Filtros

Pasa bajos

Datos: R ; fc ; f∞ (atenuación)

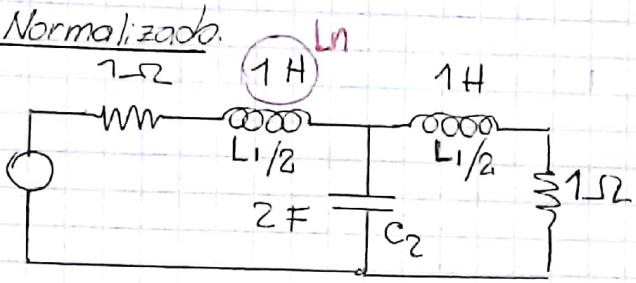
$\omega_c = 2\pi \cdot f_c$

$m = \sqrt{1 - \left(\frac{f_c}{f_\infty}\right)^2}$

$m = 0{,}6$ Para la Semisección

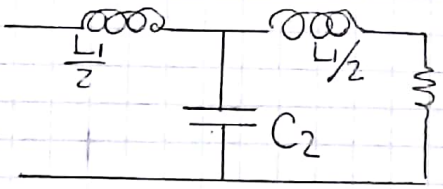
$m = 0{,}416$ m-derivado

Normalizado.



$\frac{L_1}{2} = \frac{L_n \cdot R_o}{\omega_c}$ $\qquad C_2 = \frac{C_n}{\omega_c \cdot R_o}$

K-CTE

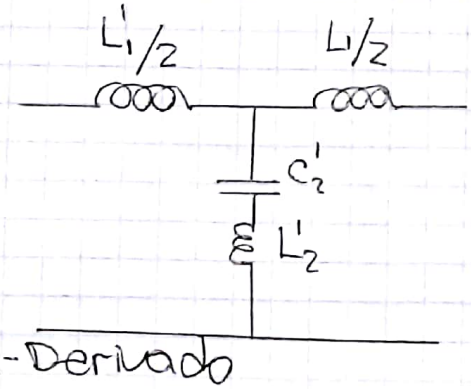


usamos $m = 0{,}416$

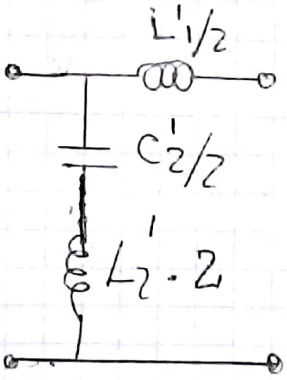
$\frac{L'_1}{2} = \frac{L_1}{2} \cdot m$

$C'_2 = C_2 \cdot m$

$L'_2 = L_1 \left(\frac{1-m^2}{4m}\right)$



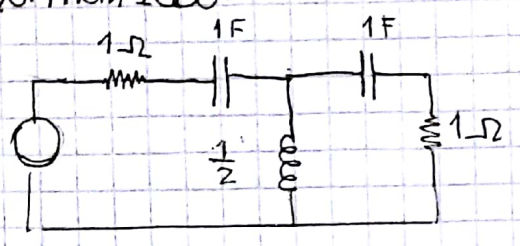
M-Derivado



Semi sección

Pasa Altos

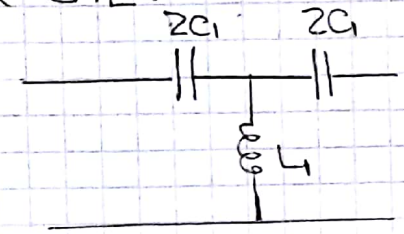
Normalizado:



$$2C_1 = \frac{C_n}{\omega_c \cdot R_0}$$

$$L_1 = \frac{L_n \cdot R_0}{\omega_c}$$

K-CTE:

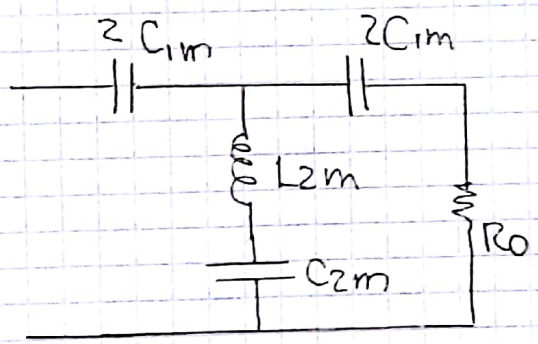


usamos $m = 0,3996$

$$2C_{1m} = \frac{2C_{kcte}}{m}$$

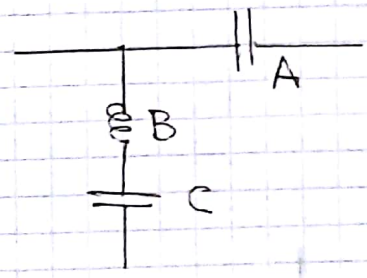
$$L_{2m} = \frac{L_{2kcte}}{m}$$

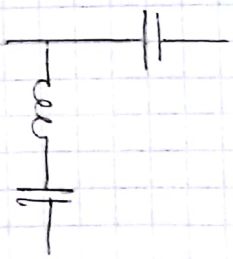
M-Derivada



$$C_{2m} = 2C_1\left(\frac{2m}{1-m^2}\right)$$

Sección Adaptadora





$$A = \frac{2C_{1\,kcte}}{m}$$

$$B = \left(\frac{L_{kcte}}{m}\right) \cdot 2$$

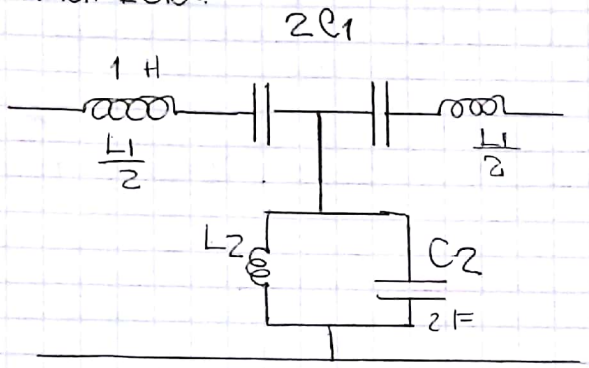
$$C = C_{1\,kcte}\left(\frac{2m}{1-m^2}\right)$$

Pasa Banda

$$m = \sqrt{1 - \left(\frac{BW}{BW_\infty}\right)^2}$$

$$m = \sqrt{1 - \left[\frac{(\omega_{c2} - \omega_{c1})}{\left(\omega_{c2} \cdot \frac{\omega_{\infty 2}}{\omega_{c2}}\right) - \left(\frac{\omega_{c1}}{\frac{\omega_\infty}{\omega_{c2}}}\right)}\right]^2}$$

