

GENERATION METHOD OF SEMICONDUCTOR WAFERS

ABSTRACT

Disclosed herein is generation method of semiconductor wafers, including: setting a count of laser scans, setting a scanning path for each laser scan and a point spacing between two adjacent modified points on the scanning path; determining, based on a predetermined rule for each laser scan, a laser scanning speed and a laser pulse repetition frequency required to achieve the point spacing and determining a corresponding diameter of a modified point, and determining laser pulse energy required to achieve the diameter of the modified point and an offset distance of a laser focal point relative to a predetermined peeling surface; performing n times of the laser scans on the predetermined peeling surface inside a crystal ingot on which a pulse laser focuses or below the predetermined peeling surface to form a modified point on the predetermined peeling surface and forming an overlapping region between the modified points formed by at least two laser scans to form a crack extending transversely along the predetermined peeling surface in the overlapping region; and peeling the crystal ingot along the predetermined peeling surface to obtain a wafer and a remaining ingot. The present invention not only eliminates the wafer edge burrs, but also further reduces the material loss of the modified layer, it has the advantages of simple process conditions, good morphology of the modified layer, and low difficulty of peeling of wafers, and is suitable for large-scale industrial applications.

[Figure No.1]