

Microwave Techniques

Transmission Lines

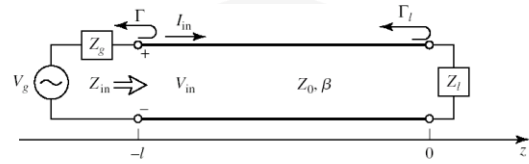


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Generator-Load Mismatches



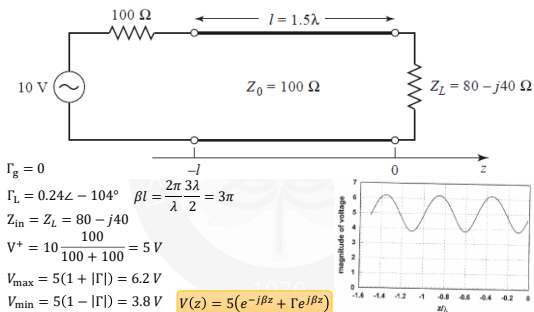
Transmission line circuit for mismatched load and generator.

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Example



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Lossy Line

$$\gamma = \alpha + j\beta$$

$$V(z) = V_o^+ (e^{-\gamma z} + \Gamma e^{\gamma z}),$$

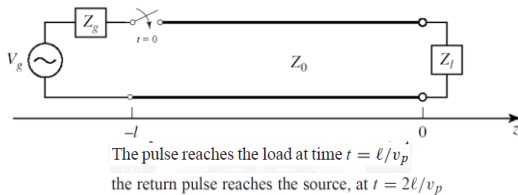
$$I(z) = \frac{V_o^+}{Z_0} (e^{-\gamma z} - \Gamma e^{\gamma z}),$$

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Transients on Transmission Lines

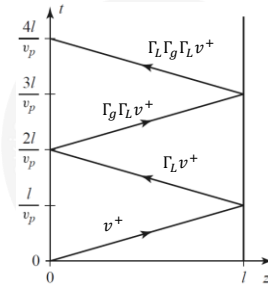


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Bounce diagram

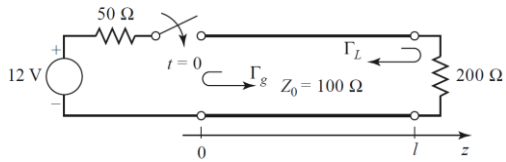


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Example



Draw the bounce diagram for the transient circuit of Figure 2.25, including the first three reflections.

$$v^+ = 12 \frac{100}{50 + 100} = 8 \text{ V}$$

$$\Gamma_g = \frac{50 - 100}{50 + 100} = -\frac{1}{3}$$

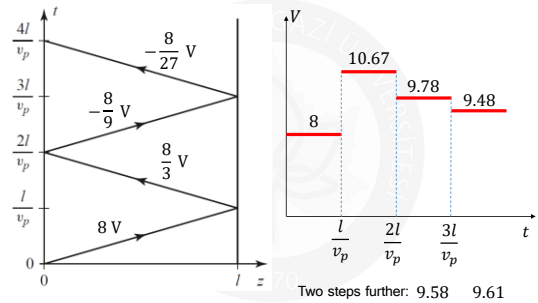
$$\Gamma_L = \frac{200 - 100}{200 + 100} = \frac{1}{3}$$

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Example



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