

ELECTROPHYSICAL PROPERTIES
AND DIMENSION EFFECTS
IN SEMICONDUCTOR CRYSTALS OF GaSb

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S u m m a r y

The researches are carried out on semiconductor whiskers of p-type GaSb, doped with Zn, grown in a closed GaSb-I system, with resistivity $\rho = 0.01 \div 0.05 \Omega \cdot \text{cm}$ and width of the face $a = 10 \div 100 \mu\text{m}$. The influence of thermal annealing that provided a change of whiskers surface parameters ($T = 210$ and $280 \text{ }^\circ\text{C}$, $\Delta t = 100$ and 150 hours, in accordance with I and II modes of thermal annealing) is investigated. Dimension effects (dependence of $\sigma = f(a)$) are found. The values of μ and p change weakly with temperature and higher values of μ are characteristic of small-diameter whiskers (up to $600 \text{ cm}^2/(\text{V} \cdot \text{s})$ for $p = 10^{17} \text{ cm}^{-3}$). As a result of photoelectrical investigations, the kinetic and stationary lifetimes of minority carriers were determined and the surface recombination rate and noise value were estimated. The parameter activation regions with energies of $15 \div 100 \text{ meV}$ were obtained.