



**PERLIGHT**  
smart.black

# PERLIGHT DELTA 415W

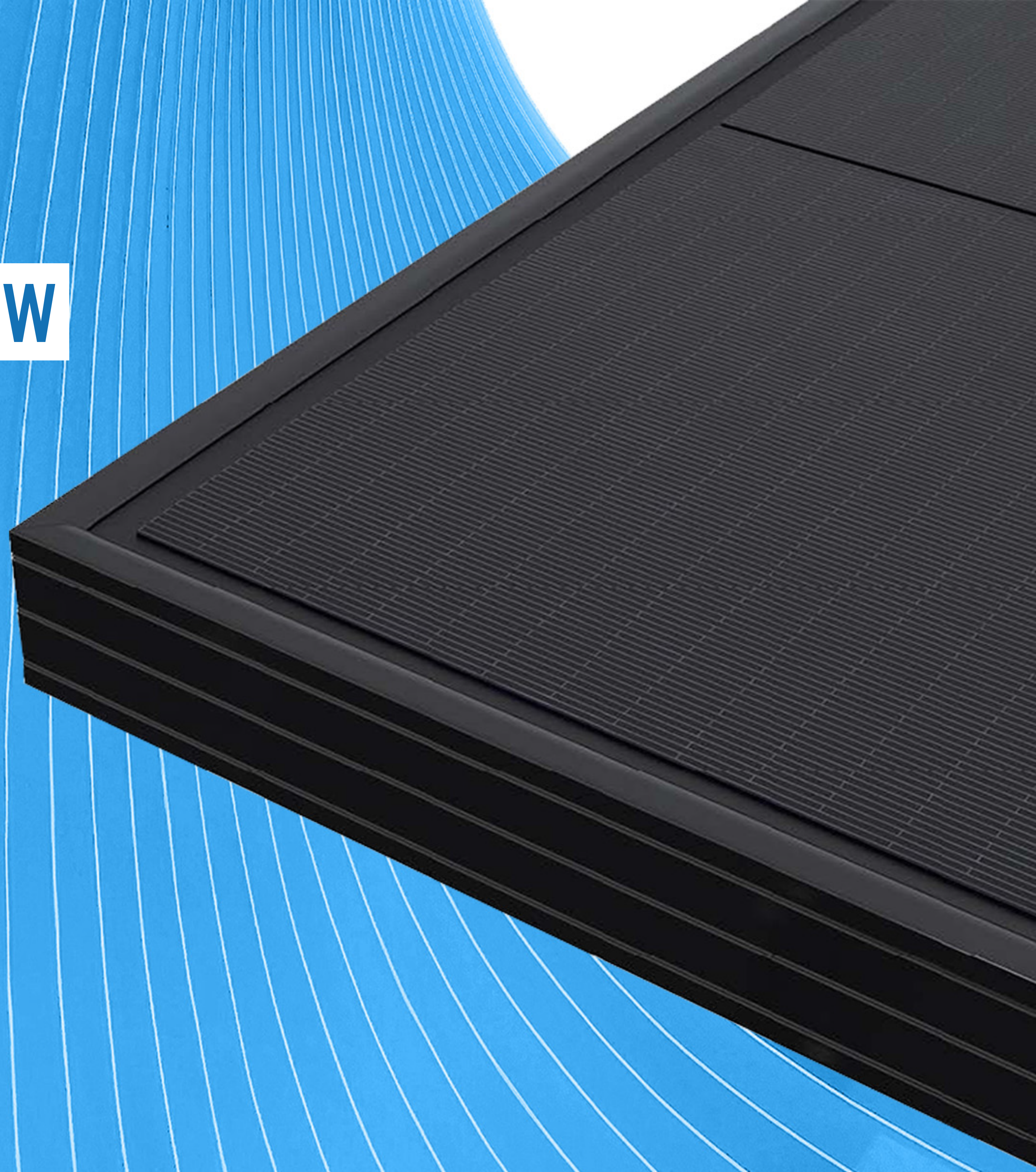
**PLM-4150M6B-60**

Monocrystalline PERC Solar Module

**21.2%**  
Efficiency

**415W**  
Power

**30-YEAR**  
Warranty



## MODULE FEATURES



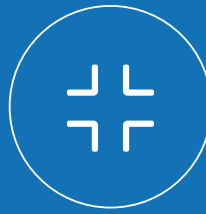
### TECHNOLOGY

Innovative structure, high density cell layout.



