

What are the patents on photovoltaic cells?

The patents on photovoltaic cells are concentrated in the area of semiconductors for the conversion of solar radiation into electric energy, in the area of generators for the direct conversion of light energy into electric energy and in the area of solar panels adapted for roof structures.

How do we measure the potential application of PV patented technologies?

Second, we use patent families to measure the potential application of PV patented technologies across countries. Patent family size can be defined as the number of jurisdictions in which an international patent family has protected an invention.

What are the patents for solar panels?

It is noted that the patents US20040163338A1 (Low profile mounting system), US20060086382A1 (Mechanism for mounting solar modules) and US20110209745A1 (Photovoltaic framed module array mount using asymmetric rail) have great influence on this route due to their BC and were developed respectively by Unirac Inc, PVT Solar Inc and GE. Fig. 5.

Why are photovoltaic cell patent registrations important?

Photovoltaic cell patent registrations are a valuable data set in the analysis and diffusion of PV technology and R&D activities. The dynamics of PV R&D activity is considered high, documented in a large increase in PV patent documents.

What is the technological knowledge basis of photovoltaic-thermal system?

The technological knowledge basis of this route is constituted by patents on solar cells with an integrated diode and bypass method, passing through photovoltaic panels with individually articulated concentrating elements and patents on receivers for concentration of photovoltaic-thermal systems. 5.2.4.

Does PV technology have a role in patenting?

The technical review of these patents has shown the global continuous efforts for improving PV technologies and addressing their technical challenges. Taken together, the results show that the PV technological system has been deeply connected with patenting activities since its emergence in the past century.

The polishing process further increases the fabrication cost and, therefore, one future direction for metal foil based solar panel is to develop low-cost and efficient polishing process. In addition, the metal substrate is electrically conductive, and the monolithic integration of solar cell requires an insulating layer between the substrate ...

Without any involvement in the thermal process, the photovoltaic cell can transform solar energy directly into

electrical energy. Compared to conventional methods, PV modules are advantageous in terms of reliability, modularity, durability, maintenance, etc. ... 3.9 Overview of Photovoltaic System Applications. ... In a solar panel, a module is ...

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The invention relates to a process for the treatment of photovoltaic end-of-life panels, such as those made of CdTe and crystalline and amorphous silicon. The process involves automated physical and chemical operations that, combined in a sequence, allow recovering glass in the first place and also tellurium, zinc, cadmium, iron, and concentrate silicon, TiO₂ and silver.

The results indicate that 1) the number of patents deposited on photovoltaic cells grows every year, 2) the main depositor countries are the United States, China, Japan, Germany and South Korea, 3) American and Japanese organizations stand out with the highest number of patent registrations, 4) the main areas of knowledge were Engineering, Instruments ...

Finally, a stable PV power generation technique for PV generation systems is proposed which is a novel MPPC technique applied to the PV generation system integrated with a supercapacitor (superC). As a result, the uncontrollable PV power source becomes more controllable which reduces compensatory requirements.

From pv magazine Global. A new report from the International Energy Agency's Photovoltaic Power Systems Programme (IEA-PVPS) describes the growth in dedicated end-of-life solar PV recycling activity, providing an overview of equipment manufacturers and recyclers, as well as trend information about patents and research publications. It also provides some ...

As part of a patent development (Fraunhofer ISE patent EP 2811819 B1), Beck et al. observed in their simulation that directing the PV arrays towards southwest or southeast was most suitable to achieve uniform light conditions under the panels. This also resulted in a predicted reduction in electricity yield of 5% compared to conventional south-oriented arrays.

PV technology has three essential components: the PV cell, the PV module and encapsulation, and the balance system for the PV industrial value chain, while three different ...

The TR of Systems, methods and devices for solar PV solar cells is composed of 21 patents (Fig. 6) and the most influentials are: US6058930A (Solar collector and tracker arrangement), US20060283497A1 (Planar concentrating photovoltaic solar panel with individually articulating concentrator elements), US20100288332A1 (Solar photovoltaic concentrator ...

