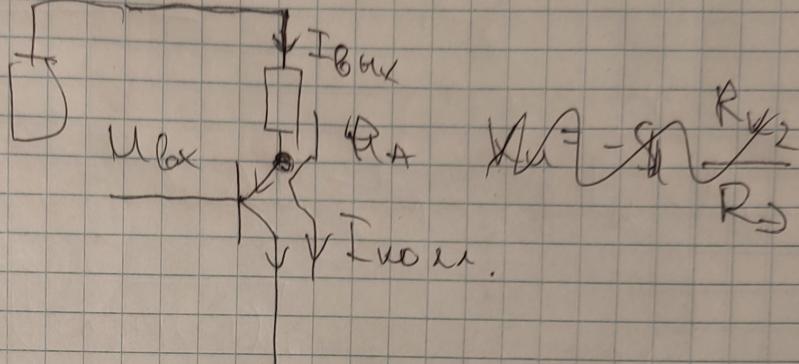


Двухтактная магнит.

$$U_{Bx} \propto T \Rightarrow I_x \propto T$$



$$U_{Bx} \propto T$$

ток в сердечнике

ток в якоре

$$K_u = K_1 \cdot K_2 = -S \left(R_{K1} \parallel R_{Bx_2} \right) \cdot \left(-R_{K2} / R_g \right)$$

ток якоря

$$U_{Bax} = \varphi R_A \text{ и } \varphi = \Phi_A$$

I рабочий

ток якоря
и

от P. якоря

$$\Phi_A \propto \varphi \Rightarrow \Phi_n - \Phi_A \downarrow$$

$$(U_{RK2} \downarrow)$$

и

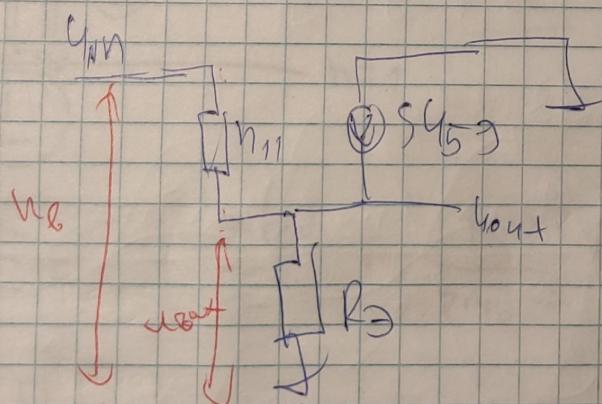
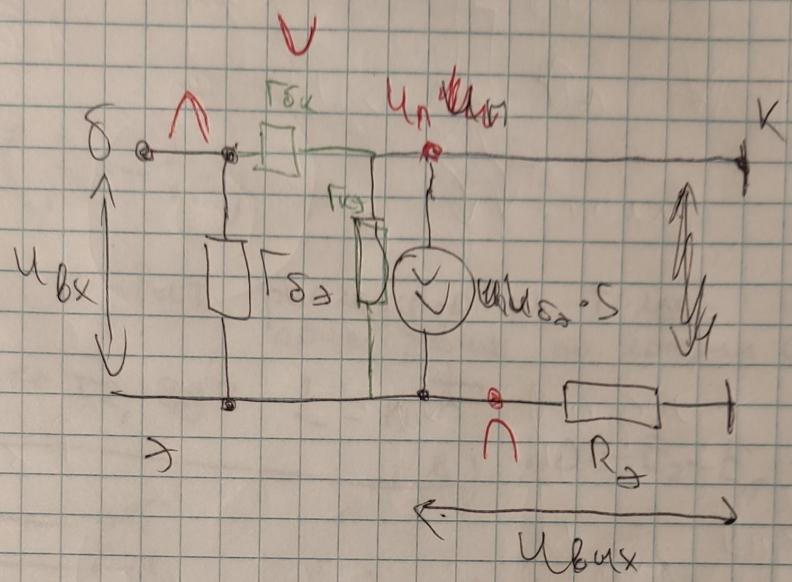
$$U_{RK1} \downarrow$$

