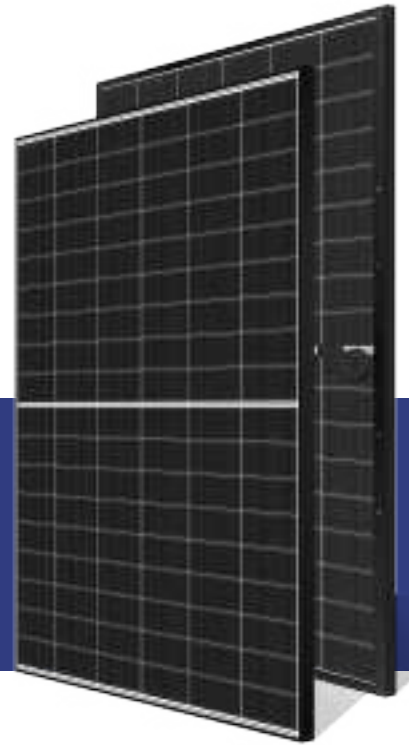


# HD HYUNDAI SOLAR MODULE

**OF**  
SERIES

**HeteroMax™**  
**Premium N-Type HJT module**

HiT-H430~4500F-BF



High-End  
Heterojunction  
Technology



For Both  
Residential  
& Commercial  
Applications



More Power  
Generation  
In Low Light

**KOREA**

Designed in  
Korea



Product &  
Performance  
Warranty



**High Efficiency with  
HJT Technology**

HJT (Heterojunction Technology) cells with excellent light absorption and passivation effects can increase module efficiency compared to TOPCon and PERC modules.



**Enhanced Power  
Generation with low  
Temp. Coefficient**

Low temperature coefficient ( $-0.26\%/^{\circ}\text{C}$ ) enables modules to generate more electricity than PERC & TOPCon modules in high temperature environments which allows the perfect suitability for rooftop installation with large temperature fluctuations.



**Long-Term Reliability**

HeteroMax™ is a durable and high-yield product with an N-type wafer that eliminates LID. It uses a TCO film and features a double-glass design to prevent internal material corrosion.



**Higher Bifaciality**

HJT's natural bifacial symmetrical structure brings higher bifaciality up to 90% and generates approximately 2%-4% higher power than bifacial PERC Cells.



**Certified Test Labs**

HD Hyundai's R&D center is an accredited test laboratory of UL, international certification institutions, and guarantees the best quality in the world through rigorous product testing.



**Reliable Warranty**

HD Hyundai Energy Solutions, Global brand with powerful financial strength, offers a 30-year warranty and comprehensive customer after-sales service.

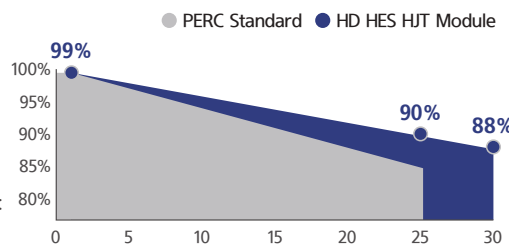
## HD Hyundai's Warranty Provisions



- 30-Year Product Warranty
- Materials and workmanship



- 30-Year Performance Warranty
- First year degradation: 1%
- Linear warranty after second year: with 0.375%p annual degradation, 88% is guaranteed up to 30 years



\*Refer to HD HES standard warranty for details.

## Certification



## About HD Hyundai Energy Solutions

Established in 1972, HD Hyundai Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, HD Hyundai is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HD Hyundai, HD Hyundai Energy Solutions has strong pride in providing high-quality PV products to more than 3,000 customers worldwide.

## Electrical Characteristics (STC\*)

		HiT-HxxxOF-BF				
		430	435	440	445	450
Nominal Output (P <sub>mpp</sub> )	W	430	435	440	445	450
Open Circuit Voltage (V <sub>oc</sub> )	V	40.30	40.56	40.83	41.09	41.34
Short Circuit Current (I <sub>sc</sub> )	A	13.30	13.35	13.40	13.45	13.50
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	33.49	33.75	34.01	34.26	34.51
Current at P <sub>max</sub> (I <sub>mpp</sub> )	A	12.84	12.89	12.94	12.99	13.04
Module Efficiency	%	22.02	22.28	22.53	22.79	23.04
Maximum System Voltage	V	DC 1,500V (IEC)				
Temperature Coefficient of P <sub>max</sub>	%/°C	-0.26				
Temperature Coefficient of V <sub>oc</sub>	%/°C	-0.24				
Temperature Coefficient of I <sub>sc</sub>	%/°C	0.04				
Bifaciality	-	85% ± 5%				

