Abstracts

Microstrip Ring Resonator Technique for Measuring Microwave Attenuation in High-T/sub c/ Superconducting Thin Films (Short Papers)

J.H. Takemoto, F.K. Oshita, H.R. Fetterman, P. Kobrin and E. Sovero. "Microstrip Ring Resonator Technique for Measuring Microwave Attenuation in High-T/sub c/ Superconducting Thin Films (Short Papers)." 1989 Transactions on Microwave Theory and Techniques 37.10 (Oct. 1989 [T-MTT]): 1650-1652.

Microwave attenuation of high-T/sub c/ superconducting (HTS) films sputtered on MgO and ZrO/sub 2/ were measured using a microstrip ring resonator circuit. The results of Y-Ba-Cu-O and Bi-Sr-Ca-Cu-O resonators were compared to gold-plated resonators of identical design. The losses of superconducting and gold-plated films were determined from unloaded Q-factor measurements. The attenuation of Y-Ba- Cu- O film on a MgO substrate is approximately 31 percent lower than gold films at 6.6 GHz and 33 percent lower at 19.2 GHz for temperatures below 50 K. The approach of using microstrips to characterize microwave losses shows the usefulness of HTS films in integrated circuit technology.

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