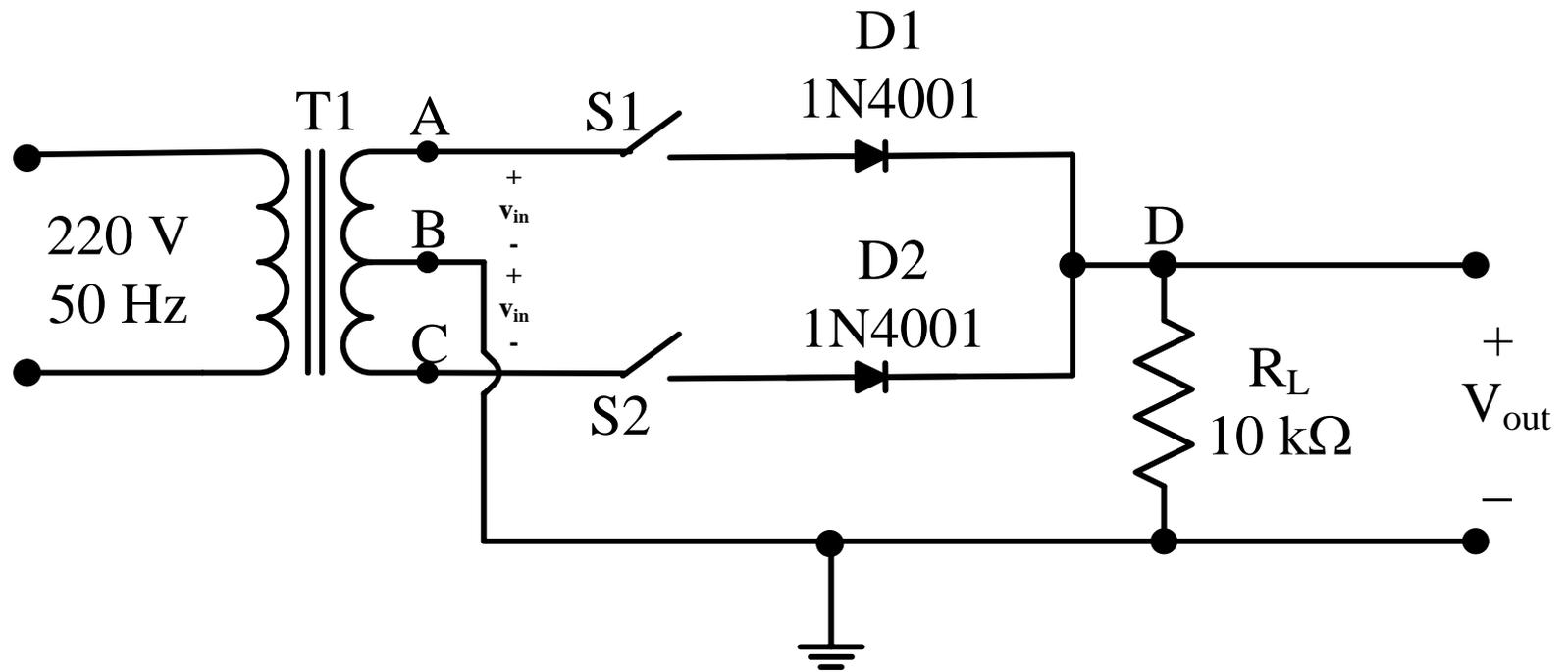
- Permit current to flow through in one direction (when **forward-biased**), but not the other (**reverse-biased**).



