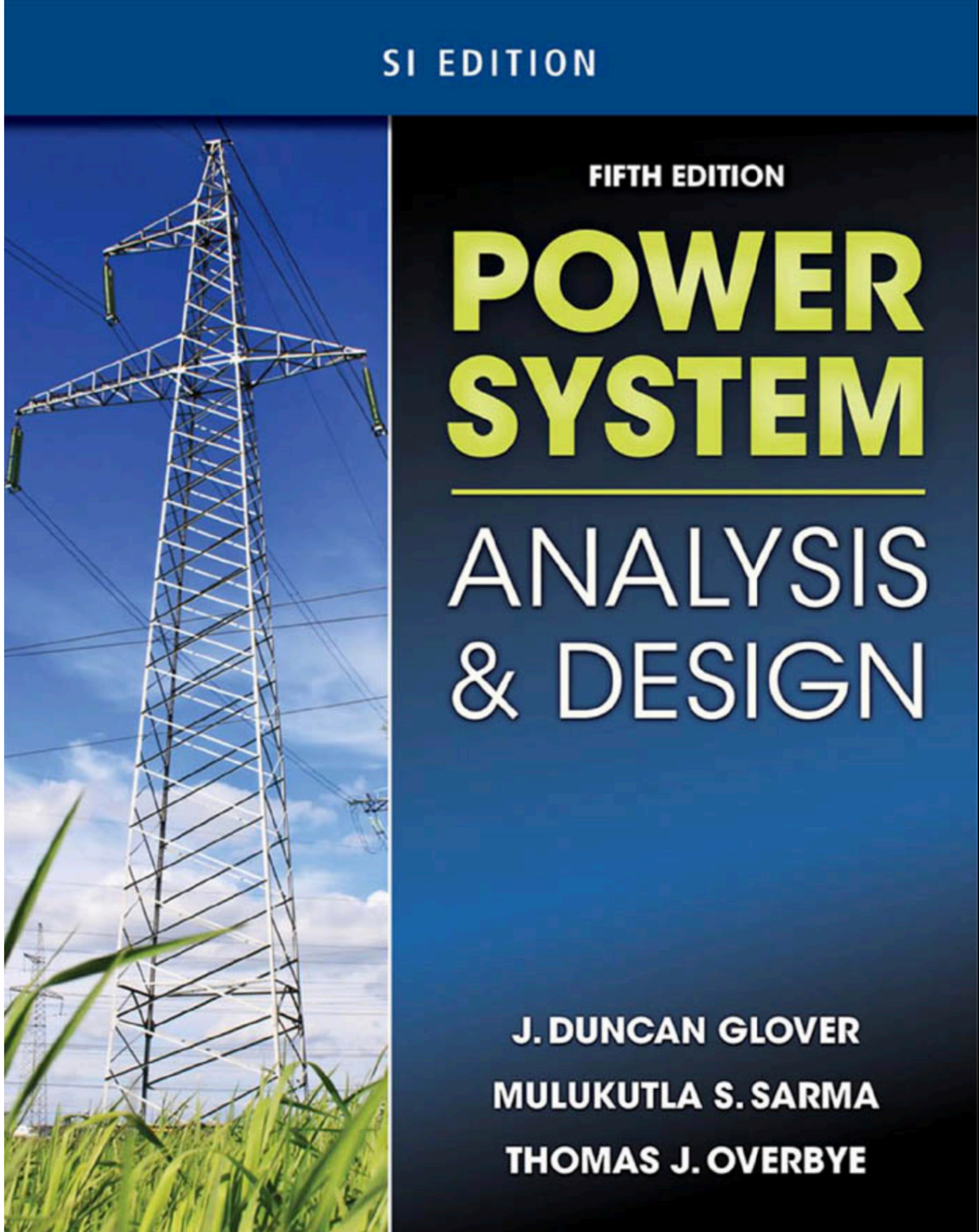
Sirkuit π ekuivalen

Transmisi Daya Listrik

Novalio Daratha

Buku Rujukan

Bab 5



Persamaan Saluran Transmisi Terdistribusi

Parameter ABCD

$$\begin{bmatrix} V_S \\ I_S \end{bmatrix} = \left[\begin{array}{c|c} A & B \\ \hline C & D \end{array}\right] \begin{bmatrix} V_R \\ I_R \end{bmatrix} \tag{5.2.33}$$

