Abstracts

Fabrication of MOD-derived YBCO films on [001]LaAlO/sub 3/ and their application to /spl lambda//4 CPW SIR BPFs

A. Sanada, M. Kimura, T. Yamamoto and I. Awai. "Fabrication of MOD-derived YBCO films on [001]LaAlO/sub 3/ and their application to /spl lambda//4 CPW SIR BPFs." 2002 Transactions on Microwave Theory and Techniques 50.12 (Dec. 2002 [T-MTT] (Special Issue on 2002 International Microwave Symposium)): 2856-2861.

Chemically derived epitaxial thin films of YBa/sub 2/Cu/sub 3/O/sub 7-/spl delta// (YBCO) are fabricated on [001]LaAlO/sub 3/ substrates by the metalorganic-deposition (MOD) process, which has advantages of high quality, nonvacuum, low-cost, and large-scale production of high-T/sub c/ superconducting films. The MOD-derived YBCO films have a sharp transition at the critical temperature (90.4 K) and a high-quality film with a surface resistance of 0.13 m/spl Omega/ (30 K, 9.98 GHz) is obtained. As a microwave application, simple and compact bandpass filters (BPFs) using /spl lambda//4 coplanar-waveguide. stepped-impedance resonators are demonstrated on the YBCO films. A two-stage Chebyshev BPF of center frequency of 5.731 GHz, bandwidth of 135 MHz, and insertion loss of 0.29 dB with little input power dependency in a power range less than 10 dBm is realized on the film.

❑ Return to main document.