Abstracts

A Design Technique for Realizing a Microwave Tunnel-Diode Amplifier in Stripline

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A significant problem in realizing a practical tunnel-diode amplifier is that of stabilizing the amplifier both within and outside its passband while maintaining a specified center-frequency gain and bandwidth. A new technique for realizing a moderate-bandwidth tunnel-diode amplifier that utilizes a directional filter as a bandpass structure is described. This technique was investigated analytically and an experimental S-band amplifier was built and tested. This experimental amplifier had typically the following characteristics: bandwidth, 400 MHz; center frequency, 2.9 GHz; and center-frequency gain, 12.5 dB. The technique described yields an amplitler which is reproducible and which has an analytically predictable and well-defined response. None of the experimental models have shown any tendencies toward oscillation.

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