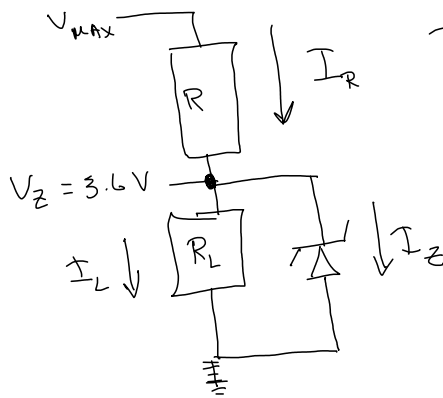


But what is the current coming into the branch between the load and the Diode



I_R is being split between R_L & the Diode
what does not go through R_L goes through Zener

$$\text{Well, } I_R = I_Z + I_L$$

$$I_L = \frac{V_Z}{R_L} \checkmark$$

What about I_R

well, I know the "top" of R is at V_{max} , and the "bottom" is at V_Z

$$\text{So } I_R = \frac{V_{max} - V_Z}{R}$$

$$\therefore I_Z = I_R - I_L = \frac{V_{max} - V_Z}{R} - \frac{V_Z}{R_L}$$

all of these are known

$$I_Z = \frac{5.5V - 3.6V}{47\Omega} - \frac{3.6V}{200\Omega}$$

$$I_Z = 40mA - 18mA = 22mA$$

Now

$$P_Z = I_Z \cdot V_Z = 22mA \cdot 3.6V = 80.1mW$$