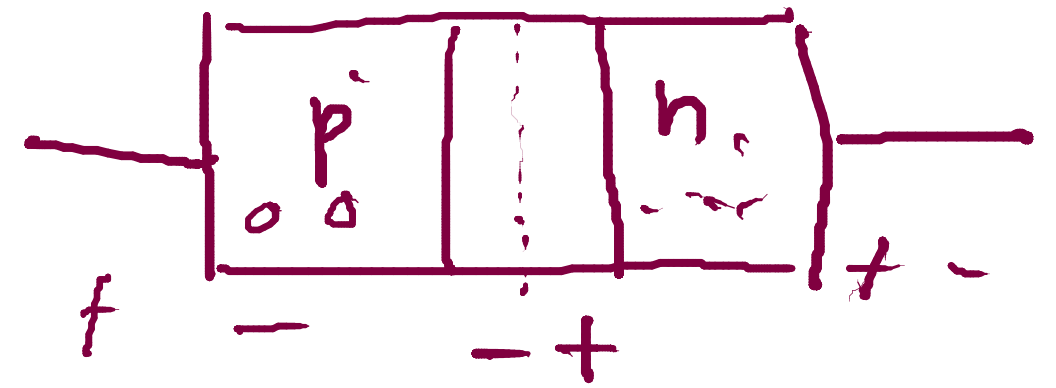
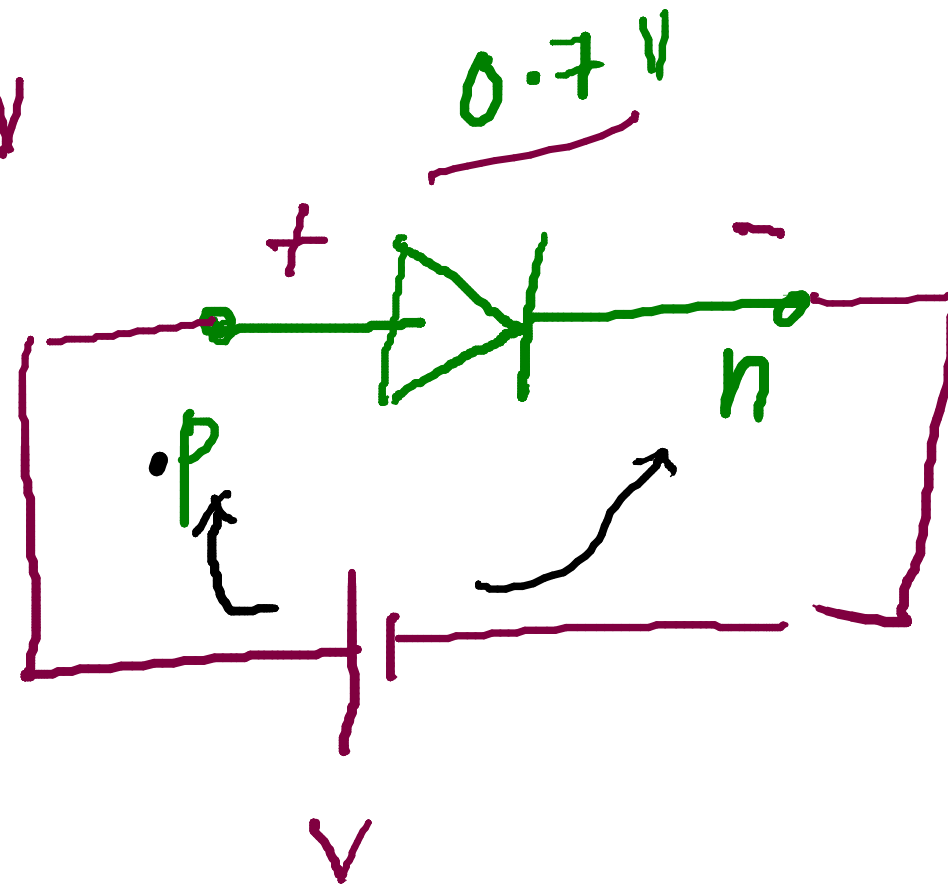