### BEAUTIFUL APPEARANCE

Ultra-sleek with consistent tone, providing a modernised look.



### SAFETY AND RELIABILITY

Lower operating temperature and high pressure-resistance.



### LOW SYSTEM COST

High module efficiency, reducing system cost.



### LOW HOT SPOT EFFECT

Prolong module lifetime. Reduce electricity loss during generation.



### LOWER SHADING LOSS

Parallel layout reduces shading effect compared to conventional modules.



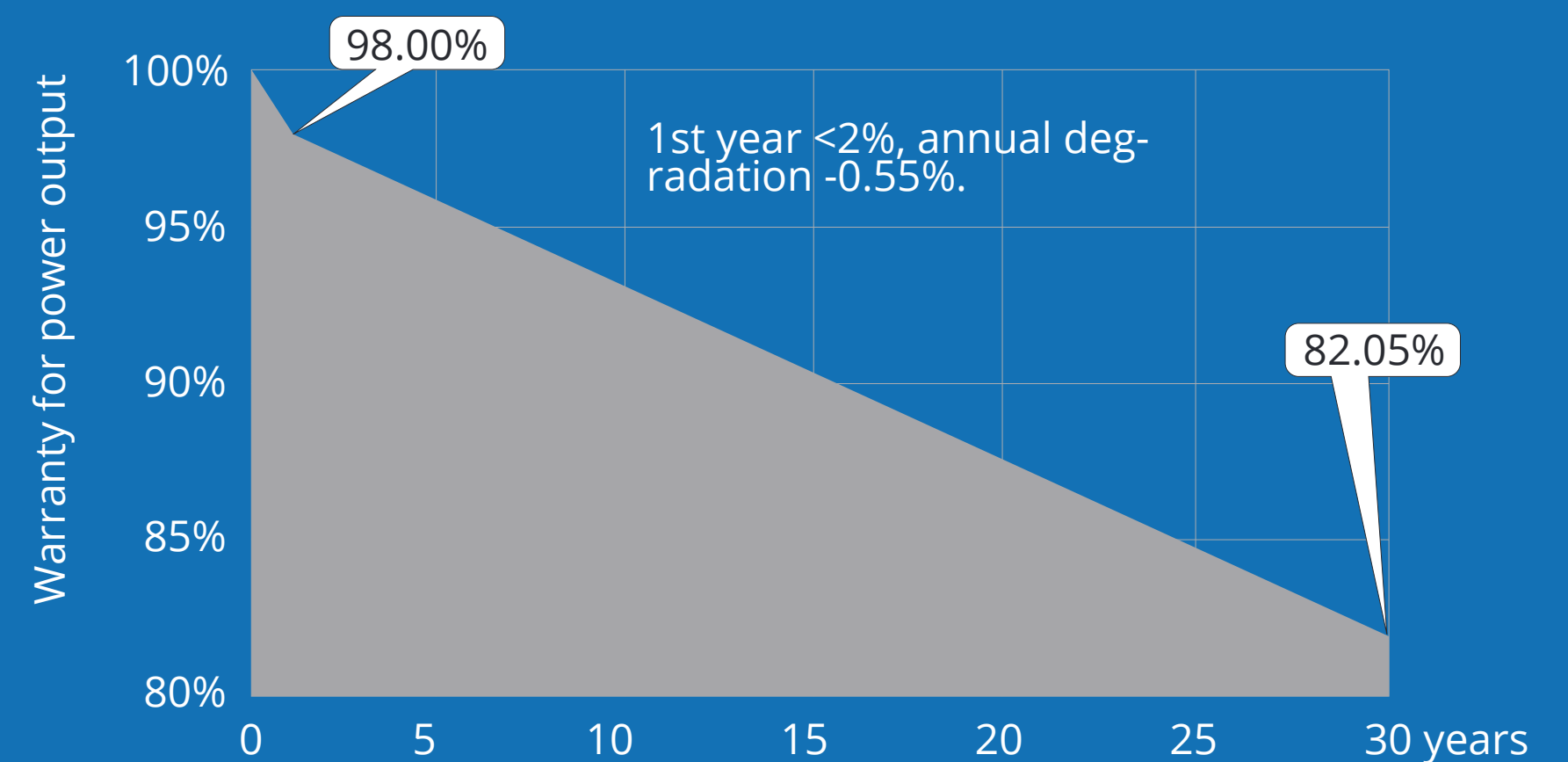
### BETTER FOR THE ENVIRONMENT

More environmentally friendly, Fluorine-free and low Pb levels.

## LINEAR POWER OUTPUT WARRANTY

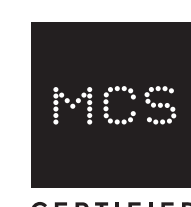
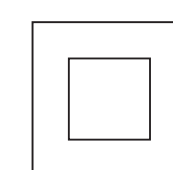
**30** 30-year warranty for materials.

**30** 30-year warranty for linear power output.



## QUALITY MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION

IEC61215/61730, IEC62804(PID), IEC61701 (Salt), IEC62716 (Ammonia), IEC60068-2-68 (Sand)  
 ISO 9001:2015 / quality management system  
 ISO 14001:2015 / environmental management system  
 ISO 45001:2018 / occupation health safety management system  
 ISO 50001:2011 / energy management system  
 IEC TS 62941 - 2016 / PV industry quality management system





## ELECTRICAL CHARACTERISTICS (STC)

Module Type:	415	410	405	400
Maximum Power - P <sub>m</sub> (W)	415	410	405	400
Open Circuit Voltage - V <sub>oc</sub> (V)	46.7	46.6	46.5	46.4