II рабочий

ток якоря

и

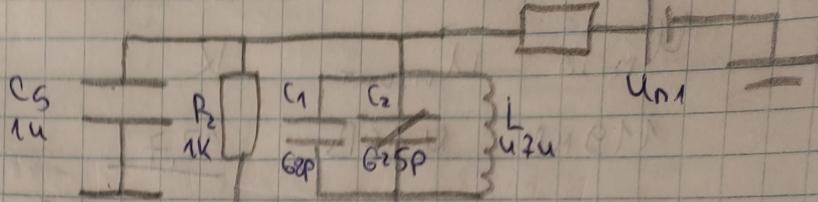
ток якоря. якорь.



A.P. 5.

$$R_5 = 1 \text{ M}\Omega +$$

(6.1)



1) ~~Wyznaczyć parametry~~

$$U_{RF} = 9,79 \text{ V}$$

$$U_{B1} = 9,97 \text{ V}$$

$$U_{B2} = 0,01 \text{ V}$$

$$U_{B2} = 0,005 \text{ V}$$

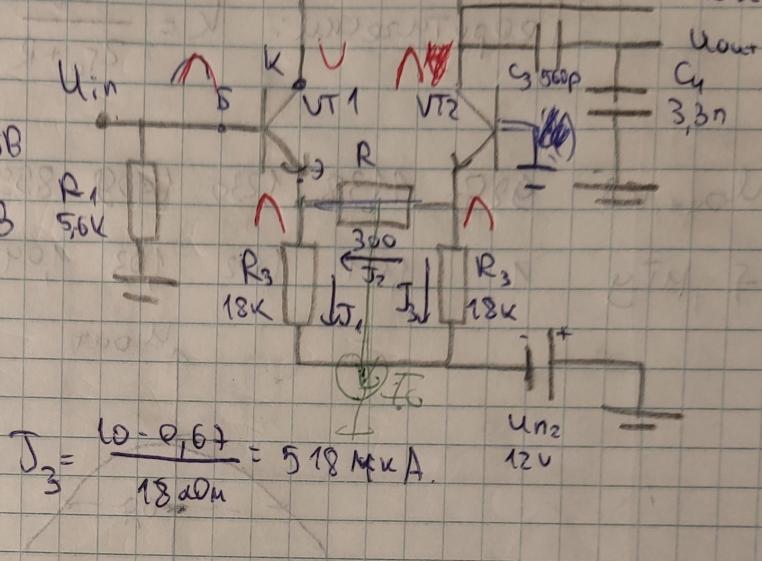
$$U_{D1} = -0,69 \text{ V}$$

$$U_{D2} = 0,67 \text{ V}$$

$$J_2 = \frac{U_{D2} - U_{D1}}{R} = 66 \text{ mA}$$

$$J_1 = \frac{10 - 0,69}{18 \text{ k}\Omega} = 517 \text{ mA}$$

$$J_3 = \frac{10 - 0,67}{18 \text{ k}\Omega} = 518 \text{ mA}$$



$$J_{E1} = J_1 = J_2 = 1503 \text{ mA}$$

$$J_{E2} = J_3 + J_2 = 584 \text{ mA}$$

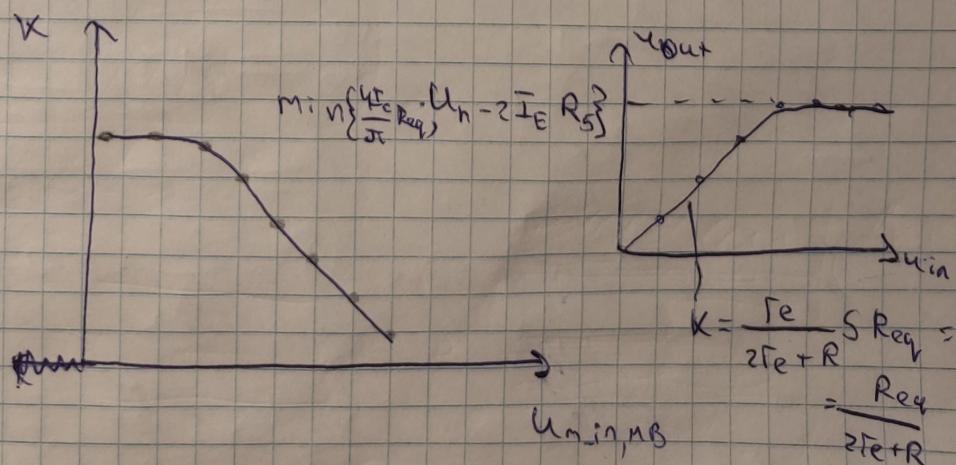
$$S = \frac{I_c}{U_T} \approx 0,00067 \text{ CM}$$

