PHILADELPHIA SOLAR
DELIVERING CLEAN ENERGY SOLUTIONS

POWERQ

NEXUS

PS-MNB108(HCBF)-xxxW

Half-Cell N-Type 16BB Bifacial Module

445 - 460 Watt

Positive power tolerance of 0 ~+3%



EUPD RESEARCH TOP BRAND PV MODULES MIDDLE EAST & NORTH AFRICA 2025

Made In Jordan

Philadelphia Solar's Mono-Crystalline N-type modules with power up to **460Wp** 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

UL 61215 / UL 61730
IEC 61215 / IEC 61730
CSA C22.2#61730:2019

HALT TEST Highly Accelerated Life And Extended Reliability Test
IEC 61853 PAN File
IEC TS 62804 PID Resistance
IEC 60068 Dust and Sand Resistance
IEC 62716 Ammonia Resistance
IEC 61701 Salt Mist Resistance

Bankability Report

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 Commercial/ Industrial Roof-Tops

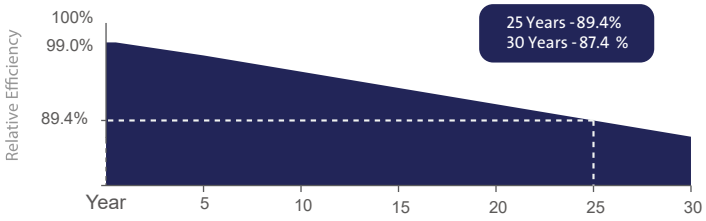
Off-Grid Systems (Including Lighting Systems)

Solar Power Plants

FEATURES

- Power output increases by 5-25% from the backside resulting in significantly reduced LCOE and (IRR).
- Withstand High Mechanical load : Front (5400 Pascal) Back (5400 Pascal)
- Exceptional Anti-PID performance through the use of optimized mass-production processes and strict materials control.
- Improved light trapping and current collection technology enhance module power output and reliability.
- Less partial shading current mismatch loss so more power output.
- Better temperature coefficients come from half-cell design.

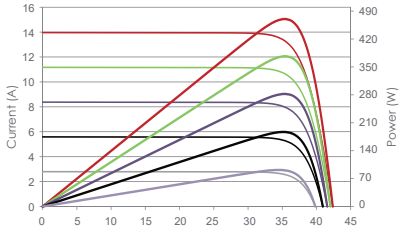
LINEAR PERFORMANCE WARRANTY



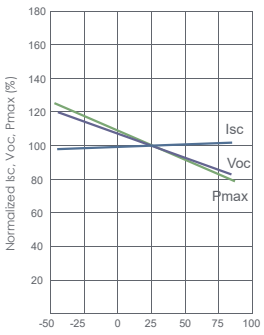
- **25** Year Product Warranty
- **30** Year Linear Power Warranty
- Only **-0.4%** Annual Degradation

Electrical Performance & Temperature Dependence

Current-Voltage & Power-Voltage Curves (450W)



Temperature Dependence of Isc,Voc,Pmax



ELECTRICAL CHARACTERISTICS

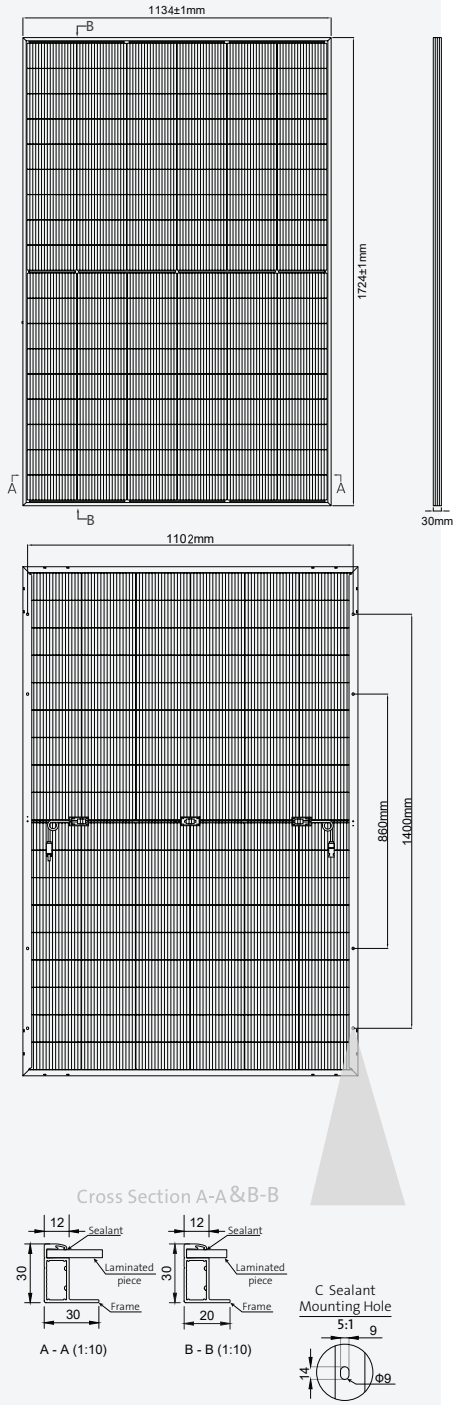
POWER AT STC	445 W	450 W	455 W	460 W
Short Circuit Current - Isc (A)	14.38	14.47	14.54	14.62
Maximum Power Current - Impp (A)	13.40	13.44	13.48	13.52
Open Circuit Voltage - Voc (V)	38.76	38.84	39.02	39.15
Maximum Power Voltage - Vmpp (V)	33.23	33.51	33.76	34.03
Module Efficiency - η' (%)	22.76%	23.02%	23.27%	23.53%
Bifaciality Ratio (%)	80% ± 5			
Power tolerance (%)	0~+3%			

Values at Standard Test Conditions STC (Air Mass AM 1.5 , Irradiance 1000 W/m², Cell Temperature 25° C).

MATERIAL CHARACTERISTICS

Characteristics	Value
Cells per Module	108 (54x 2)
Cell Type	N Type Mono-Crystalline
Front Surface	3.2mm Tempered AR Coated Glass
Back Cover	Transparent Backsheet
Frame	Anodized Aluminum (Black/Silver)
Junction Box	IP 68 With original MC4
Cable Length	1200mm Cable length could be customized
Fire Classification	Type 1

MODULE DRAWINGS



THERMAL CHARACTERISTICS

Characteristics	Value
Open Voltage Temperature Coefficient VOC (%/C°)	-0.25
Short Circuit Current Temperature Coefficient ISC (%/C°)	+0.046
Power Temperature Coefficient PMP (%/C°)	-0.29
NOCT (°C)	45±2

OPERATING CONDITIONS

Maximum System Voltage - Vmax (V)	1500
Maximum Series Fuse (A)	30
Operating Temperature Range (°C)	IEC: -40 to +85 UL: -40 to +90

PHYSICAL CHARACTERISTICS

Characteristics	Value
Module Dimensions (mm)	1724x 1134 x 30
Module Weight (kg)	20.5 ±1Kg
Packaging	**Value**
Modules per Pallet	37
40 Feet High-Cube Container	962 Modules
Mechanical Load**	**Value**
Max Static load (Front)	5400 Pa
Max Static load (Back)	5400 Pa
Dynamic load	1000 Pa

- Tolerance of power Current and Voltage (ISC,VOC)±3 %
- 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