Abstract

This paper presents a new monolithic gallium nitride based p-i-n diode model which enhances
the power handling capacity and bandwidth in millimeter wave (MMW) communication. The proposed model is simulated at bias current of 2 milliampere in 1.24 ohm series resistance to obtain insertion loss, isolation and return loss. Transit time analysis is also required to improve the performance of the switch and all these simulated results are compared to the standard measured value. A series connected Single Pole Single Throw (SPST) switch is implemented using p-i-n diode to get low insertion loss, low return loss and better isolation at high frequency. This radio frequency switch is more useful to deliver the radio frequency signal from one transmitter to N-number of receiver at 90 gigahertz frequency through 18 gigahertz frequency.

References

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III-V Nitride based Solid State p-i-n Switch for Application in Millimeter Wave Secure Communication


Index Terms

Computer Science Communications

Keywords

Gan P-i-n Diode Effective Diffusion Length Stored Charge Intrinsic Impedance Switching Speed Return Loss Insertion Loss Isolation Stored Charge Transfer Function