EFFECT OF DOPING BY LEAD ON THE FORMATION OF THERMAL DEFECTS IN SILICON WITH INCREASED CARBON CONCENTRATION

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S u m m a r y

The influence of a lead (N_{Pb}=1·10^{18} cm^{-3}) doping on the kinetics of the generation of thermodonors (formed at 450 and 650 °C) and the oxygen precipitation (at 650 °C) in n-Si with the increased carbon impurity concentration (N_{C}= (7÷8)·10^{16} cm^{-3}) is studied. An acceleration of the low-temperature thermodonors generation and a deceleration of both the high-temperature thermodonors generation and oxygen precipitation have been found in a Pb-doped sample, as compared to the reference one. The results obtained are interpreted accounting for the interaction of Pb and C influencing the defect formation processes, namely, due to the formation of electrically neutral complexes with the participation of Pb and C. It is shown that the preliminary low-temperature annealing (450 + 510) °C eliminates the difference in the kinetics of the generation of high-temperature thermodonors and the oxygen precipitation between the Pb-doped and reference samples.