

G12R⁺-66P Preliminary Version

N-type Bifacial Double Glass Module

HSM-GHF-NM640~670

670W

Maximum Power Output

24.8%

Maximum Efficiency



High Energy Yield

- High-density cell package, increasing 2% cells
- Lower temperature coefficient (Pmax): $-0.26\%/^{\circ}\text{C}$
- Up to $85\pm 5\%$ 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 + Multi-cut
- Optimized dimension design for all scenarios
- More artistic beauty with no-gap design

Long-term Reliability

- Multi-cut 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



ISO 9001:2015 ISO 45001:2018 ISO 14001:2015

Linear Performance Warranty



Electrical Parameters (STC* & BNPI*)

* STC: Irradiance 1000W/m², Cell Temperature 25°C, AM1.5, Measuring Tolerance: ±3%
* BNPI: Front Irradiance 1000W/m², Back Irradiance 135W/m², Ambient Temperature 25°C, AM1.5, Measuring Tolerance: ±3%

Testing Condition		STC	BNPI												
Maximum Power	P _{max} (W)	640	713	645	719	650	725	655	730	660	736	665	741	670	747
Open Circuit Voltage	V _{oc} (V)	49.70	49.70	49.85	49.85	50.00	50.00	50.15	50.15	50.30	50.30	50.43	50.43	50.58	50.58
Short Circuit Current	I _{sc} (A)	16.10	17.95	16.17	18.03	16.24	18.10	16.31	18.18	16.38	18.26	16.45	18.34	16.52	18.42
Maximum Power Voltage	V _{mp} (V)	41.74	41.74	41.87	41.87	42.00	42.00	42.14	42.14	42.27	42.27	42.40	42.40	42.53	42.53
Maximum Power Current	I _{mp} (A)	15.34	17.10	15.41	17.18	15.48	17.26	15.55	17.33	15.62	17.41	15.69	17.49	15.76	17.57
Module Efficiency	(%)	23.7		23.9		24.1		24.2		24.4		24.6		24.8	

Electrical Characteristics with Different Bifacial Gain*

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

Bifacial Gain		5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Maximum Power	P _{max} (W)	672	704	677	710	683	715	688	721	693	726	698	732	704	737
Open Circuit Voltage	V _{oc} (V)	49.70	49.70	49.85	49.85	50.00	50.00	50.15	50.15	50.30	50.30	50.43	50.43	50.58	50.58
Short Circuit Current	I _{sc} (A)	16.91	17.71	16.98	17.79	17.05	17.86	17.13	17.94	17.20	18.02	17.27	18.10	17.35	18.17
Maximum Power Voltage	V _{mp} (V)	41.74	41.74	41.87	41.87	42.00	42.00	42.14	42.14	42.27	42.27	42.40	42.40	42.53	42.53
Maximum Power Current	I _{mp} (A)	16.11	16.87	16.18	16.95	16.25	17.03	16.33	17.11	16.40	17.18	16.47	17.26	16.55	17.34

Temperature Coefficient

Nominal Module Operating Temperature*	43 ± 2°C
Temperature Coefficient of I _{sc}	+0.046%/°C
Temperature Coefficient of V _{oc}	-0.24%/°C
Temperature Coefficient of P _{max}	-0.26%/°C

Operating Parameters

Operating Temperature	-40~+70°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Bifaciality	85 ± 5%
Safety Protection	Class II
Fire Rating	Class C

Mechanical Data

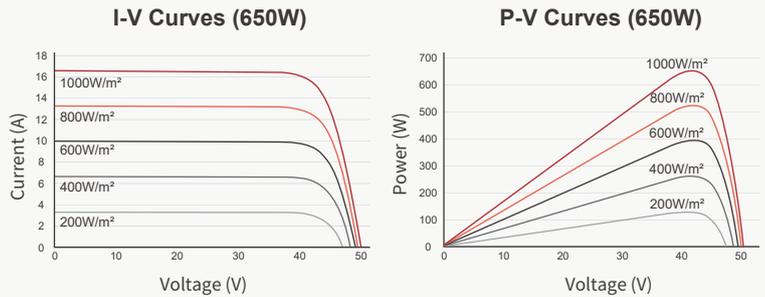
* Please refer to installation manual for details

No. of Cells	198pcs (6 × 33)
Dimension	2382 × 1134 × 30 mm
Weight	32.6kg ± 3%
Front Glass	2.0mm, Heat Strengthened, AR coating Glass
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
J-Box / Diodes	IP68 / three diodes
Cables	4.0mm ² , +350mm, -280mm (can be customized)
Maximum Static Load	Front: 5400Pa / Back: 2400Pa*

Packaging Configuration

Modules per Pallet	36pcs
Modules per 40'HQ Container	720pcs

Curve Graph



Engineering Drawing

[Unit: mm]

