

Cellule Sallen Key à suivreur

$$F_c := 1000 \text{ Hz}$$

$$Q := 0,5$$

0,5 en LR2 ; 0,707 en But2

Low Pass :

$$R := 11 \text{ k}\Omega$$

$$C_2 := \frac{1}{4 \cdot Q \cdot \pi \cdot F_c \cdot R} = 14,5 \text{ nF}$$

$$C_1 := C_2 \cdot 4 \cdot Q^2 = 14,5 \text{ nF}$$

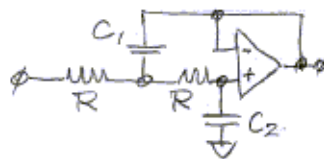
1) Lowpass transfer function (2nd order)

$$L(s) = \frac{\omega_0^2}{s^2 + \frac{\omega_0}{Q}s + \omega_0^2}$$

$$\omega_0 = 2\pi f_0$$

$$s = \sigma + j\omega$$

2) Circuit configuration



$$Q_0 = 0,5 \text{ LR2}$$

$$Q_0 = 0,71 \text{ LR4 (2stages)}$$

$$\omega_0 = \frac{1}{R\sqrt{C_1 C_2}}$$

$$Q_0 = \frac{1}{2} \sqrt{\frac{C_1}{C_2}}$$

$$R = \frac{1}{2Q_0 \omega_0 C_2}$$

$$C_1 = 4Q_0^2 C_2$$

2/25/038L

High Pass :

$$C := 10 \text{ nF}$$

$$R_2 := \frac{2 \cdot Q}{C \cdot 2 \cdot \pi \cdot F_c} = 15900 \Omega$$

$$R_1 := \frac{R_2}{4 \cdot Q^2} = 15900 \Omega$$

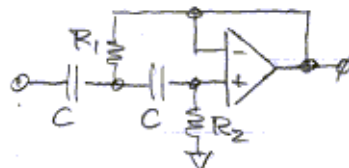
1) highpass transfer function (2nd order)

$$H(s) = \frac{s^2}{s^2 + \frac{\omega_0}{Q}s + \omega_0^2}$$

$$\omega_0 = 2\pi f_0$$

$$s = \sigma + j\omega$$

2) Circuit configuration



$$Q_0 = 0,5 \text{ LR2}$$

$$Q_0 = 0,71 \text{ LR4 (2stages)}$$

2/25/038L

$$\omega_0 = \frac{1}{C\sqrt{R_1 R_2}}$$

$$Q_0 = \frac{1}{2} \sqrt{\frac{R_2}{R_1}}$$

$$C = \frac{2Q_0}{\omega_0 R_2}$$

$$R_1 = \frac{R_2}{4Q_0^2}$$

source : <https://www.linkwitzlab.com/filters.htm>