Example calculation: How many solar panels do I need for a 150m² house ?. The number of photovoltaic



Photovoltaic panel patent application process

panels you need to supply a 1,500-square-foot home with electricity depends on several factors, including average electricity consumption, geographic location, the type of panels chosen, and the orientation and tilt of the panels. However, to get a rough ...

RELATED APPLICATIONS. This is a divisional application of U.S. application Ser. No. 14/702,704 which claims priority to Provisional Patent Application No. 61/988,102 filed on May 2, 2014. **BACKGROUND OF THE INVENTION.** The present invention relates to photovoltaic arrays and methods of manufacturing photovoltaic arrays.

Solar photovoltaic (PV) deployment has grown at unprecedented rates since the early 2000s. Global installed PV capacity reached 222 gigawatts (GW) at the end of 2015 and is expected to rise ...

A charging device configured to charge a mobile device through the solar cells integrated on the mobile device. The charging device converts wall power to light energy which can be absorbed by the solar cells and then converted to electricity for storage in the rechargeable battery of the mobile device. The charging device includes a light source configured to emit a light beam ...

The process delivers a complete package, including recycling of PV panels, recovery and purification of Si, conversion to nano-Si, and subsequent integration of PV nano-Si and graphite into a single system of PV nano-Si/graphite for battery application with the following advantages compared with any reported results so far.

photovoltaic systems, including visual inspection of the system and individual components, analysis of curves and insulation resistance of photovoltaic panels, photovoltaic panels, Infrared thermal imaging, and calculate and compare the estimated actual power generation. The first three can be summarized as manual diagnoses [12-13].

Justia Patents Panel Or Array US Patent for Solar panel Patent (Patent ... This application claims benefit of priority to U.S. Provisional Patent Application 62/299,287 titled "Solar Panel" and filed Feb. 24, 2016, which is incorporated herein by reference in its entirety. ... FIGS. 3A-3C show steps in a conventional process for separating ...

Solar power and application methods. ... - Chemical energy (combustion process) from mineral resources. ... captured to generate electricity or heat through a system of panels.

As stated above, there are presently three different types of recycling process applied to solar PV panels which are physical, thermal and chemical as illustrated in Fig. 6 [4]. Download: Download high-res image (352KB) ... USA-based solar panel manufacturing company, ... U.S. Patent Appl., 12/756 (2010), p. 507. Google Scholar [52] M. Dattilo.

the application of elongated flexible concentrator reflector sheet members on such a rollable panel may be problematic; the linear symmetry of the flexible concentrator reflector sheet members in the extended state either counteracts the curved meta-stable shape of the deployed panel, or requires special measures for fixing the sheet members to the support member only at specific ...

Transparent, superhydrophilic materials are indispensable for their self-cleaning function, which has become an increasingly popular research topic, particularly in photovoltaic (PV) applications. Here, we report hydrophilic and superhydrophilic ZnO by varying the morphology for use as a self-cleaning coating for PV applications. Three different ZnO ...

A solar panel includes a solar cell and a partial reflector. ... FIG. 2) in a manufacturing or application process. the adhesive layer 620 may be formulated to include an ultraviolet absorber to minimize ultraviolet radiation from the rear side of ... the encapsulant 210 may be such as generally described in U.S. Patent Application Publication ...

Request PDF | Photovoltaic technologies: Mapping from patent analysis | The objective of this article is to identify the technological development of photovoltaic cells by the analysis of patents.

a microinverter is an inverter dedicated to one or a few PV panels, and may be defined as an inverter having a power rating suitable for connection to less than 10 or less than 5 panels (for example less than 1000 watts, often less than 600 watts) and/or as an inverter having a dc input voltage which is less than half a peak-to-peak voltage of the ac mains, more typically less than ...

Since patents give you the right to exclude others from using your IP (as opposed to simply allowing you to use the IP), a solid patent strategy for solar technology should take an international approach, i.e. you should file ...

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