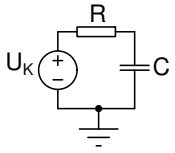
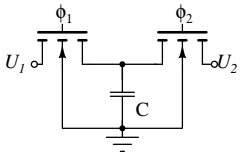
Polnjenje kondenzatorja z enosmernim virom U_K:



$$u_c(t) = U_K + (u_c(t_0) - U_K)e^{-\frac{t-t_0}{RC}}$$

S-C filtri:



$$R_{eq} = \frac{1}{f_c \cdot C}$$

Rejekcijski faktor F_R (CMRR): $CMRR[dB] = F_R = 20 \cdot log(\left|\frac{A_d}{A_{cm}}\right|)$

Termični šum:
spekter gostote moči šumnega toka: $S^+_{nn,THI} = \frac{4kT}{R}[\frac{A^2}{Hz}]$
spekter gostote moči šumne napetosti: $S^+_{nn,THU} = 4kTR[\frac{V^2}{Hz}]$

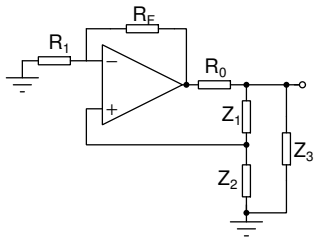
Zrnati šum (shot noise): $S^+_{nn,SI} = 2qI[\frac{A^2}{Hz}]$

1/f šum (flicker noise): $S^+_{nn,FI} = \frac{K_f A_f}{f}[\frac{A^2}{Hz}]$

Šum na izhodu vezja:

$$x(t) \rightarrow \boxed{\text{A(f)}} \rightarrow y(t)$$
$$S^+_{xx}(f) \quad \longrightarrow S^+_{yy}(f) = S^+_{xx}(f) \cdot |A(f)|^2$$

LC oscilatorji:



Colpitts: $\omega_0 = \sqrt{\frac{C_1+C_2}{(C_1C_2)L_3}}$, $\frac{R_F}{R_1} = \frac{C_2}{C_1}$
Hartley: $\omega_0 = \sqrt{\frac{1}{C_3(L_1+L_2)}}$, $\frac{R_F}{R_1} = \frac{L_1}{L_2}$

Oscilator s faznim zasukom:
Z vmesnimi sledilniki: $\omega_0 = \frac{1}{\sqrt{3}RC}, |A| = 8$
Brez vmesnih sledilnikov: $\omega_0 = \frac{1}{\sqrt{6}RC}, |A| = 29$

Konstante:
Planck: $h = 6.626 \cdot 10^{-34} \frac{\mathrm{m^2 kg}}{\mathrm{s}}$

Boltzman: $k = 1.381 \cdot 10^{-23} \frac{\mathrm{m^2 kg}}{\mathrm{s^2 K}}$

Naboj elektrona: $q = 1.602 \cdot 10^{-19}\mathrm{C}$