\*STC : Irradiance 1,000 W/m<sup>2</sup>, cell temperature 25°C, AM=1.5 / Measurement tolerances P<sub>mpp</sub> ±3%; V<sub>oc</sub> ±3%; I<sub>sc</sub> ±5%  
\*Tolerance of P<sub>max</sub>: 0~+5W

## BSTC\*\*

		430	435	440	445	450
Nominal Output (P <sub>mpp</sub> )	W	475	480	485	490	495
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	33.49	33.75	34.01	34.26	34.51
Current at P <sub>max</sub> (I <sub>mpp</sub> )	A	14.18	14.23	14.27	14.31	14.35
Open Circuit Voltage (V <sub>oc</sub> )	V	40.30	40.56	40.83	41.09	41.34
Short Circuit Current (I <sub>sc</sub> )	A	14.69	14.73	14.77	14.81	14.85

\*\*BSTC : Front side Irradiance 1,000 W/m<sup>2</sup>, back side reflection irradiation 135 W/m<sup>2</sup>, AM=1.5, Ambient temperature 25°C.

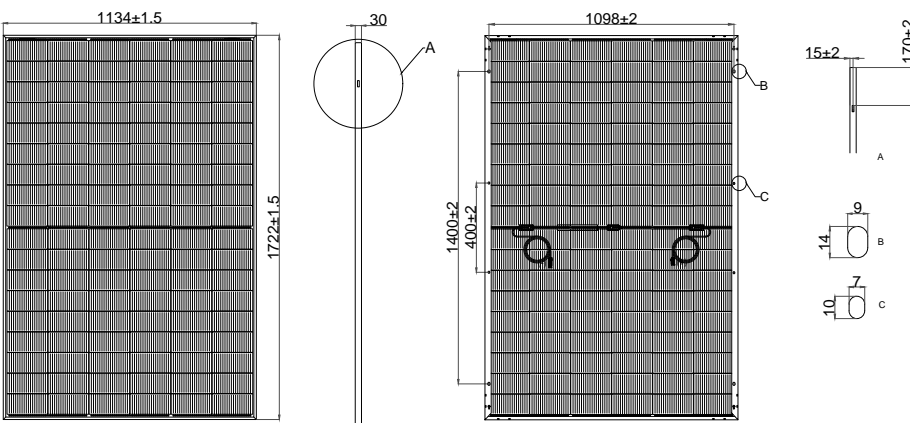
## Mechanical Characteristics

Dimensions	1,722 mm (L) x 1,134 mm (W) x 30 mm (H)
Weight	22 kg
Solar Cells	N-Type HJT, 182mm x 91.75mm, 108 cells
Output Cables	Cable : (+)1,200 mm, (-)1,200mm / 4mm <sup>2</sup> / UV resistant Connector : Stäubli MC4-Evo2
Junction Box	IP68
Construction	Front Glass : anti-reflective solar glass, 1.6mm Rear Glass : solar glass, 1.6mm
Frame	Anodized aluminum alloy (Black)

## Shipping Configurations

Container Size	40	Modules Per Pallet (pcs)	36
Pallets Per Container	26	Modules Per Container (pcs)	936

## Module Diagram (unit : mm)

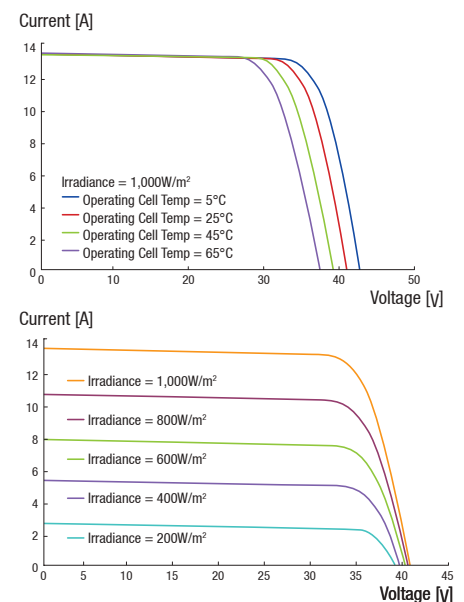


## Installation Safety Guide

- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Operating Cell Temp. (NOCT)	44°C ± 2°C
Operating Temperature	-40°C ~ +85°C
Maximum System Voltage	DC 1,500V (IEC)
Maximum Reverse Current	25A
Maximum Test Load	Front 5,400 Pa Rear 2,400 Pa
Fire Rating Class	C

## I-V Curves (HiT-H440OF-BF)



Manufactured in China



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