DISEÑO del CIRCUITO

- Ecuaciones de diseño de la datasheet p/ circuito no inversor.

$$T_{BP}(s) = A_{BP} \cdot \frac{s \, \omega_m/Q}{s^2 + s\,\omega_m/Q + \omega_m^2}$$

- $A_{BP} = \frac{R_4}{R_G} = \frac{50k\Omega}{R_G}$ } Para 0dB, $R_G = 50k\Omega$

- $Q = \frac{1 + \frac{R_4(R_G + R_Q)}{R_G R_Q}}{1 + \frac{R_2}{R_1}} \cdot \left(\frac{R_2 R_{F1} C_1}{R_1 R_{F2} C_2}\right)^{1/2}$

$$\begin{cases} R_1 = R_2 = R_G = 50k\Omega \\ C_1 = C_2 = 1000pF \\ \left.\begin{matrix} R_{F1} \\ R_{F2} \\ R_Q \end{matrix}\right\} \text{diseño} \end{cases}$$

$$Q = \frac{1 + \left(\frac{R_G + R_Q}{R_Q}\right)}{2} \cdot \sqrt{\frac{R_{F1}}{R_{F2}}}$$

- $\omega_m^2 = \frac{R_2}{R_1 \cdot R_{F1} \cdot R_{F2} \cdot C_1 C_2} = \frac{1}{R_{F1} R_{F2} C_1 C_2}$

$$\omega_m^2 = (2\pi \cdot 6kHz)^2 = (12000\pi)^2 = \frac{1}{R_{F1} R_{F2} \cdot 10^{-18} F}$$

$$R_{F1} \cdot R_{F2} = 703{,}62\ M\Omega^2$$

Elegimos $R_{F1} = 10k\Omega$ ∧ $R_{F2} = 68k + 2{,}2k$

Luego: $Q = 2{,}64 = \frac{1 + \frac{50k + 1}{R_Q}}{2} \cdot \sqrt{\frac{10k}{70{,}2k}}$

$$\frac{2{,}64 \cdot 2}{\sqrt{\frac{10}{70{,}2}}} = 1 + \frac{50k}{R_Q} + 1$$

$$13{,}98 - 2 = \frac{50k\Omega}{R_Q} \} \rightarrow R_Q = 4{,}17\ k\Omega$$

Elijo $R_Q = 3{,}9k\Omega + 220\Omega$

$R_Q = 4{,}12k\Omega$