## HD HYUNDAI SOLAR MODULE



## HeteroMax<sup>™</sup> Premium N-Type HJT module

HiT-H430~4500F-BF







For Both Residential & Commercial Applications



More Power Generation In Low Light



Designed in Korea



Product & Performance Warranty



#### High Efficiency with HJT Technology

HJT (Heterojunction Technolgy) 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%/°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.



# No LID / PID & Long-Term Reliability

HeteroMax<sup>™</sup> is a durable and high-yield product with an N-type wafer that eliminates LID. It uses a TCO film to prevent PID, 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

99%
100%
95%
90%
85%
80%
0 5 10 15 20 25 30
\*Refer to HD HES standard warranty for details.

#### **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.

#### Certification













#### **Electrical Characteristics** HiT-Hxxx0F-BF (STC\*) Nominal Output (Pmpp) 430 435 440 445 450 **Open Circuit Voltage (Voc)** 40.30 40.56 40.83 41.09 41.34 Short Circuit Current (Isc) 13.35 13.40 13.45 13.50 13.30 Voltage at Pmax (Vmpp) 33.49 33.75 34.01 34.26 34.51 **Current at Pmax** (Impp) 12.94 12.84 12.89 12.99 13.04 **Module Efficiency** 22.53 22.02 22.28 22.79 23.04 **Maximum System Voltage** DC 1,500V (IEC) **Temperature Coefficient of Pmax** -0.26 **Temperature Coefficient of Voc** -0.24 Temperature Coefficient of Isc 0.04 **Bificiality** $85\% \pm 5\%$

\*STC : Irradiance 1,000 W/m², cell temperature 25°C, AM=1.5 / Measurement tolerances Pmpp ±3%; Voc ±3%; Isc ±5%

BSTC**		430	435	440	445	450
Nominal Output (Pmpp)	W	475	480	485	490	495
Voltage at Pmax (Vmpp)	٧	33.49	33.75	34.01	34.26	34.51
Current at Pmax (Impp)	Α	14.18	14.23	14.27	14.31	14.35
Open Circuit Voltage (Voc)	٧	40.30	40.56	40.83	41.09	41.34
Short Circuit Current (Isc)	Α	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.

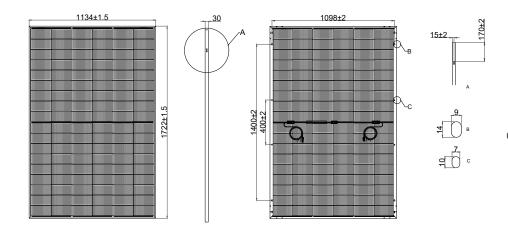
#### **Mechanical Characteristics**

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 <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

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

