Laser welding photovoltaic inverter

How a solar cell is laser welded?

A glass plate is mounted on top of the foil to keep the aluminum foil flat during the laser welding process, and the laser beam is passed through the plate. The solar cell interconnection is achieved by the Al foil contacting the rear side which is laser welded to the Ag screen-printed front side metallization of the next cell.

How is laser welding used for metallization and interconnection of solar cells?

Laser welding is used for the metallization and interconnection of solar cells. Figure 21 (Schulte-Huxel et al. 2016) shows the interconnection of two cells using laser welding of Al foil. A glass plate is mounted on top of the foil to keep the aluminum foil flat during the laser welding process, and the laser beam is passed through the plate.

What is a photovoltaic laser power converter (pvlpc)?

Photovoltaic laser power converters (PVLPCs) are the core element of power-by-light (PBL) systems,which are basically made up of a power laser,an optical fiber,and a PVLPC. PBL allows the safe transfer of power in situations where the direct use of electrical energy to power electronic equipment is either not possible or not recommendable.

What is laser welding?

Laser welding,where LASER stands for Light Amplification by Stimulated Emission of Radiation,is a fusion welding processin which metals or thermoplastics are joined using a focused laser beam. It is an advanced soldering process,and has applications in various industries,from aerospace and medical equipment to the production of fine jewellery.

Are nanosecond lasers suitable for bifacial PERC solar cells?

Both nanosecond and ultrafast lasers have been shown to be suitable for the opening in the dielectric layer. Based on cost considerations,nanosecond lasers could be very attractive for this application. Bifacial mono-PERC solar modules with a record efficiency of 24.06% have been reported (LONGi Solar 2019). PERC solar cell.

Can laser sintering be used for solar thermal power conversion?

Laser sintering has also been used to prepare surfaces with controlled light absorption and thermal emission properties for solar thermal power conversion. Figure 15a shows the principle of solar thermal power conversion. The receiver collects sunlight and is heated to a high temperature.

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