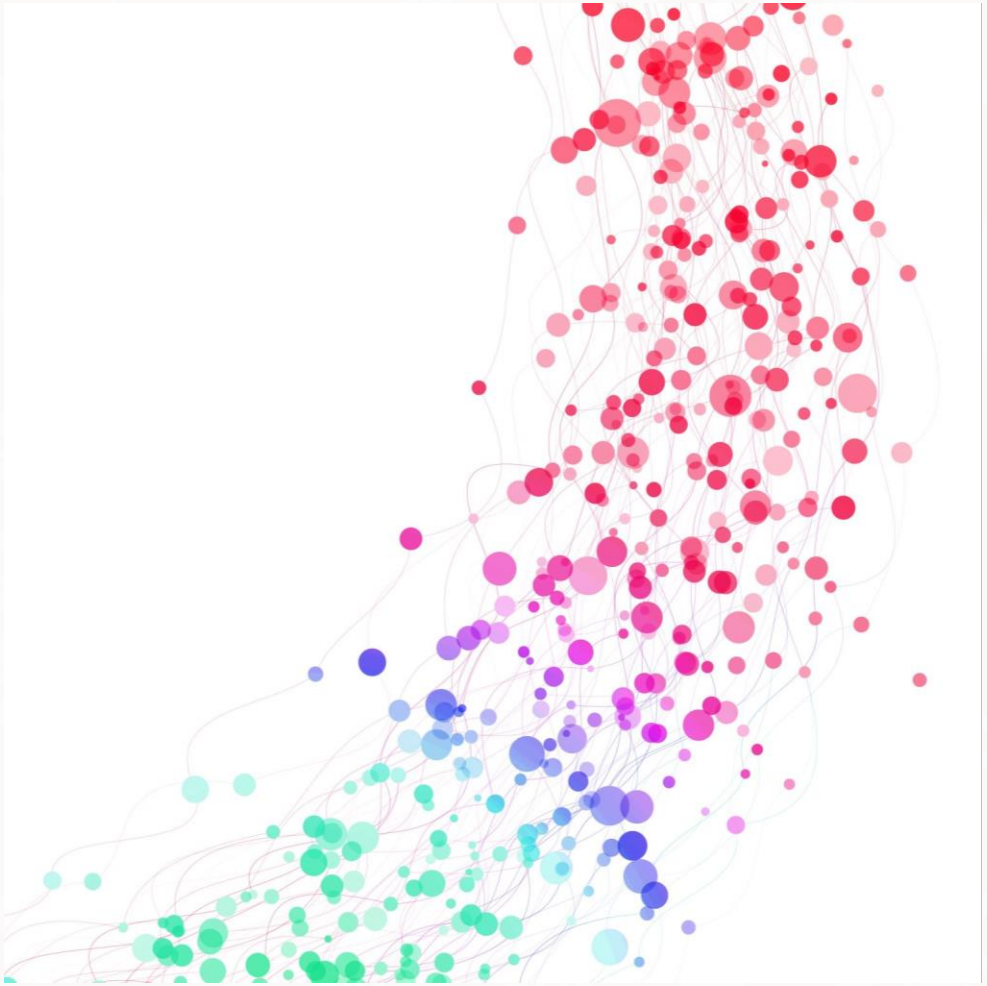
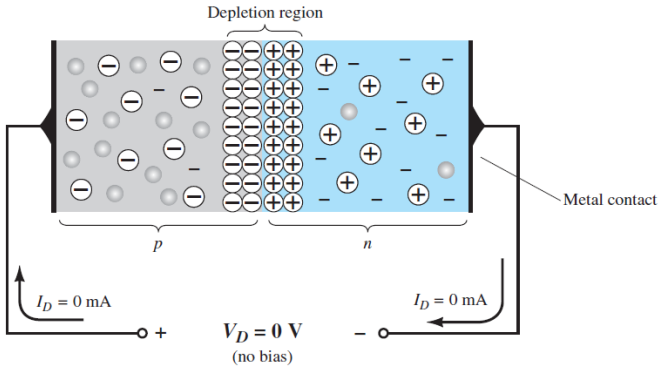
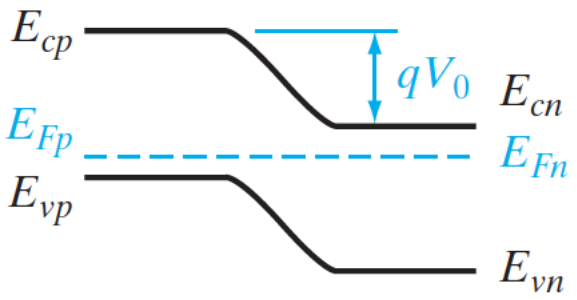


