

# GCL- NT12R/48BGDF



**430-450W**

**Bifacial Dual Glass  
Monocrystalline Module**

**450W**

Maximum Power  
Output

**22.52%**

Maximum Module  
Efficiency

**0~+5W**

Power Output  
Guarantee

## GCL Delivers Reliable Performance Over Time

- World-class manufacturer of crystalline silicon photovoltaic modules
- Fully automatic facility and world-class technology
- Rigorous quality control to meet the highest standard: ISO 9001, ISO 14001 and ISO 45001
- Tested for harsh environments (salt mist, ammonia corrosion and sand blowing test: IEC 61701, IEC 62716, DIN EN 60068-2-68)
- Long term reliability tests
- 2x100% EL inspection ensuring defect-free modules



Highly transparent self-cleaning glass brings additional yield and easy maintenance



Ideal choice for residential rooftop



N type technology: The N-type module has better reliability and lower LID/LETID



Sand blowing test, salt mist test and ammonia test passed to endure harsh environments

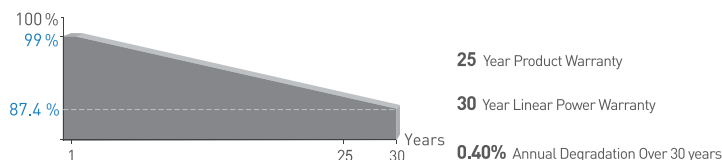


Selected encapsulating material and stringent production process control ensure the product is highly PID resistant and snail trails free



Special cutting and soldering technology leads to low hotspot risk

## Linear Performance Warranty



\* Please refer to GCL standard warranty for details

Additional Insurance Backed by Swiss RE

\* Please refer to GCL for details



## Electrical Specification (STC\*)

|                       |                      |       |       |       |       |       |
|-----------------------|----------------------|-------|-------|-------|-------|-------|
| Maximum Power         | P <sub>max</sub> [W] | 430   | 435   | 440   | 445   | 450   |
| Maximum Power Voltage | V <sub>mp</sub> [V]  | 29.27 | 29.55 | 29.85 | 30.15 | 30.45 |
| Maximum Power Current | I <sub>mp</sub> [A]  | 14.69 | 14.72 | 14.74 | 14.76 | 14.78 |
| Open Circuit Voltage  | V <sub>oc</sub> [V]  | 34.78 | 35.08 | 35.38 | 35.68 | 35.98 |
| Short Circuit Current | I <sub>sc</sub> [A]  | 15.44 | 15.46 | 15.48 | 15.50 | 15.52 |
| Module Efficiency     | [%]                  | 21.52 | 21.77 | 22.02 | 22.27 | 22.52 |

\* Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass 1.5

## Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

|                       |                      |       |       |       |       |       |
|-----------------------|----------------------|-------|-------|-------|-------|-------|
| Maximum Power         | P <sub>max</sub> [W] | 464.5 | 469.8 | 475.2 | 480.6 | 486.0 |
| Maximum Power Voltage | V <sub>mp</sub> [V]  | 29.27 | 29.55 | 29.85 | 30.15 | 30.45 |
| Maximum Power Current | I <sub>mp</sub> [A]  | 15.87 | 15.90 | 15.92 | 15.94 | 15.96 |
| Open Circuit Voltage  | V <sub>oc</sub> [V]  | 34.78 | 35.08 | 35.38 | 35.68 | 35.98 |
| Short Circuit Current | I <sub>sc</sub> [A]  | 16.68 | 16.70 | 16.72 | 16.74 | 16.76 |

## Mechanical Data

|                                 |                                                                     |
|---------------------------------|---------------------------------------------------------------------|
| Number of Cells                 | 96 Cells (6×16)                                                     |
| Dimensions of Module L*W*H (mm) | 1762×1134×30mm (69.37×44.65×1.18 inches)                            |
| Weight (kg)                     | 21.5kg                                                              |
| Front Side Glass                | 1.6mm (0.06 inches), High transparency solar glass                  |
| Back Side Glass                 | 1.6mm (0.06 inches), Black glazed mesh glass                        |
| Frame                           | Black, anodized aluminium alloy                                     |
| J-Box                           | IP68 Rated                                                          |
| Cable                           | 4.0mm <sup>2</sup> , Portrait: +300/-200mm length can be customized |
| Number of diodes                | 3                                                                   |
| Connector                       | GCL-01/GCL-02/MC4-EV02/others                                       |
| Wind/ Snow Load                 | 2400Pa/ 5400Pa*                                                     |
| Bifaciality[%]                  | 80±5                                                                |

\* For more details please check the installation manual of GCLSI

## Temperature Ratings

|                                             |            |
|---------------------------------------------|------------|
| Temperature Coefficient of I <sub>sc</sub>  | +0.045%/°C |
| Temperature Coefficient of V <sub>oc</sub>  | -0.25%/°C  |
| Temperature Coefficient of P <sub>MAX</sub> | -0.29%/°C  |

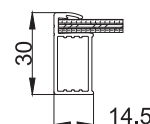
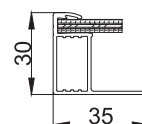
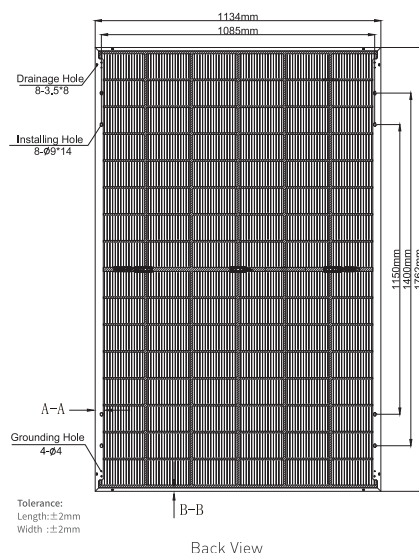
## Maximum Ratings

|                         |           |
|-------------------------|-----------|
| Operational Temperature | -40~+85°C |
| Maximum System Voltage  | 1500V DC  |
| Max Series Fuse Rating  | 35A       |

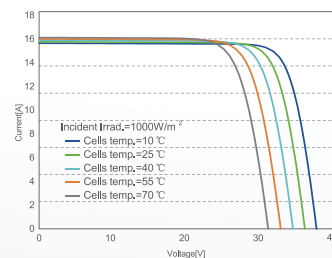
## Packaging Configuration

|                   |            |
|-------------------|------------|
| Module per box    | 36 pieces  |
| Module per 40' HQ | 936 pieces |

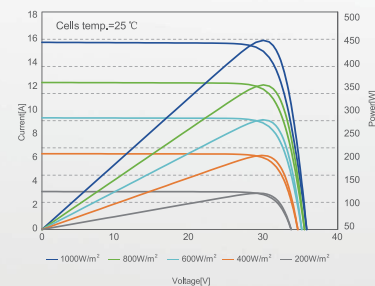
## Module Dimension



## I-V Curve at Different Temperature (450W)



## I-V/P-V Curve at Different Irradiation (450W)



CAUTION: READ INSTALLATION MANUAL BEFORE USING THE PRODUCT

## Contact Us for More Information

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