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(54) Title: A PIXEL–BASED METHOD AND APPARATUS FOR DEFECT DETECTION ON PATTERNED WAFERS

(57) Abstract

A method is provided for the detection of defects on a semiconductor wafer by checking individual pixels on the wafer, collecting the signature of each pixel, defined by the way in which it responds to the light of a scanning beam, and determining whether the signature is that of a faultless pixel or of a pixel that is defective or suspect to be defective. An apparatus is also provided for the determination of such defects, which comprises a stage (11) for supporting a wafer (10), a laser source (13) generating a beam that is directed onto the wafer, collecting optics (15, 16) and photoelectric sensors (17) for collecting the laser light scattered by the wafer in a number of directions and generating corresponding analog signals, an A/D converter deriving from said signals digital components defining pixel signatures, and selection systems for identifying the signatures of suspect pixels and verifying whether the suspect pixels are indeed defective.

