Abstracts

Superconducting Nonreciprocal Devices for Microwave Systems

E. Denlinger, R. Paglione, D. Kalokitis, E. Belohoubek, A. Pique, X.D. Wu, T. Venkatesan, A. Fathy, V. Pendrick, S. Green and S. Mathews. "Superconducting Nonreciprocal Devices for Microwave Systems." 1992 Microwave and Guided Wave Letters 2.11 (Nov. 1992 [MGWL]): 449-451.

The feasibility of applying high-temperature super-conductor (HTS) technology to nonreciprocal microwave devices has been demonstrated for the first time. Such devices in the form of isolators and circulators are used widely to achieve stability, reliability, and reproducibility in microwave circuit performance. The experimental X-band device, a three-port stripline circulator consisting of a thin sapphire substrate coated with a YBCO film and sandwiched between two ferrite disks, showed how insertion loss (0.25 dB) and very high isolation (>30 dB) at an operating temperature of 77 K. This technology permits the integration of many HTS microwave components together with nonreciprocal devices on a common substrate.

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