Abstracts

A Study of Hermetic Transitions for Microwave Packages

J.-G. Yook, N.I. Dib, E. Yasan and L.P.B. Katehi. "A Study of Hermetic Transitions for Microwave Packages." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1579-1582.

Two numerical techniques, the finite difference in time domain (FDTD) and the finite element method (FEM) in frequency domain, are employed to characterize microstrip hermetic transition geometries in an effort to investigate high frequency effects. Measurements performed on these transitions compare favorably with theory. It is shown that these hermetic wall transitions may suffer from parasitic parallel plate modes which however can be eliminated with the use of vias at appropriate locations. Two different transitions have been analyzed from 5 GHz to 25 GHz and have been found to be limited in performance by higher return loss as frequency increases. This indicates the need for very careful characterization of transitions intended for use in microwave and millimeter-wave applications.

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