

**TIER 1**  
 Bloomberg  
 NEW ENERGY FINANCE

N Type



## Bifacial Double Glass Module (Black Frame)

DAS-DH108ND

**435W~465W**

### Key Features



#### High Efficiency

Leading module efficiency in industry, up to 22.8%



#### Excellent Appearance and Performance

Bifacial solar cell, symmetrical design, low risk of micro-crack



#### High Reliability

Passed 3\*IEC standard test, 25 years materials warranty, 30 years power warranty



#### Excellent Rear Side Power Generation

Bifaciality is up to 80%, up to 30% more energy yield than conventional modules



#### Better low irradiance performance

Higher power output even under low irradiance environments like on cloudy or foggy days



#### Extensive Application Scenes

More extensive application scenes, such as BIPV, snow field, vertical installation, high humidity, strong wind and desert region

Maximum Power Output

**465W**

Maximum Module Efficiency

**22.8%**

Power Output Tolerance

**0~+5W**

### Product and Quality Certifications

IEC 61215, IEC 61730

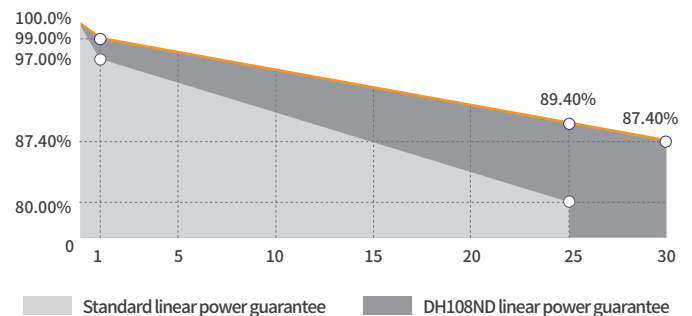
ISO 9001: Quality Management System

ISO 14001: Environment Management System

ISO 45001: Occupational Health and Safety Management System

IEC 62716, IEC 61701: Ammonia, Salt mist corrosion test

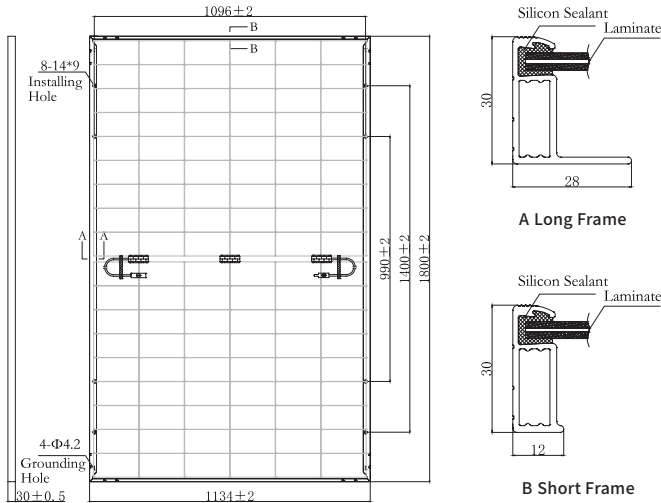
IEC TS 62804-1, IEC 60068-2-68: PID test, Dust and Sand test



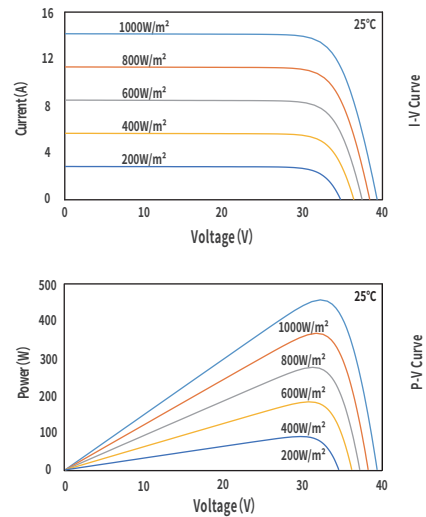
### Leading product and power warranty

**-1.00%** 1st-year Degradation **-0.40%** Annual Degradation **25** Materials and workmanship warranty **30** Linear power warranty

