

# Solar inverter design patent





## Overview

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What patents do solar companies have?

They include Schott Solar, SunPower and PowerLight patents for PV mountings and shingles, a Stanford patent describing a bi-level contact PV cell, a DOE patent for multi-junction PV cells, and Abacus Controls and MRIGlobal (National Renewable Energy Laboratory) patents for PV power management and storage.

Who owns a solar cell patent?

This SETO-funded family (whose representative patent<sup>13</sup> is US #5,053,083) is assigned to Stanford University. It describes bi-level contact solar cells, and is linked to 238 PV patent families assigned to leading organizations. These include patent families owned by eight of the ten leading organizations (i.e. all except Merck and Fuji Film).

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.

What are some examples of solar patents?

These include patent families owned by eight of the ten leading organizations (i.e. all except Merck and Fuji Film). Examples include patents for solar cell encapsulation assigned to DuPont, solar cell interconnects assigned to Applied Materials, and thin-film PV cells assigned to Total SA (SunPower).

How many solar patent families are there?

This patent family is linked to 85 subsequent patent families assigned to the leading PV organizations. These include Canon patents describing solar



modules, IBM patents for solar concentrators, and Total SA patents related to solar panel installation.

What is a PV inverter used for?

To match the generated PV power with the utility grid for feeding-in purposes, the direct current (DC) output of PV panels needs to be inverted into alternating current (AC). PV inverters are used for this purpose. They are also useful in the local off-grid network to provide electrical appliances with their rating AC input levels. 2.2.3.



## Solar inverter design patent

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### Managing the outflow of a solar inverter

US11569665B2 US16/549,974  
US201916549974A US11569665B2 US 11569665  
B2 US11569665 B2 US 11569665B2 US  
201916549974 A US201916549974 A US  
201916549974A US 11569665 B2 US11569665  
B2 US 11569665B2 Y -- GENERAL TAGGING OF  
NEW TECHNOLOGICAL DEVELOPMENTS;  
GENERAL TAGGING OF CROSS ...

### ABB solar inverters for photovoltaic systems

Enabling the power of the sun , ABB solar inverters - the core of photovoltaic power systems 3 Industrial-scale production ABB's standardized processes, latest production techniques and testing facilities, as well as advanced, high-performance logistics, ensure



### **Enphase patents , Enphase**

With over 666 patents and pending patent applications filed around the world, Enphase Energy is a global leader in patent filings covering renewable energy technology. We're committed to ...

### **Design Challenges and Solutions for Solar Inverters**

Designers of solar inverters face a multidimensional challenge to ensure solar power continues to meet the growing demand for clean energy. This article explores these



challenges by comparing the latest solutions in terms of efficiency, weight, cost, and reliability, and shows that flying capacitor topologies can offer unique opportunities for system optimization.



### Solar Inverter Design

Solar Inverter Design Author: Mostafa Khazraei, Senior Staff Application Engineer and Damijan Zupancic, Application Engineer, Infineon Technologies Date 05/03/2020 PDF The race to design high-efficiency, high-power-density inverters Figure 1: Replacing a SJ



### HomePage

2 ???· The first Indian start-up to get Technology Patents in the field of: Battery Energy Storage Systems(BESS) Lift Inverters/ERD Solar Inverter BMS for Lithium Battery Lithium Inbuilt Inverters Heavy Duty UPS(3P-3P) Lithium ...

- Lifepo4
- Wide temp: -20°C to 55°C
- Easy to expand
- Floor mount&wall mount
- Intelligent BMS
- Cycle Life:≥6000
- Warranty :10 years



### How to Design Inverter for Solar Power System

Solar power is a leading force in renewable energy. But how does it work for our homes? The key lies in the inverter. This device transforms the direct current (DC) electricity from solar panels into the alternating current (AC) electricity that powers our appliances. While pre-built inverters are readily available, designing your own can be



### Solar PV Inverter Patent Portfolio , Tangible IP

Tangible IP is pleased to represent Dr. Rajiv Varma's pioneering work highlighting technologies relevant to Solar Photovoltaic (PV) Inverters. The portfolio consists of 4 patent ...



- Efficient Higher Revenue**
  - Max Efficiency 97.5%
  - Max PV Input Voltage 600V
  - 100% Peak Output Power
  - 240V Modules, 150% DC Input Overvoltage
  - Max PV Input Current 55A, Compatible with High Power Modules
- Intelligent Simple O&M**
  - IP65 Protection Degree: support outdoor installation
  - Smart ITC Curve Diagnostic Function: locate PV string faults accurately and automatically detect faults
  - DC & AC Type II SPD: prevent lightning damage
  - Battery Reverse Connection Protection
- Flexible Abundant Configuration**
  - Flg & Flg, EPF Switching Under 10ms
  - Compatible with Lead-acid and Lithium Batteries
  - Max. 6 Units Inverters Parallel
  - MFC Function (Optional): when an arc fault is detected the inverter immediately stops operation



### Solar Based Inverter Design: A Brief Review

The PV inverters are categorized into various sorts depending on the topology, the method of connection with the electrical grid, and operation standard. There are several forms of connection to

### China Solar Panel Manufacturers, Solar Inverter Suppliers, ...

Shenzhen Gigacity solar energie germany Technologie Co.,Ltd Was established in 2020, is a high-tech enterprise integrating R& D, design, production and sales of energy storage lithium battery packs. The main product is lithium battery, lithium iron phosphate



LPR Series 19 Rack Mounted



### US Patent Application for INTERLEAVED PARALLEL ...

Utility scale solar inverters, in particular, convert variable DC output of a photovoltaic (PV) solar panel into a utility frequency AC to provide power to either a ...



