

# PS-M144(HCBF)-GG-xxxW

Half-Cell 10BB Bifacial Double Glass Module

**535 -550 Watt** (182mm Cell Size)

Philadelphia Solar's Mono-Crystalline modules with power up to **550 Wp** are produced using the state-of-the-art (automated) robotic production lines. These modules are suitable to be used for most electrical power applications and have excellent durability to prevailing weather conditions

### CERTIFICATIONS

- IEC 62782:2016 Dynamic load
- IEC TS 62804 PID Resistance
- IEC 60068 Dust and Sand Resistance
- IEC 62716 Ammonia Resistance
- IEC 61701 Salt Mist Resistance
- UL 61215 / UL 61730
- IEC 61215 / IEC 61730
- EN ISO 9001: 2015
- Quality Management System
- EN ISO 14001: 2015
- Environmental Management System
- EN ISO 45001: 2018
- Occupational health and safety management systems



### APPLICATIONS



On-Grid Residential Roof-Tops



On-Grid Commercial/ Industrial Roof-Tops



Off-Grid Systems (Including Lighting Systems)



Solar Power Plants

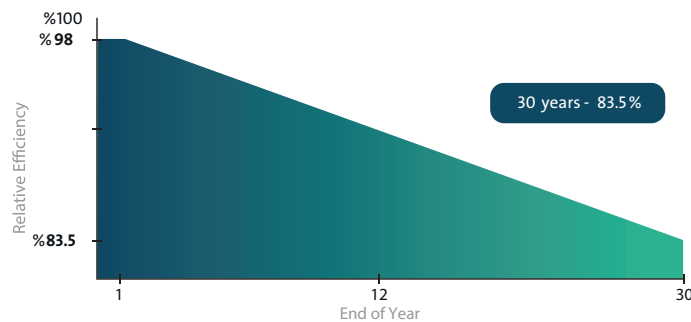
### FEATURES

- Module Efficiency up to **21.29%**
- Lower microcrack problem loss comparing with 5-busbar module
- Lower internal resistance loss
- Lower degradation PERC technology
- Less partial shading current mismatch loss so more power output.
- Better temperature coefficients come from half-cell design.



Proudly Made In Jordan

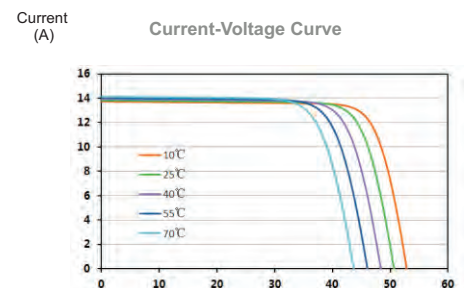
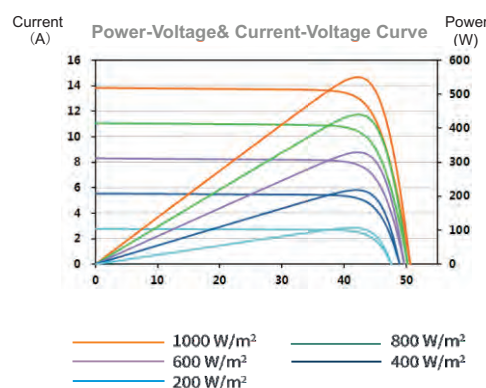
### LINEAR PERFORMANCE WARRANTY



30 years - 83.5%

- 12 Year Product Warranty
- 30 Year Linear Power Warranty
- Only **-0.5%** Annual Degradation

### I-V CURVES



## ELECTRICAL CHARACTERISTICS

POWER AT STC	535 W	540 W	545 W	550 W
Short Circuit Current - I <sub>sc</sub> (A)	13.63	13.69	13.77	13.83
Maximum Power Current - I <sub>mpp</sub> (A)	12.79	12.84	12.90	12.96
Open Circuit Voltage - Voc (V)	49.99	50.24	50.40	50.63
Maximum Power Voltage - V <sub>mpp</sub> (V)	41.83	42.06	42.25	42.44
Module Efficiency - η' (%)	20.71%	20.90%	21.10%	21.29%

Values at Standard Test Conditions STC (Air Mass AM 1.5, Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25° C).