$$2) \text{ Wątota przenośca } f_p = 1,0 \text{ MHz}$$

3) ~~Wyznaczyć~~

$$\begin{array}{l|ccccccc} U_{in, \text{ mV}} & 10 & 50 & 150 & 200 & 300 & 400 & 500 \\ \hline U_{out, \text{ mV}} & 700 & 1400 & 2070 & 2630 & 3330 & 3550 & 3640 \end{array}$$

$$\begin{array}{l|ccccccc} U_{in, \text{ mV}} & 10 & 50 & 150 & 200 & 300 & 400 & 500 \\ \hline U_{out, \text{ mV}} & 700 & 1400 & 2070 & 2630 & 3330 & 3550 & 3640 \end{array}$$



у Резонансном R-yt Чанеке:

$$U_{m,in} \quad U_{m,out} \quad K$$

$$119 \text{ мВ} \quad 141,5 \text{ В} \quad 12,7$$

(Q=3)

$$\frac{f}{f_m}$$

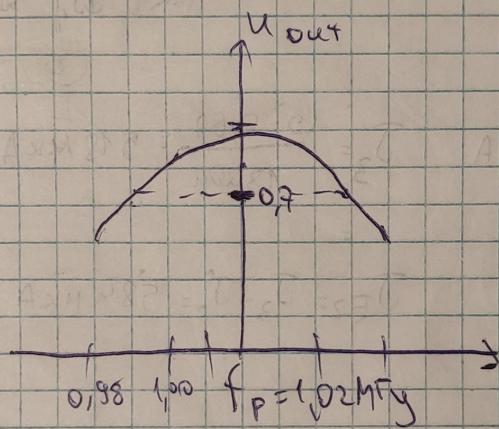
$$Q = \frac{P}{Q}$$

$$\frac{P}{Q}$$

$$\frac{P}{Q} = \frac{1}{CR}$$

$$\text{Temperaturni: } K = \frac{R_{eq}}{2f_e + R} = \frac{R_{eq}}{2/S + R} \sim \frac{R_{eq}}{3KOM + 3000M} \sim \boxed{10 \text{ м}}$$

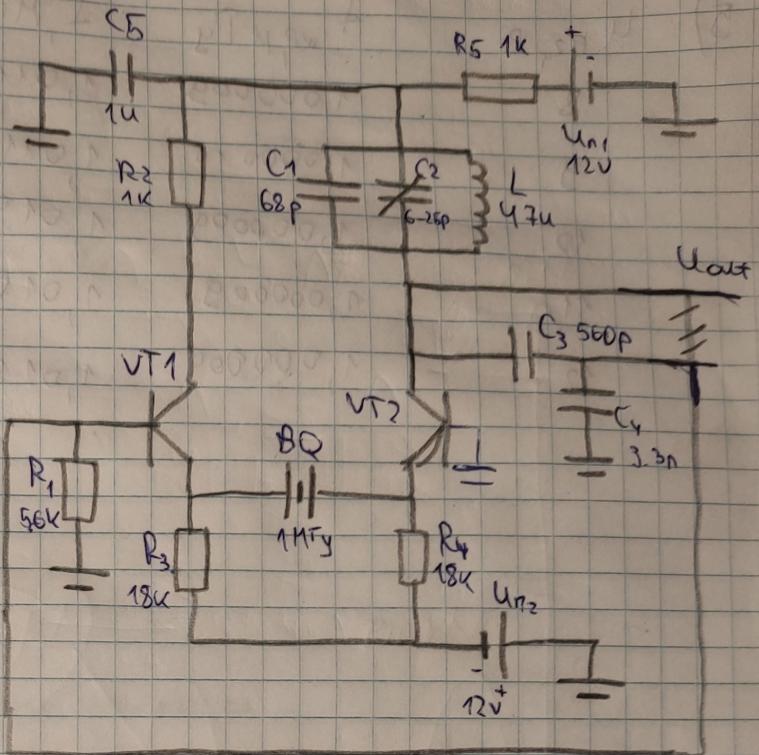
5) $U_{out, \text{мВ}}$	928	1138	1230	1409	859	740	605	768
$f, \text{МГц}$	1	1,01	1,02	1,03	1,04	1,05	1,06	1,07