ECE 101

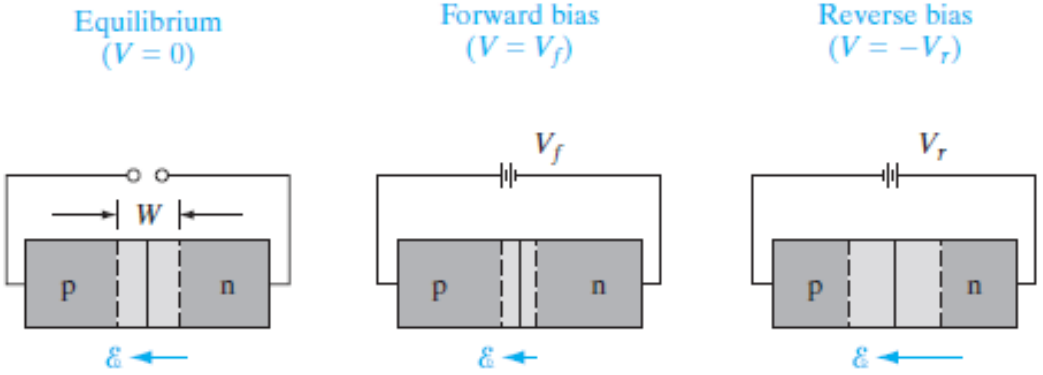
Fundamentals of Electronics

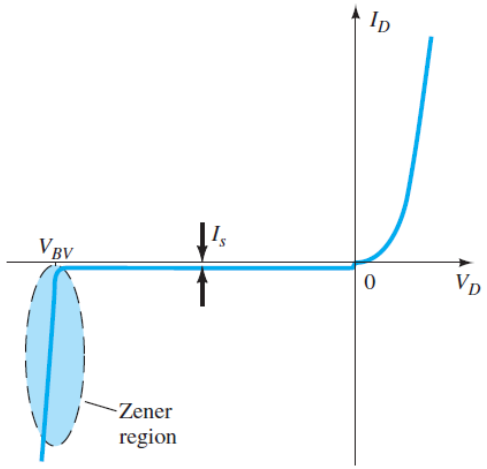
Summary

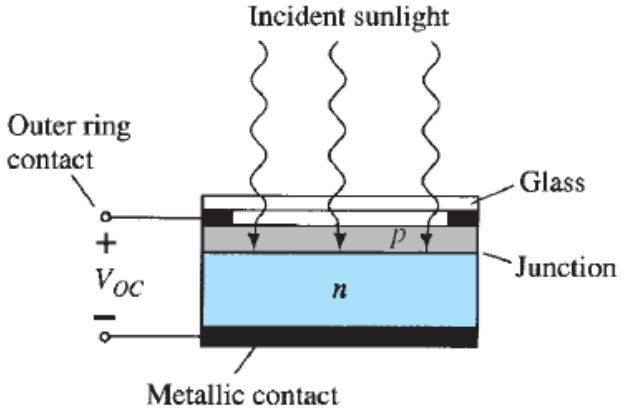


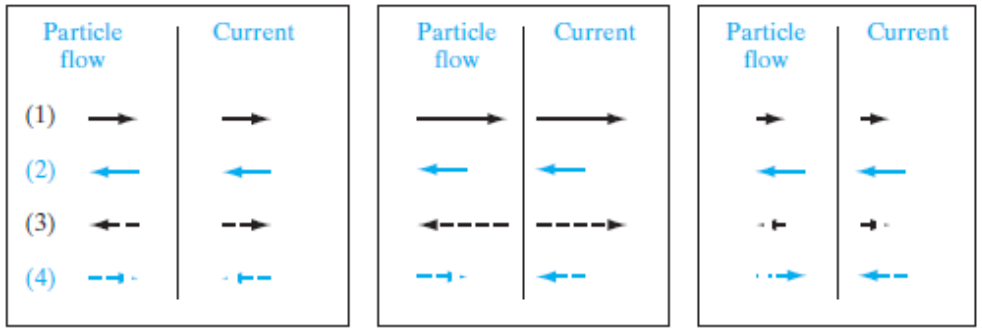


$$I_D = I_s(e^{V_D/nV_T} - 1)$$