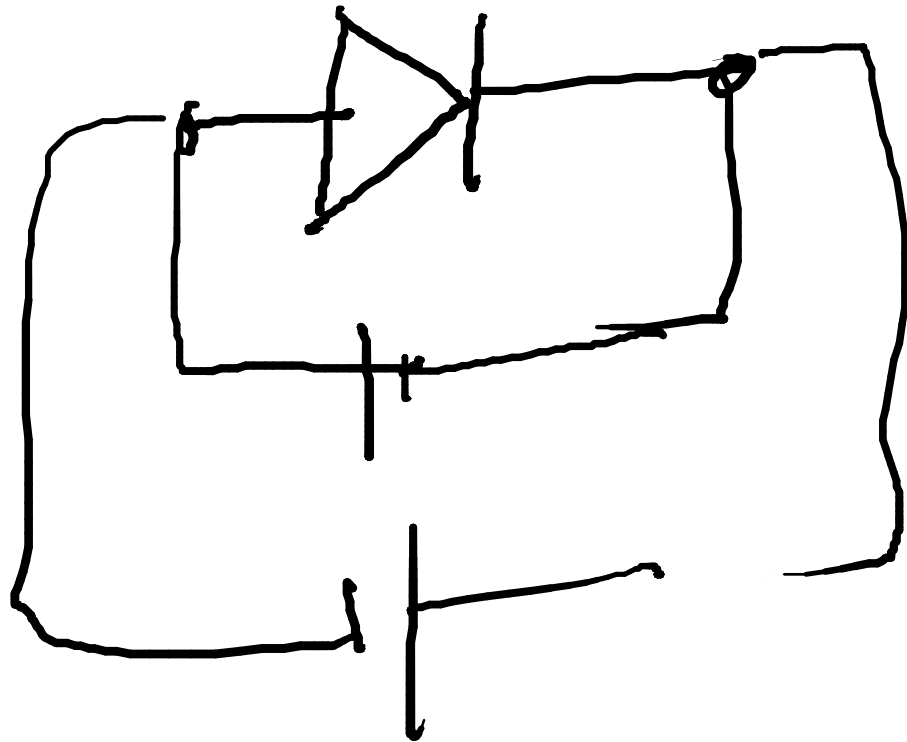
$$V_0 = 0.7 \text{ V}$$



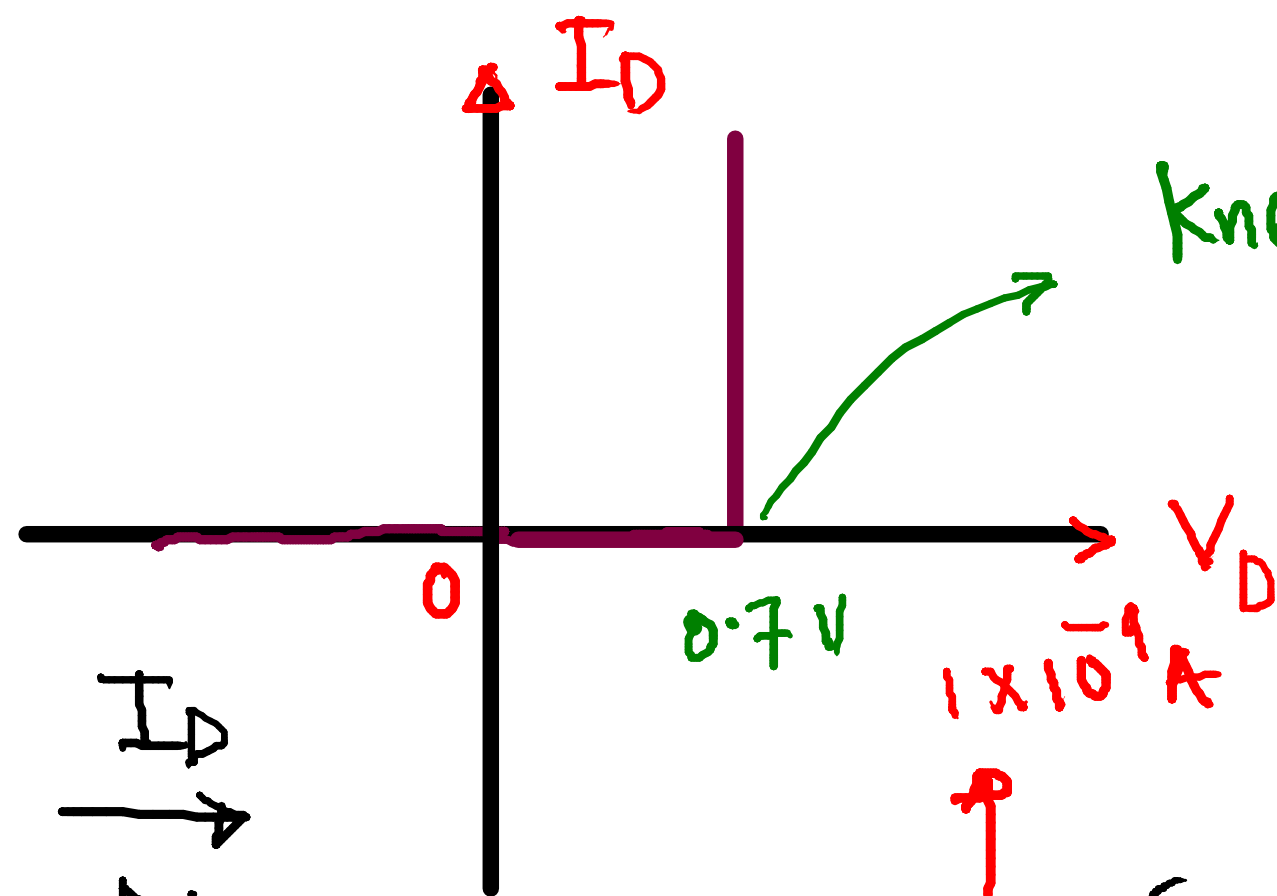
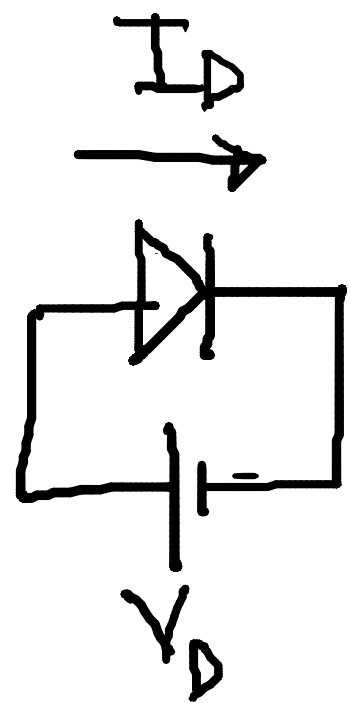
$$0.7 \text{ to } 0.8 \text{ V}$$

(V, I)

