

## SolarTech Power Solutions

# Heterojunction photovoltaic modules and BC cells

Modular design,  
unlimited combinations in parallel  
**BUILT-IN DUAL FIRE PROTECTION MODULE**



## Overview

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What is a heterojunction back contact (BC) solar cell?

Chinese solar module manufacturer Longi has developed a heterojunction back contact (BC) solar cell using a laser-enhanced contact optimization process that reportedly has a total effective processing time of about one-third compared to that of mainstream technologies such as PERC and TOPCon.

What are crystalline-silicon heterojunction back contact solar cells?

Provided by the Springer Nature SharedIt content-sharing initiative Crystalline-silicon heterojunction back contact solar cells represent the forefront of photovoltaic technology, but encounter significant challenges in managing charge carrier recombination and transport to achieve high efficiency.

What causes recombination losses in heterojunction back contact solar cells?

In this study, we produced highly efficient heterojunction back contact solar cells with a certified efficiency of 27.09% using a laser patterning technique. Our findings indicate that recombination losses primarily arise from the hole-selective contact region and polarity boundaries.

Can heterojunction back contact technology be used in a commercialized module?

This is the first time that heterojunction back contact technology has been successfully implemented in a commercialized module. 27.3% cell efficiency and module efficiency up to 25%.

How efficient are silicon heterojunction solar cells?

Lin, H. et al. Silicon heterojunction solar cells with up to 26.81% efficiency achieved by electrically optimized nanocrystalline-silicon hole contact layers. Nat. Energy 8, 789–799 (2023). Lin, H. et al. Unveiling the mechanism of attaining high fill factor in silicon solar cells.

What is front and back contact solar cell structure (FBC)?

Front and back contact (FBC) solar cell structure has dominated the mainstream PV market and demonstrated high power conversion efficiency (PCE) through the incorporation of passivating contact technologies such as silicon heterojunction (SHJ) and tunnel oxide passivating contact (TOPCon) 5, 6, 7, 8, 9.

## Heterojunction photovoltaic modules and BC cells

114KWh ESS



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### Heterojunction (HJT) Solar Panels: How They ...

Mar 23, 2022 · What is a heterojunction solar panel? Heterojunction solar panels are assembled similarly to standard homojunction modules, but the singularity ...

### All About HJT - The Secret of Heterojunction ...

Jan 3, 2025 · Over the past three decades, it has consistently achieved record-breaking photovoltaic efficiencies. With a maximum cell efficiency of 29.20%, ...



### Cell & Module Technology Trends 2025

May 7, 2025 · While TOPCon has emerged as the standard, its contemporaries - heterojunction (HJT) and the more advanced back contact (BC) structure-are also in high-volume production, ...

## Accurately quantifying the recombination pathways unique ...

Jan 15, 2025 · With the rapid advances in photovoltaic (PV) technology, back contact (BC) solar cell is re-arousing the attention of researchers and PV companies due to its higher upper limit

...

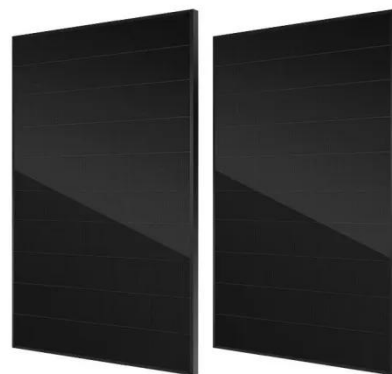


## LONGi Publishes Third Nature Paper of the Year

Oct 17, 2024 · In the recent paper titled "Silicon heterojunction back contact solar cells by laser patterning", LONGi Green Energy Technology Co., Ltd. (referred ...

## LONGi Unveils Revolutionary HIBC Cell Technology and 700W Solar Module

Jun 17, 2025 · Additionally, these modules boast a production efficiency nearing 26%, heralding what LONGi refers to as the "25%+ Era" of photovoltaic module efficiency. HIBC technology ...





## Accurately quantifying the recombination pathways unique ...

Jan 15, 2025 · Hence, we perform simulations using a simplified recombination model to re-specify the perimeter recombination in heterojunction back contact (HBC) solar cells on the ...

## Introduction to BC Solar Panels

Jun 13, 2024 · BC solar panels, or Back-Contact solar cells, represent a significant advancement in photovoltaic technology. By relocating the metal grid lines from the front to the back of the ...



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## Heterojunction (HJT) solar cells: What they are ...

Jun 20, 2024 · Heterojunction solar cells, abbreviated as HIT (Heterojunction with Intrinsic Thin-layer), represent a significant advancement in solar technology. ...

## Energy yield analysis of different bifacial PV (photovoltaic

May 15, 2022 · The tunnel oxide passivated contacts (TOPCon) cell, and the Si heterojunction solar cell (HJT) based on Si cells with high-efficiency potential have recently been transferred ...



## HJT vs. BC: Huasun Heterojunction Modules Generate Up to ...

Feb 26, 2025 · Under high-temperature and high-humidity conditions, HJT (Heterojunction) PV modules outperformed BC (Back Contact) modules in power generation per watt, with an ...

## A comprehensive physical model for the sensitivity of ...

Dec 19, 2023 · A comprehensive physical model for the sensitivity of silicon heterojunction photovoltaic modules to water ingress Gnocchi et al. study one of the most promising ...



## Progress in crystalline

## silicon heterojunction ...

Dec 12, 2024 · At present, the global photovoltaic (PV) market is dominated by crystalline silicon (c-Si) solar cell technology, and silicon heterojunction solar ...



## Three different high efficiency BC solar cell: ...

Dec 10, 2024 · High efficiency potential: HBC solar cells are considered a strong candidate for high-efficiency solar cells due to their excellent heterojunction ...



## TOPCon, HJT, and BC Cells: A New Era of Photovoltaic ...

Nov 4, 2024 · The current focus has shifted to a competition among N-type TOPCon, heterojunction (HJT), and back-contact (BC) cell technologies. Essentially, this contest over ...



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