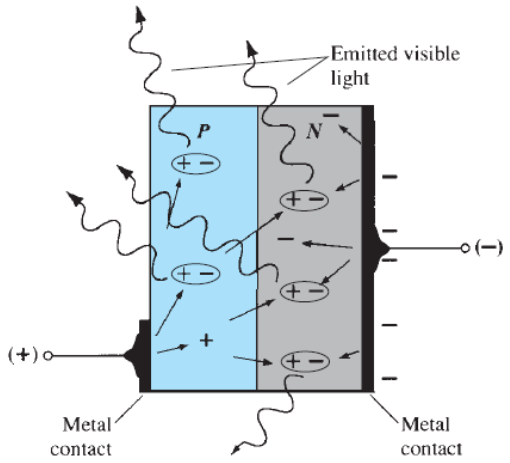


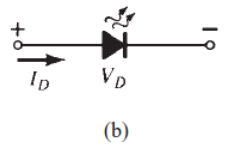




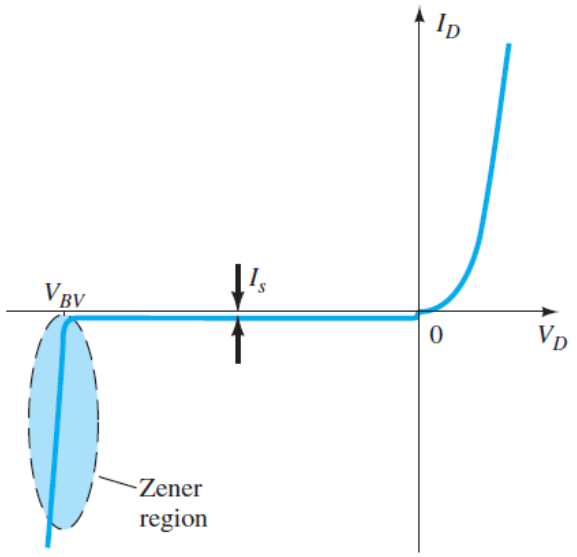


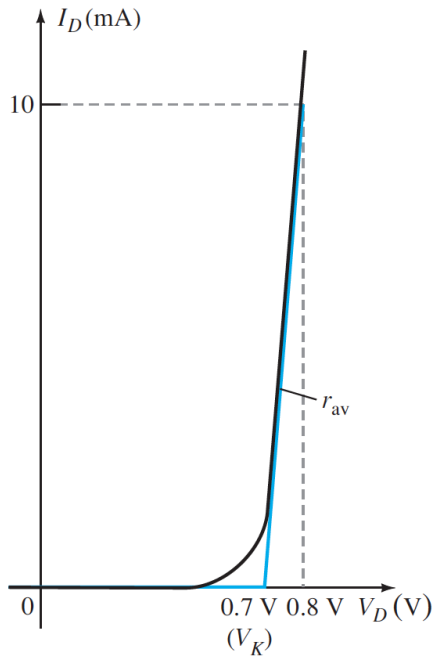
(1) Hole diffusion
(2) Hole drift
(3) Electron diffusion
(4) Electron drift

