INFLUENCE OF TIN IMPURITY ON RECOMBINATION CHARACTERISTICS IN γ-IRRADIATED n-Si

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S u m m a r y

The influence of the isovalent tin impurity on the lifetime of nonequilibrium charge carriers in Cz n-Si irradiated with γ-quanta from ^{60}Co has been studied experimentally and analyzed. The behavior of the lifetime in γ-irradiated tin-doped n-Si was shown to be governed by the initial concentration of free electrons, n_0. The lifetime degradation factor k_τ is demonstrated to decrease in the low-resistance and to increase in the high-resistance n-Si samples, as the tin concentration in them grows. This fact can be explained by a competition of the main recombination centers in n-Si with Sn-complexes VO and SnV. The ratio between the reaction constants for the formation of VO and SnV defects is determined, as well as the cross-sections of hole capture by single- and double-charged acceptor states of SnV.