

# Orion

Unimacts, with over 20 years in the renewable industry, is a top provider of Solar Piles, Torque Tubes, Solar Panels, and solar equipment for North American Developers, EPCs, and Tracker OEMs. Leveraging a global supply chain and factories in the US, India, and South East Asia, Unimacts delivers premium, cost-efficient solutions to major solar customers.

## ORION-72HD 570-590N

### N-TOPCON BIFACIAL DUAL GLASS MODULE

#### Super Power Output

Advanced TOPCon cells combined with MBB and high-density encapsulation provides ultra-high power output

#### Extra Power Generation

N-type wafers and cells bring ultralow LID & LeTID degradation, less than 1% 1<sup>st</sup> year degradation guaranteed, in addition lower temperature coefficient & better weak-light response provide extra power generation

#### High Reliability

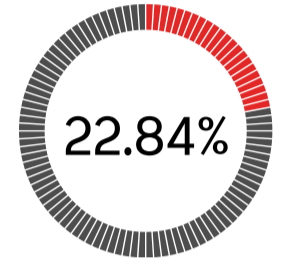
Excellent harsh test results and advanced half-cell tech improve product reliability for long-term life cycle

#### High ROI

Bifacial power generation reduces BOS and system LCOE dramatically, promoting the project ROI



MAXIMUM POWER OUTPUT



MAXIMUM MODULE EFFICIENCY



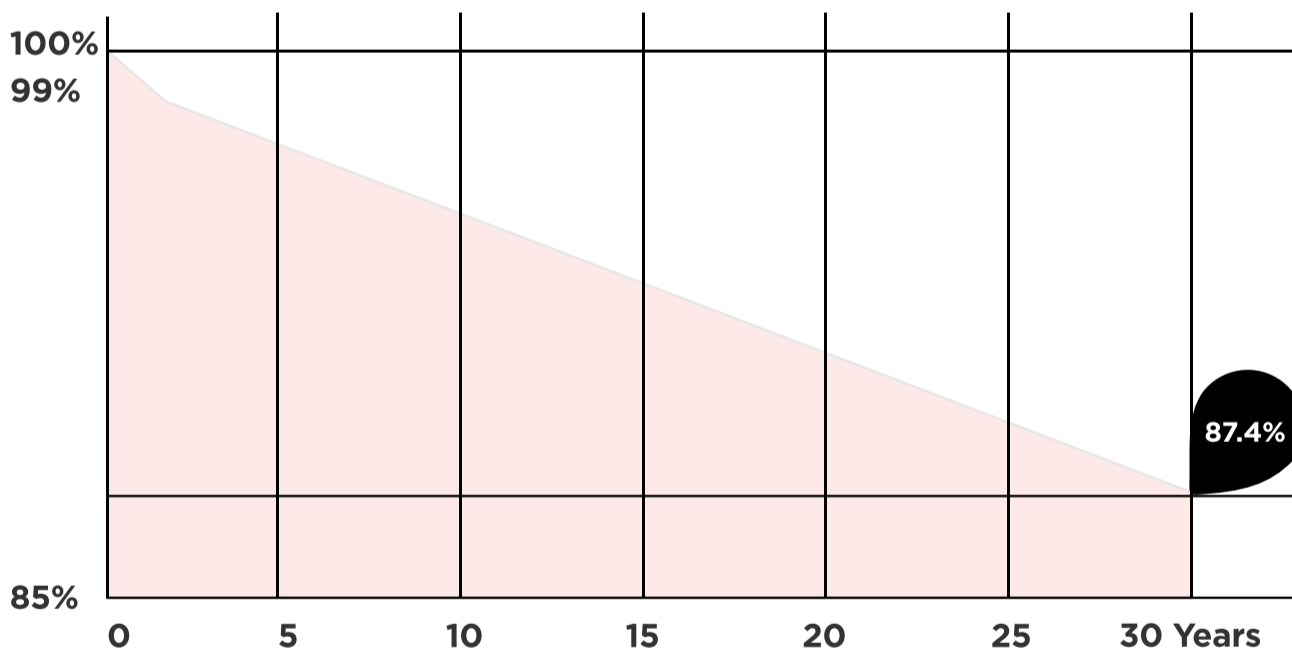
12 YEARS PRODUCT WARRANTY



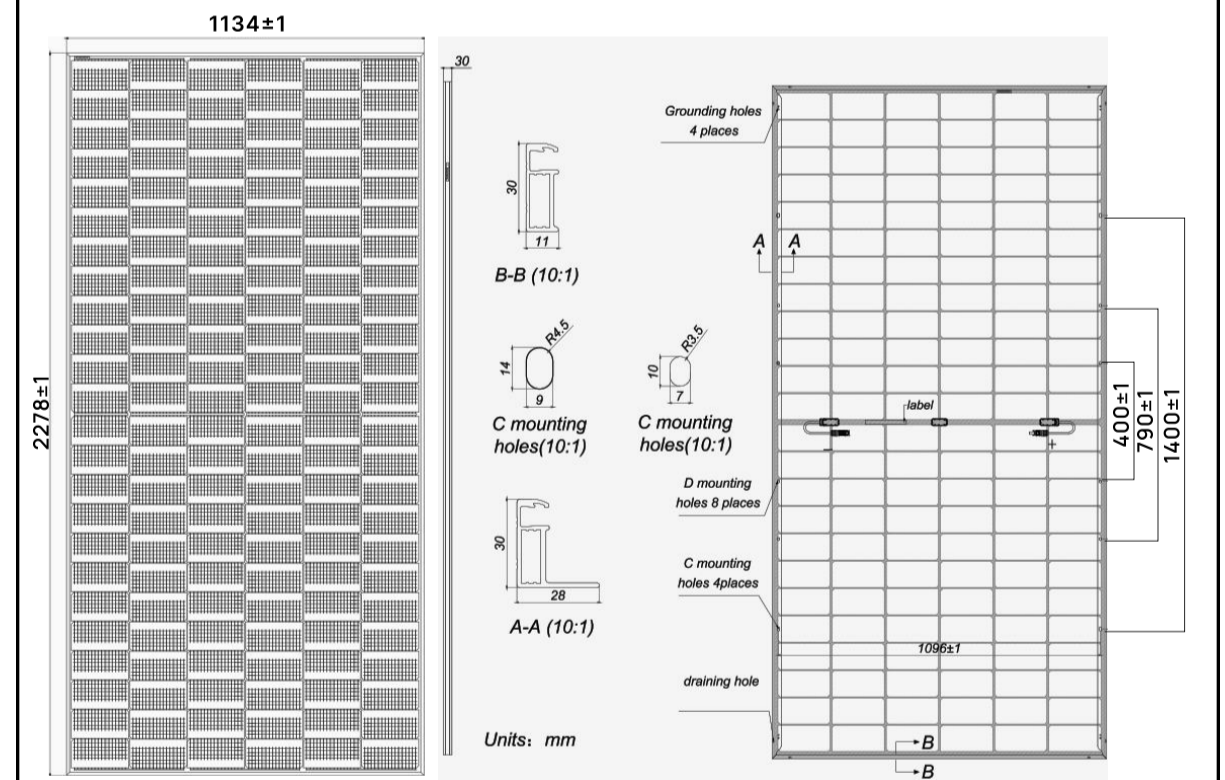
30 YEARS LINEAR POWER WARRANTY

≤1% 1<sup>st</sup> YEAR DEGRADATION

≤0.4% ANNUAL DEGRADATION

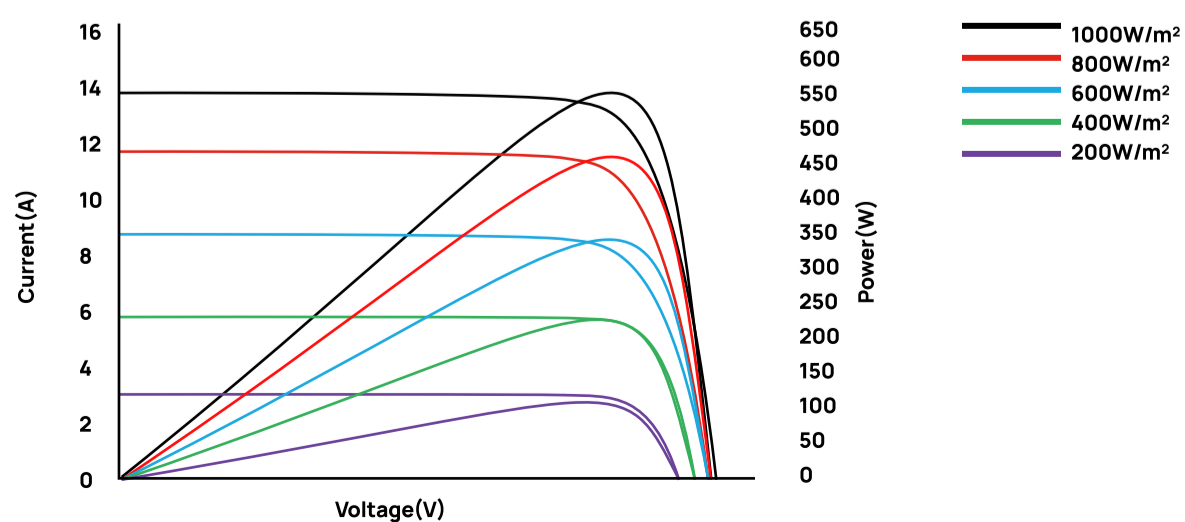


#### ENGINEERING DESIGN

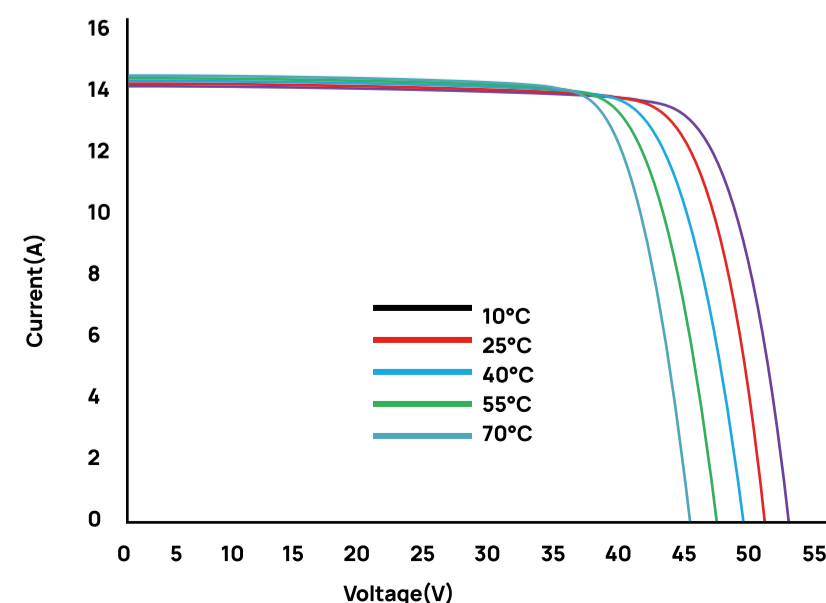


## CHARACTERISTICS

I-V/P-V CURVE AT DIFFERENT IRRADIATION  
SS8-72HD-575N



I-V CURVE AT DIFFERENT TEMPERATURE  
SS8-72HD-575N



## ELECTRIC CHARACTERISTICS (STC)

| MODULE TYPE                     | SS8<br>- 72H D<br>-570N | SS8<br>- 72H D<br>-575N | SS8<br>- 72H D<br>-580N | SS8<br>- 72H D<br>-585N | SS8<br>- 72H D<br>-590N |
|---------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| MAXIMUM POWER (Pmax) [W]        | 570                     | 575                     | 580                     | 585                     | 590                     |
| OPEN- CIRCUIT VOLTAGE (Voc)[V]  | 51.08                   | 51.28                   | 51.48                   | 51.68                   | 51.88                   |
| MAXIMUM POWER VOLTAGE (Vmp) [V] | 42.29                   | 42.44                   | 42.59                   | 42.77                   | 42.92                   |
| SHORT- CIRCUIT CURRENT (Isc)[A] | 14.24                   | 14.30                   | 14.36                   | 14.42                   | 14.48                   |
| MAXIMUM POWER CURRENT (Imp) [A] | 13.48                   | 13.55                   | 13.62                   | 13.68                   | 13.75                   |
| MODULE EFFICIENCY               | 22.07%                  | 22.26 %                 | 22.45%                  | 22.65%                  | 22.84%                  |