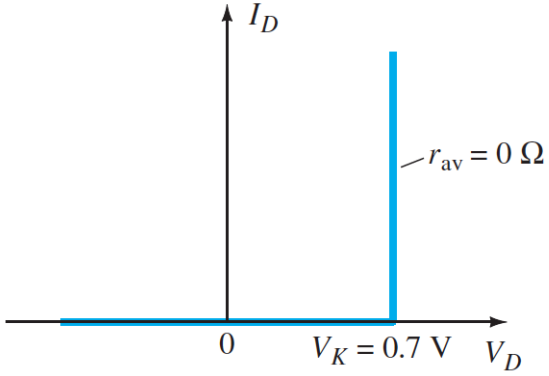


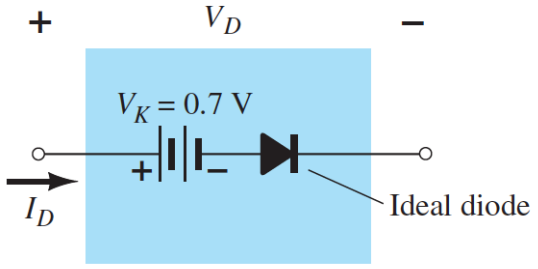


Diode Circuits

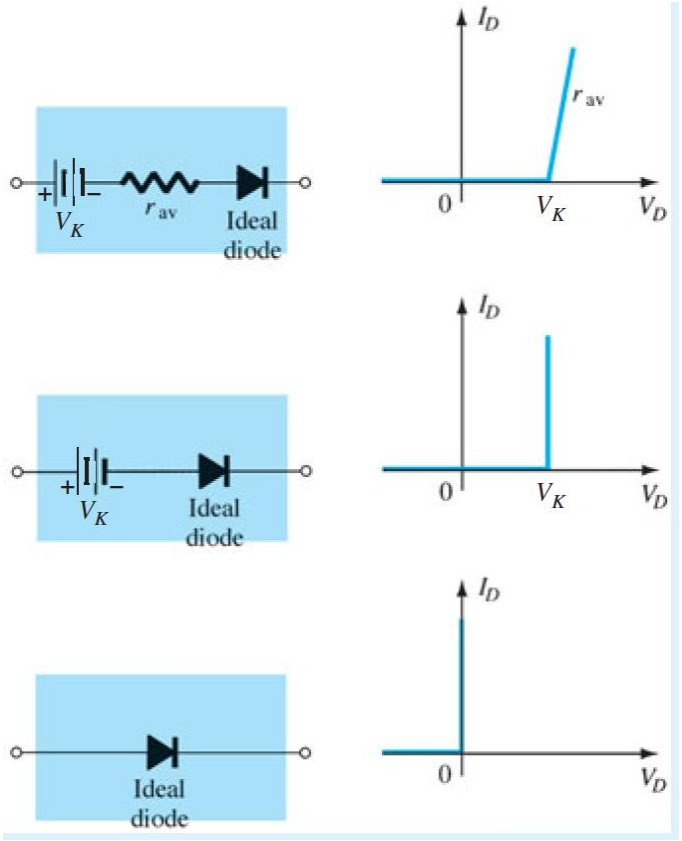


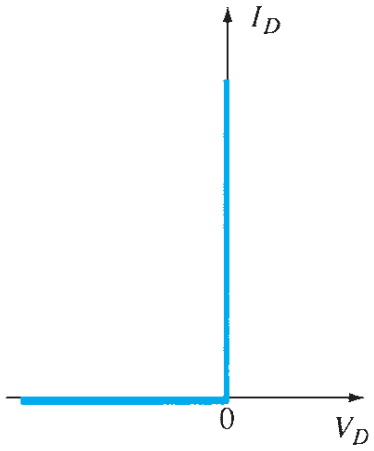


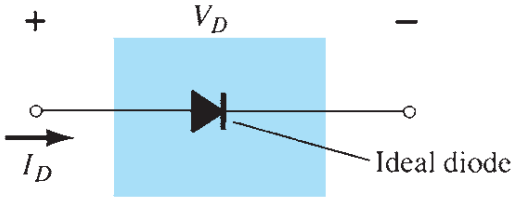




Si





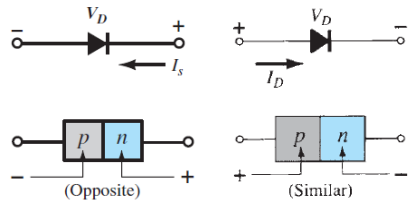


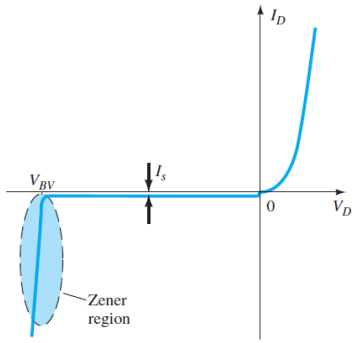
Electronic circuits

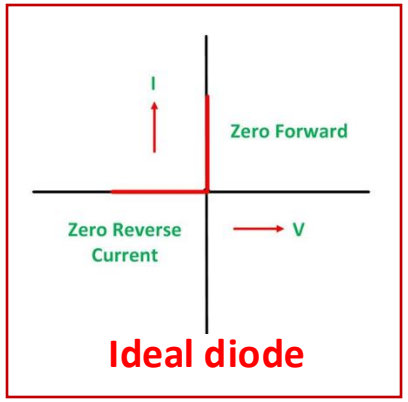
AC – DC

- AC signals can not be stored and DC power or signals can be stored.
- Also, Digital devices require constant voltages
- AC can be transported over long distances because of it's frequency and dc can not be transported as dc has zero frequency.

