

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



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™ 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

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

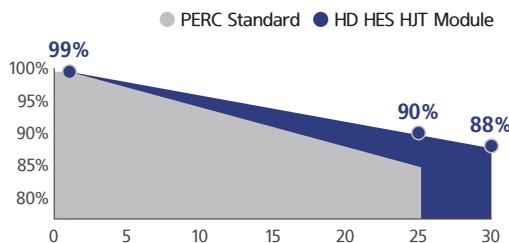
HD Hyundai's Warranty Provisions



- 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.

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 _{mpp}) | W | 430 | 435 | 440 | 445 | 450 |
| Open Circuit Voltage (V _{oc}) | V | 41.37 | 41.64 | 41.91 | 42.18 | 42.44 |
| Short Circuit Current (I _{sc}) | A | 12.95 | 13.00 | 13.05 | 13.10 | 13.15 |
| Voltage at P _{max} (V _{mpp}) | V | 34.60 | 34.86 | 35.12 | 35.38 | 35.63 |
| Current at P _{max} (I _{mpp}) | 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 _{max} | %/°C | -0.26 | | | | |
| Temperature Coefficient of V _{oc} | %/°C | -0.24 | | | | |
| Temperature Coefficient of I _{sc} | %/°C | 0.04 | | | | |

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

NOCT**

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

**NOCT : Irradiance 800 W/m², 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 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 |

Shipping Configurations

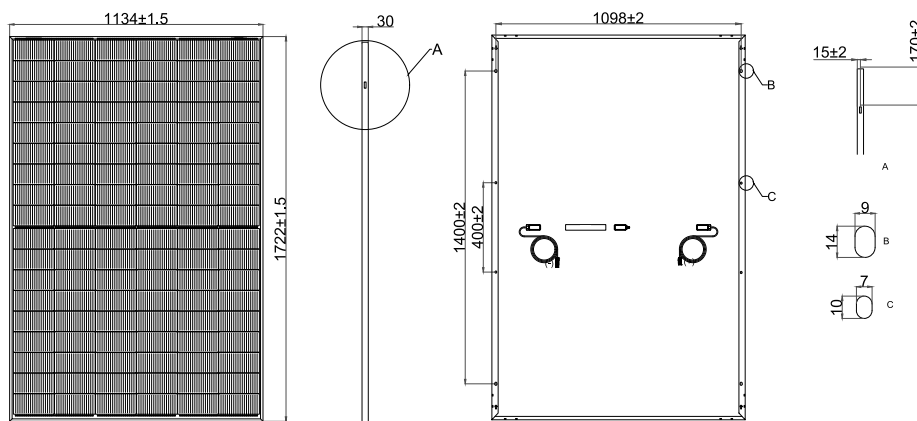
| | | | |
|-----------------------|----|-----------------------------|-----|
| Container Size | 40 | Modules Per Pallet (pcs) | 36 |
| Pallets Per Container | 26 | Modules Per Container (pcs) | 936 |

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 |

Module Diagram (unit : mm)



I-V Curves (HiT-H430MF-FB)