Short Circuit Current - I <sub>sc</sub> [A]	11.12	11.07	11.02	10.97
Maximum Power Voltage - V <sub>m</sub> [V]	38.9	38.8	38.7	38.6
Maximum Power Current - I <sub>m</sub> [A]	10.67	10.57	10.47	10.36
Module Efficiency - η [%]	21.2	20.9	20.7	20.4

## ELECTRICAL CHARACTERISTICS AT NMOT

Maximum Power - P <sub>m</sub> (W)	312	309	305	301
Open Circuit Voltage - V <sub>oc</sub> (V)	44.5	44.4	44.3	44.2
Short Circuit Current - I <sub>sc</sub> [A]	8.97	8.93	8.89	8.85
Maximum Power Voltage - V <sub>m</sub> [V]	37.1	37.0	36.9	36.8
Maximum Power Current - I <sub>m</sub> [A]	8.43	8.35	8.27	8.18

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m<sup>2</sup>; AM 1.5; ambient temperature 25°C according to EN 60904-3;  
2. Nominal Module Operating Temperature (NMOT): Irradiance 800 W/m<sup>2</sup>; wind speed 1 m/s, ambient temperature 20°C;  
3. Tolerance of P<sub>m</sub>: -/+3%, Measuring uncertainty of power: -/+3%. Performance deviation of V<sub>oc</sub> [V], I<sub>sc</sub> [A], V<sub>m</sub> [V] and I<sub>m</sub> [A]: -/+3%

## MECHANICAL PARAMETERS

Dimensions	1719 x 1140 x 30 mm
Weight	21 kg
Front Glass	AR coating tempered glass, 3.2mm
Frame	Anodized aluminum profile
Cells	Mono-crystalline solar cell
Cell Orientation	340 (34 x 10)
Junction Box	IP68, two diodes
Cable	4mm <sup>2</sup> , 1200mm
Packaging	36pcs/box; 936pcs/26'container

