

Mono

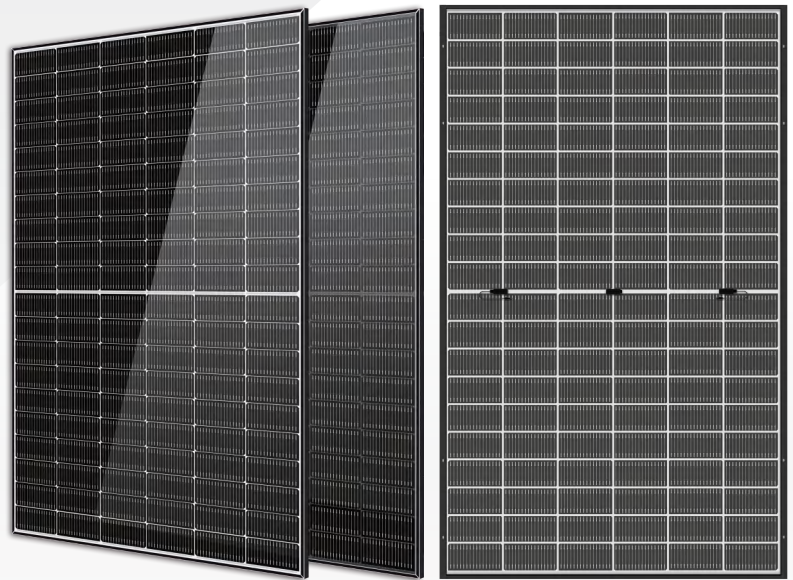
Bifacial

HORAY

Solar Ocean

470–490 Watt TOPCon MONO-BIFACIAL MODULE

- IEC61215: 2021
- IEC61730: 2016
- TUV Rheinland Standard
- Lloyd'S Ariel Re
- Solar Performance Insurance
- ISO9001: 2015
- Quality Management System
- ISO14001:
- Environmental Management System
- CE: Europe Standard
- Inmetro Certificate
- Japan JP-AC



KEY FEATURES



MBB Cell

More uniform current collection capability, reducing the current heat loss of the internal cells.



Low Light Features

Higher performance under low light environment.



Higher Output Power

The output power of 120 half-cells Monocrystalline modules is up to 490W.



LID Free

N-type solar cell has no LID naturally which can increase power generation.



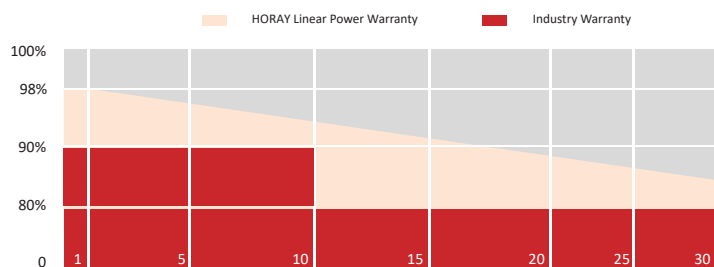
Harsh Environmental Adaptability

Strict salt spray and ammonia corrosion test by the third party.



Load Capacity

Mechanical load tests including wind load 2400 Pa and snow load 5400 Pa.



HEADQUARTER: HORAY SOLAR CO., LTD.

GLOBAL MARKETING AND SERVICE: HORAY SOLAR GMBH

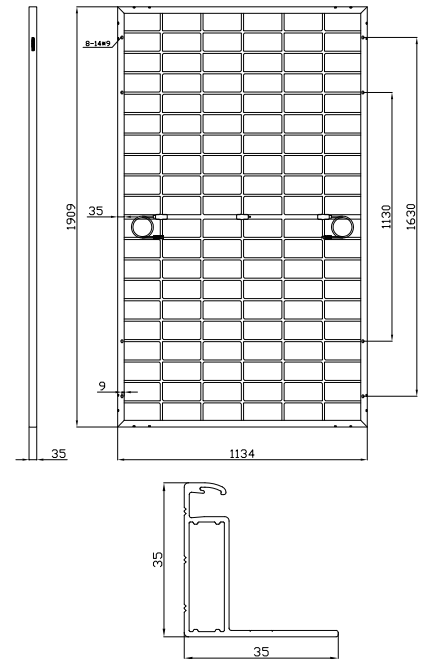
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SPECIFICATIONS

