

Sensibilidad

$$S_C^{\omega_0} \quad S_{R_2}^Q \quad S_{R_3}^Q$$

$$\omega_0 = \frac{1}{R_3 C^2}$$

~~$$\omega_0 = \frac{1}{R_2 C}$$~~

$$\frac{\omega_0}{Q} = \frac{1}{CR_2}$$

$$\frac{\Delta Q}{Q} = \frac{\Delta R_3}{R_3} S_{R_3}^Q + \frac{\Delta R_2}{R_2} S_{R_2}^Q + \frac{\Delta C}{C} S_C^Q$$

$$\frac{\Delta \omega_0}{\omega_0} = \frac{\Delta R_3}{R_3} S_{R_3}^{\omega_0} + \frac{\Delta C}{C} S_C^{\omega_0}$$

$$S_C^{\omega_0} = \frac{C}{\omega_0} \frac{\partial \omega_0}{\partial C} = \frac{C}{\omega_0} \frac{1}{(R_3 C)^2} R_3 = \frac{C}{\omega_0} \frac{1}{R_3 C R_3 C}$$

$$\left[S_C^{\omega_0} = \frac{1}{\omega_0^2} \right]_{\omega_0=1} = 1$$

$$S_{R_2}^Q = \frac{R_2}{Q} \frac{\partial Q}{\partial R_2} = \frac{R_2}{Q} \frac{\partial}{\partial R_2} \left(\omega_0 C R_2 \right) \Rightarrow \frac{R_2 \omega_0 C}{Q}$$

$$S_{R_2}^Q = \frac{R_2}{Q} \frac{1}{R_3} \Rightarrow \left[S_{R_2}^Q = \frac{R_2^2 C}{R_3} \right]$$

$$S_{R_3}^Q = \frac{R_3}{Q} \frac{\partial Q}{\partial R_3} = \frac{R_3}{Q} \frac{\partial}{\partial R_3} \left(\frac{1}{CR_3} \right) = \frac{R_3 R_2 C}{Q} \frac{1}{CR_3}$$

$$S_{R_3}^Q = \frac{R_2}{Q R_3} \Rightarrow \left[S_{R_3}^Q = \frac{R_2^2 C}{R_3} \right]$$