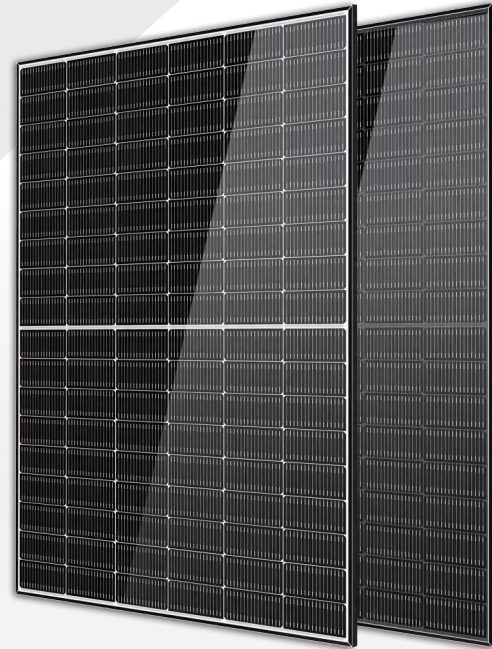


Solar Ocean

445–465 Watt N-Type MONO-FACIAL MODULE

- IEC61215: 2021
- IEC61730: 2023
- 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
- China Quality Certification Centre
- Solar product certification



KEY FEATURES



SMBB 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 108 half-cells Monocrystalline modules is up to 465W.



LID Free

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



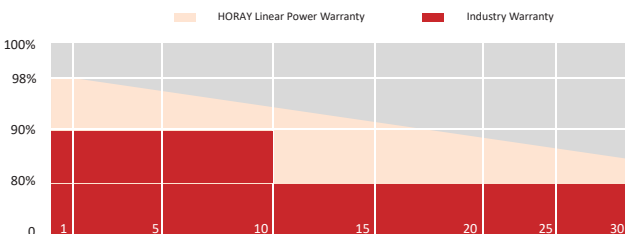
Harsh Environmental Adaptability

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.



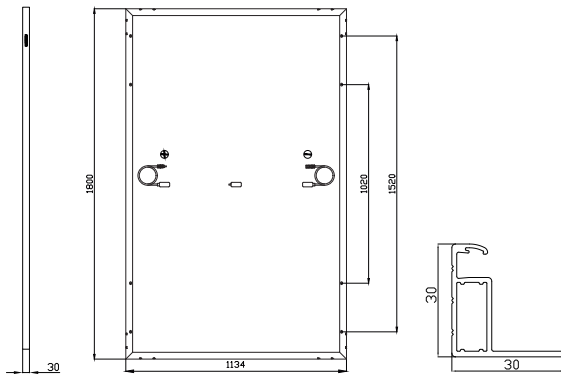
HEADQUARTER: HORAY SOLAR CO., LTD.

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MECHANICAL DIAGRAMS



SPECIFICATIONS

Weight	22kg
Dimension	1800mm*1134mm*30mm
Cell Dimension	182.2*95.8mm
Cell Amount	54*2 pcs
Maximum System Voltage	1500V
Junction Box	IP68
Frame	Aluminum Alloy
Cable	4mm ² , +300,-300mm, Length can be customized
Connector	MC4 compatible
Application Level	Class A

ELECTRICAL PARAMETERS AT STC

Module Type	HS445TC-MHB	HS450TC-MHB	HS455TC-MHB	HS460TC-MHB	HS465TC-MHB
Power	445W	450W	455W	460W	465W
Open Circuit Voltage	38.55V	38.73V	38.90V	39.08V	39.26V
Short Circuit Current	14.49A	14.59A	14.68A	14.78A	14.87A
Maximum Power Voltage	32.70V	32.85V	33.00V	33.15V	33.30V
Maximum Power Current	13.61A	13.70A	13.79A	13.88A	13.96A
Module Efficiency	21.80%	22.05%	22.29%	22.54%	22.78%

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

ELECTRICAL PARAMETERS AT NMOT

Power	373W	377W	381W	386W	390W
Open Circuit Voltage	38.55V	38.73V	38.90V	39.08V	39.26V
Short Circuit Current	11.04A	11.12A	11.19A	11.26A	11.33A
Maximum Power Voltage	32.70V	32.85V	33.00V	33.15V	33.30V
Maximum Power Current	10.37A	10.44A	10.51A	10.57A	10.64A

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

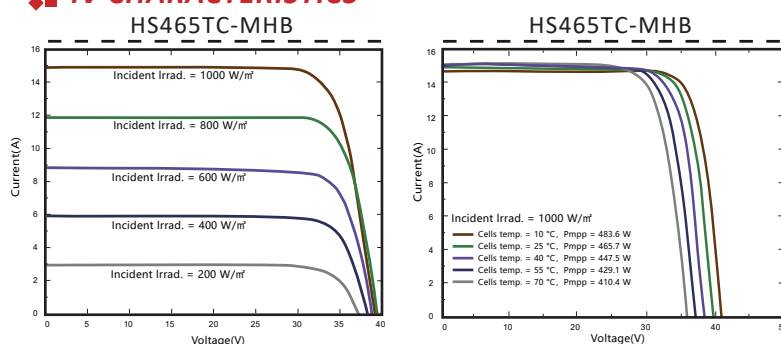
TEMPERATURE CHARACTERISTICS

NMOT	45±2°C	Temp Coefficient of ISC	+0.04%/°C
Temp Coefficient of VOC	-0.23%/°C	Temp Coefficient of Pmax	-0.28%/°C

PACKING CONFIGURATION

Modules/Pallet	37 Pieces	Modules/40' Container	888 Pieces
Packaging Description	24 Pallets, Total=(37+37)x12=888 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	30A

12 YEARS Quality Warranty

30 YEARS Power Warranty

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

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