

$$Z_s = R_2 + C_2$$

$$Z_s = R_2 + \frac{1}{j\omega C_2}$$

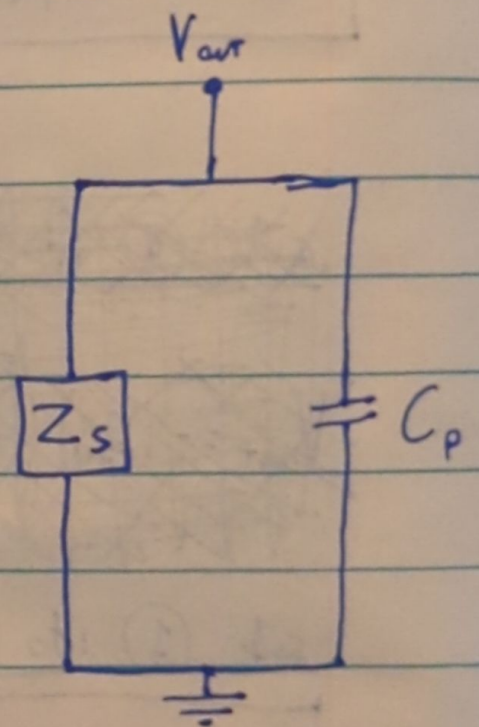
$$Z_s = R_2 + \frac{1}{j(2\pi f)(C_2)}$$

$$j^2 = -1$$

$$j = -\frac{1}{j}$$

$$\frac{1}{j} = -j$$

$$|Z_s| = \sqrt{(R_2)^2 + \left(\frac{1}{\omega C_2}\right)^2}$$



~~$$\frac{1}{Z_{TOTAL}} = \frac{1}{Z_s} + \frac{1}{j\omega C_p}$$~~

$$\frac{1}{Z_{TOTAL}} = \frac{(Z_s) + (Z_{Cp})}{(Z_s)(Z_{Cp})}$$

$$Z_{TOTAL} = \frac{(Z_s)(Z_{Cp})}{Z_s + Z_{Cp}}$$

$$\frac{1}{Z_{TOTAL}} = \frac{1}{Z_s} + \frac{1}{(Z_{Cp})}$$

$$\frac{1}{Z_{TOTAL}} = \frac{(Z_{Cp})}{(Z_s)(Z_{Cp})} + \frac{(Z_s)}{(Z_s)(Z_{Cp})}$$