

Abstract

Silicon wafer having good intrinsic getterability and method for its production

The invention relates to a silicon wafer, in the entire volume of which crystal lattice vacancies represent the prevalent point defect type, the silicon wafer having a region which is rotationally symmetric with respect to its axis and has a width of at least 80% of the radius of the silicon wafer, this region comprising agglomerates of crystal lattice vacancies with a size of at least 30 nm in a density of at most $6 \cdot 10^3 \text{ cm}^{-3}$ and agglomerates of crystal lattice vacancies with a size of from 10 nm to 30 nm in a density of from $1 \cdot 10^5 \text{ cm}^{-3}$ to $3 \cdot 10^7 \text{ cm}^{-3}$, the silicon wafer comprising OSF seeds in a density of from 0 to 10 cm^{-2} and an average BMD density in its interior of from $5 \cdot 10^8 \text{ cm}^{-3}$ to $5 \cdot 10^9 \text{ cm}^{-3}$, the BMD density varying at most by a factor of 10 in the radial direction over the entire radius of the silicon wafer, and wherein the silicon wafer comprises a BMD-free layer at least one the front side of the silicon wafer, which is distinguished in that the first BMD on the entire front side of the silicon wafer is found at a depth of at least 5 μm and the first BMD is found on average at a depth of at least 8 μm .

The invention also relates to the production of a multiplicity of such silicon wafers by a heat treatment in an inert or reducing atmosphere.