$$f = \frac{E_g}{h}$$



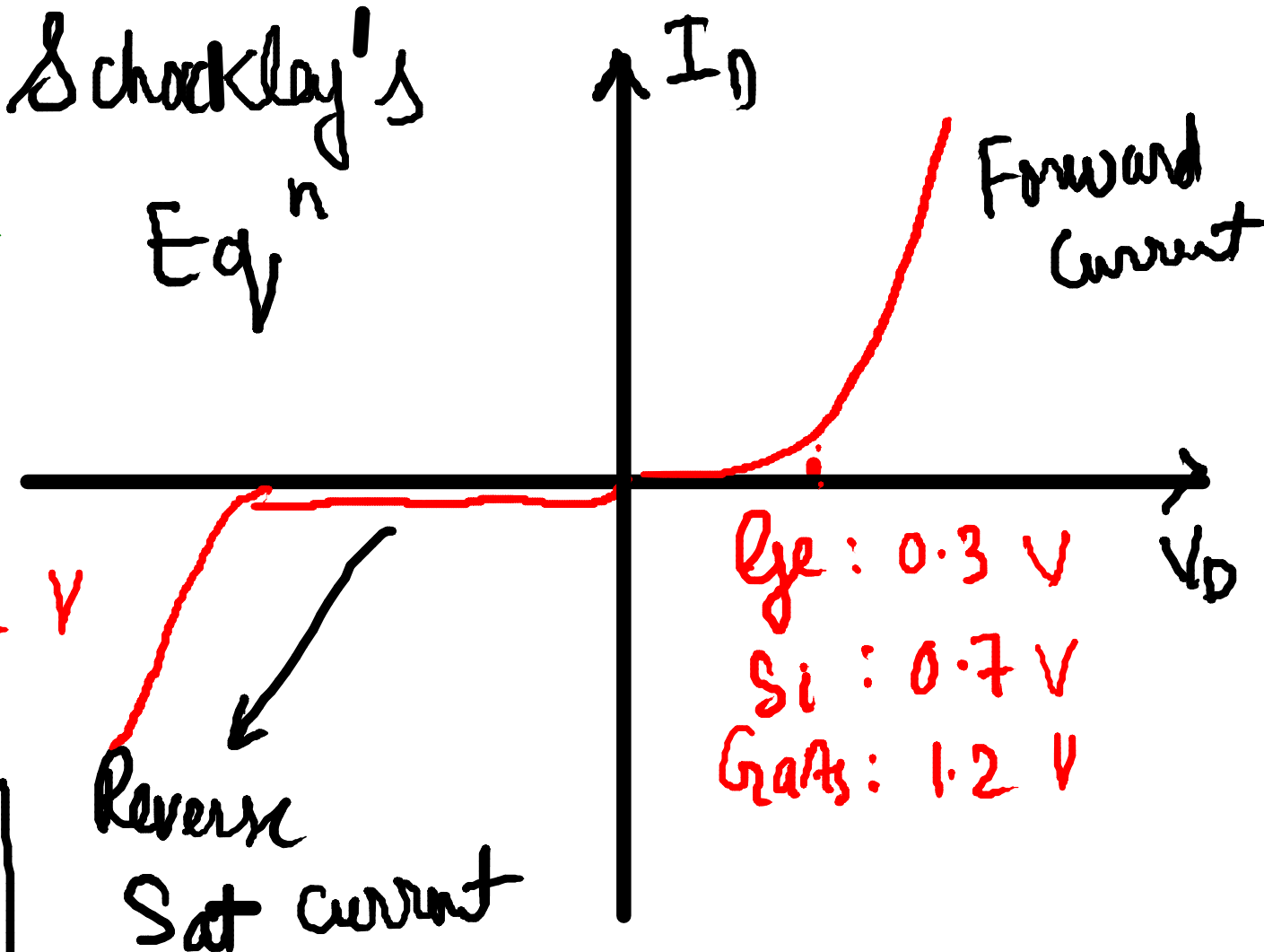
Si \rightarrow 265 THz
GaAsP \rightarrow 480 THz



