

Defect investigations of neutron irradiated high resistivity PiN and LGAD diodes

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Defect investigation studies, by TSC and TEM techniques, after neutron irradiation of high resistivity PiN and LGAD float-zone silicon diodes have been performed. The diodes were irradiated with fluences of E14 and E15 n/cm². TSC studies during annealing treatments at 80C have been performed with emphasis on the acceptor-removal process. The results are discussed in correlation with the changes in the macroscopic parameters during annealing treatments as seen in depletion voltage and Neff. Changes in the electrical activity of BiOi defect are observed in both type of diodes, with a direct impact on the depletion voltage value.

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