

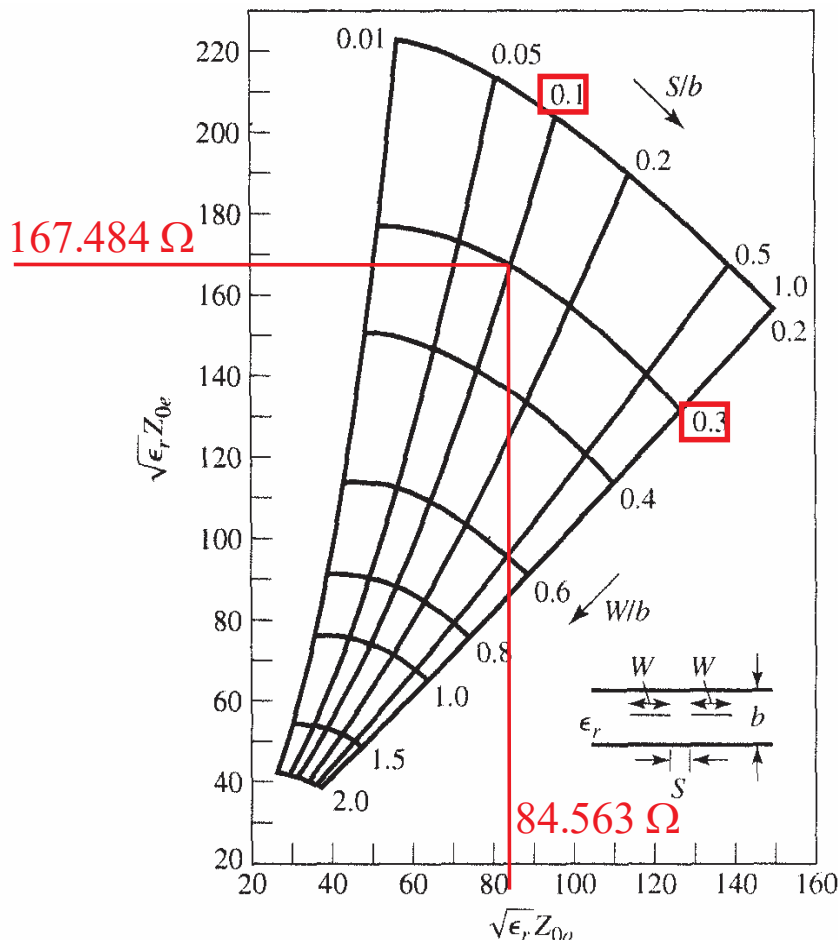
- 7.19** An edge-coupled stripline with a ground plane spacing of 2.0 mm and a dielectric constant of 4.2 has strip widths of 0.6 mm and a separation of 0.2 mm between the edges of the strips. Use the graph of Figure 7.29 to find the resulting even- and odd-mode characteristic impedances.

Given:  $b = 2.0 \text{ mm}$ ,  $\epsilon_r = 4.2$ ,  $W = 0.6 \text{ mm}$   
and  $S = 0.2 \text{ mm}$ .

Calculate  $S/b = \frac{0.2}{2} = 0.1$  and  $W/b = \frac{0.6}{2} = 0.3$   
and plot on Fig 7.29, Read off

$$\sqrt{\epsilon_r} Z_{0e} = 167.484 \Omega \Rightarrow Z_{0e} = \frac{167.484}{\sqrt{4.2}} = 81.72 \Omega$$

$$\sqrt{\epsilon_r} Z_{0o} = 84.563 \Omega \Rightarrow Z_{0o} = \frac{84.563}{\sqrt{4.2}} = 41.26 \Omega$$



**FIGURE 7.29** Normalized even- and odd-mode characteristic impedance design data for symmetric edge-coupled striplines.