Abstracts

A simple method for blocking parasitic modes in a waveguide-packaged microstrip-line circuit

Hao-Hui Chen, Chun-Long Wang and Shyh-Jong Chung. "A simple method for blocking parasitic modes in a waveguide-packaged microstrip-line circuit." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part I [T-MTT]): 2156-2159.

A simple structure formed by two metal patches symmetrically deposited at the two sides of the center microstrip is proposed and analyzed for blocking the higher order modes in a waveguide-packaged microstrip-line circuit. The variations (with the patch width) of the effective dielectric constants and field distributions of the modes in the packaged microstrip line with infinitely long side patches were first investigated using the two-dimensional (2-D) finite-element method (FEM) and the method of lines. The results suggested that there exists a range of patch widths at which the field distributions of the higher order modes are totally different from those of the microstrip line without side patches. The scattering of the patches as a function of the patch length and width was then studied using the three-dimensional (3-D) FEM with edge elements. It has been found that by simply choosing appropriate patch sizes, the parasitic higher order mode can be reflected without sacrificing the normal propagation of the dominant mode.

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