Abstracts

Isolation in three-dimensional integrated circuits

A. Margomenos, S. Valas, M.I. Herman and L.P.B. Katehi. "Isolation in three-dimensional integrated circuits." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1875-1878.

The necessity for design of ICs with higher density makes the issue of circuit isolation a very important one. In multilayer structures, surface waves excited by planar discontinuities induce parasitic currents on adjoining interconnects. This parasitic coupling becomes a limiting factor as density increases and size reduces. The dependence of these proximity effects on interconnect geometry is the subject of this study. The previously suggested method of increasing isolation by introducing micromachined cavities in the common substrate is utilized. Various configurations of finite ground microstrip lines (MS) and finite ground coplanar waveguides (FGCPW) have been studied. Theoretical and experimental results, in terms of reduced isolation, are presented showing the advantages of the simultaneous use of FGCPW and MS in high-density circuits.

❑ Return to main document.