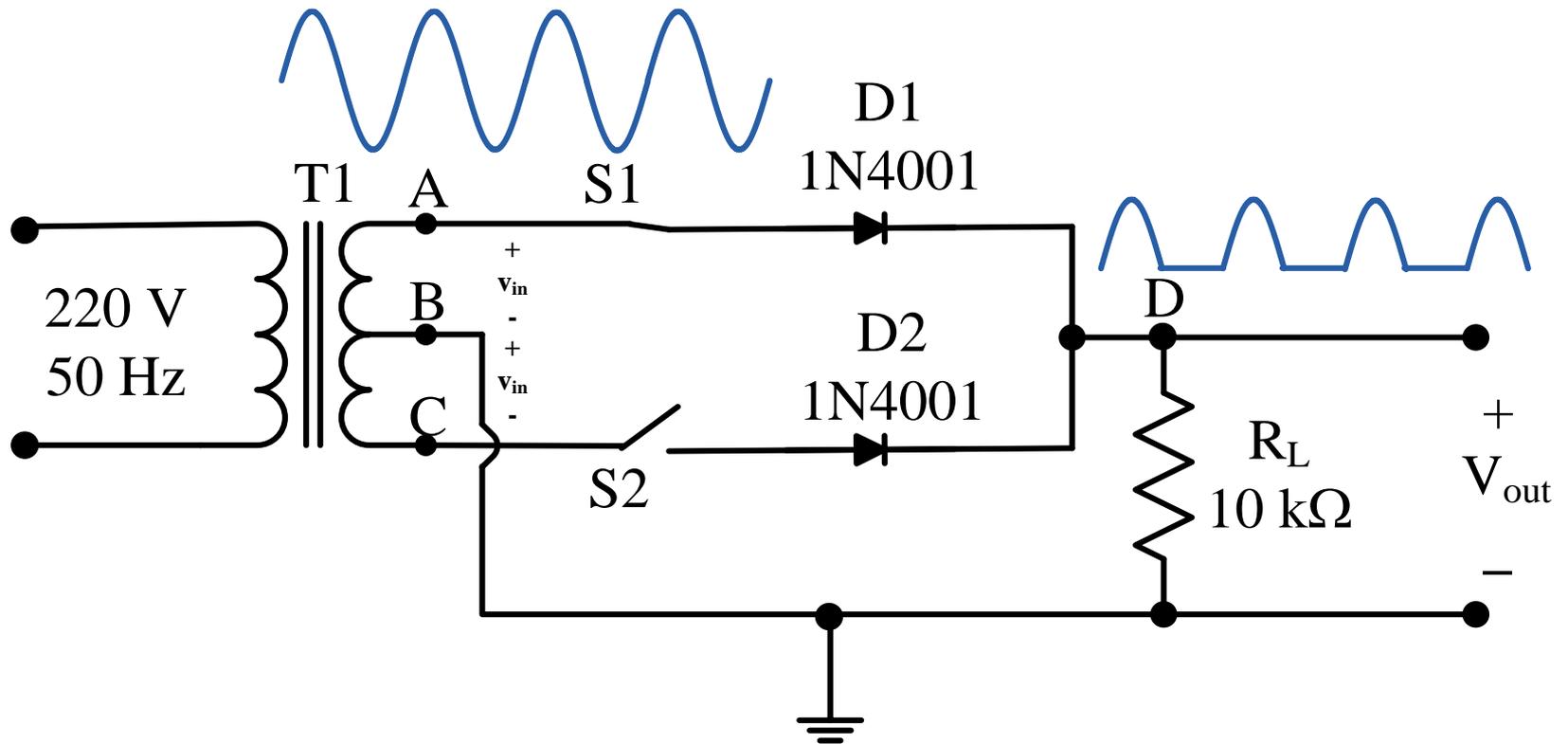
Transformer



Part A

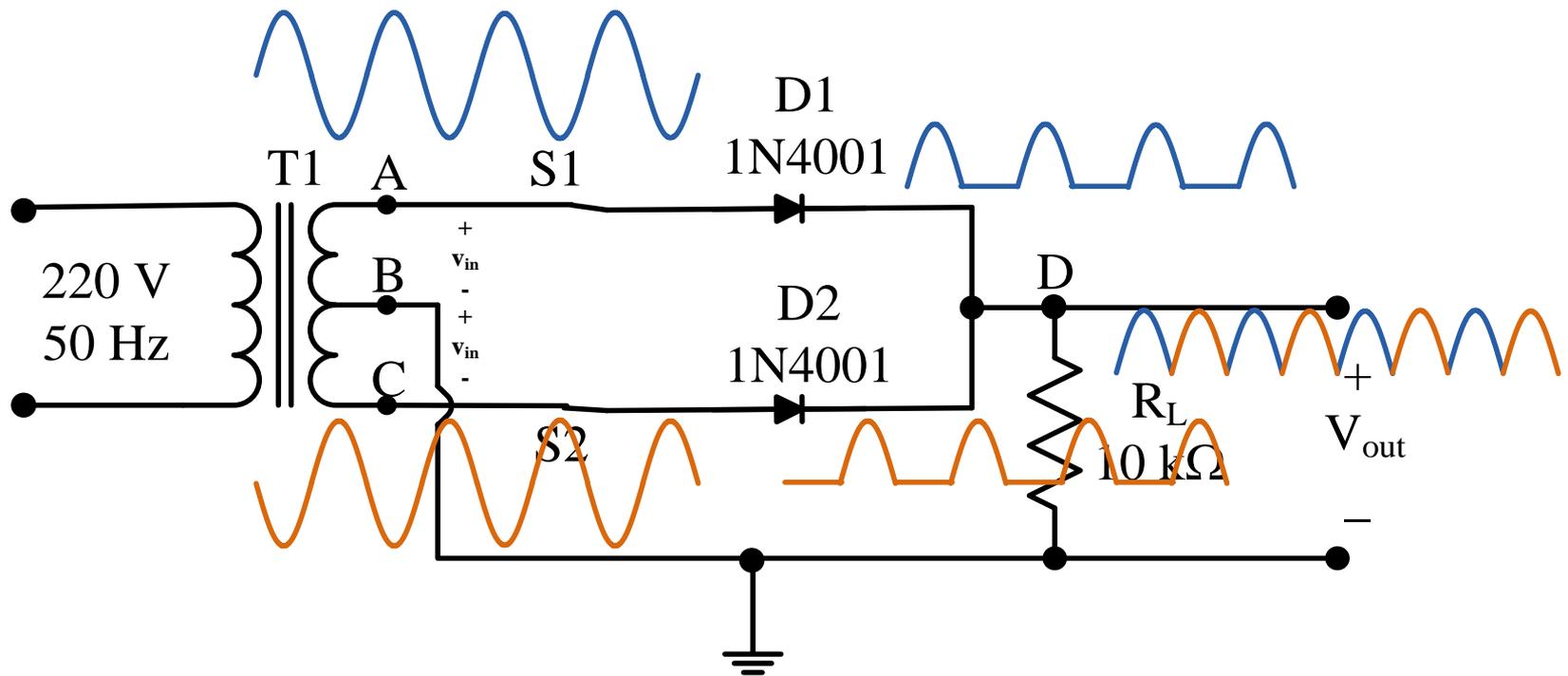


Part A: Half-Wave Rectifier (HWR)

