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Simulation of electrical characterization on lateral silicon-on-insulator PIN diode for space radiation detector (Conference Paper)

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Abstract

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This paper discusses on the performance of SOI pin diode radiation detector when compared to conventional bulk silicon pin diode radiation detector. Lateral SOI detector was virtually fabricated in SILVACO ATHENA and its electrical characteristics was analyzed in SILVACO ATLAS. It was found that SOI pin diode produced lower leakage current value with 1×10^4 A/ μm^2 difference compared to bulk structure. However, the same SOI structure suffered from temperature variation with an increment of 1×10^2 A/ μm^2 in current density after the temperature was varied from 27°C to 80°C. © 2014 IEEE.

Author keywords

bulk lateral pin diode radiation detector SOI temperature

Indexed keywords

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Bulk structure

Electrical characteristic

Electrical characterization

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