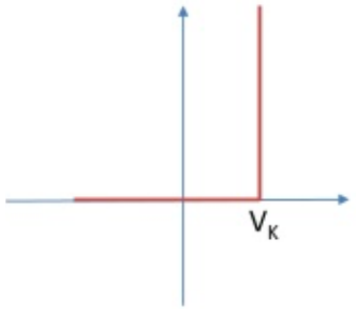
Diode circuits



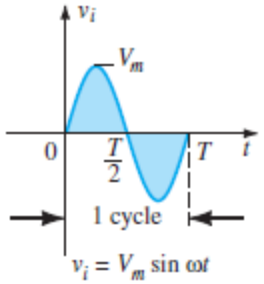


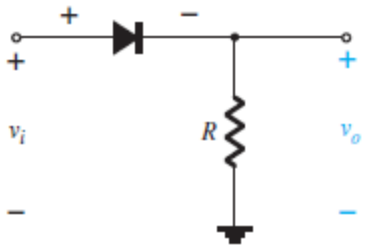


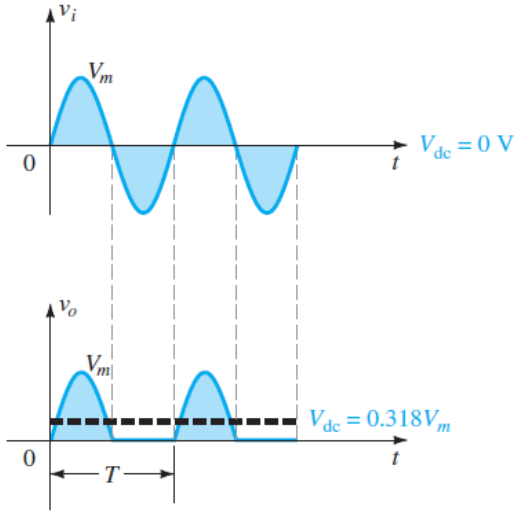
Ideal diode



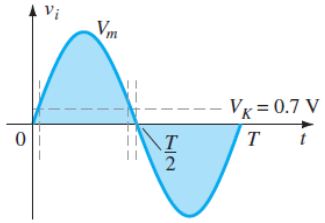
Half wave rectification

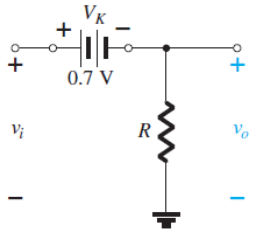


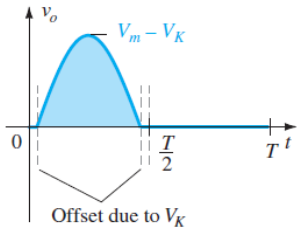




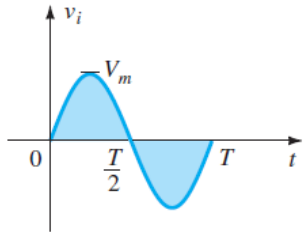
More realistically

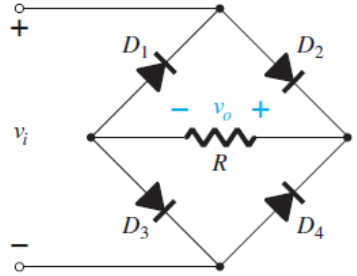