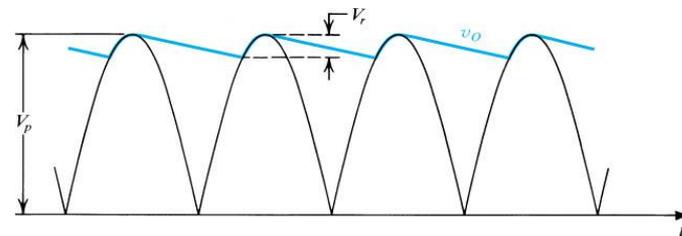
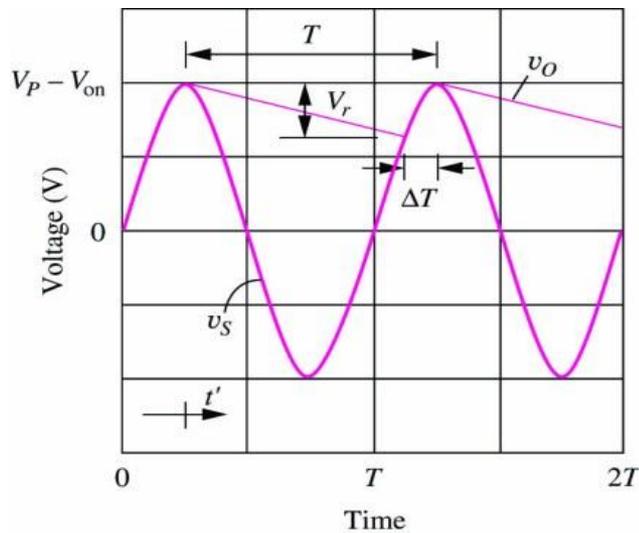
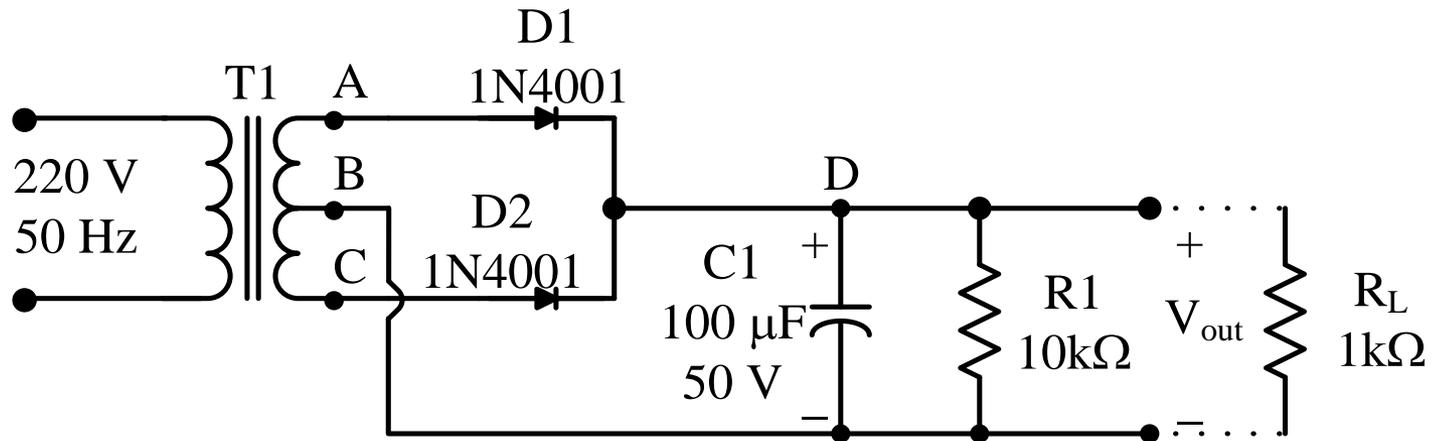


