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Macheta 1

AMPLIFICATORUL CU CIRCUITE CUPLATE

D. $L_1=L_2=L=20\mu H$

$$C_1 + C_{c1} = C_2 + C_{c1} = C + C_{c1} = \frac{1}{4\pi^2 f_0^2 L} = 0.495 \text{ nF}$$

E. $U_{20}[dBm]$ =–49.3

U_{20}'[dBm]=-55.1

$U_{20}^{''}[dBm]$ =–56.2

R_{ap1} =8.396 kΩ

R_{ap2} =8.343 kΩ

$R_{1=8,83k\Omega}$

R_2 =8.7 8κΩ

Q_1 =41.98

Q_2 =41.71

F-I.

Cuplaj	Mărimi măsurate				Mărimi calculate					
	U_{20} [dBm]	f_0 [MHz]	B_{3dB} [kHz]	B_c [kHz]	g -	k -	C_c [pF]	f_{0t} [MHz]	B_{3dBt} [kHz]	B_{ct} [kHz]
1	-49.3	1.6	23	-	0.192	0.004588	2.271	1.591	25.708	-
2	-42.8	1.59	30	-	0.58	0.013861	6.861	1.593	49.753	-
3	-41.2	1.584	53	-	1.24	0.029633	14.66	1.581	80.34	-
4	-45.3	1.561	-	147	2.37	0.056638	28.03	1.558	-	159
5	-47.5	1.543	-	3.1MHz	4.49	0.004588	53.11	1.540	-	3.5MHz

J.

Cuplajul 2

U_2[dBm]	-62.8	-53.26	-48.8	-45.9	-44.73	-42.8	-44.73	-45.9	-48.8	-53.26	-62.6
$\frac{U_2}{U_{20}}$ [dB]	-20	-10,46	-6	-3,1	-1,93	0	-1,93	-3,1	-6	-10,46	-20
$\frac{U_2}{U_{20}}$	0,1	0,3	0,5	0,7	0,8	1	0,8	0,7	0,5	0,3	0,1
$\frac{U_2}{U_{20}}$[dB] – $\frac{U_{2MM}}{U_{20}}$[dB]	-20.96	-11.42	-6.96	-4.6	-2.89	-0.96	-2.89	-4.6	-6.96	-11.42	-20.96
f[MHz]	1.536	1.562	1.574	1.583	1.584	1.59	1.61	1.61	1.62	1.633	1.661
Δf [MHz] $(f - f_0)$	-0.054	-0.028	-0.016	-0.007	-0.006	0	0.02	0.02	0.03	0.043	0.071

