Abstracts

High-Power HTS Microstrip Filters for Wireless Communication (1994 Vol. I [MWSYM])

G.-C. Liang, D. Zhang, C.F. Shih, R.S. Withers, M.E. Johansson, W. Ruby, B.F. Cole, M. Krivoruchko and D.E. Oates. "High-Power HTS Microstrip Filters for Wireless Communication (1994 Vol. I [MWSYM])." 1994 MTT-S International Microwave Symposium Digest 94.1 (1994 Vol. I [MWSYM]): 183-186.

We report narrowband microstrip filters with low insertion loss and high power-handling capabilities made from high-temperature superconducting (HTS) films. One interdigital filter that uses HTS films for both the microstrip and ground plane has 0.6 % bandwidth (BW), centered at 2 GHz, with an insertion loss of 0.4 dB. The third-order intercept of the filter is 35 dBm at 77 K and 40 dBm at 60 K. Another filter with 0.7 % BW and wider linewidth for higher power handling has an insertion loss of 0.4 dB. The measured third-order intercept is 39 dBm at 77 K and 64 dBm at 56 K. We also report a more compact forward-coupled microstrip filter which consists of a parallel array of fully aligned half-wavelength resonators. The filter, which uses a YBCO microstrip and silver ground plane, has a 0.6 % bandwidth centered at 2 GHz. The insertion loss is 4.5 dB, mainly caused by the silver ground plane.

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