# Abstracts

## Experimental and Theoretical Study of Parasitic Leakage/Resonance in a K/Ka-Band MMIC Package (Dec. 1996, Part II [T-MTT])

*J.-G. Yook, L.P.B. Katehi, R.N. Simons and K.A. Shalkhauser. "Experimental and Theoretical Study of Parasitic Leakage/Resonance in a K/Ka-Band MMIC Package (Dec. 1996, Part II [T-MTT])." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2403-2410.*

In this paper, electromagnetic (EM) leakage and spurious resonances in a K/Ka-Band (18-40 GHz) MMIC hermetic package designed for a phase shifter chip are studied using the finite element method (FEM) and the numerical simulation results are compared with the measured data. Both the measured and calculated data indicate several spurious resonances in the 1S-24 GHz region and the origin of this phenomenon is identified by virtue of the modeling capability of the FEM. Moreover, the effect of dc bias lines, bond wires, shielding, and the asymmetry of the package on electrical performance are closely examined. In addition, the effect of adding a resistive coating to the inside surface of the package lid and also the use of dielectric packaging materials with very high loss tangent are studied in view of the suppression of the spurious resonances. Finally, design guidelines for the improved package are presented.

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