

# 480~500 Watt

# HORAY

**TIER1**  
BloombergNEF

## HS 182-120 TC-D Ocean N-type Bifacial Modules



### SMBB Half-Cell Technology

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



### Higher Output Power

The output power of 120 half-cells monocrystalline modules is up to 500W.



### Low Light Features

Higher performance under low light environment.



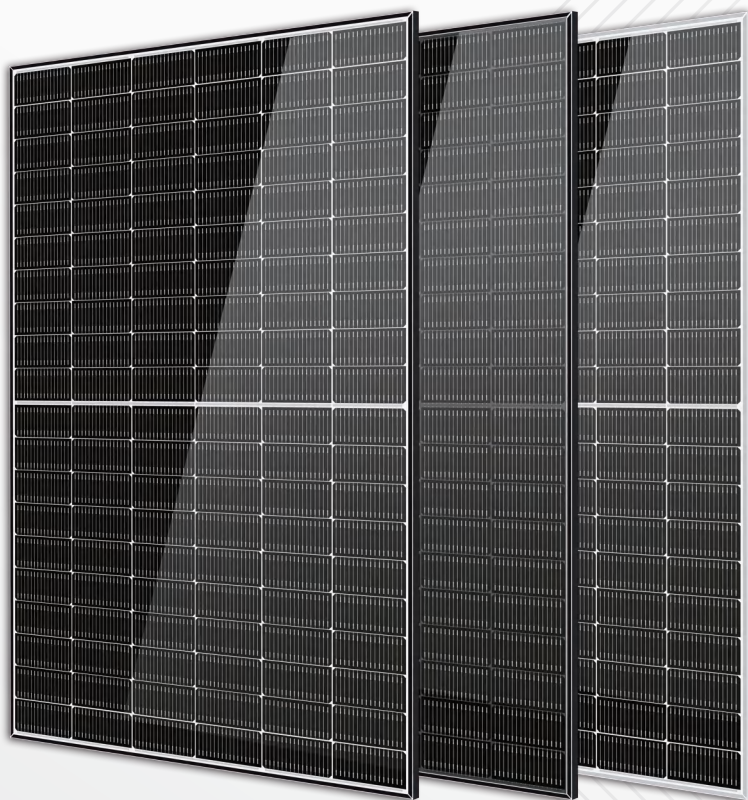
### Harsh Environmental Adaptability

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



### N-type With Very Low LID

N-type solar cell has very low LID naturally which can reduce power degradation.



IEC61215:2021

IEC61730:2023

ISO9001:2015 Quality Management System

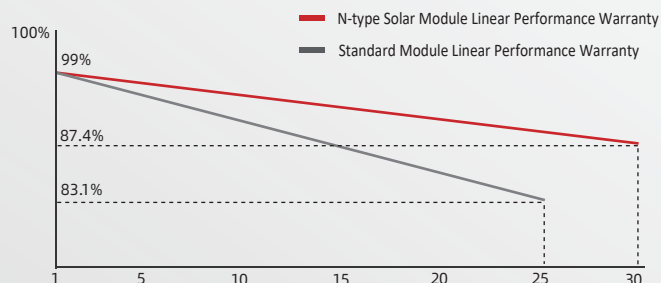
ISO14001:2015 Environmental Management System

ISO45001:2018 Occupational Health and Safety Management System

CE: Europe Standard

China Quality Certification Centre

Solar Product Certification



15-year product warranty



30-year linear power output warranty

HEADQUARTER: HORAY SOLAR CO., LTD.

GLOBAL MARKETING AND SERVICE: HORAY SOLAR GMBH

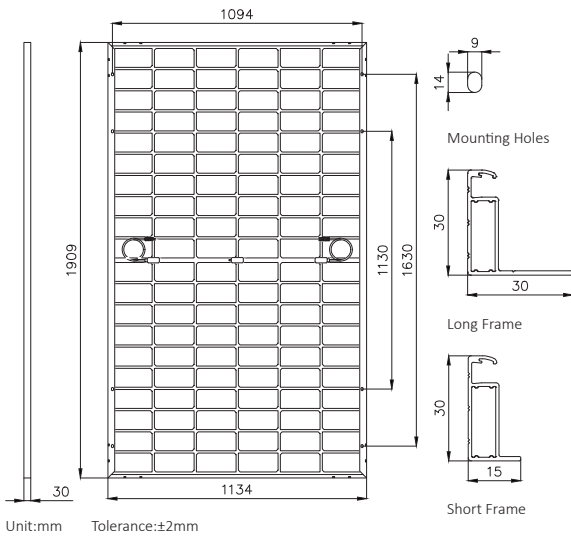
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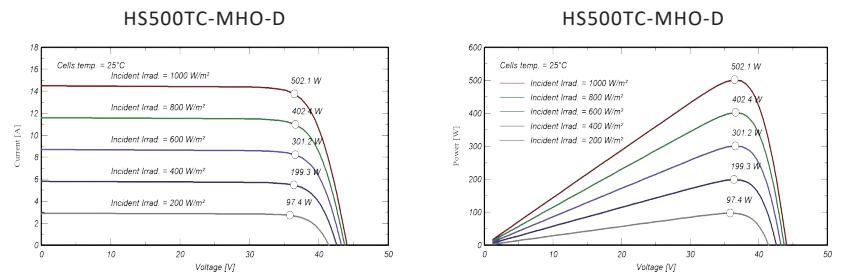
## MECHANICAL DIAGRAMS