POWER AT NMOT	399.25 W	402.97 W	406.97 W	410.52 W
Short Circuit Current - I <sub>sc</sub> (A)	11.00	11.05	11.12	11.17
Maximum Power Current - I <sub>mpp</sub> (A)	10.24	10.28	10.33	10.38
Open Circuit Voltage - Voc (V)	46.75	46.98	47.13	47.35
Maximum Power Voltage - V <sub>mpp</sub> (V)	38.99	39.20	39.38	39.55

Values at Nominal Module Operation Temperature NOMT (wind speed 1m/s, Irradiance 800 W/m<sup>2</sup>, Cell Temperature 20° C).

BIFACIAL GENERATION DATA (FOR 550W)			
Power gain	5%	15%	25%
Maximum Power (W)	577.60	632.35	687.52
Module Efficiency - η' (%)	22.26%	24.48%	26.61%
Short Circuit Current - I <sub>sc</sub> (A)	14.52	15.90	17.29
Maximum Power Current - I <sub>mpp</sub> (A)	13.61	14.90	16.20
Open Circuit Voltage - Voc (V)	50.63	50.63	50.63
Maximum Power Voltage - V <sub>mpp</sub> (V)	42.44	42.44	42.44

## MATERIAL CHARACTERISTICS

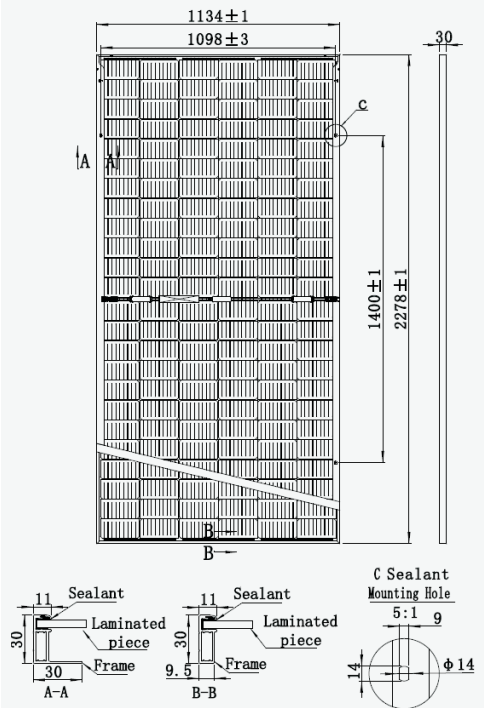
Characteristics	Value
Cells per Module	144 ((6 x 12)x2)
Cell Type	Grade A - Mono PERC Crystalline Silicon/Bifacial/10BB 182x91mm
Front Surface	Semi -Tempered Pattern Coated Glass
Encapsulant	EVA/POE+POE
Back Cover	Semi -Tempered Pattern /Porcelain Glass
Frame	AL 6063-T5/6005-T6
Junction Box	Protection Degree IP68
Cable Length	300mm (4mm <sup>2</sup> ) Cables Length (Can be Customized)
Fire Classification	Type I

## OPERATING CONDITIONS

Maximum Sytem Voltage - V <sub>max</sub> (V)	Operating Temperature Range (°C)	Maximum Series Fuse (A)
1500	-40 to +85	30

- ◆ Power measuring tolerance: ± 3%, other measurements tolerances: ± 5%.
- ◆ Datasheet is subjected to change without prior notice, always obtain the most recent version of the datasheet.
- ◆ Caution: For professional use only, the installation and handling of PV modules and cleaning modules require professional skills and should only be performed by qualified professionals, please read the Installation and Operation Manual before using the modules, also Cleaning Guidelines

## MODULE DRAWINGS



## PHYSICAL CHARACTERISTICS

Characteristics	Value
Module Dimensions (mm)	2278 x 1134 x 30
Module Weight (kg)	32.5 ± 3%
Packaging	Value
Modules per Pallet	36
40 Feet High-Cube Container	720 Modules
Mechanical Load	Value
Max Static load (Front)	5400 Pa
Max Static load (Back)	2400 Pa
Dynamic load	1000 Pa

## THERMAL CHARACTERISTICS

Characteristics	Value
Open Voltage Temperature Coefficient VOC (%/C°)	-0.267
Short Circuit Current Temperature Coefficient ISC (%/C°)	+0.049
Power Temperature Coefficient PMP (%/C°)	-0.349
NOCT (°C)	45±2