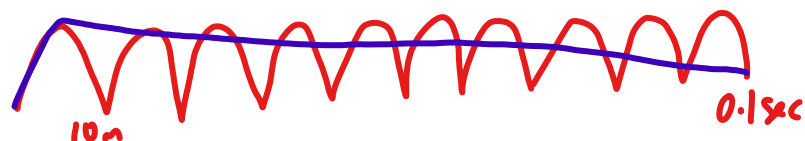
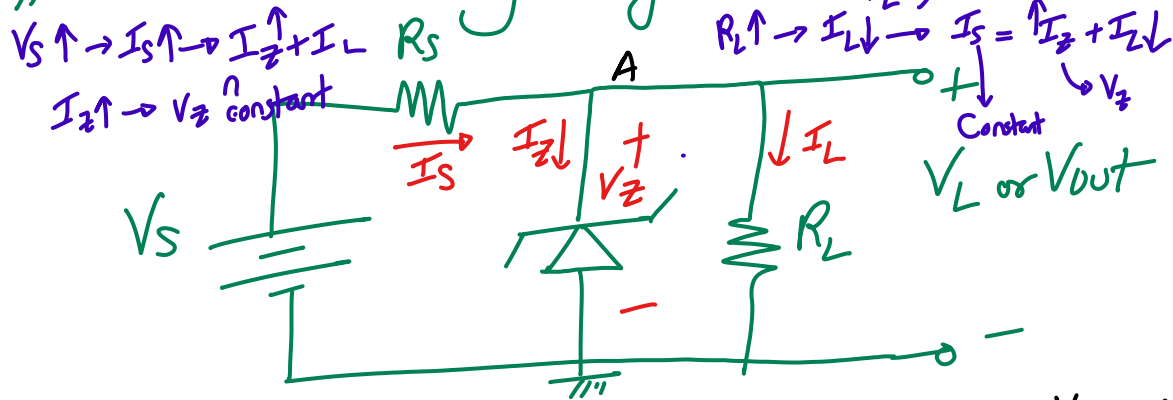


FWCTR + filter



Zener as voltage regulator:-



Aim:-

Keep V_L or V_{out} constant irrespective of line & load variations

① V_s changes

$$I_s = I_z + I_L$$

② $V_s > V_z$

$$R_s = \frac{V_s - V_z}{I_s} = \frac{V_s - V_z}{I_z + I_L}$$

\downarrow
Z.D

$$I_z + I_L = \frac{V_s - V_z}{R_s}$$

$$I_z = \frac{V_s - V_z}{R_s} - I_L$$

$$I_L = \frac{V_z \text{ or } V_L}{R_L}$$

Variables: - I_L, V_s : constant: V_z, R_s

load variations

Line variations