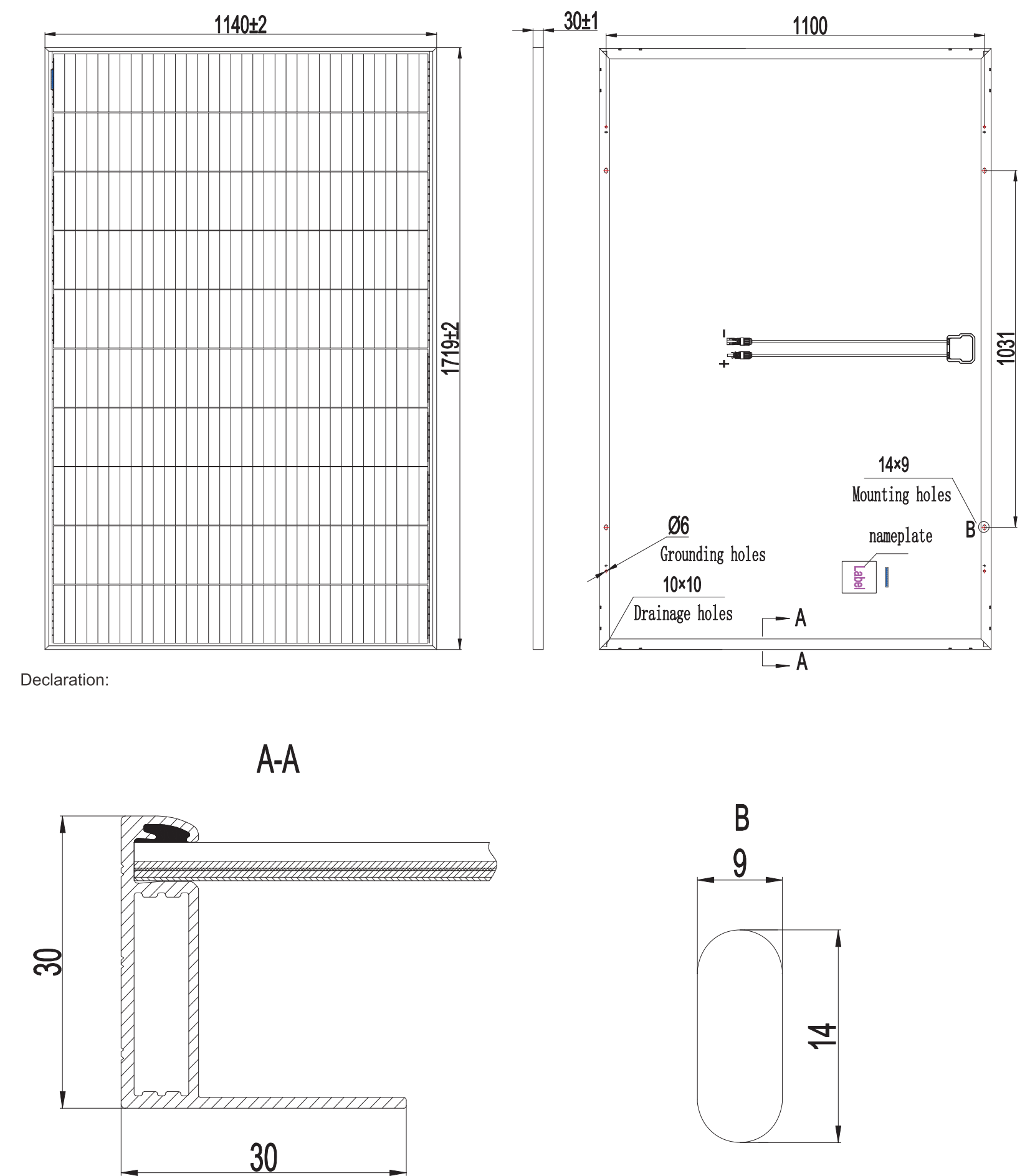
## TEMPERATURE PARAMETERS

NMOT	42.3°C (±2°C)
Temperature Coefficient of V <sub>oc</sub>	-0.27%/°C
Temperature Coefficient of I <sub>sc</sub>	+0.04%/°C
Temperature Coefficient of P <sub>m</sub>	-0.34%/°C

## MAXIMUM RATINGS

Maximum System Voltage [V]	DC1500 / 1000(IEC)
Series Fuse Rating [A]	20
Maximum Surface Load Capacity [Pa]	Front 5400
Temperature Range [°C]	-40 ~ +85
Withstanding Hail	Maximum diameter of 25 mm with impact speed of 23 m/s

## DRAWINGS



## I-V CURVE

