INVESTIGATIONS BY CAPACITANCE METHODS OF n-Si IRRADIATED BY ELECTRONS AT 450 °C

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S u m m a r y

Using the methods of deep-level transmission spectroscopy (DLTS), the properties of radiation- and thermal-induced defects which are formed in silicon single crystals under an electron irradiation of 1 MeV at 450 °C have been investigated. Seven electron levels in the upper half and two levels in the lower half of the energy gap in Si have been revealed. Their energy and kinetics characteristics have been determined. It is found that secondary radiation-induced defects (RDs) are capable to migrate over large distances. An essential acceleration of the generation of oxygen thermal donors when exposed to the electron irradiation has been shown. The results obtained are interpreted by the radiation-enhanced diffusion of oxygen impurity atoms and the formation of various oxygen-vacancy complexes.