

3.2 $\alpha_c = 2R_s k_c^2 / (k\eta\beta d)$ Np/m

3.4 $\alpha = 6.71$ dB/m

3.5 $l = 10.4$ cm

3.7
$$\alpha_c = \frac{2R_s \omega \epsilon \pi^2}{\beta k_c^2} \left[\frac{n^2}{b^3} + \frac{m^2}{a^3} \right]$$

3.13 $f_{c_{11}}^{TE} = 7.25$ GHz

$f_{c_{01}}^{TM} = 9.46$ GHz

$f_{c_{21}}^{TE} = 12.02$ GHz

$f_{c_{11}}^{TM} = f_{c_{01}}^{TE} = 15.08$ GHz

3.19 $W = 0.147$ cm, $\lambda_g = 6.74$ cm

3.20 $W = 0.142$ cm, $\lambda_g = 5.66$ cm

3.23 Proof

3.28 $b/a = 1.649$, $Z_o = 30 \Omega$