Abstracts

Field Theory Investigation of High- T/sub c/ Superconducting Coplanar Waveguide Transmission Lines and Resonators

J. Kebler, R. Dill and P. Russer. "Field Theory Investigation of High- T/sub c/ Superconducting Coplanar Waveguide Transmission Lines and Resonators." 1991 Transactions on Microwave Theory and Techniques 39.9 (Sep. 1991 [T-MTT] (Special Issue on Microwave Applications of Superconductivity)): 1566-1574.

We investigate a coplanar waveguide structure using a partial wave synthesis. By this we take into account the complex conductivity of the high- T/sub c/ superconductor material according to the two-fluid model and the London theory. Micrometer transmission line dimensions are considered in the frequency range up to 100 GHz suitable e.g. for low-loss, low-dispersion chip-to-chip interconnects. The results obtained for superconductors are also compared with the results for normal conductors with real conductivity and the same geometry. Finally we calculate the behavior of measured and published coplanar waveguide lambda/2 resonators made of high-T/sub c/ superconducting thin films.

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