where

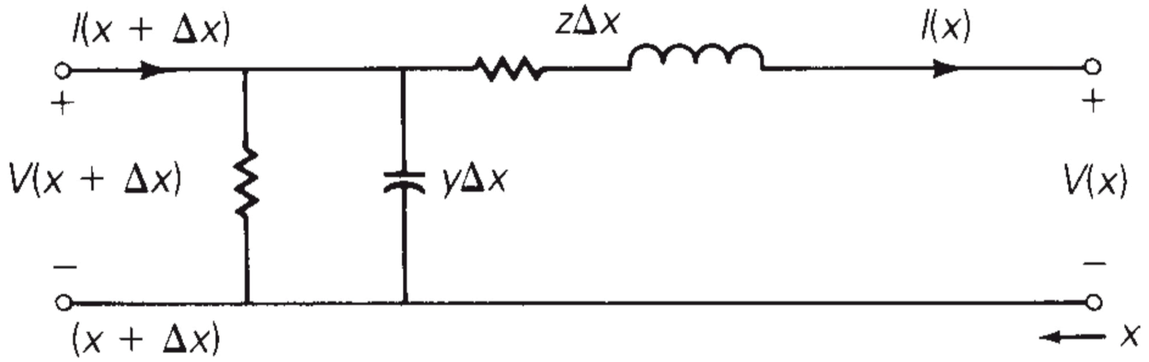
$$A = D = \cosh(\gamma l) \quad \text{per unit} \tag{5.2.34}$$

$$B = Z_c \sinh(\gamma l) \quad \Omega \tag{5.2.35}$$

$$C = \frac{1}{Z_c} \sinh(\gamma l) \quad \text{S} \tag{5.2.36}$$

$$\gamma = \sqrt{zy} \quad \text{m}^{-1} \qquad Z_c = \sqrt{\frac{z}{y}} \quad \Omega$$

