

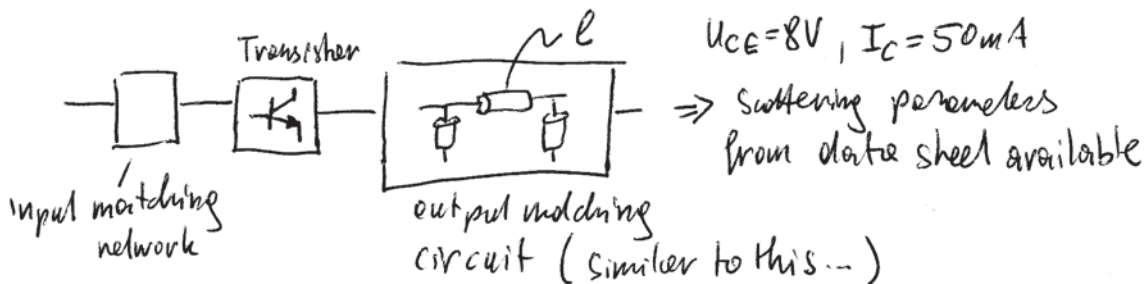
$R_{\pi} = \frac{\beta}{g_m}$, $\beta = 55$, $g_m = \frac{I_c}{U_T}$, $U_T = 33mV$, $I_c = 120mA$

$R_E = 15\Omega$, $R_{CE} = 250\Omega$, $C_{\pi} = 12pF$

$Z_1 = 50\Omega$, $Z_2 = 75\Omega$, $f = 1.5 GHz$

- Q: 1) Scattering matrix 2) maximum gain

Q: Smith chart: (30%)



Q: 1) overall gain is changed by $|\Delta G| \leq 1dB$; how can the line l be tuned (in length) to achieve this?

- 1) ... (Can't remember more...)

Q: 5 channels: $f = \{1851, 1853, 1854, 1859, 1862\}$ each channel: $-30dBm$ (?)

- 1) find f_{LO} for IF-Fixer with $1.5MHz \div 6.5MHz$ bandwidth
- 2) calculate all 2nd and 3rd order harmonics; Preamp has 30dB gain IM_3 shoulder distance is 40dB
- 3) Draw 2nd + 3rd order harmonics in given range (1840MHz - 1873MHz) (check which cancel/add up!)

(Look for similar exercise problems)

Q: Noise: 2 different systems with different setups of mixer, Filters, etc...

Antenna @ $T=40K$

- 1) F_I, F_{II} , i.e. total noise figures of both systems; check which is the better system

1) ...

1) ...

(Look for similar exercise problems...)