Abstracts

18-GHz Paramps with Triple-Tuned Gain Characteristics for Both Room- and Liquid-Helium-Temperature Operation

T. Okajima, M. Kudo, K. Shirahata and D. Taketomi. "18-GHz Paramps with Triple-Tuned Gain Characteristics for Both Room- and Liquid-Helium-Temperature Operation." 1972 Transactions on Microwave Theory and Techniques 20.12 (Dec. 1972 [T-MTT] (1972 Symposium Issue)): 812-819.

The design and experimental performance of a wide-band K-band parametric amplifier (paramp) for the experimental domestic satellite communication earth station are described. An optimum idler frequency for a minimum noise temperature is derived taking into account the varactor diode skin effect. Wide-band paramps with a double-tuned signal circuit are discussed and it is shown that triple-tuned gain characteristics are realizable with this configuration. Finally, an 18-GHz paramp is described, which can be operated from room- to liquid-helium (LHe) temperature, only requiring adjustment of pumping power and bias voltage and using lithium ferrite circulators. Triple-tuned gain characteristics with a bandwidth of 1300 MHz at a gain of 10 dB are obtained using a miniature pill prong packaged varactor.

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