Abstracts

Low Noise Cooled Microwave Amplifiers--Simulation and Design

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The results of a study of cooled low noise field effect transistors and transistor amplifiers are presented. The investigations were made over a broad range of temperature and frequency. The temperature dependence of equivalent circuit elements in the transistor model is reported. This makes it possible to extrapolate with sufficient accuracy the S-parameters up to frequencies where direct measurements are difficult. Suspended microstrip lines have been used in the amplifier designs in order to minimize the losses and to improve the mechanical stability, The results of the theoretical studies are illustrated with a presentation of cooled amplifiers for the ranges 0.5-4 GHz, 3.7-4.1 GHz, 4.8-5.2 GHz, 19-23 GHz and 26-28 GHz, which are designed on the basis of the theoretically obtained parameters.

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