

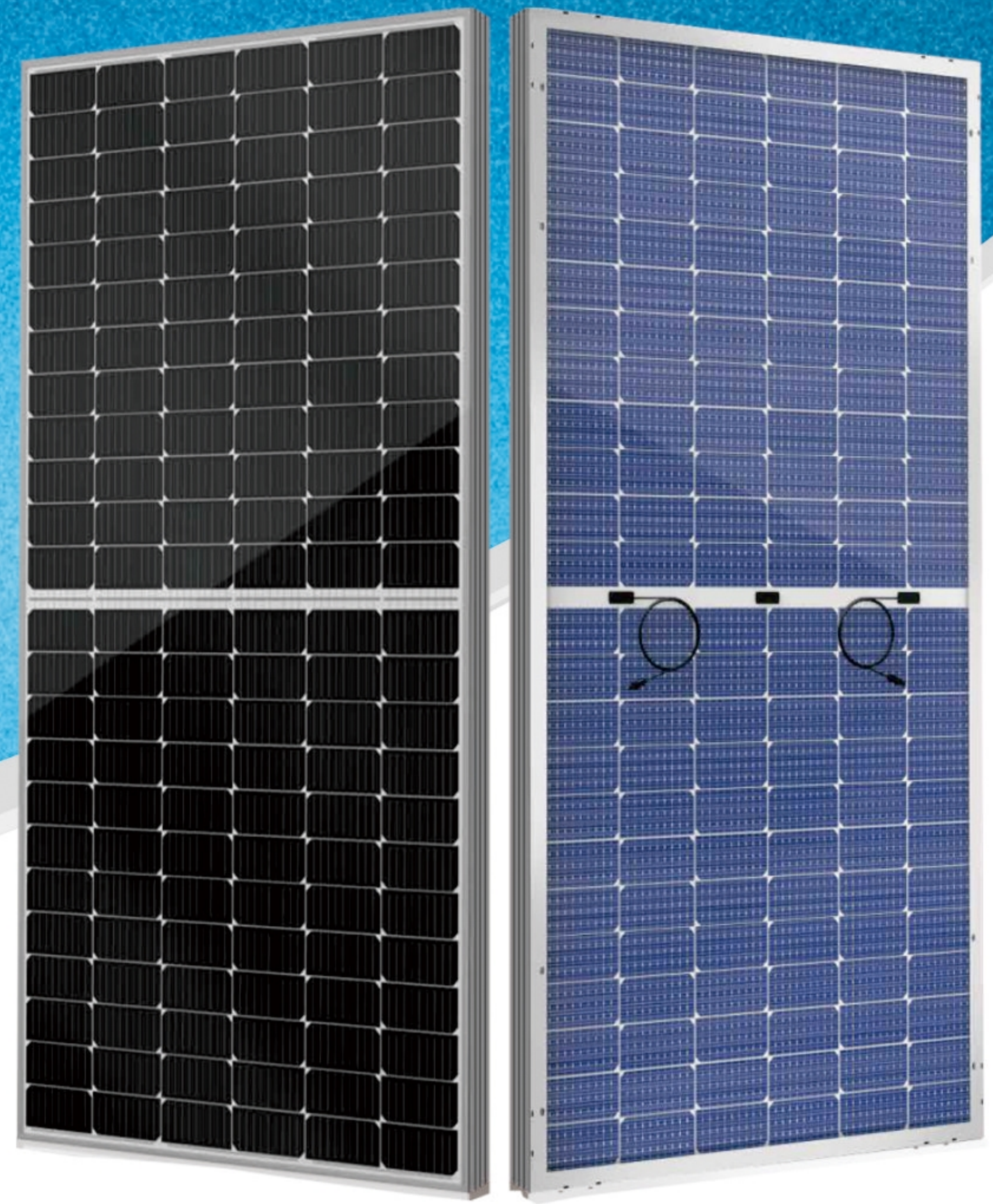


# TUNGHSU

## 182 series

## Mono solar modules

## 144 cells double-glass transparent multi-busbar half-cut modules



# 525-550W

### Tunghsu components with high efficiency and high reliability

- \* Advanced production equipment, highly automated process control, world-class production technology
- \* The company has a product research and development laboratory that meets the new ISO/IEC international standards
- \* Excellent weak light performance, resistant to salt spray and ammonia corrosion.  
Passing the certification test of the PV standards.
- \* Certified by international quality management and environmental management system
- \* Application grade: A, Safe grade: II, Fireproofing grade: C

