

# G12R-68P

## N-type Bifacial Double Glass Module

HSM-GRA-NM610~635

### 635W

Maximum Power Output

### 23.2%

Maximum Efficiency

#### High Energy Yield

- High-density cell package, increasing 2% cells
- Lower temperature coefficient (Pmax):  $-0.29\%/^{\circ}\text{C}$
- Up to 80% power bifaciality

#### Industry-leading G12 Wafer

- $<1\%$  degradation in the first year
- Smaller wafer chamfer, larger light receiving area
- Wafer: 210R, Thickness:  $\leq 130\mu\text{m}$

#### Superior Customer Value

- Integrated technology: TOPCon + Shingling
- Optimized dimension design for all scenarios
- More artistic beauty with no-gap design

#### Long-term Reliability

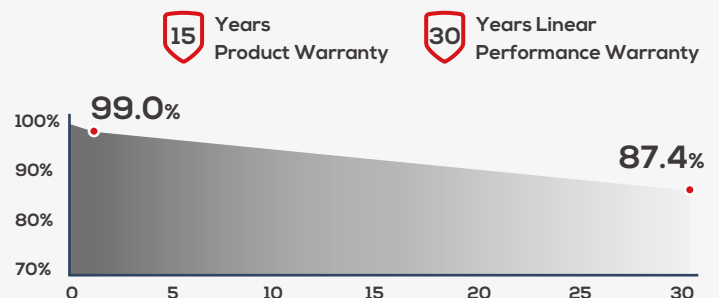
- 1/3 cell technology, lower current loss and hot spot risk
- Harsh environment resistance
- Damage-free laser cutting, lower micro-crack risk
- Mechanical load: Front 5400 Pa, Back 2400 Pa

#### Comprehensive Products and System Certificates



IEC 61215 / IEC 61730 ISO 9001:2015 ISO 45001:2018 ISO 14001:2015

#### Linear Performance Warranty



# G12R-68P N-type Bifacial Double Glass Module

HSM-GRA-NM610~635

**635W**

Maximum Power

**23.2%**

Maximum Efficiency

**0~+5W**

Power Tolerance

## Electrical Parameters (STC\*)

\* STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM1.5, Measuring Tolerance: ±2%

Maximum Power	P <sub>max</sub> (W)	610	615	620	625	630	635
Open Circuit Voltage	V <sub>oc</sub> (V)	49.00	49.20	49.40	49.60	49.85	50.10
Short Circuit Current	I <sub>sc</sub> (A)	15.57	15.60	15.63	15.66	15.68	15.70
Maximum Power Voltage	V <sub>mp</sub> (V)	41.60	41.80	42.00	42.20	42.45	42.70
Maximum Power Current	I <sub>mp</sub> (A)	14.67	14.72	14.77	14.82	14.85	14.88
Module Efficiency	(%)	22.3	22.5	22.7	22.8	23.0	23.2

## Electrical Characteristics with 10% Bifacial Gain\*

\* The additional gain from the back side depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

Maximum Power	P <sub>max</sub> (W)	671	677	682	688	693	699
Open Circuit Voltage	V <sub>oc</sub> (V)	49.00	49.20	49.40	49.60	49.85	50.10
Short Circuit Current	I <sub>sc</sub> (A)	17.13	17.16	17.19	17.23	17.25	17.27
Maximum Power Voltage	V <sub>mp</sub> (V)	41.60	41.80	42.00	42.20	42.45	42.70
Maximum Power Current	I <sub>mp</sub> (A)	16.14	16.19	16.25	16.30	16.34	16.37

## Mechanical Data

\* Please refer to installation manual for details

No. of Cells	204pcs (6×34)
Dimension	2413×1134×30mm
Weight	33.2kg
Front Glass	2.0mm High Transmission, Heat Strengthened Glass
Back Glass	2.0mm Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
J-Box	IP68
Cables	4.0mm <sup>2</sup> , +350mm, -280mm/±1400mm (can be customized)
Diodes	3
Maximum Static Load	Front: 5400Pa/Back: 2400Pa*

## Temperature Coefficient

\* NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s

Nominal Module Operating Temperature*	43±2°C	Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of I <sub>sc</sub>	+0.045%/°C	Temperature Coefficient of P <sub>max</sub>	-0.29%/°C

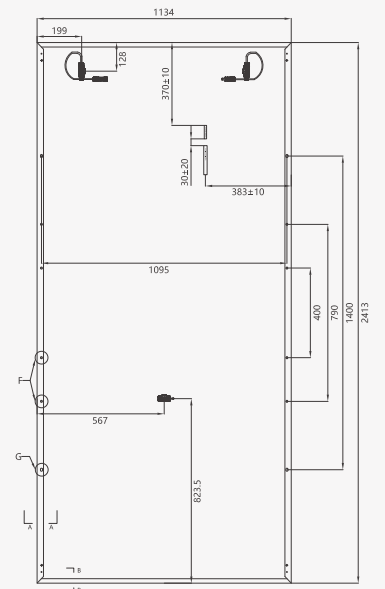
## Operating Parameters

Operating Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Bifaciality	80±5%

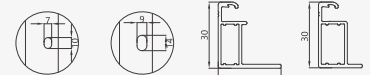
## Packaging Configuration

Modules per Pallet	36pcs
Modules per 40'HQ Container	576pcs
Pallets per 40'HQ Container	16plt

## Engineering Drawing [Unit: mm]



Back



F-Installation Hole

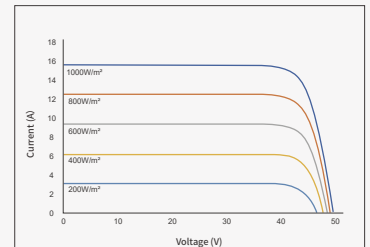
G-Installation Hole

A-A

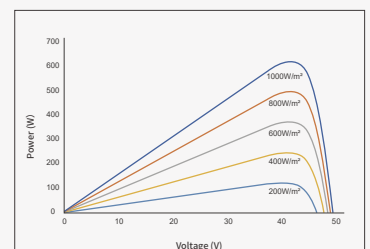
B-B

## Curve Graph

### I-V Curves (620W)



### P-V Curves (620W)



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Datasheets