

# HD HYUNDAI SOLAR MODULE

**MF**  
SERIES

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

HiT-H430~450MF-FB



High-End Heterojunction Technology

Full Black Design for Home roof

More Power Generation In Low Light

**KOREA**

Designed in Korea

**30**  
YEAR

Product & Performance Warranty

## 23% 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™ feature a double-glass design that shows the best moisture resistance. It enhances waterproof performance and ensures durability and reliability in diverse environments.

## No LID/PID

HJT cells based on n-type silicon wafer result in no LID (light induced degradation) and the use of TCO film enables no PID (potential induced degradation) guaranteeing more energy and profitability.

## 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.

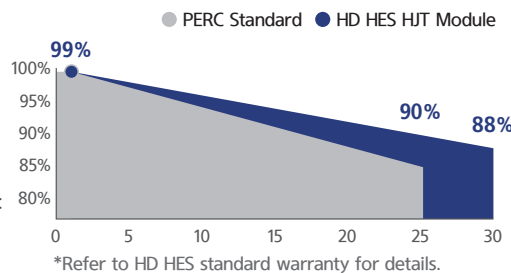
### HD Hyundai's Warranty Provisions

**30**  
YEARS

- 30-Year Product Warranty
- Materials and workmanship

**30**  
YEARS

- 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



### 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 (STC\*)

		HiT-HxxxMF-FB				
		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	41.37	41.64	41.91	42.18	42.44
Short Circuit Current (I <sub>sc</sub> )	A	12.95	13.00	13.05	13.10	13.15
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	34.60	34.86	35.12	35.38	35.63
Current at P <sub>max</sub> (I <sub>mp</sub> )	A	12.43	12.48	12.53	12.58	12.63
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				

\*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%

## NOCT\*\*

		430	435	440	445	450
Nominal Output (P <sub>mpp</sub> )	W	327	331	335	338	342
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	V	32.64	32.91	33.17	33.34	33.60
Current at P <sub>max</sub> (I <sub>mp</sub> )	A	10.02	10.06	10.10	10.14	10.18
Open Circuit Voltage (V <sub>oc</sub> )	V	39.48	39.74	40.00	40.26	40.50
Short Circuit Current (I <sub>sc</sub> )	A	10.44	10.48	10.52	10.56	10.60

\*\*NOCT : Irradiance 800 W/m<sup>2</sup>, Ambient temperature 20°C, Wind Speed 1 m/s.

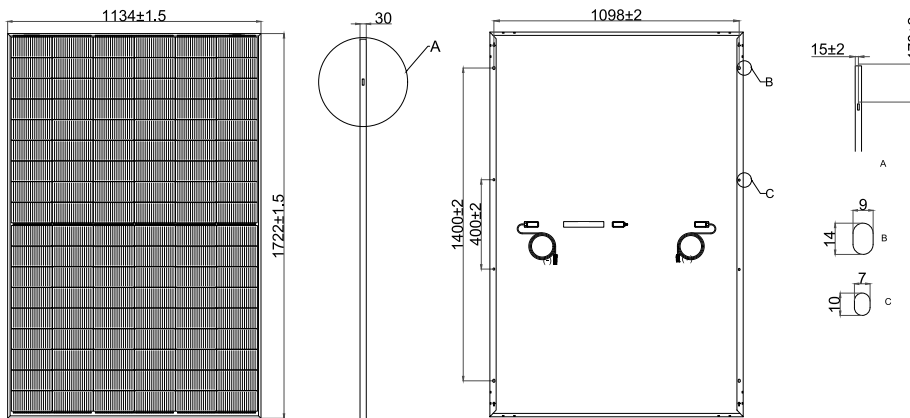
## Mechanical Characteristics

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

## 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-H430MF-FB)

