Abstracts

Full-Wave Analysis of Superconducting Microstrip Lines on Sapphire Substrates

L.H. Lee, S.M. Ali, W.G. Lyons, R.S. Withers and T.P. Orlando. "Full-Wave Analysis of Superconducting Microstrip Lines on Sapphire Substrates." 1993 MTT-S International Microwave Symposium Digest 93.1 (1993 Vol. I [MWSYM]): 385-388.

A computationally efficient full-wave technique is developed to analyze superconducting microstrip lines on M-plane sapphire in which the optic axis is in the plane of the substrate at an arbitrary angle with respect to the propagation direction. To increase the efficiency of the method, the superconducting strip is replaced by an equivalent surface impedance which accounts for the loss and kinetic inductance of the superconductor. Complex propagation constant and characteristic impedance are calculated and compared to both measured results and results obtained by the more rigorous volume-integral-equation method.

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