Normalizado



$$BW = (f_{c2} - f_{c1}) \cdot 2\pi$$

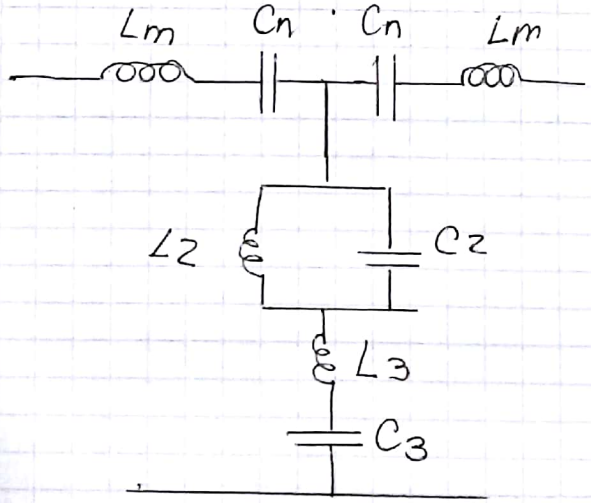
$$\frac{L_1}{2} = \frac{R_0}{B.W}$$

$$2C_1 = \frac{BW}{R_0 \cdot \omega_0^2}$$

$$f_0 = \sqrt{f_{c1} \cdot f_{c2}} \quad \therefore \omega_0 = 2\pi \cdot f_0$$

$$L_2 = \frac{R_0 \cdot BW}{2\omega_0^2} \qquad C_2 = \frac{2}{R_0 \cdot B.W}$$

m-Derivada



$$L_m = \frac{L_1}{2} \cdot m$$

$$C_m = \frac{2C_1}{m}$$

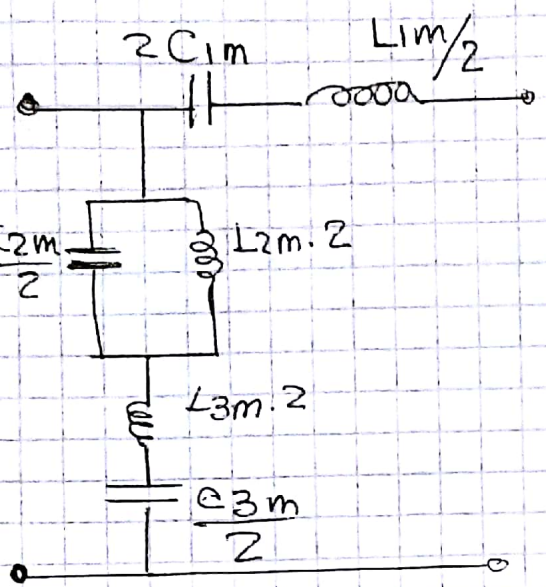
$$L_{2m} = \frac{L_2}{m}$$

$$C_{2m} = C_2 \cdot m$$

$$L_3 = \frac{L_1}{2}\left(\frac{1-m^2}{2m}\right)$$

$$C_3 = 2C_1\left(\frac{2m}{1-m^2}\right)$$

Semi secciones:



$$\frac{L_{1m}}{2} = \frac{L_1}{2} K_{cte} \cdot m$$

$$2 \cdot C_{1m} = \frac{2C_1 K_{cte}}{m}$$

$$\frac{C_{2m}}{2} = C_2 \cdot \frac{K_{cte} \cdot m}{2}$$

$$L_{2m.2} = \frac{L_2 K_{cte} \cdot 2}{m}$$

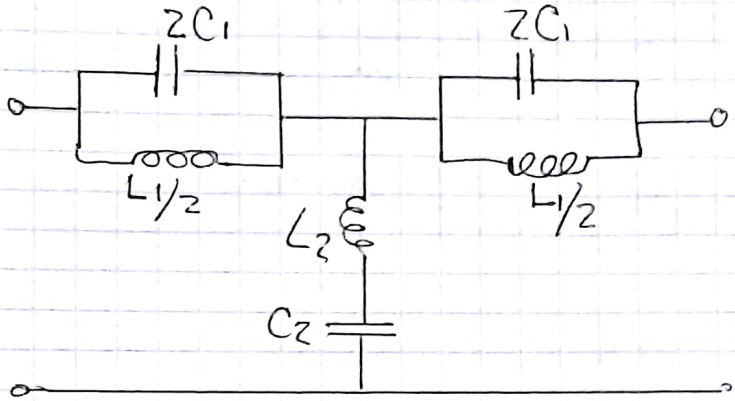
$$L_{3m2} = \frac{L_1}{2} K_{cte} \left(\frac{1 - 0{,}6^2}{2 \cdot 0{,}16} \right) \cdot 2$$

$$\frac{C_{3m}}{2} = \frac{2 C_1 K_{cte} \frac{2m}{1-m^2}}{2}$$

Elimina Banda.

$$m = \sqrt{1 - \left(\frac{BW_{\infty}}{BW}\right)^2} \qquad m = \sqrt{1 - \left(\frac{W_{\infty} - \frac{W_{C1}}{W_{\infty}}}{W_{C2} - W_{C1}}\right)^2}$$

$BW = W_{C2} - W_{C1}$



Normalizado Kcte.

