Abstracts

Hybrid Semiconductive/High-Temperature Superconductive Tunable Preselector

J. Smuk, V. Aparin, C. Trantanella and M. Okandan. "Hybrid Semiconductive/High-Temperature Superconductive Tunable Preselector." 1996 MTT-S International Microwave Symposium Digest 96.3 (1996 Vol. III [MWSYM]): 1481-1484.

HTSC lumped element tilters with GaAs varactor tuning, P-HEMT LNAs with HTSC lumped element matching and a GaAs MMIC SP4T switch with integrated decoding are described for use in a broadband cryogenic preselector operating from 200MH2 to 2GHz. The filters tune over their respective sub-bands and have insertion losses ranging from 2 to 14dB. The sub-band LNAs have from 8.5 to 11 .5dB of gain, noise figures under 1.5dB and input return losses greater than 20dB. The SP4T MMIC multiplexing switch has under 0.5dB insertion loss, isolation in excess of 30dB and 10/90% switching speed under 100nsec. These components are designed to be assembled into a 30 cubic centimeter electronically tunable four-channel proof-of-principal preselector operating over portions of the 200MHz to 2GHz band.

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