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High-resolution deep level transient spectroscopy (DLTS) study of vacancy defects donor pairs in P-, ASand Sb-doped n-type Silicon

We have used conventional deep-level transient spectroscopy (DLTS) and high resolution Laplace deep level transient spectroscopy (L-DLTS) to investigate electron-irradiation induced defects in phosphorous doped (n-type) silicon implanted additionally with arsenic, antimony and both arsenic and antimony. All samples exhibited similar DLTS spectra, with peaks at 219 K, 166 K, 128 K, and 92 K. These defects were attributed to the E-center, divacancy, hydrogen-oxygen vacancy and Oxygen-vacancy, observed at rate window of 80 s-1. The E-center appears in all the spectra. The activation energies of the defects were extracted from Arrhenius plot measurements. The calculated activation energies were found to be 0.444, 0.432, 0.389 eV for P-As, P-Sb, P-Sb-As, respectively.

Apply to be considered for a student ; award (Yes / No)?

yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

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