Abstracts

Dependence of Stripline Performance on Dielectric Properties and Packaging Techniques

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When stripline circuits fail to meet performance goals the cause is likely to be mechanical in the case of homogeneous dielectrics and electrical in the case of reinforced materials. Dimensional instability and/or crazing tendencies are intrinsic in pure polymars, whereas the electrical problems encountered with reinforced materials are caused largely by misunderstanding of dielectric behavior and inadequate control of dielectric properties. The latter deficiencies are correctable. This paper describes a study of stripline dielectric properties of glass-cloth reinforced TFE (fluorocarbon) which has been carried out to: 1) Devise a simple and precise test for strip line dielectric constant and loss tangent. 2) Determine the mean dielectric constant and production limits of various copper clad constructions. 3) Measure the effect of clamping pressure on apparent dielectric constant. 4) Determine the effectiveness of a bonding film between layers as a means of eliminating the pressure effect.

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