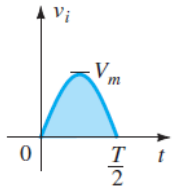


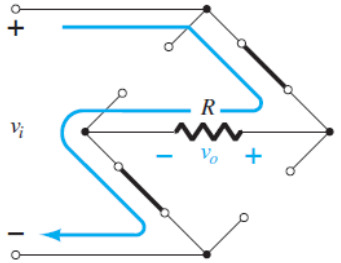


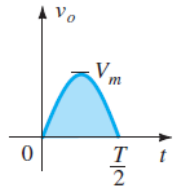
Full wave rectification

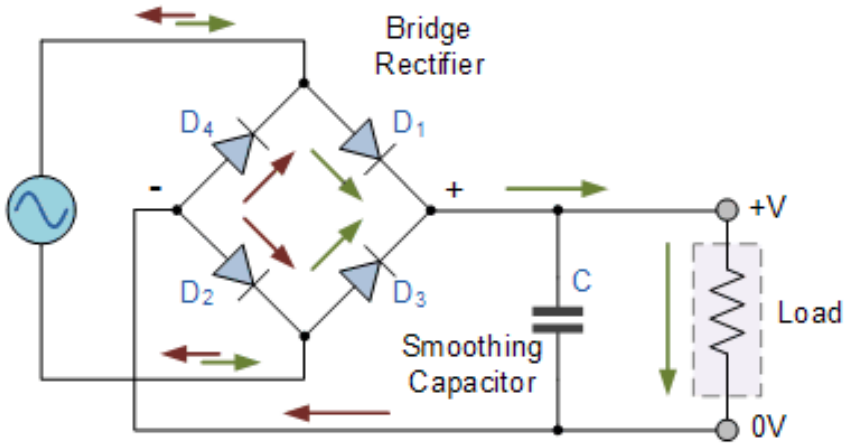


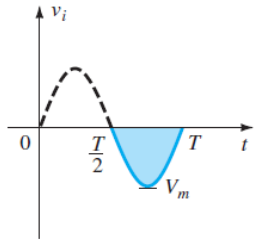


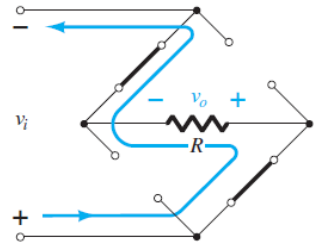


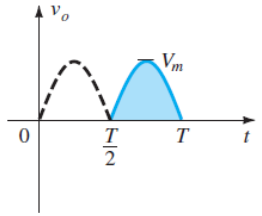


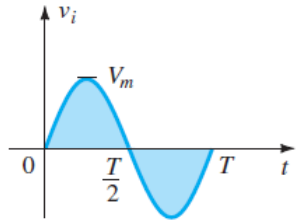


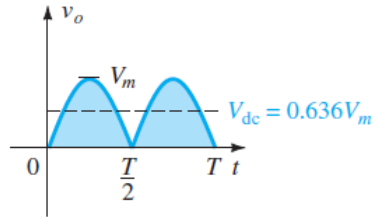


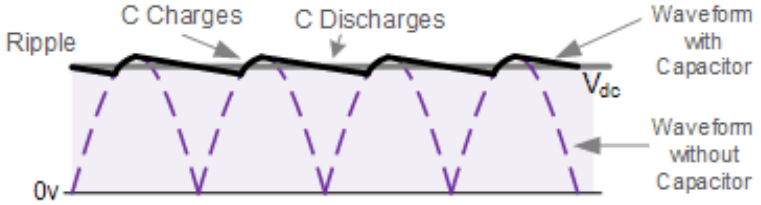