$$\Rightarrow Q = \frac{f_p}{\Delta f_0} \sim \frac{1}{0,04} = 25$$

6.2

6.2.



$$1) R = 300 \Omega \leftrightarrow BQ \quad f_{koreg} = 1.0083 \text{ MHz}$$

$$U_{mout} = 4,6B \quad (\text{составлено с } 6.1)$$

$$U_{BQ} = 500 \mu B$$

$$2) C_2 + C_1 \sim 110 \text{ pF}$$

$$f_{koreg} = 1,000010 \text{ MHz}$$

$$U_{mout} = 2,6B$$

$$3) f_B = 1,0093 \text{ MHz} \quad f_H = 0,997 \text{ MHz}$$

$$\Delta f = 0,0124 \text{ MHz}$$

$$\Rightarrow Q = 2460$$

$$4) C_S = 130 \text{ pF} \quad (\text{известно})$$

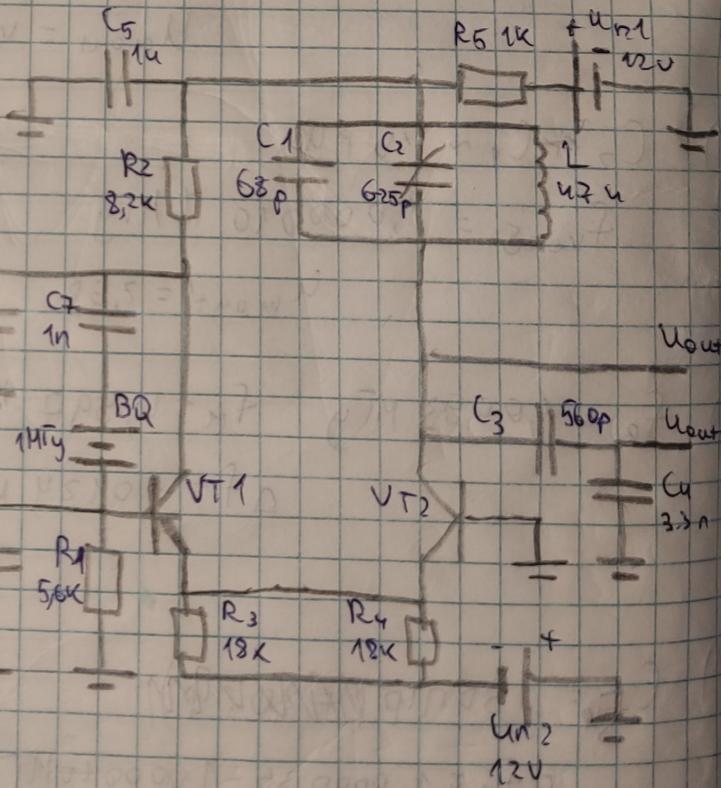
$$\Delta f_H = 1,000036 - 1,000010 \text{ MHz} = 0,000026 \text{ MHz}$$

$$\frac{\Delta f_H}{f_H} = \frac{C_K}{2C_S} \quad C_K = 6,74 \text{ pF}$$

$$L_K = \frac{1}{4\pi^2 f_H^2 C_K} = 3,8 \text{ mH} \quad R_K = \sqrt{L_K/C_K} = 23 \cdot 10^6 \Omega \quad \Gamma_K = \underline{110 \text{ M}} \Omega$$

