

Mono

Bifacial

HORAY

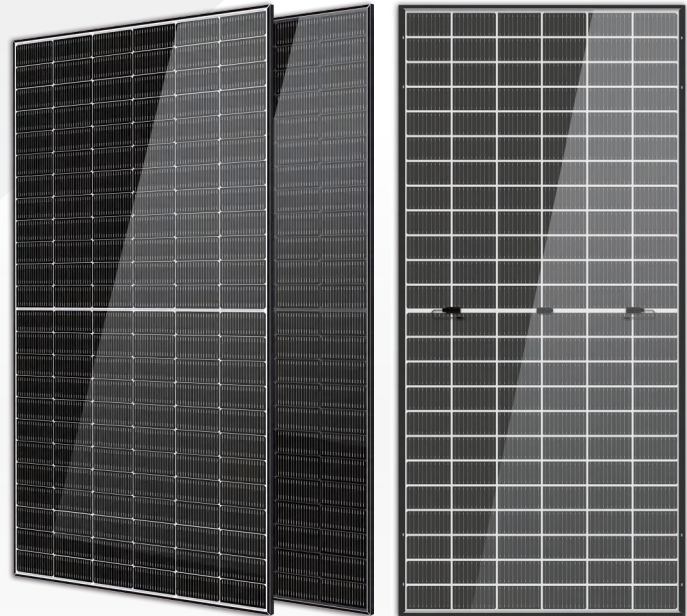
TIER1
BloombergNEF

Solar Ocean

630–650 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 144 half-cells Monocrystalline modules is up to 650W.



LID Free

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



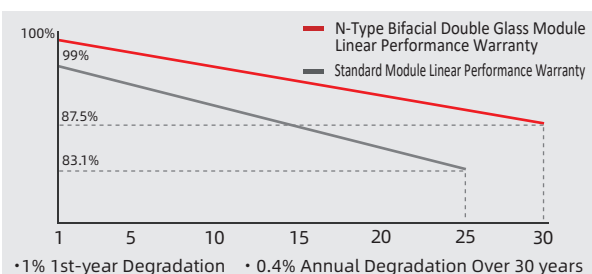
Harsh Environmental Adaptability

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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SPECIFICATIONS

Weight	34.5kg
Dimension	2465mm*1134mm*30mm
Cell Dimension	182*99.5mm
Cell Amount	72*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;Length can be customized
Connector	MC4 compatible
Application Level	Class A

ELECTRICAL PARAMETERS AT STC

Module Type	HS630TC-MHD-D	HS635TC-MHD-D	HS640TC-MHD-D	HS645TC-MHD-D	HS650TC-MHD-D
Power	630W	635W	640W	645W	650W
Open Circuit Voltage	47.98V	48.05V	48.08V	48.16V	48.20V
Short Circuit Current	16.49A	16.59A	16.71A	16.81A	16.93A
Maximum Power Voltage	40.70V	40.76V	40.79V	40.85V	40.89V
Maximum Power Current	15.48A	15.58A	15.69A	15.79A	15.90A
Module Efficiency	22.54%	22.72%	22.90%	23.07%	23.25%

* 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	693W	699W	704W	710W	715W
Open Circuit Voltage	47.98V	48.05V	48.08V	48.16V	48.20V
Short Circuit Current	18.13A	18.25A	18.38A	18.50A	18.62A
Maximum Power Voltage	40.70V	40.76V	40.79V	40.85V	40.89V
Maximum Power Current	17.03A	17.14A	17.26A	17.37A	17.49A

*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	480W	484W	488W	491W	495W
Open Circuit Voltage	47.98V	48.05V	48.08V	48.16V	48.20V
Short Circuit Current	12.56A	12.64A	12.73A	12.81A	12.90A
Maximum Power Voltage	40.70V	40.76V	40.79V	40.85V	40.89V
Maximum Power Current	11.80A	11.87A	11.96A	12.03A	12.11A

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

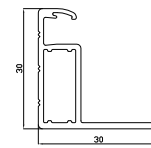
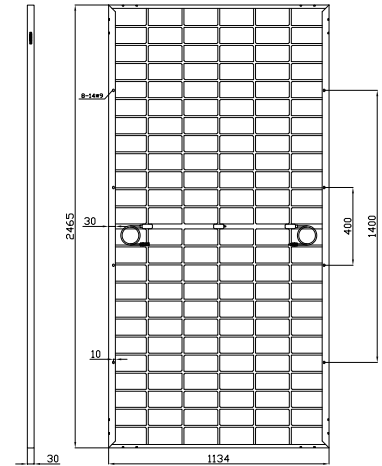
TEMPERATURE CHARACTERISTICS

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

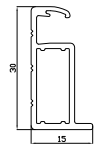
PACKING CONFIGURATION

Modules/Pallet	36 Pieces
Packaging Description	18 Pallets, Total=(36+36)x9=648 Pieces
Modules/40' Container	648 Pieces

MECHANICAL DIAGRAMS



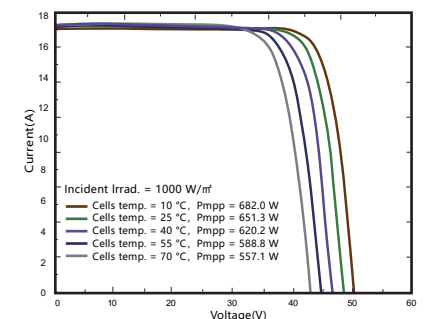
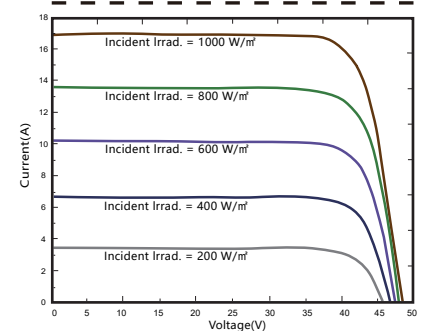
Section diagram of long frame profile



Section diagram of short frame profile

CHARACTERISTICS

HS650TC-MHD-D



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

15 YEARS Quality Warranty

30 YEARS Power Warranty