### Comprehensive Products And System Certificates

IEC61215/IEC61730/UL1703/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO 45001: Occupation Health and Safety Management System  
 GB/T 23001-2017: Management system with Integration of Information Technology and Industrialization



### Non-destructive cutting

Higher battery bending strength and module mechanical performance



### Higher power generation

Double-sided power generation, according to different installation environments, the power generation on the back can be increased by up to 25%  
Half-cell technology brings stronger anti-shadow occlusion ability  
Effectively reduce system BOS cost



### High-efficiency PERC+ battery technology

Double-sided PERC battery, half-cut technology and transparent grid backsheet  
Higher module power and efficiency, lower power attenuation

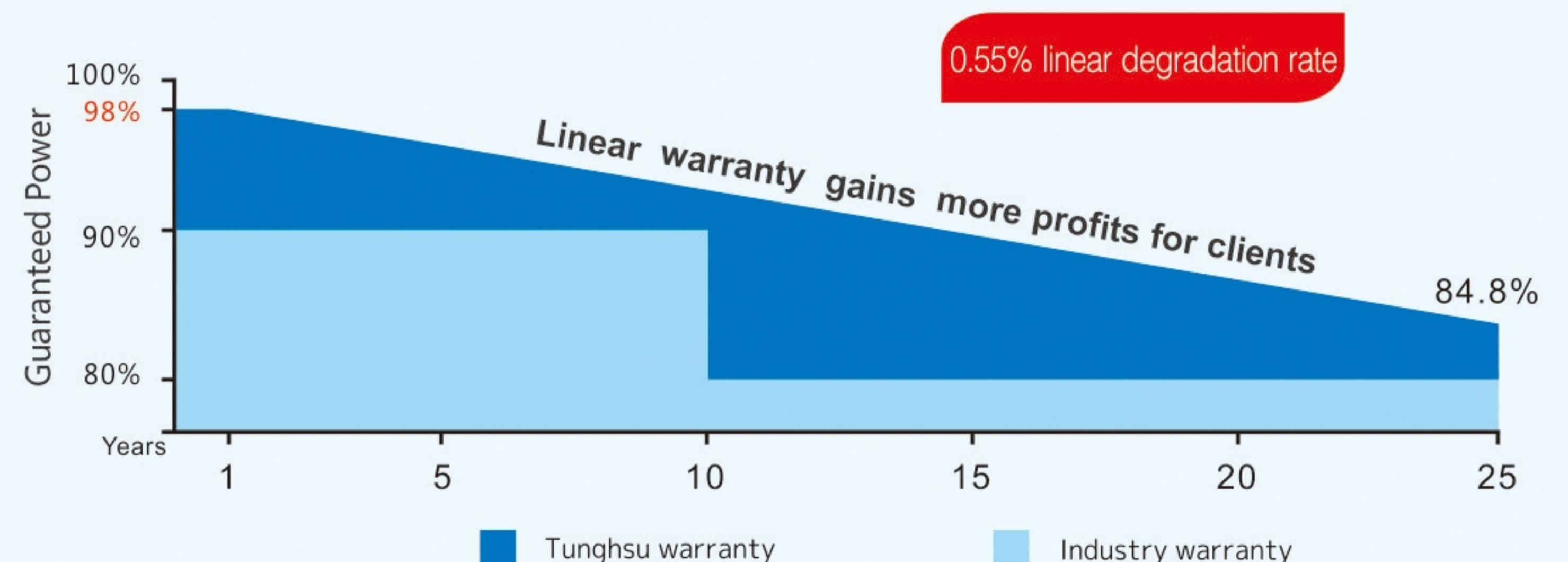


### Withstand harsher environments

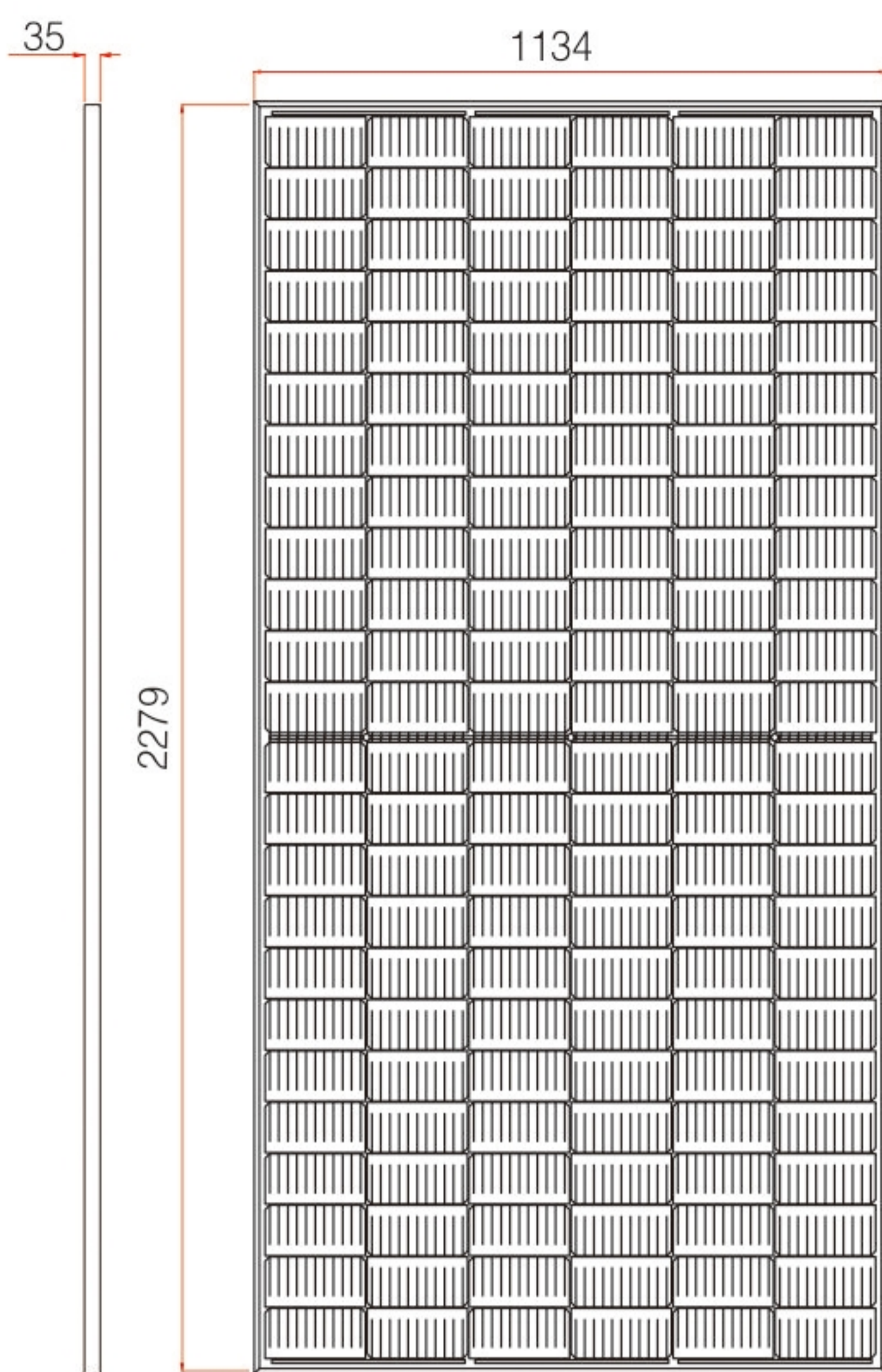
Anti-reflection and easy to clean, minimizing the power loss caused by dirt and dust

