

Global HIT (HJT) Solar Cell Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global HIT (HJT) Solar Cell market size was valued at US\$ 5969 million in 2025 and is forecast to a readjusted size of US\$ 154590 million by 2032 with a CAGR of 59.9% during review period.

Heterojunction solar cells (HJT), variously known as Silicon heterojunctions (SHJ) or Heterojunction with Intrinsic Thin Layer (HIT), are a family of photovoltaic cell technologies based on a heterojunction formed between semiconductors with dissimilar band gaps. They are a hybrid technology, combining aspects of conventional crystalline solar cells with thin-film solar cells. As of 2023, Silicon heterojunction architecture has the highest cell efficiency for commercial-sized silicon solar cells. In 2022-2024, SHJ cells are expected to overtake Aluminium Back surface field (Al-BSF) solar cells in market share to become the second-most adopted commercial solar cell technology after PERC/TOPCon (Passivated Emitter Rear Cell/Tunnel Oxide Passivated Contact), increasing to nearly 30% by 2030. HJT cells generally consist of an active crystalline silicon absorber substrate passivated by a thin layer of hydrogenated intrinsic amorphous silicon (denoted as a-Si:H) or nanocrystalline silicon (the 'buffer layer') and appropriately doped amorphous selective contacts. The selective contact material and the absorber have different band gaps, forming the heterojunction that is analogous to the p-n junction of traditional solar cells. The high efficiency of heterojunction solar cells is owed mostly to the excellent passivation qualities of the buffer layers, particularly with respect to separating the highly recombination-active metallic contacts from the absorber. Although intrinsic buffer layers are effectively non-conductive, charge carriers can diffuse through as the thickness is typically less than 10 nm. It is advantageous for the passivating layer to have a higher band gap in order to minimise parasitic absorption of photons, as absorption coefficient is partially dependent on band gap. Heterojunction cells are commercially mass-produced and are commonly bifacial. As the thin layers are

usually temperature sensitive, heterojunction cells are constrained to a low-temperature manufacturing process. This presents challenges for electrode metallisation, as the typical silver paste screen printing method requires firing at up to 800 °C; well above the upper tolerance for most buffer layer materials. As a result, the electrodes are composed of a low-temperature silver paste or electroplated copper. Heterojunction is one of the two advanced cell architectures the solar industry has been banking upon to improve the performance of today's PV device. The current cell technology incumbent, PERC has hit its efficiency threshold, and even the large wafer trick that allowed it to generate more power is not exclusive to PERC anymore. Consequently, cell/module manufacturers have once again started focusing on high efficiency, and this is where HJT makes its presence felt. HJT, now on the radar of many PV manufacturers, has made significant progress in recent times. As a technology, HJT is a variant of passivated contacts, so is TOPCon. Both the technologies address the primary shortcoming of most of the cell technologies, i.e., recombination due to metallic contacts. This is achieved by electronically separating contacts from the absorber by inserting a wider band-gap layer. Where HJT differs from TOPCon, which is single sided, is that the said layer is inserted on both sides and the process itself is accomplished at a low temperature. HJT comes with a few more advantages such as a short production process with fewer steps, high bifaciality, better low-light performance and low degradation. Besides, HJT is anything but new, as the technology has been in production for over two decades. The heterojunction segment has just seen something groundbreaking: LONGi has broken the efficiency world record Kaneka had held for 5 long years, and has created history in the process. At 26.81%, the efficiency figure achieved in Nov. 2022 is the highest reported so far for a crystalline silicon solar cell with an HJT-only cell structure. Notwithstanding HJT's potential that has become evident here, its relevance is insignificant from a commercialization standpoint. Within module making, more than the process, it is the materials that are the subject of innovation. Leading encapsulation material suppliers have introduced light conversion films that can convert UV light into red or blue band, which enhances the absorption with HJT in particular and results in a power gain. The industrial cell efficiencies in China have surpassed 25% in general, while the specifics vary from one case to the other. An increasing number of module products based on HJT are entering the commercial space. Today's market offers HJT modules for all applications, including 700 W products for the utility scale.

Global key players of HIT (HJT) Solar Cell include Huasun, Risen Energy, REC, TW Solar, Meyer Burger, etc. The top five players hold a share about 63%. North America is the largest market, and has a share about 52%, followed by Europe and Asia-Pacific with share 24% and 22%, separately. In terms of product type, Silver-based is the

largest segment, accounting for a share of 96%. In terms of application, Residential is the largest field with a share about 79 percent.

The HIT (HJT) Solar Cell market report provides a detailed analysis of global market size, regional and country-level market size, segmentation market growth, market share, competitive Landscape, sales analysis, impact of domestic and global market players, value chain optimization, trade regulations, recent developments, opportunities analysis, strategic market growth analysis, product launches, area marketplace expanding, and technological innovations.

Market segmentation

HIT (HJT) Solar Cell market is split by Type and by Application. For the period 2026-2032, the growth among segments provide accurate calculations and forecasts for revenue by Type and by Application. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type,

Silver-based

Copper-based

Market segment by Application

Residential

Commercial and Industrial

Utility

Market segment by players, this report covers

Huasun

Risen Energy

Leascend

Golden Solar

Akcome

GS-Solar

Meyer Burger

TW Solar

REC

Jinneng

EcoSolifer

Hevel

Canadian Solar

Enel

Heliene

Panasonic

Market segment by regions, regional analysis covers

North America

Europe

Asia-Pacific (China, Japan, South Korea, Rest of Asia)

South America

Middle East & Africa

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