Abstracts

On the Application of Complex Resistive Boundary Conditions to Model Transmission Lines Consisting of Very Thin Superconductors

J.M. Pond, C.M. Krowne and W.L. Carter. "On the Application of Complex Resistive Boundary Conditions to Model Transmission Lines Consisting of Very Thin Superconductors." 1989 Transactions on Microwave Theory and Techniques 37.1 (Jan. 1989 [T-MTT]): 181-190.

A resistive boundary condition for the case where the resistivity is assumed to be a complex quantity is shown to be an accurate model for a superconducting film which is thin compared to the superconducting penetration depth. The imaginary part of the conductivity is the dominant term and is a measure of the inductive energy stored in the superconductor. Numerical solutions of superconducting microstrip have been obtained and are compared to experimental results and to analytic solutions for superconducting parallel-plate waveguides. Excellent agreement has been found between experimental, analytical, and numerical results.

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