### Single chip grid connected solar micro inverter

The present invention provides an improved grid connected solar micro-inverter. The solar micro-inverter is provided with a single processor that performs both the functions for the control of the micro-inverter and runs the application program associated with it and



### Solar inverter supply, hybrid inverter manufacturer

Tanfon Solar focuses on inverter products development, solar energy system design, production, sale service, after-sale site service. We supply site survey, design, production, installation, maintenance of one-stop service. Tanfon Solar ...

### CN102874570A

A kind of solar inverter manufacturing line, it comprises: feet 1, frame 2, lane of traffic, Traverse Displacement Unit 3, conveying mechanism 4, transportation platen, Shelf for placing articles 6, pasting board 9 and illumination equipment 10; The whole body of bottom support that described feet 1 is contained in frame 2; Described frame 2 is divided into three the tunnel, and both sides ...



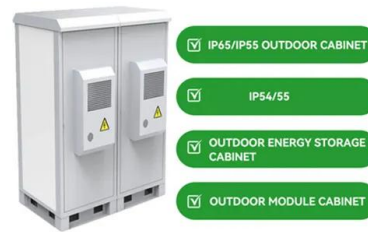
### US20100118488A1

A solar power inverter receives DC current from a solar panel and transforms the DC current into AC current. Inverter design US7593223B2 (en) \* 2005-08-09 2009-09-22 Sony Corporation Information-processing apparatus and cooling system (en 2006-02-15



## US8184460B2

Solar inverter and control method  
AU2010202078A AU2010202078B2 (en)  
2009-05-28 2010-05-21 Solar inverter and  
control method CN201010196647.8A  
CN101902145B (en) 2009-05-28 2010-05-28  
Solar inverter and control



## [SOLAR MICRO INVERTERS AND PRODUCT DESIGN](#)

**SOLAR MICRO INVERTERS AND PRODUCT DESIGN**  
Solar Micro inverter Overview This article focuses on a very interesting part of today's power electronics world- the solar micro inverter. It's not a new concept, the beginnings go back all the way to the 80's

## Power Topology Considerations for Solar String Inverters and ...

1 Introduction Solar string inverters are used to convert the DC power output from a string of solar panels to a usable AC power. String inverters are commonly used in residential and commercial installations. Recent improvements in semiconductor technology is



## A Review on Small Power Rating PV Inverter Topologies and ...

The two most critical deciding factors for power consumption are energy efficiency and cost. Power electronic circuits are widely used and play an important role in achieving high efficiency in power distribution to customers and power transfer from source to load. Furthermore, solar energy is abundant, sustainable, and pollution-free in nature. Power ...



## Patents Assigned to Schneider Electric Solar Inverters USA, Inc.

Abstract: According to one aspect, embodiments herein provide a renewable energy-based power converter comprising an input, a high-side DC bus, a low-side DC bus, a first output, an inverter portion configured to convert DC power from the high-side DC bus and the low-side DC bus into output AC power, an interface converter coupled to the high-side DC bus and ...



## WO/2024/022612 SYSTEM, METHOD AND ARRANGEMENT ...

1. WO2024022612 - SYSTEM, METHOD AND ARRANGEMENT FOR ENERGY STORAGE AND SUPPLY. Power station comprising inverter (1) and battery modules (2) utilized to support self- ...

## Solar-Power EV Charging System

Solar Inverter: The DC electricity generated by the solar panels needs to be converted into alternating current (AC) electricity. They are more complex to design, install, and maintain compared to fixed solar panels. They also incur higher upfront costs due to



## Solar inverter solutions for building applications

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### Top 10 Solar Inverter Manufacturers In The World

The solar inverter market is snowballing as more and more people turn to solar energy to power their homes and businesses. According to a report by MarketsandMarkets, the global solar inverter market is expected to reach \$33.8 billion by 2027 from an estimated \$16.3 in 2020, growing at a CAGR of 15.7% during the forecast period.



### Mike Rheinschmidt's Solar System with Four POW-SunSmart ...

9 ????. Mike Rheinschmidt from the USA has installed a solar system using four POW-SunSmart SP5K. His setup includes 24 240W solar panels and 12 255W panels on his shop roof. Discover how to build an expandable solar system with parallel inverters, exploring the

### The Influence of Solar Photovoltaics Patents Funded by the U.S

Patent Office (EPO patents); and the World Intellectual Property Organization (WIPO patents). The primary period covered in this analysis is 1976 to 2018. The main purpose of the backward ...



### Design and Construction of 5KVA Solar Power Inverter System

S This paper presents the design and construction of 5kva solar power inverter system. The solar panels were installed free from trees/building shade and aligned to receive maximum sun rays at 45 0



### Smart Hybrid Inverter Design Using Simulink and Solar Assistant

In this research paper, we introduce the design of a smart hybrid solar inverter. Key system components, such as AC/DC, DC/DC, and DC/AC converters, are described and presented. The innovation of the proposed system lies in its ability to accept a wide PV range of up to 15 kW and handle various load scenarios.



### [SP100 Series Solar Pump Inverter](#)

Core value Description Social - - environmentally friendly, green and low-carbon! using green solar energy as energy to drive the operation of water pumps. No fossil energy consumption Saving - - Installation and debugging, saving money and effort! IP66 high protection design, can be directly installed outdoors without the need for installing electrical cabinets



### Design And Construction Of A 10KVA Solar Inverter

This project involves the design and construction of a 10000Watt hybrid Solar PV (photovoltaic) system which involves a solar panel, car battery and an inverter. Furthermore, as a consumer is generating his or her own electricity they also will benefit from a reduction in their electricity bills.



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