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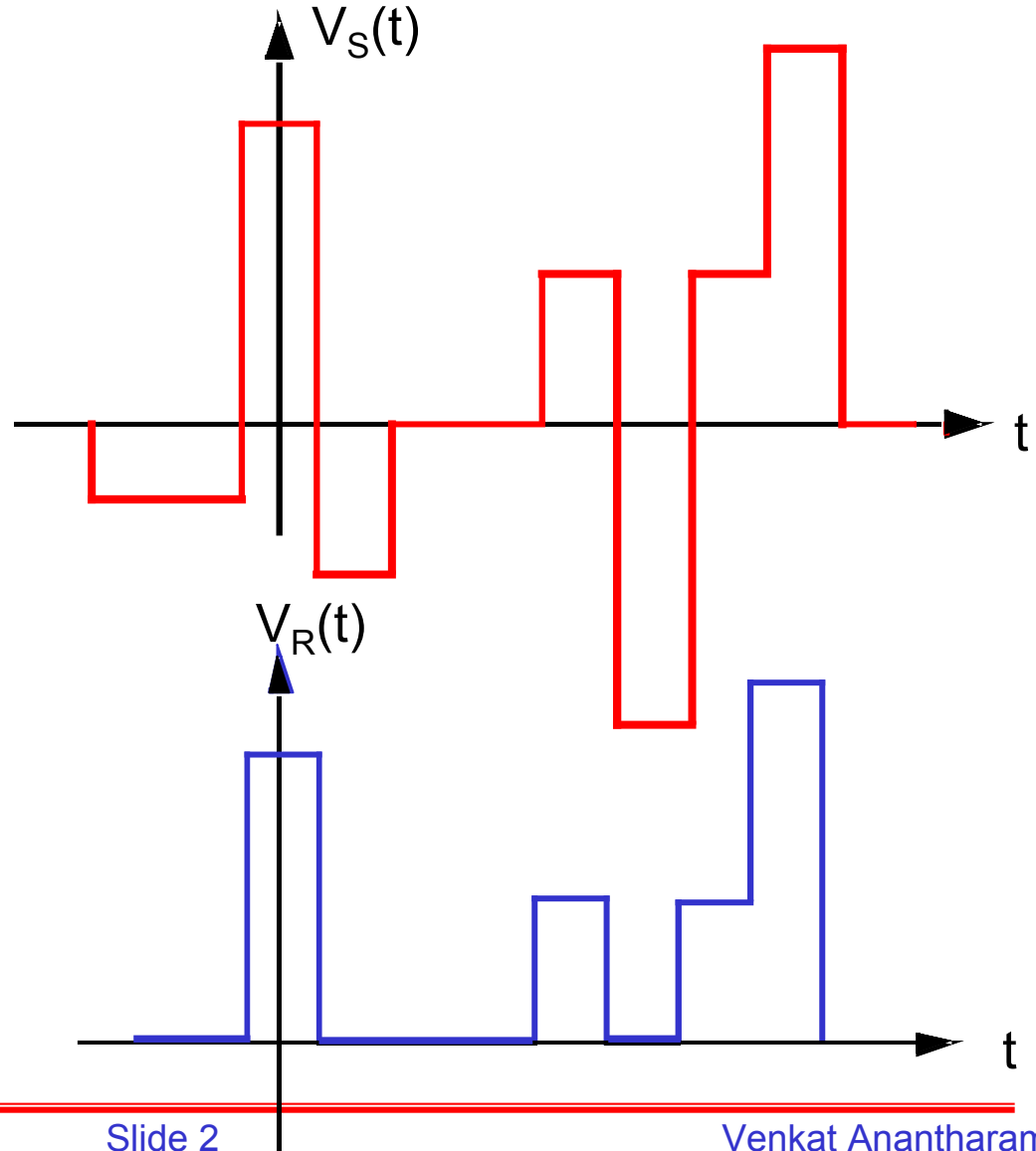
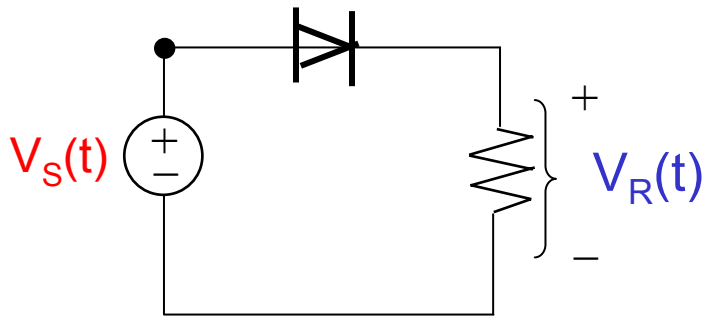
**EE40**  
**Lecture 27**  
**Venkat Anantharam**

