

INFLUENCE OF DEFECTS ON THE STRUCTURE  
OF OXYGEN PRECIPITATES  
IN SILICON CRYSTALS

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S u m m a r y

The methods of IR-spectroscopy with the computer analysis of the absorption band form, electron microscopy, and X-ray diffraction and measurements of a decrease of the nonstationary photoconduction under conditions of a low excitation level were used for the experimental investigation of the influence of defects in silicon ingots of various diameters (40–300 mm) on the processes of formation of oxygen precipitates due to the two-stage annealing (750 and 1050 °C). The investigations were performed for silicon monocrystals grown by the Czochralski method (Cz-Si). It is shown that large-diameter samples include electrically active microdefects of a relatively low concentration which are small (0.06–0.1  $\mu\text{m}$ ) dislocation loops. Due to this fact, a weakly stressed phase of  $\text{SiO}_2$  oxide, which doesn't contain the deformed 4-membered rings of  $\text{SiO}_4$  tetrahedra (characteristic of the precipitated silicon-oxygen phase in low-diameter ingots), is formed in the process of thermal treatments. As a result, a higher thermostability of such a silicon is observed.