### Industry-leading linear warranty

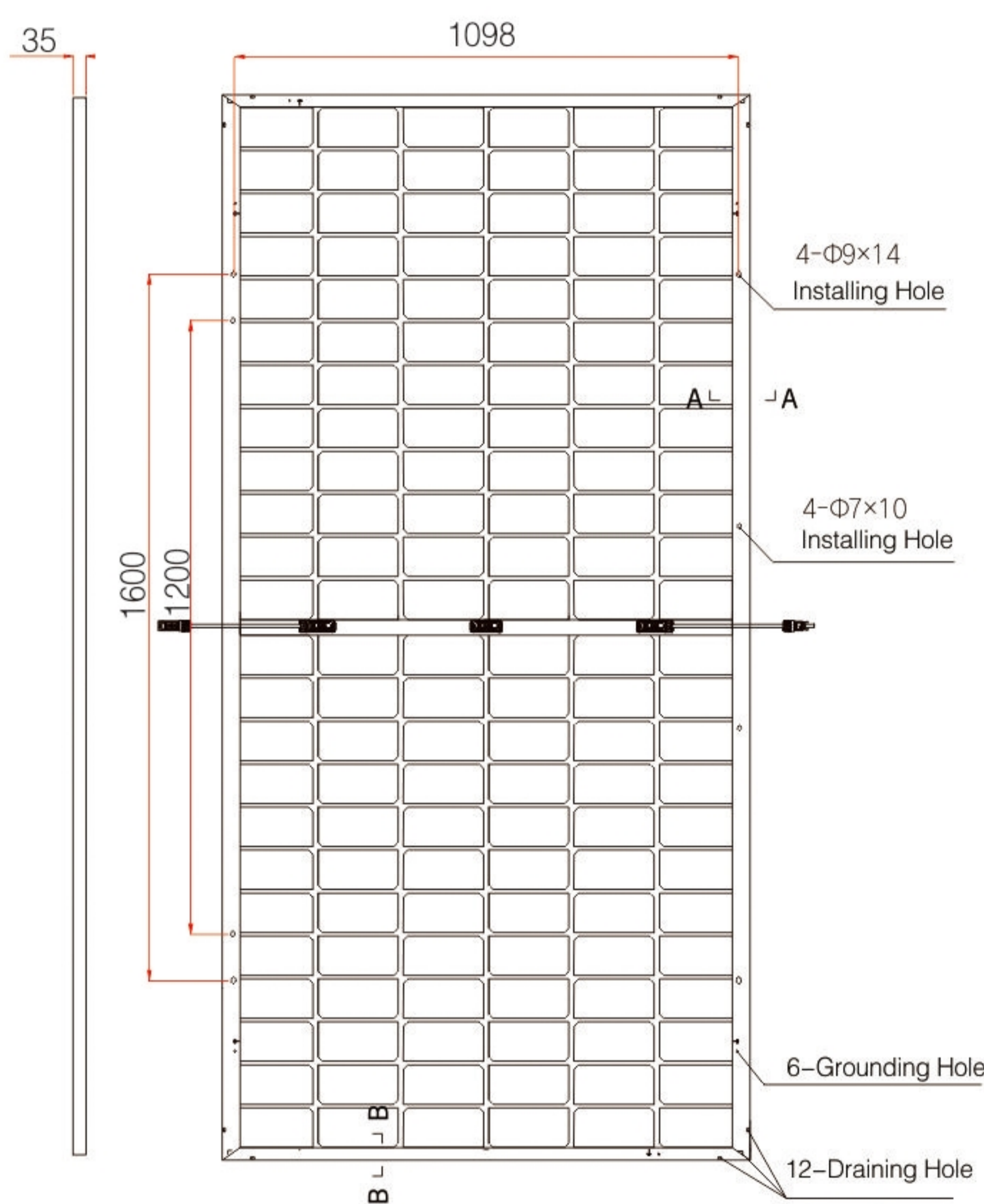
+15 Year Product Warranty +25Year Linear Power Warranty