4/07/08

Reading: Chap. 10: Diodes

# Rectifier Circuit

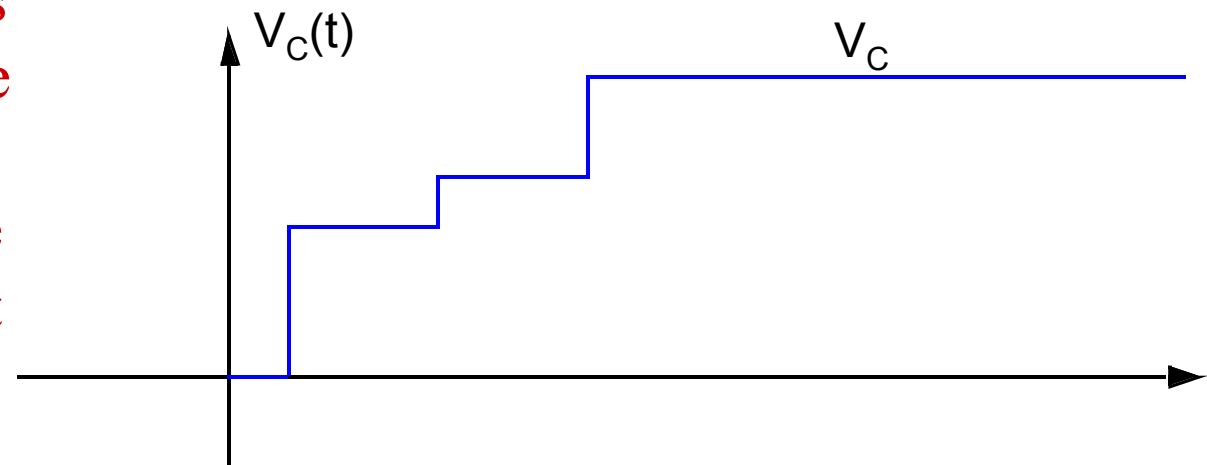
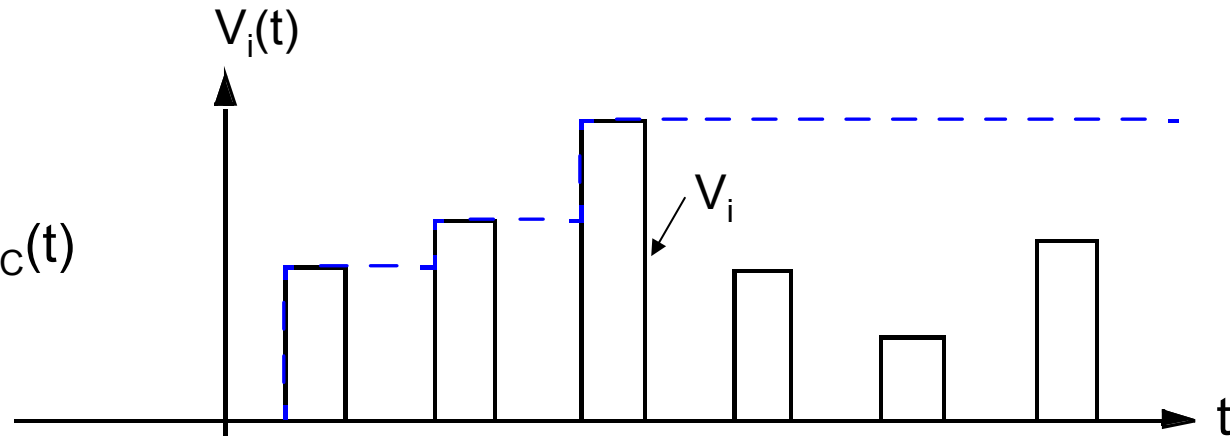
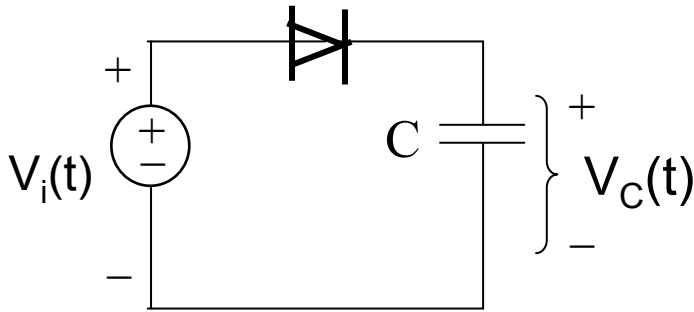
Assume the ideal  
(perfect rectifier)  
model.