$$I_D = I_s \left[e^{\left(\frac{V_D}{\eta V_T} \right)} - 1 \right]$$

$$26 \text{ mV} = V_T = \frac{kT}{q} = \text{Thermal Voltage}$$

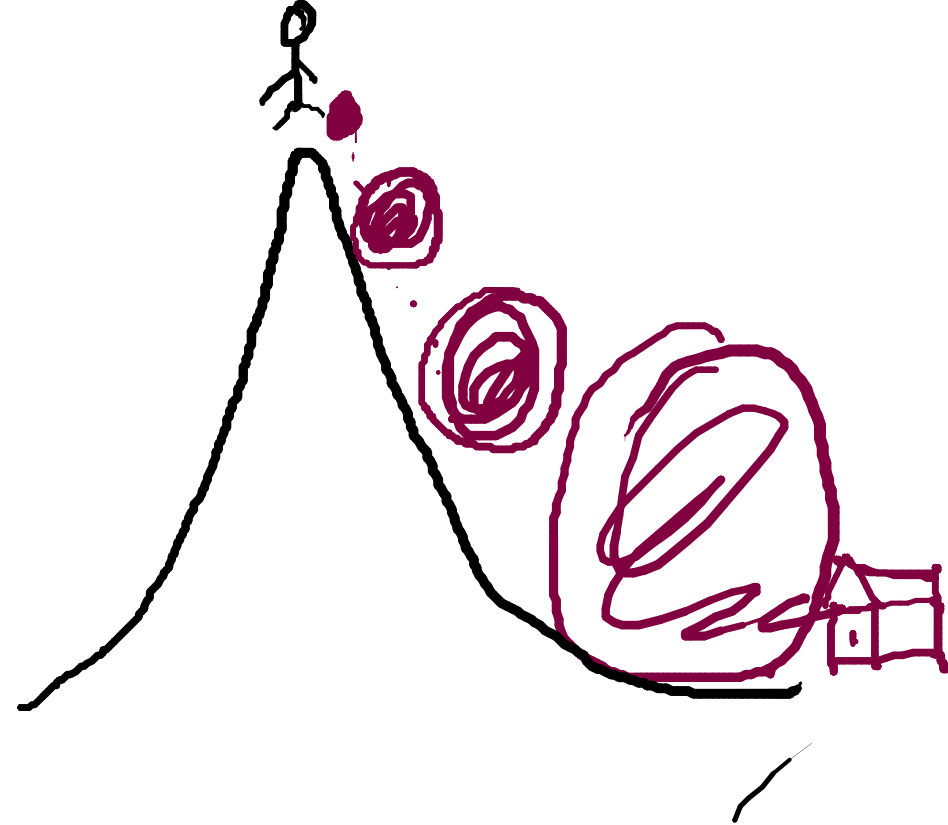
Schockley's Eqⁿ



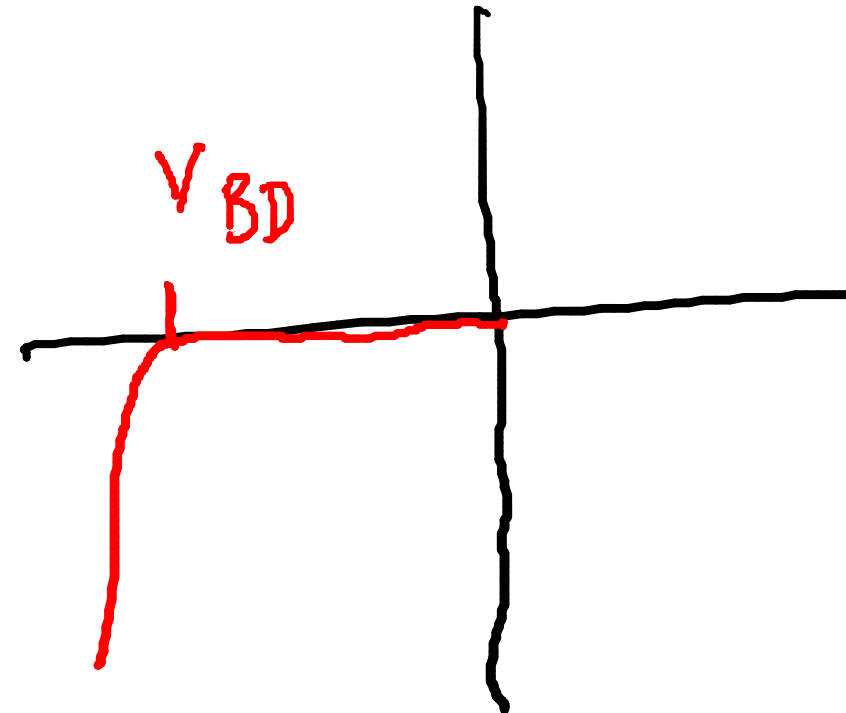
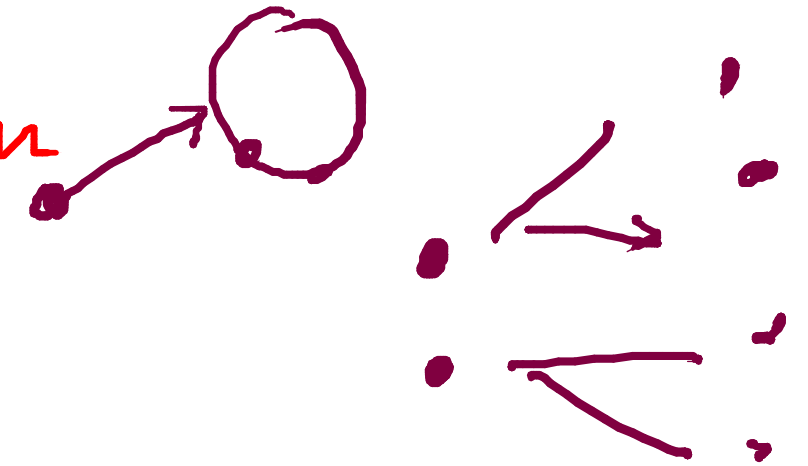
I_s : Reverse saturation current

V_D : Applied Voltage

η : Ideality factor



Avalanche
Zener breakdown



$$15 + 15 + 50 + 20$$

→ Avalanche

→ Zener → direct
Breakage
of
Covalent Bonds.