Laser irradiation of solar power generation chip

Make individual PV cell areas small, and interconnect in series... and/or... PV efficiencies generally increase with decreasing temperature (~ Carnot)... ... Until the PV no longer absorbs the laser ...

Researchers present silicon photonic circuit that, with an integrated distributed-feedback (DFB) laser, enhances the DFB"s immunity to continuous-wave and modulated parasitic reflections ...

Here, we review one such potential advance: the use of ultrafast laser processing in silicon photovoltaic production. We provide an overview of the current major capabilities of ultrafast laser processing of ...

Laser irradiation expedites this transition by locally increasing temperatures, accelerating nucleation of the low-temperature phase. This phenomenon is ...

We demonstrate the retention of single-crystalline phase under 1.64 J/cm 2 fluence using a 532 nm wavelength laser. This retention of single-crystalline phase is important for ensuring high ...

As laser energy supply and processing technologies continue to be developed, it is important to study the damage characteristics of laser-irradiated ...

This comprehensive review of laser scribing of photovoltaic solar thin films pivots on scribe quality and analyzes the critical factors and chal-lenges affecting the efficiency and reliability of ...

Fraunhofer ILT develops industrial laser processes and the requisite mechanical components for a cost-effective solar cell manufacturing process with high process efficiencies.

Chip-scale solar thermal electrical power generation ... Wang et al. demonstrate a molecular thermal power generation system that stores solar energy and converts it to electric power on demand.

With this perspective, this work evaluates the optical-to-electrical power conversion that is created when a collimated laser beam illuminates a silicon photovoltaic solar cell that is located kilometers away ...

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