Weight	28.0kg
Dimension	1909mm*1134mm*35mm
Cell Dimension	182*91mm
Cell Amount	60*2 pcs
Maximum System Voltage	1500V
Junction Box	IP68
Type of the front glass	2.0mm Coated ultra clear glass
Type of the back glass	2.0mm Heat-strengthened glass
Frame	Aluminum Alloy
Cable	4mm ² ,+300,-300mm/±1100mm Length can be customized
Connector	MC4 compatible
Application Level	Class A

MECHANICAL DIAGRAMS



ELECTRICAL PARAMETERS AT STC

Module Type	HS470TC-MHO-D	HS475TC-MHO-D	HS480TC-MHO-D	HS485TC-MHO-D	HS490TC-MHO-D
Power	470W	475W	480W	485W	490W
Open Circuit Voltage	44.18V	44.67V	45.00V	45.19V	45.48V
Short Circuit Current	13.49A	13.52A	13.57A	13.65A	13.70A
Maximum Power Voltage	36.92V	37.23V	37.50V	37.66V	37.90V
Maximum Power Current	12.73A	12.76A	12.80A	12.88A	12.93A
Module Efficiency	21.71%	21.94%	22.17%	22.40%	22.63%

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL PARAMETERS AT BNPI

Power	513W	518W	524W	529W	535W
Open Circuit Voltage	44.18V	44.67V	45.00V	45.19V	45.48V
Short Circuit Current	14.73A	14.75A	14.82A	14.89A	14.97A
Maximum Power Voltage	36.92V	37.23V	37.50V	37.66V	37.90V
Maximum Power Current	13.90A	13.92A	13.98A	14.05A	14.12A

*Rear side power gain: The additional gain from the rear side compared to the power of the front side at the standard test condition. It depends on mounting (structure,height,tilt angle etc.)and albedo of the ground.

ELECTRICAL PARAMETERS AT NMOT

Power	376W	380W	384W	388W	392W
Open Circuit Voltage	44.33V	37.38V	45.00V	45.20V	45.50V
Short Circuit Current	10.79A	10.81A	10.85A	10.92A	10.96A
Maximum Power Voltage	36.94V	37.22V	37.50V	37.67V	37.92V
Maximum Power Current	10.18A	10.21A	10.24A	10.30A	10.34A
Module Efficiency	17.37%	17.55%	17.74%	17.92%	18.11%

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

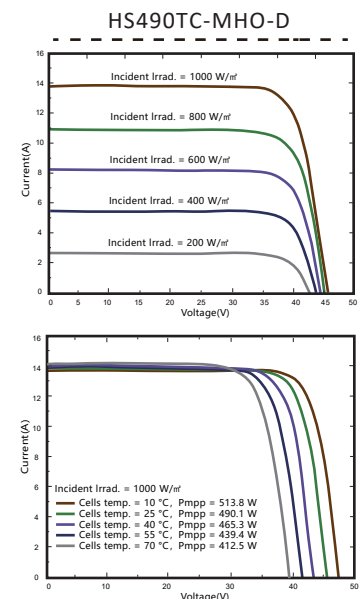
TEMPERATURE CHARACTERISTICS

NMOT	45±2°C
Temp Coefficient of ISC	+0.05%/°C
Temp Coefficient of VOC	-0.28%/°C
Temp Coefficient of Pmax	-0.34%/°C

PACKING CONFIGURATION

Modules/Pallet	31 Pieces
Packaging Description	24 Pallets, Total=(31+31)x12=744 Pieces
Modules/40' Container	744 Pieces

IV CHARACTERISTICS



MAXIMUM RATING

Power selection	0~+5W
Measuring uncertainty of Pm	0~±3%
Operating Temperature	-40°C~+85°C
Wind Load/Snow Load	2400pa/5400pa
Fuse Current	25A

30
YEARS

Quality
Warranty

30
YEARS

Power
Warranty

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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