Irradiation 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5

## MECHANICAL CHARACTERISTICS

|                            |   |
|----------------------------|---|
| CELL TYPE                  | N-TOPCON(M10)   |
| NUMBER OF CELLS            | 144(6X24)   |
| DIMENSIONS                 | 2278 X 1134 X 30mm  |
| WEIGHT                     | 31.2 Kg   |
| GLASS                      | FRONT GLASS, 2.0mm AR COATED SEMI-TEMPERED GLASS,<br>BACK GLASS, 2.0mm GLAZED SEMI-TEMPERED GLASS                       |
| FRAME                      | SILVER, ANODIZED ALUMINUM ALLOY   |
| OUTPUT CABLES              | 4mm <sup>2</sup> (IEC), 12AWG (UL),<br>300mm (INCLUDING CONNECTOR) OR 1200mm (INCLUDING<br>CONNECTOR) CUSTOMIZED LENGTH |
| JUNCTION BOX               | IP68 RATED, 3 DIODES  |
| CONNECTOR                  | MC4-EVO2 OR MC4 COMPATIBLE  |
| PACKAGING                  | 36 PIECES/PALLET, 720 PIECES/40' CONTAINER  |
| MECHANICAL LOAD FRONT SNOW | 5400 Pa   |
| MECHANICAL LOAD BACK WIND  | 2400 Pa   |

## BIFACIAL OUTPUT-REAR SIDE POWER GAIN (575W)

| POWER GAIN                      | 5 %   | 10 %  | 15 %  | 20%   | 25%   |
|---------------------------------|-------|-------|-------|-------|-------|
| MAXIMUM POWER (Pmax) [W]        | 604   | 633   | 662   | 690   | 719   |
| PEN- CIRCUIT VOLTAGE (Voc)[V]   | 51.20 | 51.20 | 51.20 | 51.30 | 51.30 |
| MAXIMUM POWER VOLTAGE (Vmp) [V] | 42.82 | 42.82 | 42.82 | 42.83 | 42.83 |
| SHORT- CIRCUIT CURRENT (Isc)[A] | 14.74 | 15.30 | 15.84 | 16.41 | 16.97 |
| MAXIMUM POWER CURRENT (Imp) [A] | 14.11 | 14.78 | 15.46 | 16.12 | 16.79 |

## ELECTRIC CHARACTERISTICS (NMOT)

| MODULE TYPE                     | SS8<br>- 72H D<br>-570N | SS8<br>- 72H D<br>-575N | SS8<br>- 72H D<br>-580N | SS8<br>- 72H D<br>-585N | SS8<br>- 72H D<br>-590N |
|---------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| MAXIMUM POWER (Pmax) [W]        | 429                     | 433                     | 437                     | 441                     | 445                     |
| OPEN- CIRCUIT VOLTAGE (Voc)[V]  | 48.51                   | 48.70                   | 48.89                   | 49.08                   | 49.27                   |
| MAXIMUM POWER VOLTAGE (Vmp) [V] | 39.62                   | 39.73                   | 39.84                   | 39.95                   | 40.06                   |
| SHORT- CIRCUIT CURRENT (Isc)[A] | 11.50                   | 11.55                   | 11.59                   | 11.64                   | 11.69                   |
| MAXIMUM POWER CURRENT (Imp) [A] | 10.83                   | 10.90                   | 10.97                   | 11.04                   | 11.11                   |

Irradiance 800 W/m<sup>2</sup>, Ambient Temperature 20 °C, Wind Speed 1 m/s, AM=1.5

## TEMPERATURE COEFFICIENTS

|                                 |            |
|---------------------------------|------------|
| TEMPERATURE COEFFICIENT OF Isc  | +0.045%/°C |
| TEMPERATURE COEFFICIENT OF Voc  | -0.260%/°C |
| TEMPERATURE COEFFICIENT OF Pmax | -0.290%/°C |
| NMOT                            | 45±2°C     |

## OPERATING CONDITIONS

|                            |               |
|----------------------------|---------------|
| MAXIMUM SYSTEM VOLTAGE     | 1500V DC(IEC) |
| POWER TOLERANCE            | 0~+3%         |
| OPERATING TEMPERATURE      | -40°C~+85°C   |
| MAXIMUM SERIES FUSE RATING | 30 A          |
| BIFACIALITY                | 80±5%         |

## COMPREHENSIVE CERTIFICATES

- ✓ IEC61215
- ✓ IEC61730
- ✓ IEC61701:Salt mist corrosion test
- ✓ IEC62716: Ammonia corrosion test
- ✓ IEC60068: Dust and Sand test
- ✓ ISO9001:2015: Quality Management System
- ✓ ISO14001:2015: Environment Management System
- ✓ ISO45001:2018: Occupational Health and Safety Management Systems

