ΑΝΑΛΟΓΙΚΑ ΙΟΥ. 14

7250 → 3	·6296 → 5	·7361 → 3	6376 → ∅
·7237 → 3	·7362 → 5	·7867 → 5	6881 → 2
7296 → 3	6734 → 5	7442 → 5	7886 → 2
7724 → 5	·7784 → 5	·7192 → 5 ?	·7792 → 5
6473 → 2	6953 → 3	·7239 → 5	7895 → 5
7071 → 2	·7738 → 5	7410 → 3	6639 → 5
7966 → 2	7841 → 4	7459 → 2	
7838 → 5	·7056 → 3	·7268 → 5	
7483 → 2	? 7005 → 3	7129 → 2	
6754 → 3	7877 → 3	·7494 → 3	
·7734 → 3	·7388 → 5	7606 → 3	
5608 → 2	7055 → 5	·7931 → 5	
7063 → 5	·7290 → 5	·7281 → 5	
7910 → 5	·7130 → 3	·7225 → 5	
·7811 → 3	6332 → 5	7716 → 7	
7157 → ?	7189 → 2	·7438 → 3	
·7953 → 5	7042 → 3	7015 → 5	
7572 → 2	7365 → 3	7882 → 4 ?	
7144 → 2	6998 → 2	7840 → 4 ?	
·7093 → 3	7926 → 5	·6926 → 5	
7913 → 2	7107 → 2	5128 → 5	
6978 → 3	6363 → 5,5	7821 → 3	
7405 → 3	7826 → 3	7662 → ∅	
·7347 → 5	7283 → 3	7796 → ∅	
7186 → 5	·7733 → 5	6888 → 3	
·7040 → 5	·7218 → 5	7306 → 3	
·7387 → 3	6915 → 3	7758 → 0	
·7049 → 5	·7351 → 5	7509 → 3	

~~$V_C = V_E - V_C$~~ $V_B - V_E = V_{...}$

① γιά $V_1 = V_2 = 0$ πρέπει $v_O \approx 0$

$V_{C_1} = V_{C_2} \approx V_{CC} - \frac{I_1 R_C}{2}$ $\quad V_{CE_1} \approx V_{CE_2} = V_{CC} - \frac{I_1 R_C}{2} + V_{BE}$

πτώση τάσης στην R_C: $V_{EB_3} \approx 0.7V \Rightarrow I_{C_3} = \frac{V_{EE}}{R}$, $V_{CE_3} = V_{CC}$

$V_{EB_3} = V_T \ln\left(1 + \frac{I_{C_3}}{I_{S_3}}\right) \longleftrightarrow I_{S_3} = 1.07 \times 10^{-15} A$

$Q_1: (743\mu A, 14{,}4V)$ $\quad Q_2: (74{,}3, 15V)$ $\quad Q_3: (750\mu A, 15V)$

② α) $A_H(s) = \frac{\left(1 + \frac{s}{2\times10^5}\right)\times 10^2}{\left(1+\frac{s}{10^5}\right)\left(1+\frac{s}{5\times10^5}\right)}$ $\quad f_{p_1}: -10^5 \ rad/sec$ $\quad f_{z_1}: -2\times10^5 \ rad/sec$

$f_{p_2}: -5\times10^5 \ rad/sec$

$A_{MB} = 40dB$, $f_{3dB} = 21{,}7 kHz$

β) $w_{p_1} = \frac{1}{(R_G \| R_1)\left(C_{GD} + \frac{C_{GS}}{1 + g_m R_L}\right)}$ $\quad A_{MB} = 0.705$

$w_{p_2} \doteq \frac{1}{\left(\frac{1}{g_m} \| R_L\right)\left[C_{GS} + C_L\right)}$ $\quad f_{3dH} = 51{,}0 MHz$

③ cascode CE − CB: $\quad w_{p_1} = \frac{1}{(r_{\pi_1} \| R_1)\left(C_{\pi_1} + C_{\mu_1}\left(1 + \frac{g_{m_1}}{g_{m_2}}\right)\right)} \cong \frac{1}{r_{\pi_1} \| R_1 (C_{\pi_1} + 2C_{\mu_1})}$

$w_{p_2} = \frac{1}{R_L(C_{\mu_2} + C_L)}$ $\quad A_{MB} = \frac{R_\pi}{r_\pi + R_1} \cdot g_{m_1} \cdot \frac{1}{g_{m_2}} \cdot R_L$

$A_{MB} = -152.8$, $w_{p_1} = 11.6 MHz$ και $w_{p_2} = 7.02 MHz$

④ 2 κοινοί εκπομποί

σειρά − παράλληλα

γιά dc ανάλυση $I_B \approx 0$

$V_{B_1} = 0$: $V_{E_1} = -0.7V \Rightarrow I_{E_1} = \frac{-0.7V - (-10)V}{9.3K} = 1mA$ $\quad V_{C_1} = 10 - I_1 R_3 = 9V$

$I_{E_2} = \frac{10V - (9 - V_{BE_2})}{R_4} = 1mA$ $\quad V_{C_2} = -0.7V$

$\Rightarrow I_{R_2} = 0 = \frac{V_{C_2} - V_{E_1}}{R_2}$ $\quad g_{m_1} = g_{m_2} = 40(0.001) = 0.04S$

$r_\pi = \frac{100}{g_m} = 2500\Omega$, $r_o = \infty$

Γιά τό R_i τη α' κύκλωμα $\approx 31.71k\Omega$ $\quad A_v = 6.68$

$R_{out} = 2.11k\Omega$. Αν θ μειώσαμε τό β' κύκλωμα ισοδύναμο $\quad R_{in}\ 96k$

Τότε $A_v = 10$, $R_i = \infty$, $R_o = 0$? Μιά κανονική πρός $A_v = 66.8$, $R_{in}\ 96K\Omega$, $R_{out} = 610\Omega$