Abstracts

Measurement of the Permittivity of Insulating Films at Microwave Frequencies (Correspondence)

H. Sobol and J.J. Hughes. "Measurement of the Permittivity of Insulating Films at Microwave Frequencies (Correspondence)." 1967 Transactions on Microwave Theory and Techniques 15.6 (Jun. 1967 [T-MTT]): 377-378.

Advances in the state of the art of both integrated circuit technology and solid-state devices have led to the integration of microwave circuits. Dielectric films may be used in a variety of applications for the integrated circuits, and a knowledge of the properties of the films at microwave frequencies is essential for circuit design and material evaluation. The transmission method and the standard cavity perturbation technique are difficult to use when measuring dielectric films. The film is usually grown or deposited on a substrate that may introduce a frequency or phase shift which masks the effect due to the film. This difficulty may be overcome by first introducing the substrate without any film and then repeating the measurement with a film on the substrate. The second difficulty consists in accurately measuring the very small frequency or phase shift which most films produce.

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