

Analytical and numerical results for the guided mode characteristics of metal-clad planar waveguides produced by diffusion are developed. Values of the complex propagation constants are obtained numerically and are shown to be in good agreement with the analytical results. These give insight into how waveguide and material parameters determine the loss. Since the profile of the waveguide represents the variation of the refractive index of the diffused-channel waveguide with the depth dimension, the results obtained can be used to reduce the dimensionality of the diffused-channel waveguide and facilitate the application of the effective-index method.