"rectified" version of  
input waveform

# Peak Detector Circuit

Assume the ideal (perfect rectifier) model.

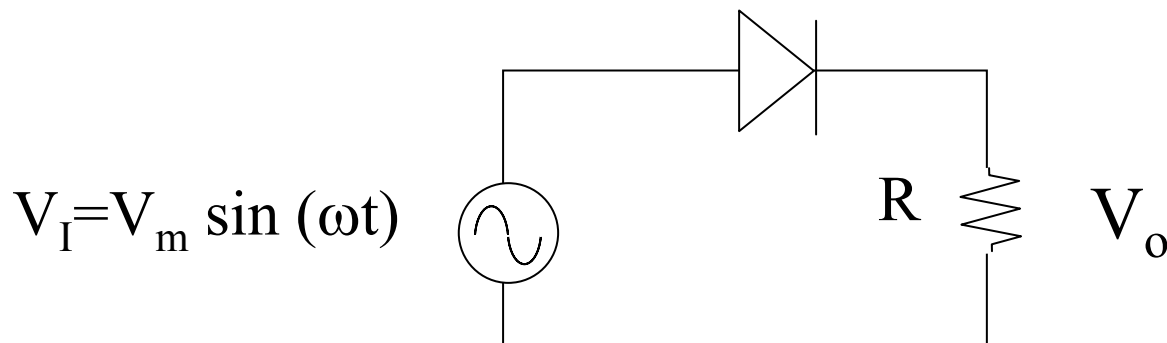


The capacitor charges when the input voltage exceeds the voltage across it and holds the charge when the input voltage drops below this.

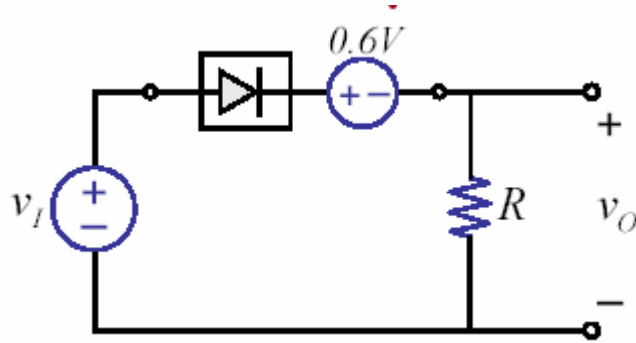
# Power Conversion Circuits

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- Converting AC to DC
- Potential applications: Charging a battery