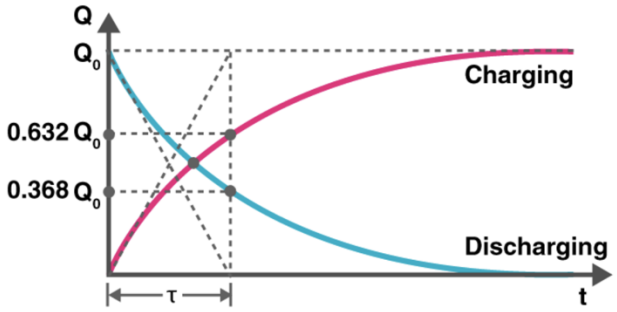






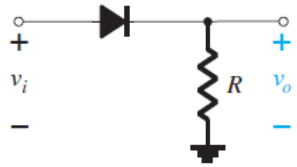


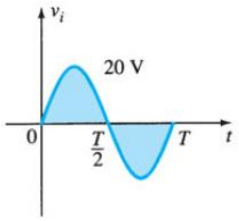


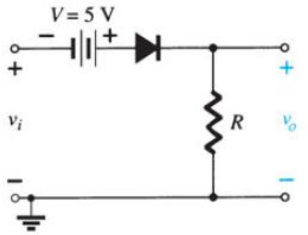


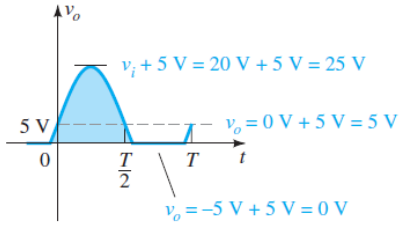
Diode as clipper

In series

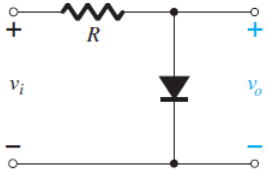


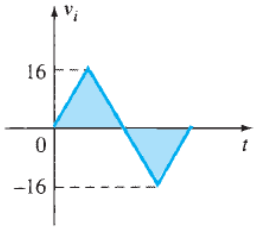


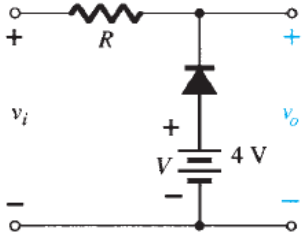


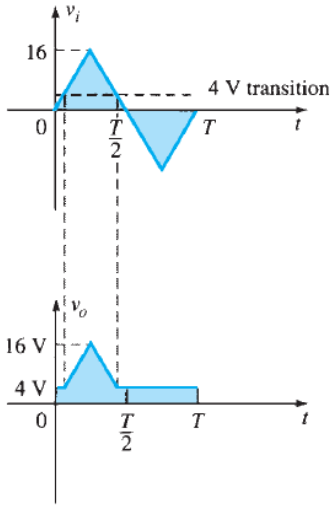


In parallel



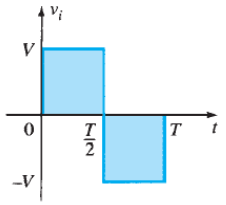


