MİKRODALGA TEKNİĞİ II DERSİ GEREKLİ OLABİLECEK FORMULLER

$$\begin{bmatrix} A & B \\ C & D \end{bmatrix} = \begin{bmatrix} \cosh\gamma l & Z_c \sinh\gamma l \\ \frac{1}{Z_c}\sinh\gamma l & \cosh\gamma l \end{bmatrix}$$

$$\Gamma_{in} = S_{11} + \frac{S_{12}S_{21}\Gamma_L}{1 - S_{22}\Gamma_L}$$

$$\Gamma_{out} = S_{22} + \frac{S_{12}S_{21}\Gamma_S}{1 - \Gamma_S S_{11}}$$

$$\Gamma_{in} = \frac{A + \frac{B}{Z_{02}} - Z_{01}C - D\frac{Z_{01}}{Z_{02}}}{A + \frac{B}{Z_{02}} + Z_{01}C + D\frac{Z_{01}}{Z_{02}}}$$

$$T_{21} = \frac{2}{A + \frac{B}{Z_{02}} + Z_{01}C + D\frac{Z_{01}}{Z_{02}}}$$

$$k = \frac{\sqrt{\frac{Z_{oe}}{Z_{oo}}} - \sqrt{\frac{Z_{oo}}{Z_{oe}}}}{\sqrt{\frac{Z_{oe}}{Z_{oo}}} + \sqrt{\frac{Z_{oo}}{Z_{oe}}}}$$

$$k = \frac{\rho - 1}{\rho + 1} \qquad \rho = \frac{1+k}{1-k}$$

$$\frac{K^2}{K^2 + G^2}$$

$$Z = R + JX$$

$$G = \frac{\sqrt{1-k^2}}{\sqrt{1-k^2}\cos\theta + j\sin\theta} = \frac{V_4^-}{V_1^+}$$

$$S_{11} = \frac{A + \frac{B}{Z_0} - Z_0 C - D}{A + \frac{B}{Z_0} + Z_0 C + D}$$

$$|\Gamma_{out}| = \left|\frac{S_{22} + S_{12}S_{21}\Gamma_S}{1 - S_{11}\Gamma_S}\right|$$

$$K = \frac{jk\sin\theta}{\sqrt{1-k^2}\cos\theta + j\sin\theta} = \frac{V_3^-}{V_1^+}$$

$$S_{21} = \frac{2}{A + \frac{B}{Z_0} + Z_0 C + D}$$

$$|\Gamma_{in}| = \left|\frac{S_{11} + S_{12}S_{21}\Gamma_L}{1 - \Gamma_L S_{22}}\right|$$

$$K = \frac{1 + |\Delta|^2 - |S_{11}|^2 - |S_{22}|^2}{2 - |S_{12}||S_{21}|}$$

$$G_P = \frac{P_L}{P_{IN}}$$

$$G_T = \frac{P_L}{P_{AVS}}$$

$$G_A = \frac{P_{AVN}}{P_{AVS}}$$

$$\Delta = S_{11}S_{22} - S_{12}S_{21}$$

$$G_T = \frac{|S_{21}|^2(1-|\Gamma_S|^2)(1-|\Gamma_L|^2)}{|(1-\Gamma_S S_{11})(1-\Gamma_L S_{22}) - \Gamma_S\Gamma_L S_{12}S_{21}|^2}$$

$$G_A = \frac{|S_{21}|^2(1-|\Gamma_S|^2)}{|1-S_{11}\Gamma_S|^2|1-|\Gamma_{out}|^2|}$$

$$G_p = \frac{|S_{21}|^2(1-|\Gamma_L|^2)}{|1-|\Gamma_{in}|^2||1-S_{22}\Gamma_L|^2}$$

$$G_T = \frac{|S_{21}|^2(1-|\Gamma_S|^2)(1-|\Gamma_L|^2)}{|1-S_{11}\Gamma_S|^2|1-\Gamma_{out}\Gamma_L|^2}$$

$$G_{TU} = \frac{1-|\Gamma_S|^2}{|1-S_{11}\Gamma_S|^2}|S_{21}|^2\frac{1-|\Gamma_L|^2}{|1-S_{22}\Gamma_L|^2}$$

$$G_S = \frac{1-|\Gamma_S|^2}{|1-S_{11}\Gamma_S|^2}$$

$$G_T = \frac{|S_{21}|^2(1-|\Gamma_S|^2)(1-|\Gamma_L|^2)}{|1-\Gamma_{in}\Gamma_S|^2|1-S_{22}\Gamma_L|^2}$$

$$G_L = \frac{1-|\Gamma_L|^2}{|1-S_{22}\Gamma_L|^2}$$

$$G_{Smax} = \frac{1}{1-|S_{11}|^2}$$

$$G_{Lmax} = \frac{1}{1-|S_{22}|^2}$$

$$G_{TUmax} = \frac{1}{1-|S_{11}|^2}|S_{21}|^2\frac{1}{1-|S_{22}|^2}$$

$$G_O = |S_{21}|^2$$

$$S'_{11} = S'_{22} = 0 \quad , \quad G_{Amaks} = \frac{|S_{21}|}{|S_{12}|}\left(K - \sqrt{K^2-1}\right)$$

v2