

Vzorec velikosti

$$\text{Izkoristek: } \eta = \frac{\text{koris.}}{\text{celot.}}$$

$$\text{Meja pogeska: } M_g = \pm \frac{r}{100} G_D \quad m_G = \frac{M_G}{G_i}$$

G_D ...doseg

r ...razred

Zaokrozevanje:

negotovost-najvec 2 cifre $u = 0,1214 \Rightarrow 0,13$

Prehodi signalov:

$$\text{odzivni cas } T_a = 3\tau$$

$$\text{frek. meja } f_m = \frac{1}{2\pi(T_a/3)}$$

$$\varphi = \arctg(\omega\tau)$$

$$\text{dodatek RC } \Delta t = \frac{\alpha[\text{rad}]}{2\pi f}$$

$$\varphi[\text{rad}] = \omega\Delta t$$

Negotovosti:

$$\text{histereza } u_{hist} = \frac{\Delta x_i}{2\sqrt{3}}$$

$$\text{locljivost } u(x)_q = \frac{(\Delta G)_q}{2\sqrt{3}}$$

$$\text{zanemarimo ce } u(x)_q \leq \frac{u_c(x)}{5}$$

$$\text{zanemarimo ce } e_x \leq \frac{w_c(x)}{10}$$

$$\text{dodatek } w(x)_q = \frac{\delta_q}{2\sqrt{3}}$$

Popacjenja:

$$THD_{IEC} = \frac{\sqrt{\sum_{k=2}^n I_k^2}}{I_1} = \frac{\sqrt{I^2 - I_1^2}}{I_1}$$

$$THD_{DIN} = \sqrt{I^2 - I_1^2} / I$$

Osciloskopi, pas. sirina:

$$\text{tockovna pod. } B_{pt} = \frac{f_s}{25}$$

$$\text{linear. inter. } B_{lin} = \frac{f_s}{10}$$

$$\text{inter. } y=\sin(x)/x \text{ } B_s = \frac{f_s}{2,5}$$

$$\text{anal. oscil. -dvizni cas } T_r = \frac{0,35}{B}$$

$$\text{digit. oscilosk. } T_r = 0,8T_s - 1,6T_s$$

$$T_r(\text{signala}) = \sqrt{T_r^2(\text{izm}) - (0,35/B)^2}$$

Mostici:

četrtinski $U_5 = U_0 \frac{R \Delta R}{(2R + \Delta R)2R}$

polovinski $U_5 = \frac{U_0 \Delta R}{2R}$

dvocetrtni $U_5 = U_0 \frac{(R + \Delta R)(R + \Delta R) - R^2}{(2R + \Delta R)(2R + \Delta R)}$

polni $U_5 = U_0 \frac{\Delta R}{R}$

z krmiljenim nap. virom $U_{iz} = \frac{-\Delta R}{2R} \cdot \frac{U_0}{1 + \left(2 + \frac{\Delta R}{R}\right) / k_u}$

kelvin-thomsonov. $R_x = R_N R_A / R_B$ ali

$$R_x = R_N R_B / R_A$$

dodatek $\rho = \rho_0(1 + \alpha(T - T_0))$

$$\delta_q(C_x) = |\delta_q|$$

paralel. kapac. mastic

$$\delta_q(d_x) = \delta_q(R_x) = \frac{|\delta_q|}{d_x}$$

Kondenzator:

fakt. izgub $d_x = \operatorname{tg} \delta_x = \frac{1}{\omega R_x C_x} = \frac{1}{\operatorname{tg} \varphi} \ll 1$

Feussnerjev komp.:

$$U_x' = U_N \frac{R_k}{R_{kp}} = R_k I_p$$

Diesselhorstov kom.

$$U_x = \frac{I_p}{1} (10R_1 - R_3) = I_p R_k$$

Amplitudno širinska modulacija:

$$t_1 = -\frac{C \Delta U}{i - I_r} \quad t_2 = -\frac{C \Delta U}{i + I_r}$$

Integrirajoci ADP:

$$e = \frac{\bar{U}_x(t_1) - u_x}{\hat{u}} \quad |e| = 1 - \frac{|\sin(\pi T_i f)|}{\pi T_i f}$$

Merjenje H: $H_r = \frac{i_1 N_1}{2\pi r}$

$$\phi = \int_A B dA = \int_{r_n}^{r_z} \mu H_r h dr = \frac{\mu i_1 N_1 h}{2\pi} \ln\left(\frac{r_n}{r_z}\right)$$

$$H = \frac{i_1 N_1}{2\pi(r_z - r_n)} \ln\left(\frac{r_z}{r_n}\right) = \frac{i_1 N_1}{l_{sr}}$$

$$l_{sr} = \pi(r_z + r_n)$$

Merjenje B:

$$B = \frac{RCk_y}{N_2 A} \quad u_{iz} = k_y y$$

Spec. izgube:

$$P_s = \frac{P_{Fe}}{m} \quad P_{Fe} = \frac{1}{T} \int_0^T u_{i1} i_1 dt$$

$$u_{i1} = N_1 A \frac{dB}{dt} \quad i_1 = \frac{H l_{sr}}{N_1}$$

$$m = \rho V = \rho A l_{sr}$$

$$P_s = \frac{f N_1 R C k_x k_y}{\rho R_n l_{sr} N_2 A} \oint x dy$$

$$P_s = P_h + c \left(\frac{F}{F_0} \right)^2$$

$F_0 \Rightarrow$ faktor oblike