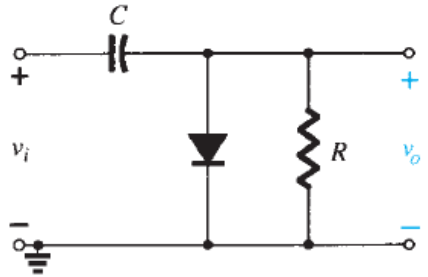


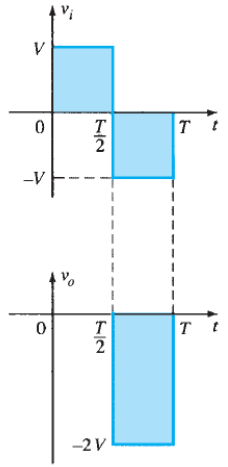


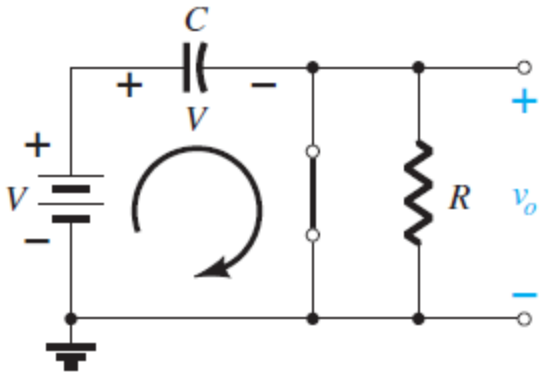
Diode as clamper

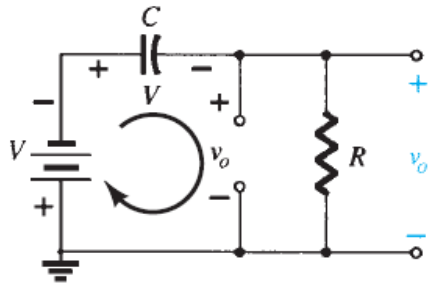
Clamper is a circuit that changes the dc level of a waveform without changing its appearance.



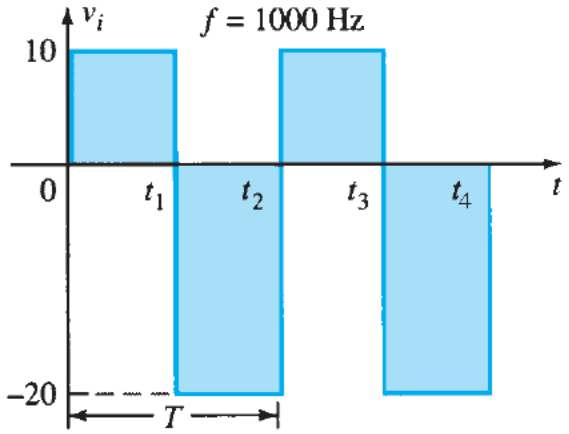


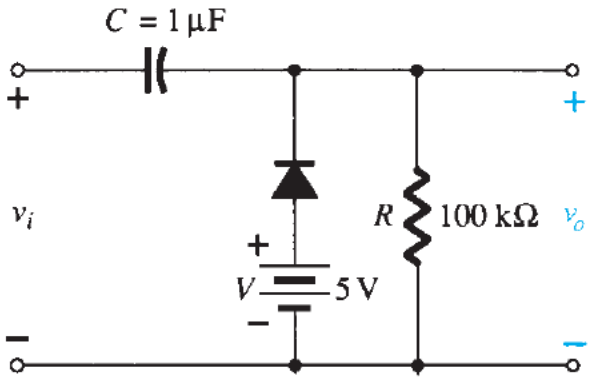






Determine the output voltage





Repeat this using a silicon diode with $V_K = 0.7$ V

Thank you