Abstracts

Maximum Bandwidth Performance of Non-degenerate Parametric Amplifier with Single-Tuned Idler Circuit

J.T. DeJager. "Maximum Bandwidth Performance of Non-degenerate Parametric Amplifier with Single-Tuned Idler Circuit." 1964 Transactions on Microwave Theory and Techniques 12.4 (Jul. 1964 [T-MTT]): 459-467.

The single-tuned bandwidth and limiting flat bandwidth of a nondegenerate reflection-type diode parametric amplifier is calculated. The amplifier has a broad-banding filter structure in the signal circuit and a single-tuned idler circuit. An experimental low-noise, wide-band Z-band amplifier is described, and measurement results are presented. The amplifier has a triple-tuned signal circuit and a single-tuned idler circuit and is pumped at 11.3 Gc. A nearly flat bandwidth of 23 per cent at 7 db gain and an effective input noise temperature of 70°K at room temperature ambient and of 29°K at liquid nitrogen (77°K) ambient has been obtained.

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