

## **COMPARATIVE STUDY OF IV-CHARACTERISTICS OF PIN DIODE AT DIFFERENT DOPING CONCENTRATIONS FOR DIFFERENT SEMICONDUCTOR MATERIALS USING TCAD**

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### **ABSTRACT**

For the purpose of designing and selection the optimal device for a particular application, device and circuit engineers has to analyze the between competing devices. This article presents a comparative study of current voltage characteristics for PIN diodes. Three different sets of doping concentrations are studied for each of the five different material PiN diodes. The PiN diode is simulated using V-TCAD software. For the same diode structure effects of different doping on different materials are studied and VI characteristics are plotted based on simulated results. The change in doping concentration resulted in almost negligible change in threshold voltage. Whereas large increase in current is obtained for increase in doping concentrations.

**KEYWORDS:** Pin Diode, I-V Characteristics, Doping Concentration, Semiconductor Material, VTCAD