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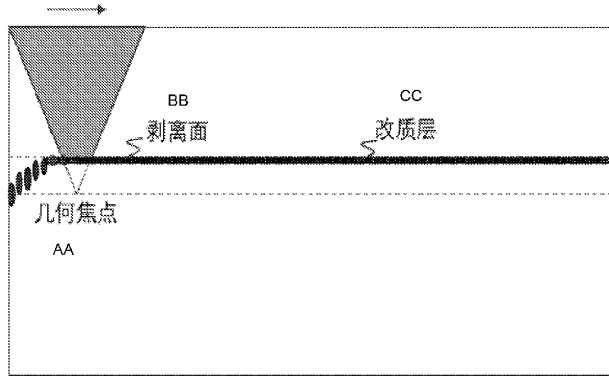
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(54) Title: METHOD FOR GENERATING SEMICONDUCTOR WAFER

(54) 发明名称: 一种半导体晶片生成方法



AA Geometric focal point
BB Stripping surface
CC Modification layer

图1

(57) Abstract: The present invention relates to a method for generating a semiconductor wafer, comprising the following steps: first, setting a number of times to perform laser scanning, then setting a scanning path and a point spacing for each instance of laser scanning; based on a preset calculation rule for each instance of laser scanning, determining a laser scanning speed and a laser pulse repetition frequency, and determining a corresponding modified spot diameter, a laser pulse energy and an offset distance of the laser focal point relative to a preset stripping surface; focusing a pulse laser on the preset stripping surface or below the preset stripping surface in a crystal ingot, and performing a number n of instances of laser scanning, so as to sequentially form a modified spot and a crack on the preset stripping surface; and stripping the crystal ingot along the preset stripping surface, to obtain a wafer and a remaining crystal ingot. The present invention can not only eliminate burrs on the edge of a wafer, but can also reduce material loss during laser stripping. The method has the advantages of simple process requirements, good modification layer morphology and low wafer stripping difficulty, and is suitable for large-scale industrial application.

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— 包括国际检索报告(条约第21条(3))。

(57) 摘要: 本发明涉及一种半导体晶片生成方法, 其包括以下步骤, 先设定激光扫描次数, 再分别设定每次激光扫描的扫描路径和点间距; 基于每次激光扫描预设的计算规则, 确定激光扫描速度和激光脉冲重复频率, 并确定对应的改质点直径、激光脉冲能量、以及激光焦点相对预设剥离面的偏移距离; 将脉冲激光聚焦于晶圆内部的预设剥离面或预设剥离面下方, 进行n次激光扫描, 以在所述预设剥离面上依次形成改质点和裂纹; 沿所述预设剥离面剥离晶圆, 得到晶片和剩余晶圆。本发明不仅能消除晶片边缘的毛刺, 还能进一步降低激光剥离的材料损耗, 具有工艺条件简单、改质层形貌好、晶片剥离难度低、适用于大规模工业化应用的优点。