Solar Photovoltaic Refrigeration Device Patent

Researchers at the Hebei University of Technology in China have designed a solar photovoltaic direct-drive refrigeration system with low energy consumption for high heat-flux electronic...

The solar PV refrigeration system coupled with a chemisorption cold energy storage module proposed in this paper efficiently harnesses solar energy for meeting ...

A solar powered vapor compression refrigeration system is made practicable with thermal storage and novel control techniques. In one embodiment, the refrigeration system includes a ...

The present disclosure provides a cooling system facilitating thermal management in a solar photovoltaic (PV) module. The cooling system includes an exhaust fan, operatively coupled to ...

Previous attempts to produce a marketable solar refrigerators and freezers have been demonstrated using solar energy systems from Silicon Photovoltaic Panels as described in patents US 4,126,014, US5,685,152, CN202333859U and US6,453,693.

The coupling of a photovoltaic system with a compression refrigeration system for a cooling device, in particular a freezer or ice cream chest, DE 296 13 801 U1, however, claims that in addition to the solar-powered compressor, a mains-powered compressor.

A tandem photovoltaic device includes a silicon photovoltaic cell having a silicon layer, a perovskite photovoltaic cell having a perovskite layer, and an intermediate layer between a rear side of the perovskite photovoltaic cell and a front (sunward) side of the silicon photovoltaic cell. The front side of the silicon layer has a textured surface, with a peak-to-valley height of ...

It uses a solar photovoltaic panel to convert solar energy to electricity to power a DC motor. The DC motor drives the compressor of a vapor-compression refrigeration system to freeze an energy-storage vessel, located in the freezer. The energy-storage vessel is filled with a mixture of glycerin, alcohol and water, with a freezing point of 10 ...

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drives the compressor of a vapor-compression refrigeration system ...

Keywords Refrigeration · Solar panel · Photovoltaic · Photovoltaic thermal · CPVT · COP Abbreviations PV Photovoltaic PVT Photovoltaic Thermal CPVT Concentrating Photovoltaic Thermal CCHP Combined Cooling, Heating and Power COP Coefficient of Performance VAR Vapor Absorption Refrigeration VCR Vapor Compression Refrigeration DC Direct Current AC ...

The average global temperature has increased by approximately 0.7 °C since the last century. If the current trend continues, the temperature may further increase by 1.4 - 4.5 °C until 2100. It is estimated that air-conditioning and refrigeration systems contribute about 15% of world electrical energy demand. The rapid depletion of non-renewable resources such as ...

The present disclosure provides a cooling system facilitating thermal management in a solar photovoltaic (PV) module. The cooling system includes an exhaust fan, operatively coupled to an outlet of a central air conditioning module, the outlet carries waste air from the central air conditioning module. A supporting structure is placed at a ...

The invention relates to a solar photovoltaic power generation and radiation refrigeration comprehensive device. A body of the comprehensive device is a flat-box-shaped heat preservation body of which the top is provided with an opening. The top opening of the body is provided with a transparent cover plate. A base plate is arranged in the body.

The combination of refrigeration systems and solar photovoltaic (PV) technology has become a viable alternative to tackle the difficulties caused by electricity limitations, especially in areas with restricted grid connectivity. This review article compiles many studies that aim to improve the efficiency, coefficient of performance (COP), and decrease the power ...

The system was described in the paper " Energy, exergy, economic and environmental assessment of solar photovoltaic direct-drive refrigeration system for electronic device cooling," which was ...

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