

**PROCESSED SILICON WAFER, SILICON CHIP, AND METHOD AND
APPARATUS FOR PRODUCTION THEREOF**

A silicon crystal wafer or chip, and a method for processing a substantially pure or semiconductor level doped silicon crystal wafer or chip for adapting the wafer or chip for laser beam ablation of an electrically insulating surface layer carried on the wafer or chip. A layer of amorphous silicon of a thickness substantially larger than the thickness of the naturally obtained oxide layer, the amorphous silicon being a substantially pure or semiconductor level doped grade amorphous silicon, is produced on top of a substantially clean surface of the silicon crystal wafer or chip. A layer of the electrically insulating surface layer being substantially transparent to an optical wavelength of a laser beam that is extensively absorbed in the layer of amorphous silicon, is produced on the layer of amorphous silicon. The surface of the silicon crystal wafer or chip is irradiated by a pulsed laser beam of an optical energy fluence and a pulse duration adapted to melt and evaporize the layer of amorphous silicon in an area corresponding to a footprint of the laser beam, so as to ablate a corresponding area of the electrically insulating layer.

(Figure A1)