

Zadání

Typ filtru:

Pásmová propust

Tolerancní schéma:

$$\begin{aligned} f_{-s} &= 411.268\text{Hz} & f_m &= 1.43\text{kHz} \\ f_{-p} &= 730\text{Hz} & \Delta f_p &= 2.07\text{kHz} \\ f_p &= 2.8\text{kHz} & \Delta f_s &= 4.559\text{kHz} \\ f_s &= 4.97\text{kHz} \\ a_p &= 2\text{dB} \\ a_s &= 18\text{dB} \end{aligned}$$

Typ aproximace:

Inverzní Chebyshev A

Rád filtru:

3

Výsledky aproximací úlohy

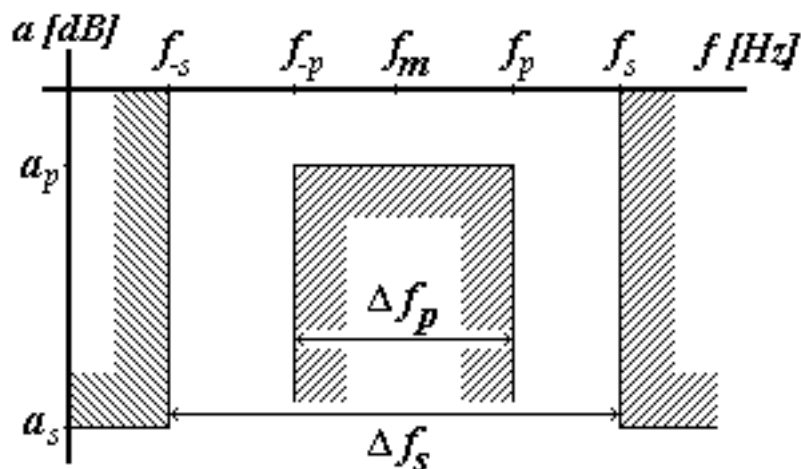
Prenosová funkce

$$H(p) = \frac{3110.875(p^2 + 5208779)(p^2 + .1250102e10)p}{(p^2 + 2594.713p + .2004077e8)(p^2 + 10447.58p + .3249128e9)}$$

$$\frac{1}{(p^2 + 16153.17p + .8069389e8)}$$

Tabulka s koeficienty prenosové funkce

itatel	Jmenovatel
$b_0 = 0$	$a_0 = 5.254385E+23$
$b_1 = 2.025648E+19$	$a_1 = 1.901063E+20$
$b_2 = 0$	$a_2 = 5.353477E+16$
$b_3 = 3905115000000$	$a_3 = 8114848000000$
$b_4 = 0$	$a_4 = 663430300$
$b_5 = 3110.875$	$a_5 = 29195.46$
	$a_6 = 1$



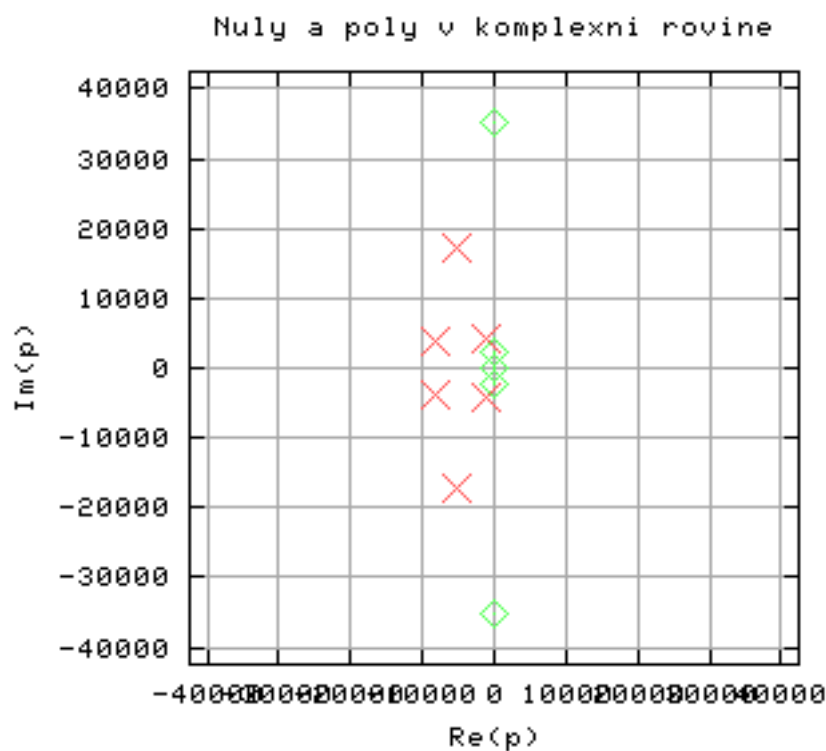
Nuly a póly prenosové funkce

Nuly	Póly
0.000000000-35356.775951265j	-8076.583047442-3932.262944041j
0.000000000-2282.274992905j	-8076.583047442+3932.262944041j
0.000000000+0.000000000j	-5223.788761313-17251.807258803j
0.000000000+2282.274992905j	-5223.788761313+17251.807258803j
0.000000000+35356.775951265j	-1297.356654289-4284.581166735j
	-1297.356654289+4284.581166735j

