

GETTERING
OF THE RECOMBINATION-ACTIVE
IMPURITIES IN MULTICRYSTALLINE
SILICON AT RAPID THERMAL TREATMENTS

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S u m m a r y

The processes of recombination-active impurity gettering in multicrystalline silicon have been investigated using the mass-spectrometry of neutral atoms and surface photovoltage spectroscopy. The rapid thermal annealing (RTA) is used in the isothermal and isochronic regimes. Dosed concentrations of iron and copper impurities were introduced to the samples by ion implantation. The getter layer was formed on the rear side of the samples and consists of the Al layer deposited on the developed Si surface modified by chemical etching. The diffusion coefficients and activation energies of Cu and Fe impurities have been estimated for the implanted samples after RTA. Optimal RTA temperatures and times to obtain the gettering effect have been proposed. Accelerated (anomalous) diffusion of iron to the getter layer is observed, while the diffusion coefficient of copper is close to the data known from the literature for single-crystalline silicon. Possible mechanisms of the effects observed have been discussed.