# Rectifier Equivalent circuit

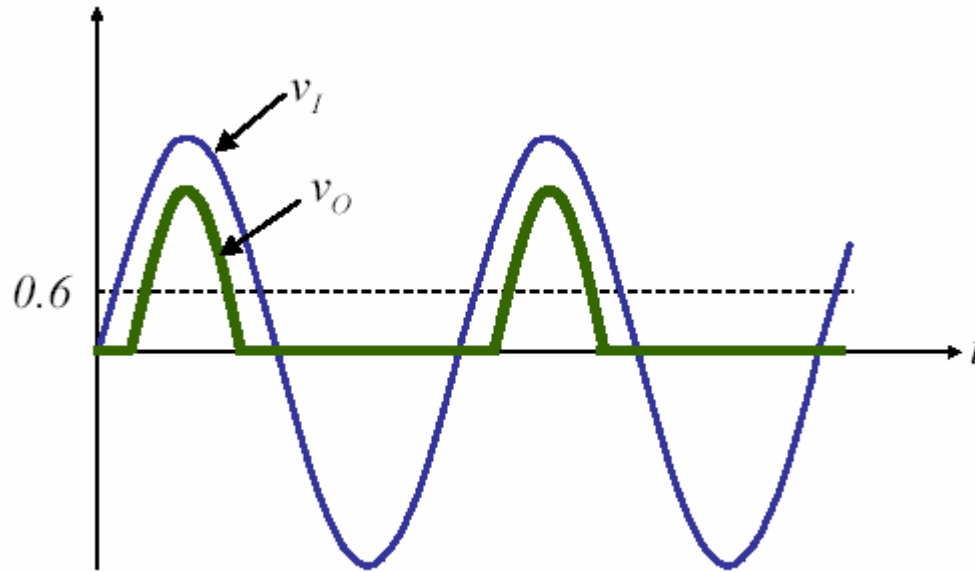


$V > 0.6V$ , diode = short circuit

$$\rightarrow V_o = V_I - 0.6$$

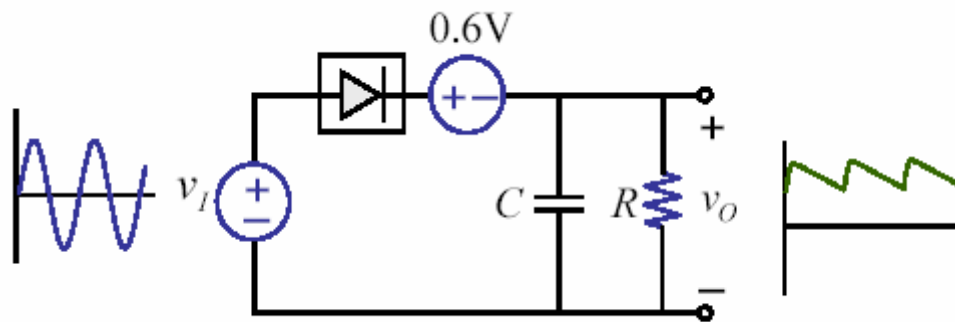
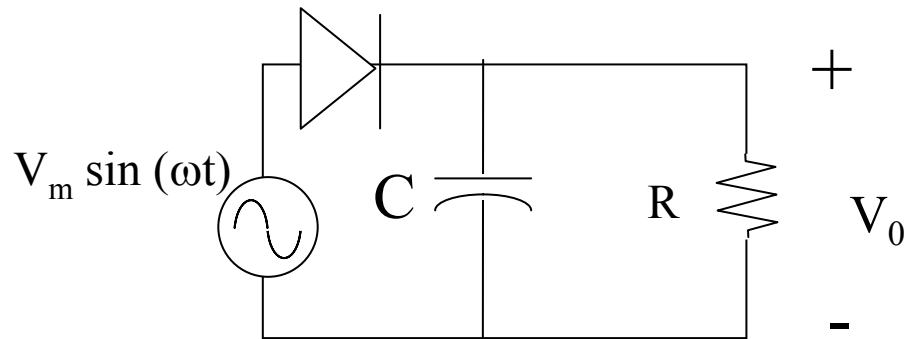
$V < 0.6V$ , diode = open circuit

$$\rightarrow V_o = 0$$



# Half-wave Rectifier Circuits

- Adding a capacitor: what does it do?



# Half-Wave Rectifier

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