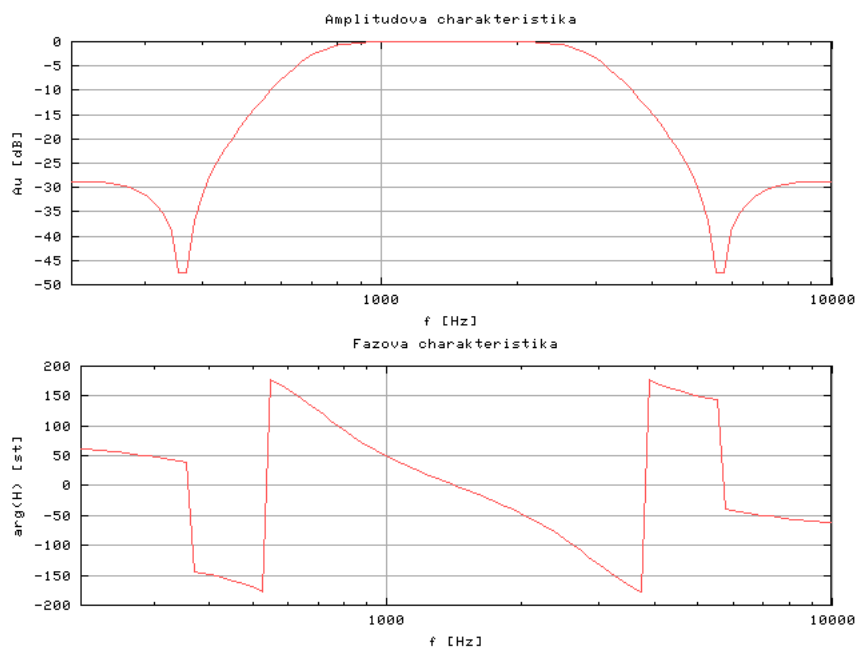
Q pól prenosové funkce

Blok	k	Q	ω_0	ω_n
1	0.90490113632215	1.7253127161145	4476.6918659622	2282.2749929047
2	0.23519206850853	1.7253127161145	18025.338352378	35356.775951265
3	0.90490113632215	0.55611249786903	8982.9775455194	

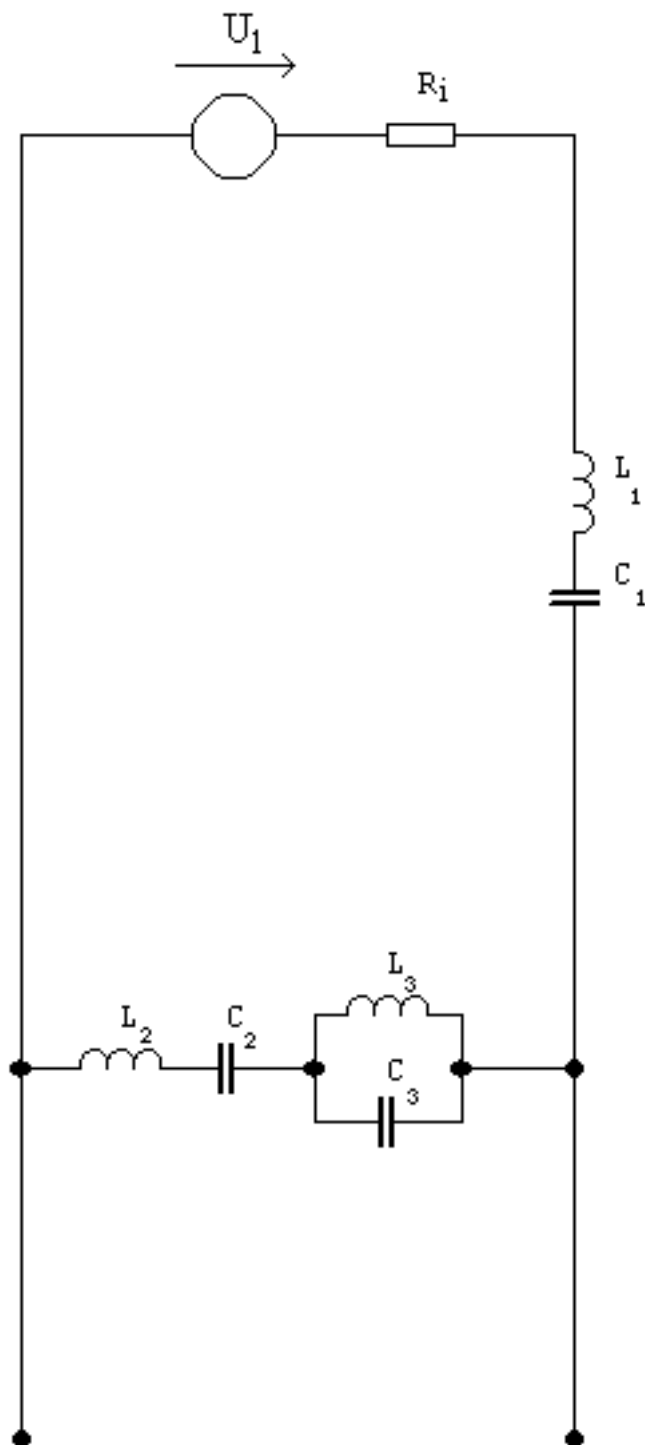
Nuly a póly prenosové funkce v komplexní rovine



Frekvenční charakteristiky přenosové funkce



LC prücková struktura



$$R_i = 50 \Omega$$

$$L_1 = 3.095 \text{mH}$$

$$C_1 = 4.004 \mu\text{F}$$

$$R_1 = 0 \Omega$$

$$Q_1 = \infty$$

$$L_2 = 369.157 \mu\text{H}$$

$$L_3 = 5.004 \text{mH}$$

$$R_2 = 0 \Omega$$

$$R_3 = 0 \Omega$$

$$Q_2 = \infty$$

$$Q_3 = \infty$$

$$C_2 = 33.57 \mu\text{F}$$

$$C_3 = 2.476 \mu\text{F}$$

