Abstracts

High T/sub c/ Superconductor-Sapphire Microwave Resonator with Extremely High Q-Values Up to 90 K (1992 Vol. I [MWSYM])

Z.-Y. Shen, C. Wilker, P. Pang and W.L. Holstein. "High T/sub c/ Superconductor-Sapphire Microwave Resonator with Extremely High Q-Values Up to 90 K (1992 Vol. I [MWSYM])." 1992 MTT-S International Microwave Symposium Digest 92.1 (1992 Vol. I [MWSYM]): 193-196.

Several high temperature superconductor (HTS)-sapphire TE/sub 011/ mode resonators were designed, fabricated and tested. At 5.552 GHz, Q/sub 0/ reached 2 x 10/sub 6/ at 90 K, 3 x 10/sub 6/ at 80 K, and 1.4 x 10/sub 7/ at 4.2 K with circulating power up to 500 kW. Formulas for calculating the resonant frequency and Q-value were derived. These theoretical results showed good agreement with the experimental measurements. Applications, such as frequency-stabilized oscillators, filters and the characterization of HTS films, are discussed.

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