Abstracts

Ceramic Microstrip for Microwave Hybrid Integrated Circuitry

B.T. Vincent, Jr.. "Ceramic Microstrip for Microwave Hybrid Integrated Circuitry." 1966 G-MTT International Microwave Symposium Digest 66.1 (1966 [MWSYM]): 128-134.

The basic microstrip, or non-symmetrical stripline geometry, has been investigated as a transmission line medium, and a number of types of transmission line components have been built utilizing microstrip construction. Microstrip has found only sporadic applications, however, as designers generally chose the more shielded and lower loss stripline, coaxial or waveguide modes of propagation, with the availability of microwave transistors and other semiconductor devices usable well into the microwave frequency range, the microstrip transmission line was reevaluated because of its compatibility with the fabrication and installation of passive components and active devices on the same substrate with the transmission line. Some of the ceramic materials appear particularly attractive as a substrate from performance and economic standpoints. This paper covers some of the characteristics of microstrip transmission lines on homogeneous ceramic dielectric substrates and on the two dielectric substrate as is the case in glazed ceramics, some of the considerations in component and circuit design utilizing this medium will be discussed along with some examples of incorporating semiconductor devices with ceramic microstrip components to accomplish high performance microwave hybrid integrated circuitry.

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