



Philadelphia Solar
Delivering Clean Energy Solutions

PS-M144(HC)-xxxW

Half-Cell MBB Mono Module

435 -455 Watt (166mm Cell Size)



Philadelphia Solar's Mono-Crystalline modules with power up to **455 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's Cell Efficiency up to 23%



Lower internal resistance loss



Less partial shading current mismatch loss so more power output.



Lower microcrack problem loss comparing with 5-busbar module



Lower degradation PERC technology

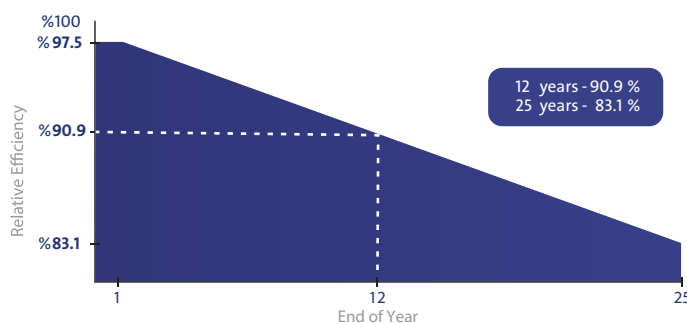


Better temperature coefficients come from half-cell design.



Made In Jordan

LINEAR PERFORMANCE WARRANTY



12 Year Product Warranty

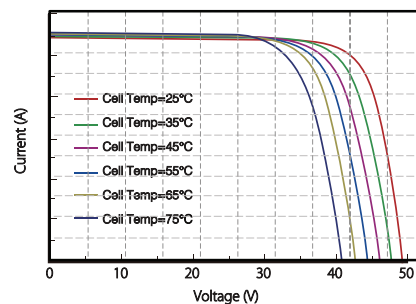
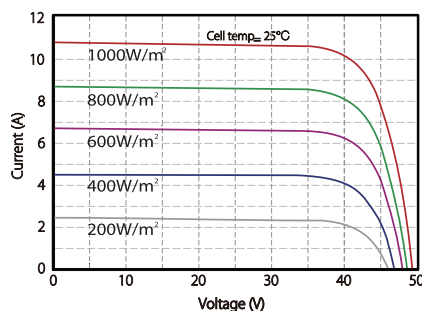


25 Year Linear Power Warranty



Only -0.6% Annual Degradation

I-V CURVES



ELECTRICAL CHARACTERISTICS					
POWER AT STC	435 W	440 W	445 W	450 W	455 W
Short Circuit Current - Isc (A)	11.21	11.26	11.30	11.35	11.39
Maximum Power Current - Impp (A)	10.67	10.72	10.76	10.81	10.86
Open Circuit Voltage - Voc (V)	48.93	49.20	49.49	49.75	50.00
Maximum Power Voltage - Vmpp (V)	40.78	41.08	41.36	41.69	41.94
Module Efficiency - η (%)	20.0%	20.2%	20.5%	20.7%	21.0%

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	144 (72 x 2)
Cell Type	Grade A - Mono PERC Crystalline Silicon
Front Surface	Anti-Reflective Coated Tempered 3.2 mm Glass
Encapsulant	PID Free EVA
Back Cover	Backsheet
Frame	Anodized Aluminum
Junction Box	IP68 , 3 Bypass Diodes
Cable Length	300mm Cables Length (Can be Customized)
Fire Classification	Type I

THERMAL CHARACTERISTICS		PHYSICAL CHARACTERISTICS	
Characteristics	Value	Characteristics	Value
Open Voltage Temperature Coefficient VOC (%/C°)	-0.26	Module Dimensions (mm)	2094±1 x 1038±1 x 35±1
Short Circuit Current Temperature Coefficient ISC (%/C°)	+0.04	Module Weight (kg)	24 ± 3%
Power Temperature Coefficient PMP (%/C°)	-0.30	Packaging	Value
NOCT (°C)	45±2	Modules per Pallet	31/34
OPERATING CONDITIONS		40 Feet High-Cube Container	715 Modules
Maximum Sytem Voltage - Vmax (V)	1500	Mechanical Load	Value
Maximum Series Fuse (A)	20	Max Static load (Front)	5400 Pa
Operating Temperature Range (°C)	IEC: -40 to +85 UL: -40 to +90	Max Static load (Back)	2400 Pa
		Dynamic load	1000 Pa

- ◆ 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

The technical drawings include:

- Front View:** Shows the module's dimensions as 2094±1 mm in height and 1038±1 mm in width. The frame thickness is 35±1 mm.
- Back View:** Shows the module's dimensions as 1300 mm in height and 1011 mm in width. It also indicates a 990 mm height for the junction box area and a 400 mm width for the cable exit. A cross-section line A-A is marked.
- Cross Section A-A:** Shows the module's profile with a height of 35 mm and a width of 35 mm.