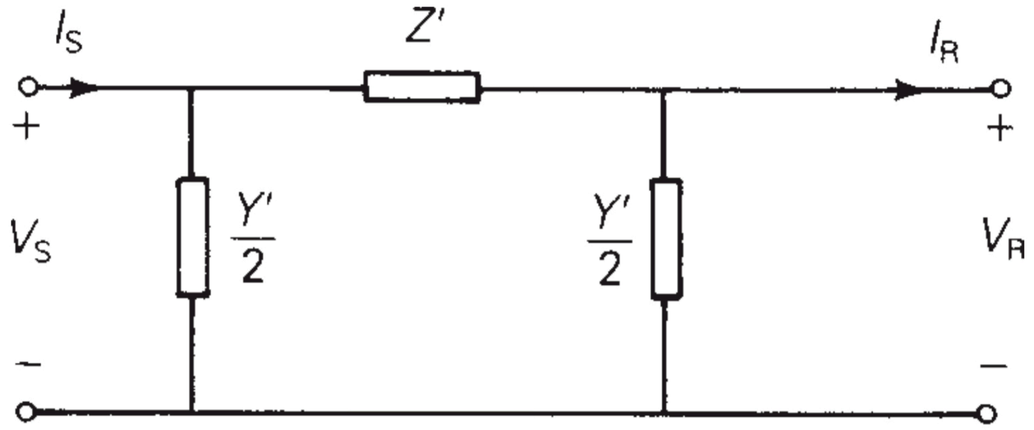
Perbandingan Rangkaian Nominal dan π



$$z = \mathrm{R} + j\omega\mathrm{L} \quad \Omega/\mathrm{m}$$

$$y = \mathrm{G} + j\omega\mathrm{C} \quad \mathrm{S}/\mathrm{m}$$

Rangkaian Nominal

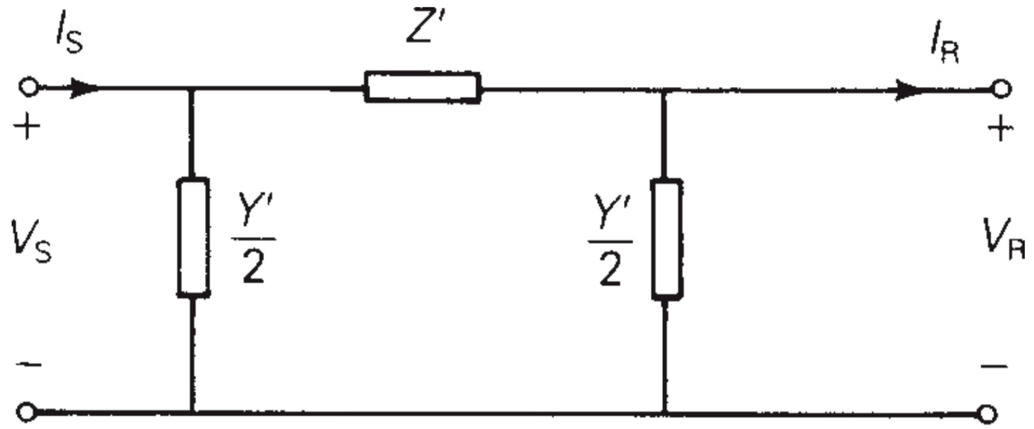


$$Z' = Z_c \sinh(\gamma\ell) = ZF_1 = Z\frac{\sinh(\gamma\ell)}{\gamma\ell}$$

$$\frac{Y'}{2} = \frac{\tanh(\gamma\ell/2)}{Z_c} = \frac{Y}{2}F_2 = \frac{Y}{2}\frac{\tanh(\gamma\ell/2)}{(\gamma\ell/2)}$$

Rangkaian π ekuivalen

Rangkaian π ekivalen



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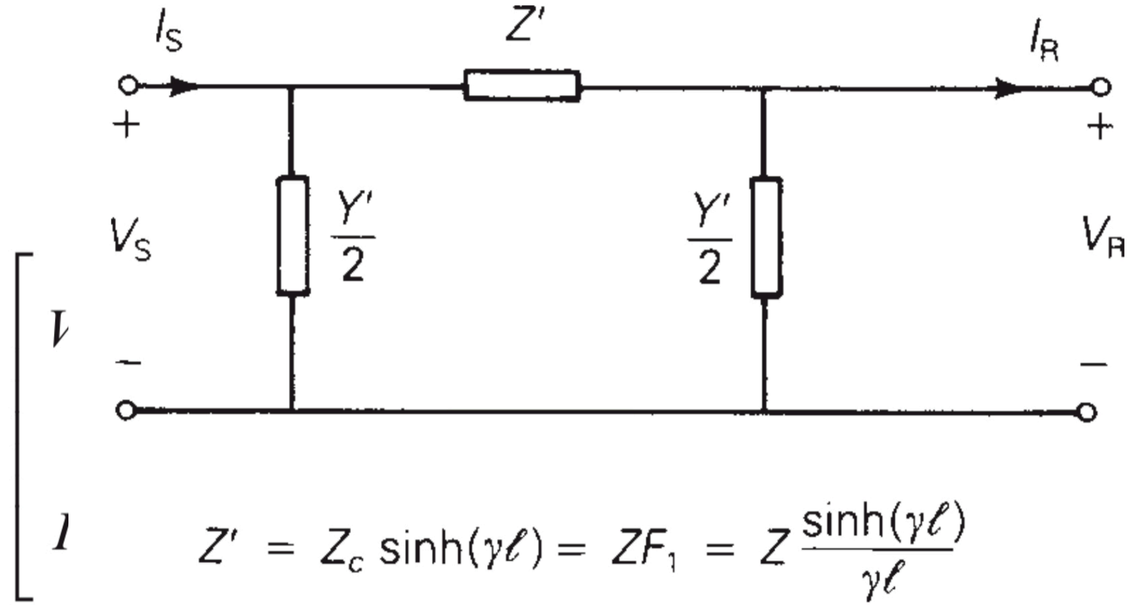

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