Abstracts

Superconducting Tl-Ca-Ba-Cu-O Thin Film Microstrip Resonator and its Power Handling Performance at 77k

R.B. Hammond, G.V. Negrete, M.S. Schmidt, M.J. Moskowitz, M.M. Eddy, D.D. Strother and D.L. Skoglund. "Superconducting Tl-Ca-Ba-Cu-O Thin Film Microstrip Resonator and its Power Handling Performance at 77k." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 867-870.

We report measurements of the temperature- and power-dependent surface resistance, Rs, of thin films of Tl-Ca-Ba-Cu-O at 9.55 GHz. At 77k these films are at least 20 times better than bulk OFHC Cu at the same temperature and frequency, in microwave magnetic fields up to 10 gauss. In addition, we report measurements of the power handling performance at 77K of a high-Q thin-film microstrip resonator made with these films. We measured loaded Q's up to 7300 at 2.6 GHz, >20 times higher than on identical silver resonators. At effective power levels in the resonator up to ~100 watts the Q was still at least three times higher than the silver resonator at all frequencies measured 2.6, 5.2, and 7.3 GHz.

❑ Return to main document.