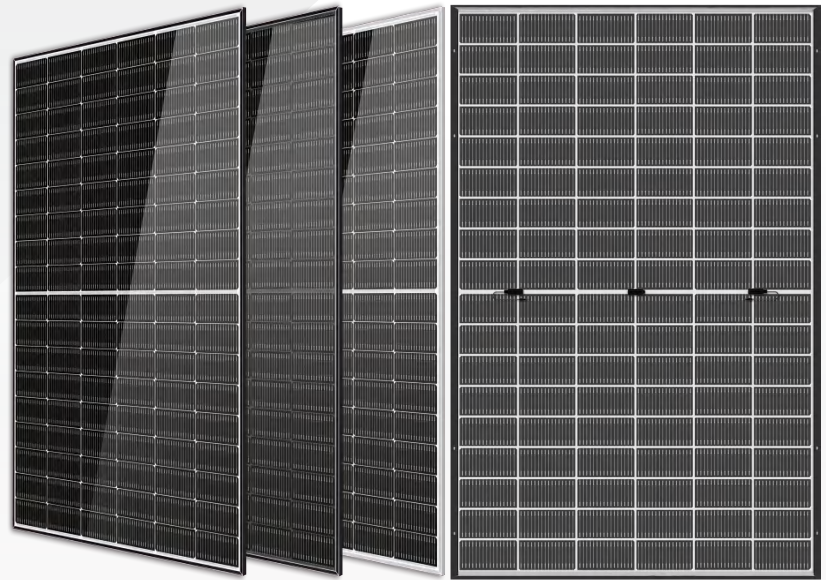


# Solar Ocean

## 435-455 Watt N-Type

### MONO-BIFACIAL 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 455W.



##### LID Free

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



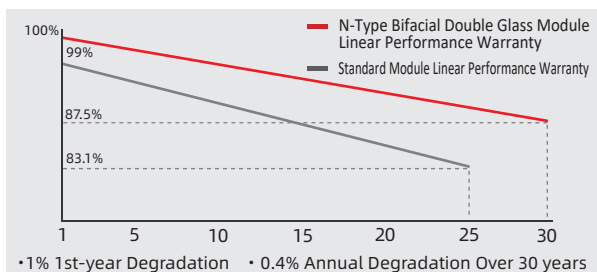
##### Harsh Environmental Adaptability

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.



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## SPECIFICATIONS

Weight	24.5kg
Dimension	1762mm*1134mm*30mm
Cell Dimension	182.2*93.4mm
Cell Amount	54*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 <sup>2</sup> ,+300,-300mm;Length can be customized
Connector	MC4 compatible
Application Level	Class A

## ELECTRICAL PARAMETERS AT STC

Module Type	HS435TC-MHA-D	HS440TC-MHA-D	HS445TC-MHA-D	HS450TC-MHA-D	HS455TC-MHA-D
Power	435W	440W	445W	450W	455W
Open Circuit Voltage	39.36V	39.57V	39.77V	39.97V	40.14V
Short Circuit Current	13.72A	13.8A	13.87A	13.94A	14.03A
Maximum Power Voltage	32.78V	32.99V	33.19V	33.39V	33.53V
Maximum Power Current	13.27A	13.34A	13.41A	13.48A	13.57A
Module Efficiency	21.8%	22.0%	22.3%	22.5%	22.8%

\* Under Standard Test Conditions (STC) of irradiance of 1000 W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature of 25°C.

## ELECTRICAL PARAMETERS AT BNPI

Power	469W	475W	480W	486W	491W
Open Circuit Voltage	39.36V	39.57V	39.77V	39.97V	40.14V
Short Circuit Current	14.68A	14.77A	14.84A	14.92A	15.01A
Maximum Power Voltage	32.78V	32.99V	33.19V	33.39V	33.53V
Maximum Power Current	14.32A	14.40A	14.47A	14.55A	14.64A

\*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	331W	335W	339W	343W	347W
Open Circuit Voltage	39.36V	39.57V	39.77V	39.97V	40.14V
Short Circuit Current	10.45A	10.52A	10.57A	10.62A	10.69A
Maximum Power Voltage	32.78V	32.99V	33.19V </td <td>33.39V</td> <td>33.53V</td>	33.39V	33.53V
Maximum Power Current	10.11A	10.17A	10.22A	10.27A	10.34A

\* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m<sup>2</sup>, spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

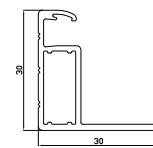
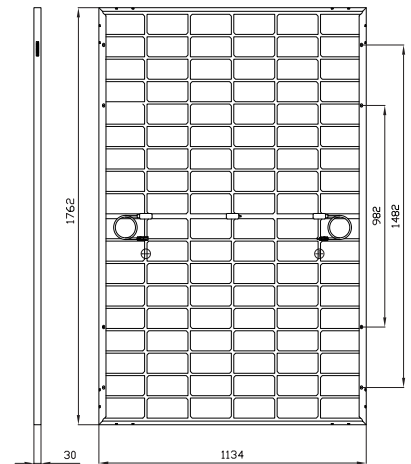
## TEMPERATURE CHARACTERISTICS

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

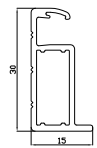
## PACKING CONFIGURATION

Modules/Pallet	37 Pieces
Packaging Description	26 Pallets, Total=(37+37)x13=962 Pieces
Modules/40' Container	962 Pieces

## MECHANICAL DIAGRAMS

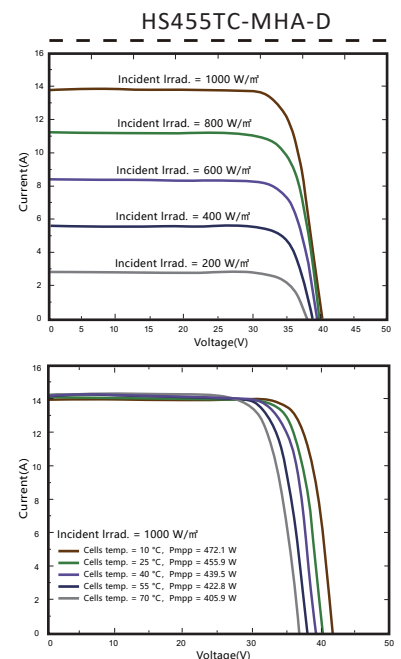


Section diagram of long frame profile



Section diagram of short frame profile

## 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

**15 YEARS** Quality Warranty

**30 YEARS** Power Warranty