	$f_{\text{exB}, \mu\text{Ty}}$	f, MHz
5) 472, B		
8	1,0000009	1,01125
9	1,0000010	1,01165
10	1,0000009	1,01082
11	1,0000009	1,01075
12	1,0000009	1,01011

(6.3.)



$$1) f = 1,0000031 \text{ MHz}$$

$$f_{\text{Teop}} = f_0 \sqrt{n + \frac{C_s}{C}} = 1,1 \text{ MHz}$$

$$2) \Delta C = u \neq p$$

$$\Delta f = \frac{11}{15} \quad \Delta f_{\text{Teop}} = f \frac{\Delta C_s C_s}{2 C_s^2} = 1,1$$

3) Установлен зависимость Δf от U_n

U_n, V	$\Delta f, \text{Hz}$
-12	36
-11	36
-10	37
-9	37
-8	36

- Т.е. не линейная

макс и б (6.3)

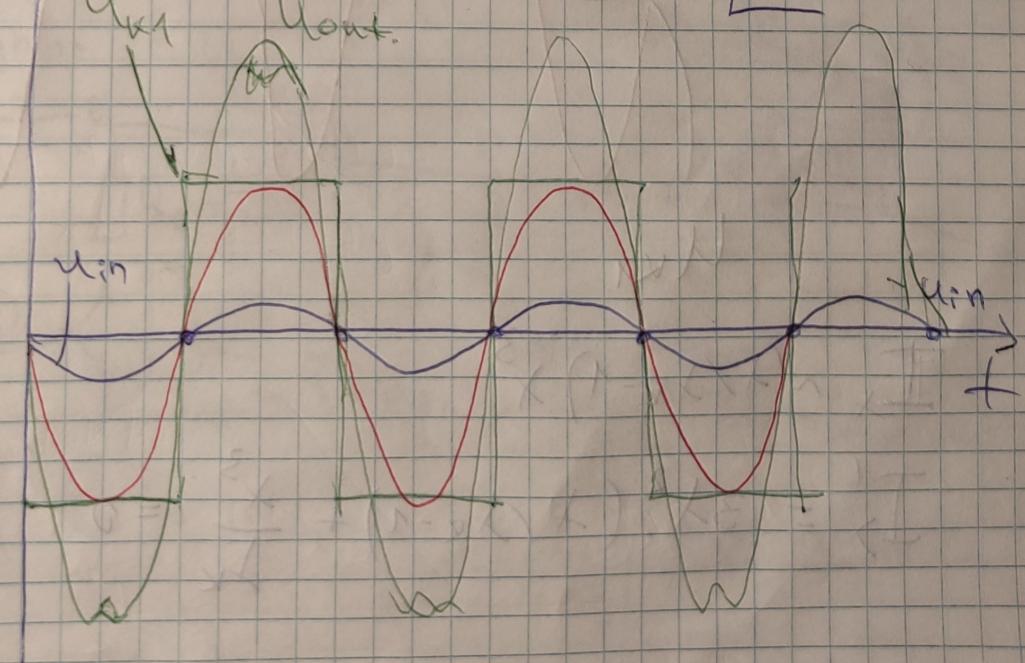
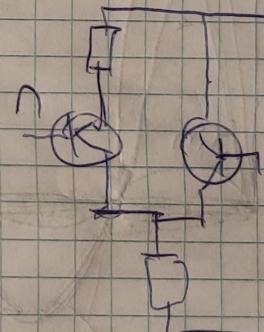
(хорошо)