## Engineering Drawing (mm)



## Characteristic Curves(455W)



## Electrical Parameters (STC \*)

|                              |       |       |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Nominal Max. Power(Pmax/W)   | 435   | 440   | 445   | 450   | 455   | 460   | 465   |
| Open Circuit Voltage(Voc/V)  | 38.28 | 38.82 | 39.00 | 39.18 | 39.36 | 39.54 | 39.72 |
| Short Circuit Current(Isc/A) | 14.53 | 14.58 | 14.63 | 14.68 | 14.73 | 14.79 | 14.85 |
| Operating Voltage(Vmp/V)     | 31.92 | 32.10 | 32.28 | 32.47 | 32.65 | 32.84 | 33.03 |
| Operating Current(Imp/A)     | 13.63 | 13.71 | 13.79 | 13.86 | 13.94 | 14.01 | 14.08 |
| Efficiency(%)                | 21.3  | 21.6  | 21.8  | 22.0  | 22.3  | 22.5  | 22.8  |

STC \*: Irradiance = 1000 W/m<sup>2</sup>, Cell Temperature = 25°C, AM = 1.5  
Test condition is based on the front side

## Mechanical Parameters

|                 |  |
|-----------------|--|
| Cell Type       | N Type   |
| Module Size     | 1800×1134×30mm   |
| Glass Thickness | 1.6mm  |
| Module Weight   | 21.7Kg   |
| Output Cable    | 4mm <sup>2</sup> , cable length 1200mm (can be customized) |
| Connector       | MC4 compatible   |
| Junction Box    | IP68, 3 bypass diodes                                      |
| Frame           | Anodized aluminium alloy (Black)                           |

## Electrical Parameters (NMOT \*)

|                              |       |       |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Nominal Max. Power(Pmax/W)   | 331   | 335   | 339   | 343   | 347   | 350   | 354   |
| Open Circuit Voltage(Voc/V)  | 36.65 | 37.17 | 37.34 | 37.51 | 37.69 | 37.86 | 38.03 |
| Short Circuit Current(Isc/A) | 11.71 | 11.75 | 11.79 | 11.83 | 11.87 | 11.92 | 11.97 |
| Operating Voltage(Vmp/V)     | 30.16 | 30.33 | 30.50 | 30.69 | 30.85 | 31.03 | 31.21 |
| Operating Current(Imp/A)     | 10.99 | 11.05 | 11.12 | 11.17 | 11.24 | 11.29 | 11.35 |

NMOT \*: Irradiance = 800 W/m<sup>2</sup>, Ambient Temperature = 20°C, AM = 1.5,  
Wind Speed = 1 m/s  
Test condition is based on the front side

## Temperature Coefficients

|                            |            |
|----------------------------|------------|
| Short Circuit Current(Isc) | +0.045%/°C |
| Open Circuit Voltage(Voc)  | -0.250%/°C |
| Nominal Max. Power(Pmax)   | -0.280%/°C |
| NMOT                       | 42±2°C     |

## Backside Power Gain (For 455W)

|                              |       |       |       |       |       |
|------------------------------|-------|-------|-------|-------|-------|
| Power Gain                   | 10%   | 15%   | 20%   | 25%   | 30%   |
| Nominal Max. Power(Pmax/W)   | 501   | 523   | 546   | 569   | 592   |
| Open Circuit Voltage(Voc/V)  | 39.36 | 39.36 | 39.46 | 39.46 | 39.46 |
| Short Circuit Current(Isc/A) | 16.20 | 16.94 | 17.68 | 18.41 | 19.15 |
| Operating Voltage(Vmp/V)     | 32.65 | 32.65 | 32.75 | 32.75 | 32.75 |
| Operating Current(Imp/A)     | 15.33 | 16.03 | 16.67 | 17.37 | 18.06 |

## Operating Parameters

|                         |                                     |
|-------------------------|-------------------------------------|
| Max. System Voltage     | DC1500V                             |
| Power Tolerance         | 0 ~ +5 W                            |
| Operating Temperature   | -40°C ~ +85°C                       |
| Max. Fuse Rated Current | 30A                                 |
| Front Static Load       | Snow load 5400Pa, Wind load 2400Pa  |
| Packing Data            | 36 pcs/Pallet; 216(20GP); 936(40HQ) |