

Abstracts

Read-Type Varactors for Parametric Amplifier Applications

D.F. Peterson and G.I. Haddad. "Read-Type Varactors for Parametric Amplifier Applications." 1980 Transactions on Microwave Theory and Techniques 28.9 (Sep. 1980 [T-MTT]): 945-951.

The use of Read-type HI-LO doping profiles in varactors for parametric amplifier applications is shown to result in improved performance over conventional structures. Optimal diode doping levels, layer thicknesses, and pump drive levels are derived which give specified frequency performance while minimizing pump power requirements, minimizing noise, maximizing dynamic range, and reducing amplifier sensitivity to pump power fluctuations. The optimum device design is based on environmental limitations such as pump power, circuit losses and impedance levels and the unavoidable diode series resistance level. Design examples are given for 10- and 100-GHz parametric amplifiers.

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