U_{in}



U_{out}

U_{out}



U_{in}

$$K = \frac{U_0}{U_{in}} =$$

$$S(U_0 - U_5) = I_1$$

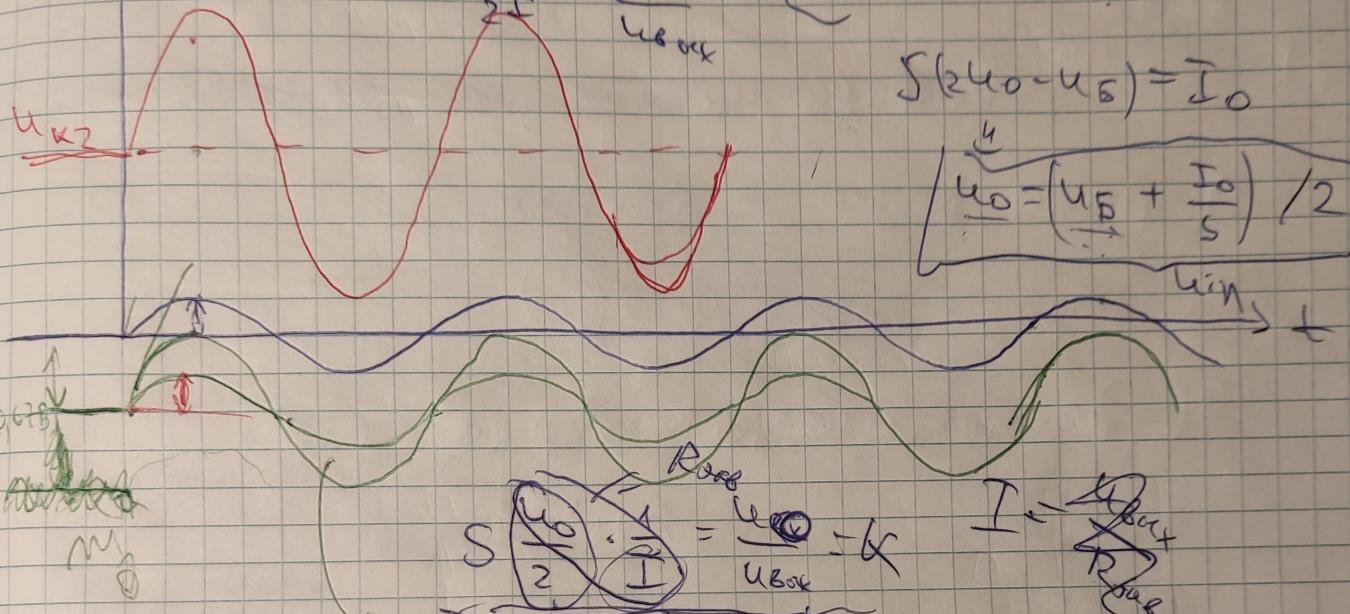
$$\left\{ \begin{array}{l} S(U_0 - U_5) = I_1 \\ S(U_0 - U_5) = I_1 \end{array} \right.$$

$$S(U_0 - U_5) = I_2$$

$$I_1 + I_2 = I_0$$

$$S(U_0 - U_5) = I_0$$

$$U_0 = \left(U_5 + \frac{I_0}{S} \right) / 2$$

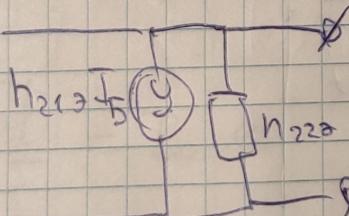


$$S \frac{U_0}{U_{BOK}} = K$$

$$I_0 = \frac{U_0}{R_{BOK}}$$

$$\frac{A(U_{in})}{A(U_{in})} = S R_{BOK} / R_m$$

$$S R_{BOK} \left(\frac{R_m}{2} \right) \approx [SR_2]$$



$$U_{in} = h_{213} + I_5$$

$$h_{213} + I_5$$

$$S \cdot U_{in} = I_0$$

$$U_B = U_{BOK} + U_5$$

$$U_{BOK} = \text{const}$$

$$h_{213} + I_S$$

$$U_5 = U_{in} - R_2 I_0$$

