Abstracts

Characteristics of an Area-Variable Varactor Diode

D.-W. Kim, J.-J. Lee, Y.-S. Kwon and S.-C. Hong. "Characteristics of an Area-Variable Varactor Diode." 1996 Transactions on Microwave Theory and Techniques 44.11 (Nov. 1996 [T-MTT]): 2053-2057.

Photoresponses and microwave characteristics of an area-variable varactor diode are investigated in the frequency range of 1-7 GHz. The on/off ratio of the capacitance as large as 18.5 at 1 GHz is demonstrated and it is shown that the ratio strongly depends upon the access resistance between the cathode and the floating contacts. The capacitance of the diode is significantly altered by optical illuminations. The change increases nonlinearly with the input light power and the maximum value of 450% is achieved at 1 GHz with 1045 nW light power. These microwave and optical characteristics are described with a simple equivalent circuit model.

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