Abstracts

A K/sub a/ Band Paramp Using Planar Varactors Yields a Noise Figure of Less Than 3 dB

L.E. Dickens. "A K/sub a/ Band Paramp Using Planar Varactors Yields a Noise Figure of Less Than 3 dB." 1968 G-MTT International Microwave Symposium Digest and Technical Program 68.1 (1968 [MWSYM]): 164-172.

A parametric amplifier has been developed which has given measured noise figures of under 3.0 dB while operating with a gain of 15 dB and an instantaneous signal bandwidth of greater than 600 MHz. The center frequency of operation is 31 GHz. It is a degenerate amplifier with the pump frequency of 62 GHz. The pump power actually being dissipated in the varactor is about 40 mW. A recently developed Schottky barrier varactor is being used in this amplifier. It has the planar structure in that the junction is defined by etching the appropriate sized hole through a SiO/sub 2/ layer on GaAs and then depositing the anode material in the holes. Anode contact is made by a spring wire, the length of which is selected to obtain the proper diode resonance. The cut-off frequency at the bias point is about 600 GHz.

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