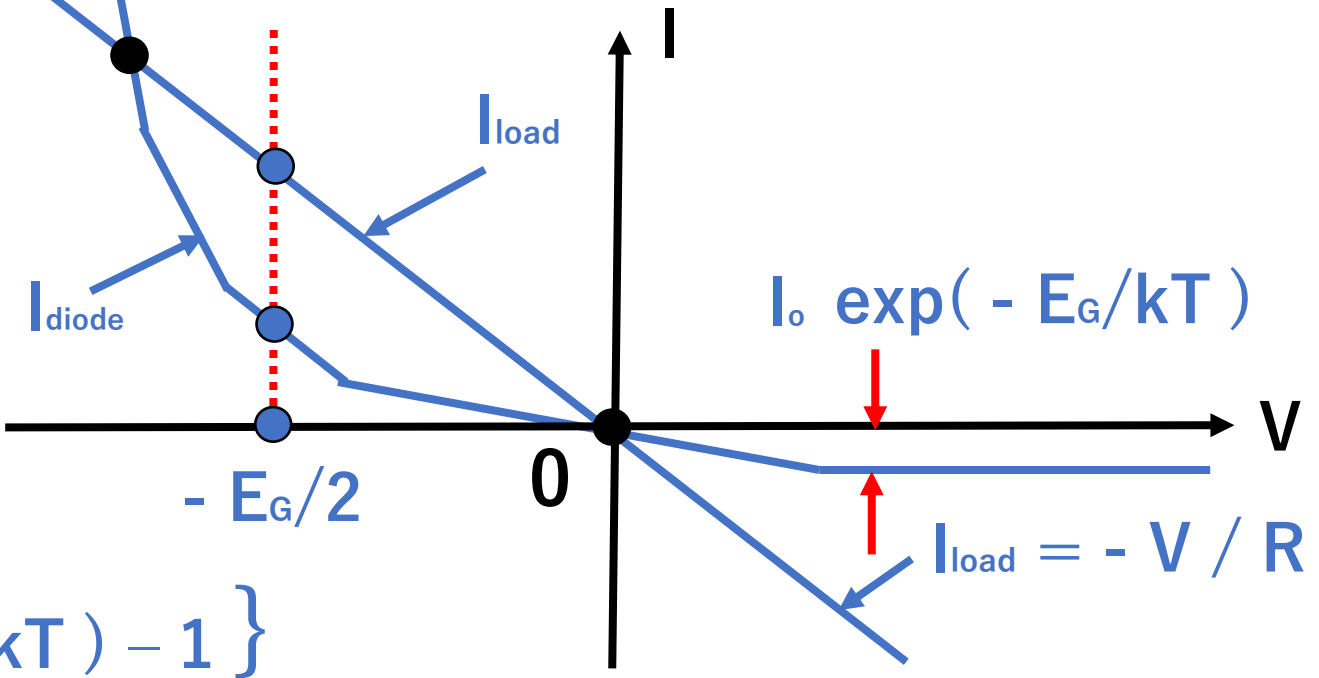


$$\begin{aligned}
 (\text{Output Power}) &= (V I_{\text{load}}) \\
 &= (V) (I_{\text{cell}} - I_{\text{diode}})
 \end{aligned}$$



$$I_{\text{cell}} = I_{\text{diode}} + I_{\text{load}}$$

$$I_{\text{load}} = -V / R$$

$$I_{\text{diode}} = I_0 \exp(-E_G/kT) \{ \exp(-V/kT) - 1 \}$$

$$I_{\text{diode}} \rightarrow I_0 (-V/kT) \exp(-E_G/kT) \text{ as } V \rightarrow 0$$

$$\frac{I_{\text{diode}}}{I_{\text{load}}} = \frac{I_0 \exp(-E_G/kT)}{(kT) R} \rightarrow 0 \text{ as } V \rightarrow 0$$

Keep R small so that $\frac{I_{\text{diode}}}{I_{\text{load}}}$ gets kept small.