MECHANISM OF ANNEALING OF VO DEFECTS IN n-Si UNDER PULSE ELECTRON IRRADIATION AT HIGH-TEMPERATURES

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S u m m a r y

We study the kinetics of accumulation of vacancy-oxygen (VO) complexes in Czochralski-grown (Cz) n-Si, at various intensities of pulse 1-MeV electron radiation at temperatures higher than the temperature of the onset of the thermal annealing of VO ($T \geq 300$ °C). It is shown that the irradiation with electrons at such temperatures causes the accelerated annealing of VO created by this radiation. The accelerated annealing of VO occurs during the action of a pulse of electrons. The maximum concentration of created VO increases with the radiation intensity and decreases, as the temperature of irradiated specimens increases. We propose a model of the process of accelerated annealing which is based on the assumption that specimen's electrons under the electron irradiation are excited in a high-energy valley. At the capture of such electrons by VO defects, the defects receive the energy which decreases essentially the energy of activation of their annealing. The high-energy threshold of the effect depends on the radiation intensity and increases with it.