

Title (en)
LASER PROCESSING METHODS FOR PHOTOVOLTAIC SOLAR CELLS

Title (de)
LASERBEARBEITUNGSVERFAHREN FÜR FOTOVOLTAISCHE SOLARZELLEN

Title (fr)
PROCÉDÉS DE TRAITEMENT AU LASER POUR CELLULES SOLAIRES PHOTOVOLTAÏQUES

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Abstract (en)
[origin: WO2012092537A2] Various laser processing schemes are disclosed for producing various types of hetero- junction and homo-junction solar cells. The methods include base and emitter contact opening, selective doping, metal ablation, annealing to improve passivation, and selective emitter doping via laser heating of aluminum. Also, laser processing schemes are disclosed that are suitable for selective amorphous silicon ablation and selective doping for hetero- junction solar cells. Laser ablation techniques are disclosed that leave the underlying silicon substantially undamaged. These laser processing techniques may be applied to semiconductor substrates, including crystalline silicon substrates, and further including crystalline silicon substrates which are manufactured either through wire saw wafering methods or via epitaxial deposition processes, or other cleavage techniques such as ion implantation and heating, that are either planar or textured/three-dimensional. These techniques are highly suited to thin crystalline semiconductor, including thin crystalline silicon films.

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