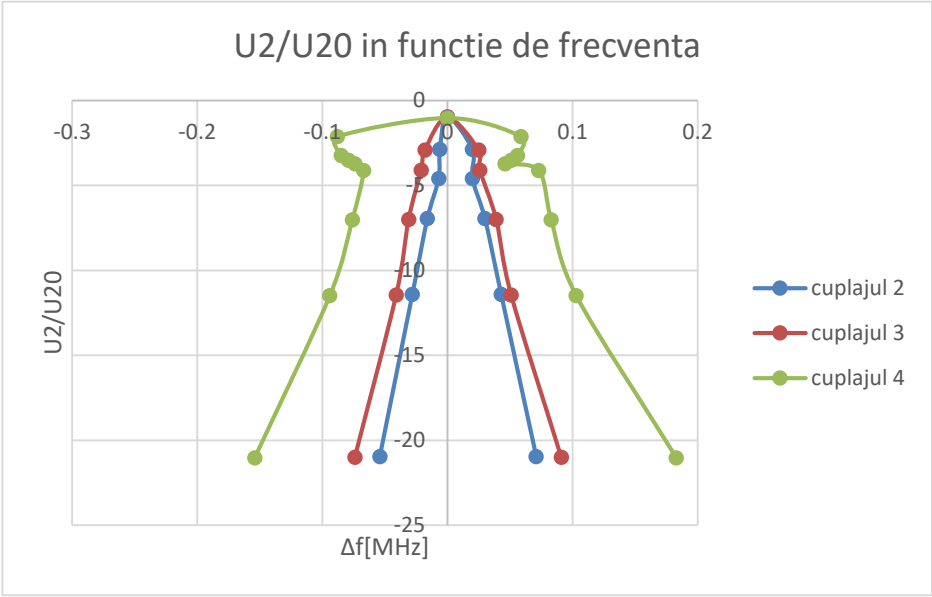
Cuplajul 3

U_2[dBm]	-61.2	-51.66	-47.2	-44.3	-43.13	-41.2	-43.13	-44.3	-47.2	-51.66	-61.2
$\frac{U_2}{U_{20}}$[dB]	-20	-10,46	-6	-3,1	-1,93	0	-1,93	-3,1	-6	-10,46	-20
$\frac{U_2}{U_{20}}$	0,1	0,3	0,5	0,7	0,8	1	0,8	0,7	0,5	0,3	0,1
$\frac{U_2}{U_{20}}$ [dB] $-\frac{U_{2MM}}{U_{20}}$ [dB]	-21	-11.46	-7	-4.1	-2.93	-1	-2.93	-4.1	-7	-11.46	-21
f[MHz]	1.51	1.543	1.553	1.563	1.566	1.584	1.609	1.61	1.623	1.635	1.675
Δf [MHz] $(f - f_0)$	-0.074	-0.041	-0.031	-0.021	-0.018	0	0.025	0.026	0.039	0.051	0.091

Cuplaj 4

U_2[dBm]	-65.3	-55.76	-51.3	-48.4	-42.6	-42.8	-43.1	-44.2	-45.3	-44.2	-43.1	-42.8	-42.6	-48.4	-51.3	-55.76	-65.3
$\frac{U_2}{U_{20max}}$[dB]	-20	-10,46	-6	-3,1	-2.7	-2.5	-2.2	-1.1	0	-1.1	-2.2	-2.5	-2.7	-3,1	-6	-10,46	-20
$\frac{U_2}{U_{20max}}$	0,1	0,3	0,5	0,7	0.81	0.88	0.92	0.97	1	0.97	0.92	0.88	0.81	0,7	0,5	0,3	0,1
$\frac{U_2}{U_{20max}}$[dB] – $\frac{U_{2MM}}{U_{2max}}$[dB]	-21.034	-11.494	-7.0339	-4.1339	-3.7339	-3.5339	-3.2339	-2.1339	-1.0339	-2.1339	-3.233	-3.5339	-3.7339	-4.1339	-7.0339	-11.494	-21.034
f[MHz]	1.407	1.467	1.485	1.494	1.487	1.482	1.476	1.473	1.561	1.620	1.617	1.612	1.607	1.634	1.644	1.664	1.744
Δf [MHz] $(f - f0)$	-0.154	-0.094	-0.076	-0.067	-0.074	-0.079	-0.085	-0.088	0	0.059	0.056	0.051	0.046	0.073	0.083	0.103	0.183

Se trasează graficele pentru cuplajele 2, 3 și 4:



K. **Cuplaj 2**

U_{20} $[dBm]$ $=-42.8$

$U'_{20}[dBm]$ $=-47.6$

$U''_{20}[dBm]$ $=-48.7$

$\overline{R_1}$ $=893\ \Omega$

$\overline{R_2}$ $=1.01\kappa\Omega$

$R_{1R}=8.918\kappa\Omega$

$R_{2R}=8.948\ \kappa\Omega$

Cuplaj 3

$U_{20}[dBm]$ $=-41.2$

$U'_{20}[dBm]$ $=-45.2$

U''_{20} $[dBm]$ $=-45.9$

$\overline{R_1}$ $=743\ \Omega$

$\overline{R_2}$ $=854\Omega$

$R_{1R}=8.936\kappa\Omega$

$R_{2R}=8.963\kappa\Omega$

Cuplaj4

$U_{20}[dBm]$ $=-45.3$

$U'_{20}[dBm]$ $=-46.5$

$U''_{20}[dBm]=-46.9$

$\overline{R_1}$ $=216.6\ \Omega$

$\overline{R_2}=284.62\Omega$

$\boldsymbol{R_{1R}=}$ $9.205\kappa\Omega$

R_{2R} $=9.155\kappa$

L. **Cuplaj 2** $R_{1R}=26.24\kappa$ $R_{2R}=26.09\kappa\Omega$

Cuplaj 3 $R_{1R}=5.74\kappa$ $R_{2R}=5.71\kappa\Omega$

Cuplaj 4 $R_{1R} = 1.57\kappa$ $R_{2R} = 1.56\kappa\Omega$