$$2C_1 = \frac{1}{R_0 \cdot BW}$$

$$\frac{L_1}{2} = \frac{R_0 \cdot BW}{W_0^2}$$

$$L_2 = \frac{R_0}{2 \cdot BW}$$

$$C_2 = \frac{2BW}{R_0 \cdot W_0^2}$$

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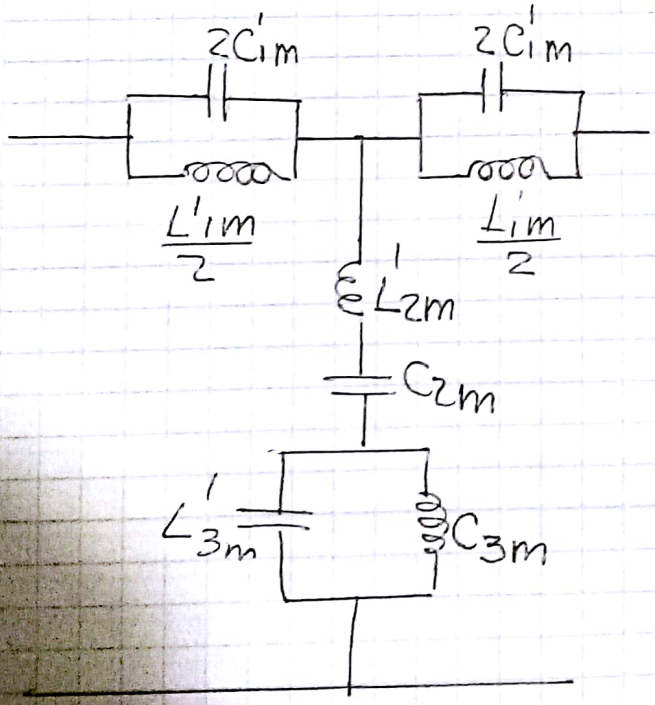
m-Derivado: (con el m calculado)



$$2C'_{1m} = \frac{2C_1}{m}$$

$$\frac{L'_{1m}}{2} = \frac{L_{1.m}}{2}$$

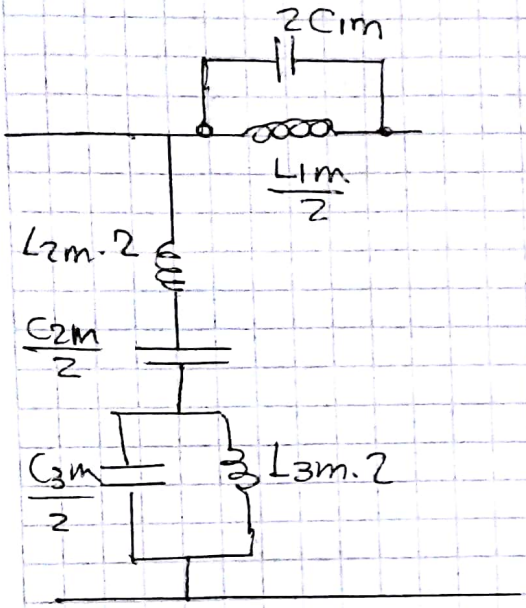
$$L'_{2m} = \frac{L_2 \, Kcte}{m}$$

$$C'_{2m} = C_2 \, Kcte \cdot m$$

$$L'_{3m} = \frac{L_1}{2} \, Kcte \left(\frac{1 - m^2}{2m}\right)$$

$$C'_{3m} = 2C_1 \, kcte \, \frac{2m}{1 - m^2}$$

Semisección:



$$2C_{1m} = \frac{2C_1 kcte}{m}$$

$$\frac{L_{1m}}{2} = \frac{L_1}{2} kcte.m$$

$$L_{2m.2} = \frac{L_2.kcte.2}{m}$$

$$\frac{C_{2m}}{2} = \frac{C_2 kcte.m}{2}$$

$$L_{3m.2} = \left[\frac{L_1}{2} kcte \left(\frac{1-m^2}{2m}\right)\right].2$$

$$\frac{C_{3m}}{2} = \frac{2C_1 kcte \frac{2m}{1-m^2}}{2}$$