- A **rectifier** is an electrical device that converts alternating current (AC) to direct current (DC).

Part A: Full-Wave Rectifier (FWR)

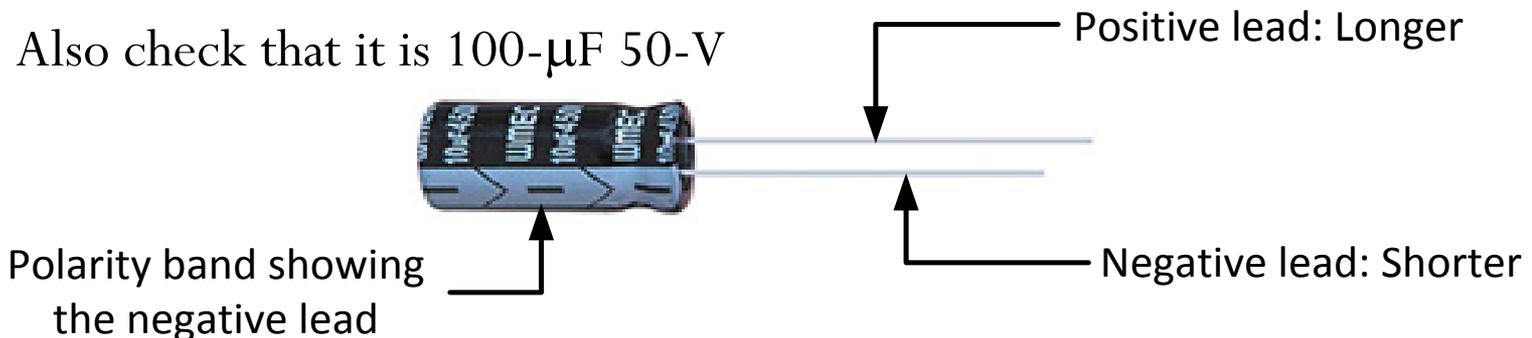


Part B: Filter Capacitor



Electrolytic Capacitor

- The polarity is almost always indicated by a printed band.
 - The lead nearest to that band is the cathode lead (-).
- Additionally, the positive lead is usually longer.
- Hook them up the wrong way and at best, you'll block the signal passing through. At worst (for higher voltage applications) they'll explode.



Summary: Rectifiers

- Use diode to rectify AC waveform
- Use large capacitor to reduce ripple

Part C: Bridge rectifier

