

EFFECT OF THE IRRADIATION  
TEMPERATURE ON THE CHARGE STATE  
OF CLOSE FRENKEL PAIRS IN *n*-Si CRYSTALS

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S u m m a r y

It is shown that primary radiation defects (RD) in *n*-type Si crystals in a metastable state, i. e. in the process of their formation, in the temperature range 80–200 °C have opposite charges: vacancies are negative, and interstitial atoms are positive. In the area of self-conductance ( $T_{ir} = 300$  °C), vacancies turn into the neutral state, which explains the absence of impact from external electric field  $\vec{E}$  applied to the sample in the process of irradiation, on the efficiency of introduction of the secondary RD. We evaluated the life time of primary RD in the metastable state  $\tau$ , distance between the components of Frenkel pairs  $l$ , and drift mobility  $\mu$  of interstitial Si atoms at 220 °C. These parameters occur to be as follows:  $\tau \approx 10^{-8}$  s,  $l \approx 5 \cdot 10^{-5}$  cm and  $\mu \approx 10^2$  cm<sup>2</sup>/Vs.