
Ink Jet Printing for High Efficiency Silicon Solar Cells

Business Opportunity

This invention relates generally to the field of silicon solar cell fabrication and in particular it provides processing techniques making use of ink jet printing techniques to apply processing agents to the surface of a device under fabrication.

NewSouth Innovations are looking for a collaborative research partner to work with the UNSW to develop the new technology with the view to possible commercialisation through a licensing agreement or trade sale.

Novelty

In order to make solar power a viable alternative to established generating methods such as fossil fuel and nuclear power, it is necessary to bring the manufacturing cost of solar cells down. This invention reduces the cost of solar cells by further simplification or streamlining of the manufacturing process.

This invention uses a method of processing a solar cell in a manufacturing process comprises selectively placing a processing agent directly onto a surface to be processed in only those locations where processing is required, by moving a substrate carrying the semiconductor structure and a print head relative to one another and depositing the processing agent onto the structure from the print head when the print head is positioned over the locations where processing is required.

The method comprises placing the substrate on an X-Y table under a fixed print head and operating the X-Y table to progressively move all of the locations requiring processing under the print head.

The Technology

Inkjet printing is seen as a suitable method for carrying out a range of processes involved in the fabrication of solar cells. These include approaches for forming localised metal contacts through a passivating dielectric layer onto the surface of the semiconductor material; the formation of grooves in the surface of the semiconductor material to facilitate the fabrication of the buried contact solar cell; carrying out edge junction isolation around the perimeter of the semiconductor wafer; facilitating the formation of holes through a surface semiconductor layer of one polarity to facilitate the formation of ohmic contacts to an underlying layer of semiconductor material of the opposite polarity while avoiding shunting to the surface semiconductor layer of the first polarity;

Patent Position

NewSouth Innovations is working with inventors from UNSW to establish a strong patent position covering the use of Transparent Conductors technology

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