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The boron-oxygen (BiOi) defect complex induced by irradiation with 6 MeV electrons in p-type silicon diodes

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Abstract: The radiation induced BiOi defect complex by 6 MeV electrons in low resistivity (10 Wcm) p-type epitaxial silicon diodes has been studied using the Thermally Stimulated Current (TSC) and the Thermally Stimulated Capacitance (TS-Cap) technique. The fluence values were in the range between 1 × 1015 e/cm2 and 6 × 1015 e/cm2. The extracted results on the activation energy, defect concentration as well as the isothermal annealing behavior at 80 oC will be presented and discussed in comparison with data from TSC and DLTS(Deep Level Transient Spectroscopy) measurements achieved by the team of the CERN-RD50 "Acceptor removal project". In addition, the extracted microscopic data are compared with results from capacitance-voltage (C-V) characteristics.

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