## MECHANICAL PARAMETERS

|                  |                                                      |
|------------------|------------------------------------------------------|
| Weight           | 25.5kg                                               |
| Dimension        | 1909×1134×30mm                                       |
| Cell Orientation | 120 (6×20)                                           |
| Junction Box     | IP68, three diodes                                   |
| Output Cable     | 4mm <sup>2</sup> , ±300mm (length can be customized) |
| Connector        | MC4 compatible                                       |
| Glass            | 2.0+2.0mm AR coated heat strengthened glass          |
| Frame            | Anodized aluminum alloy frame                        |
| Packaging        | 37pcs per pallet/888pcs per 40'HC                    |

## CURVES OF PV MODULE



## ELECTRICAL CHARACTERISTICS

| Module Type                  | HS480TC-MHO-D |       | HS485TC-MHO-D |       | HS490TC-MHO-D |       | HS495TC-MHO-D |       | HS500TC-MHO-D |       |
|------------------------------|---------------|-------|---------------|-------|---------------|-------|---------------|-------|---------------|-------|
| Testing Condition            | STC           | NMOT  | STC           | NMOT  | STC           | NMOT  | STC           | NMOT  | STC           | NMOT  |
| Maximum Power(Pmax/W)        | 480           | 365   | 485           | 369   | 490           | 374   | 495           | 378   | 500           | 382   |
| Open Circuit Voltage(Voc/V)  | 43.26         | 41.00 | 43.46         | 41.20 | 43.66         | 41.40 | 43.86         | 41.60 | 44.06         | 41.80 |
| Short Circuit Current(Isc/A) | 14.22         | 11.49 | 14.30         | 11.55 | 14.37         | 11.61 | 14.43         | 11.66 | 14.50         | 11.72 |
| Maximum Power Voltage(Vmp/V) | 36.44         | 33.80 | 36.64         | 34.00 | 36.84         | 34.20 | 37.04         | 34.40 | 37.24         | 34.60 |
| Maximum Power Current(Imp/A) | 13.17         | 10.82 | 13.23         | 10.88 | 13.31         | 10.93 | 13.36         | 10.99 | 13.43         | 11.04 |
| Module Efficiency(%)         | 22.2          |       | 22.4          |       | 22.6          |       | 22.9          |       | 23.1          |       |

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

\* 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.

## ELECTRICAL CHARACTERISTICS WITH 10% SOLAR IRRADIATION RATIO (BNPI)

|                              |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|
| Maximum Power(Pmax/W)        | 529   | 534   | 540   | 546   | 550   |
| Open Circuit Voltage(Voc/V)  | 43.40 | 43.60 | 43.80 | 44.00 | 44.20 |
| Short Circuit Current(Isc/A) | 15.64 | 15.73 | 15.81 | 15.87 | 15.95 |
| Maximum Power Voltage(Vmp/V) | 36.44 | 36.64 | 36.84 | 37.04 | 37.24 |
| Maximum Power Current(Imp/A) | 14.52 | 14.57 | 14.66 | 14.74 | 14.77 |

\*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.

## OPERATING PARAMETERS

|                                    |             |
|------------------------------------|-------------|
| Operational Temperature            | -40°C~+85°C |
| Power Output Tolerance             | 0~3%        |
| Maximum System Voltage             | 1500V       |
| Maximum Series Fuse Rating         | 25A         |
| Nominal Operating Cell Temperature | 45±2°C      |
| Protection Class                   | Class II    |
| Bifaciality                        | 80±5%       |
| Fire Rating                        | IEC Class A |

\*The actual test value may be slightly deviated from the technical parameters due to the difference in test methods.

## MECHANICAL LOADING

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Front Side Maximum Static Loading | 5400Pa                               |
| Rear Side Maximum Static Loading  | 2400Pa                               |
| Hailstone Test                    | 25mm Hailstone at the speed of 23m/s |

## TEMPERATURE RATINGS (STC)

|                                 |           |
|---------------------------------|-----------|
| Temperature Coefficient of Isc  | +0.04%/°C |
| Temperature Coefficient of Voc  | -0.23%/°C |
| Temperature Coefficient of Pmax | -0.28%/°C |



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