

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.

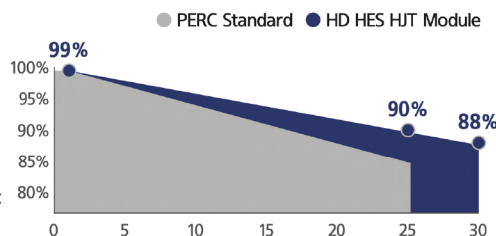
HD Hyundai's Warranty Provisions



- 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-Hxxx0F-BF				
		430	435	440	445	450
Nominal Output (P _{mpp})	W	430	435	440	445	450
Open Circuit Voltage (V _{oc})	V	40.30	40.56	40.83	41.09	41.34
Short Circuit Current (I _{sc})	A	13.30	13.35	13.40	13.45	13.50
Voltage at P _{max} (V _{mpp})	V	33.49	33.75	34.01	34.26	34.51
Current at P _{max} (I _{mp})	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 _{max}	%/°C	-0.26				
Temperature Coefficient of V _{oc}	%/°C	-0.24				
Temperature Coefficient of I _{sc}	%/°C	0.04				
Bifaciality	-	85% ± 5%				

*STC : Irradiance 1,000 W/m², cell temperature 25°C, AM=1.5 / Measurement tolerances P_{mpp} ±3%; V_{oc} ±3%; I_{sc} ±5%
*Tolerance of P_{max}: 0~+5W

BSTC**

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

**BSTC : Front side Irradiance 1,000 W/m², back side reflection irradiation 135 W/m², 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 ² / 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)

Installation Safety Guide

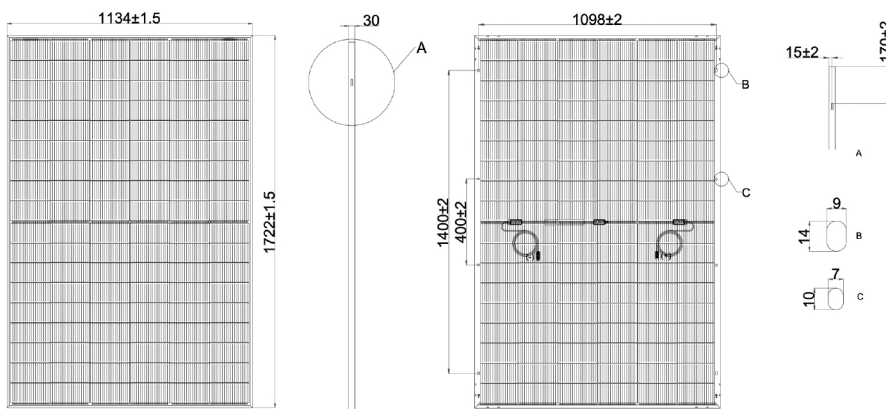
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

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

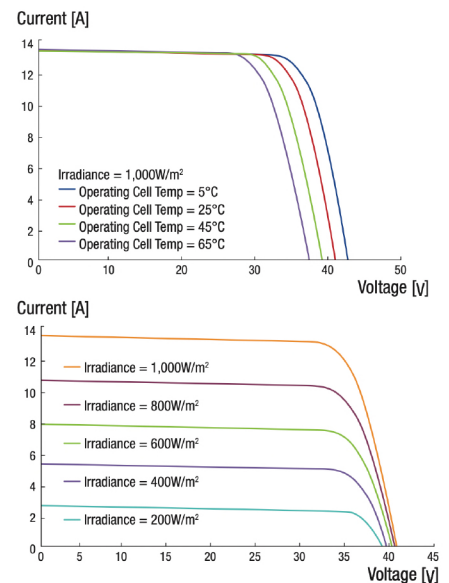
Shipping Configurations

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

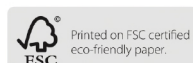
Module Diagram (unit : mm)



I-V Curves (HiT-H440F-BF)



Manufactured in China



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