## DIMENSIONS OF PV MODULE(mm)

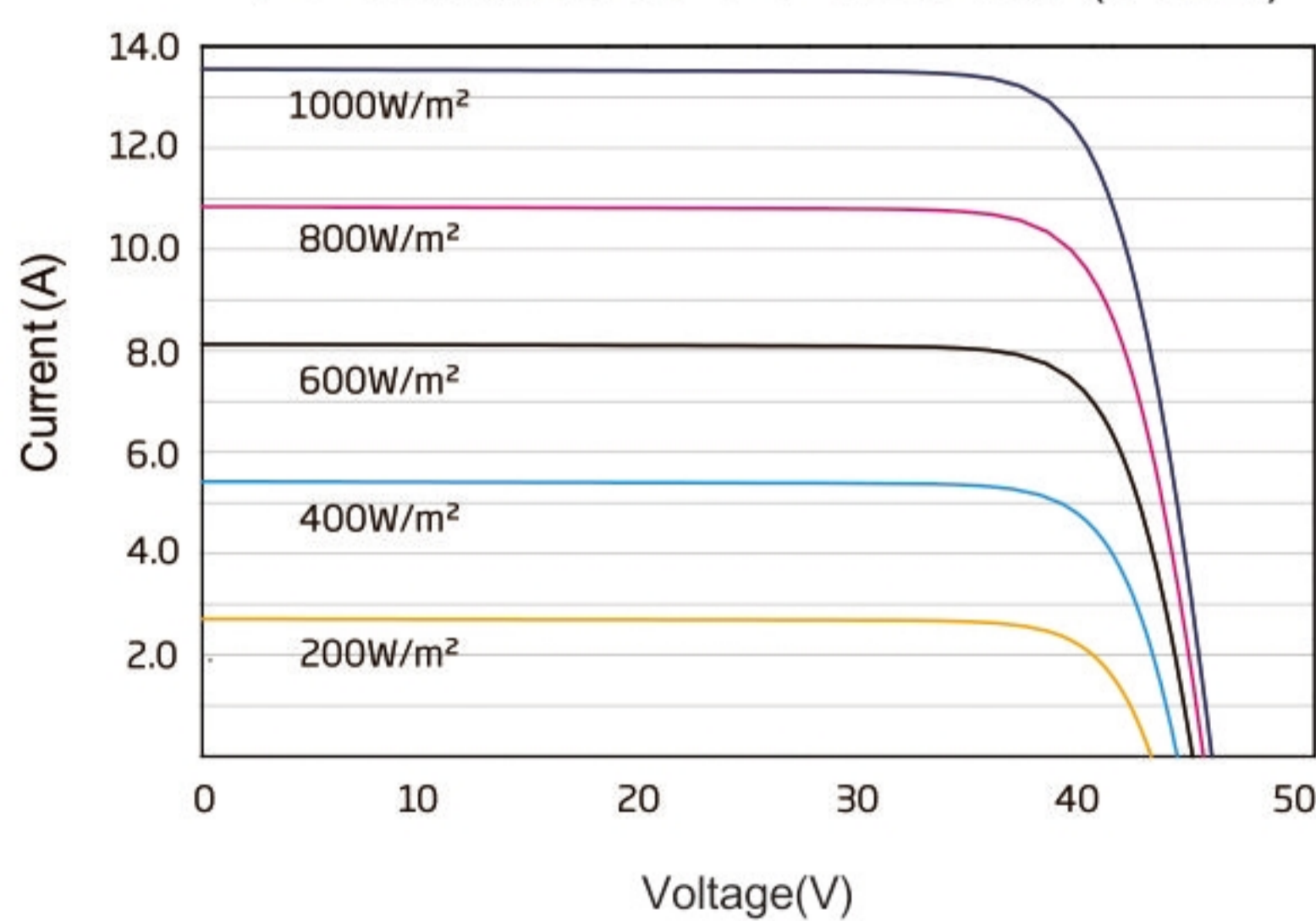


Front View

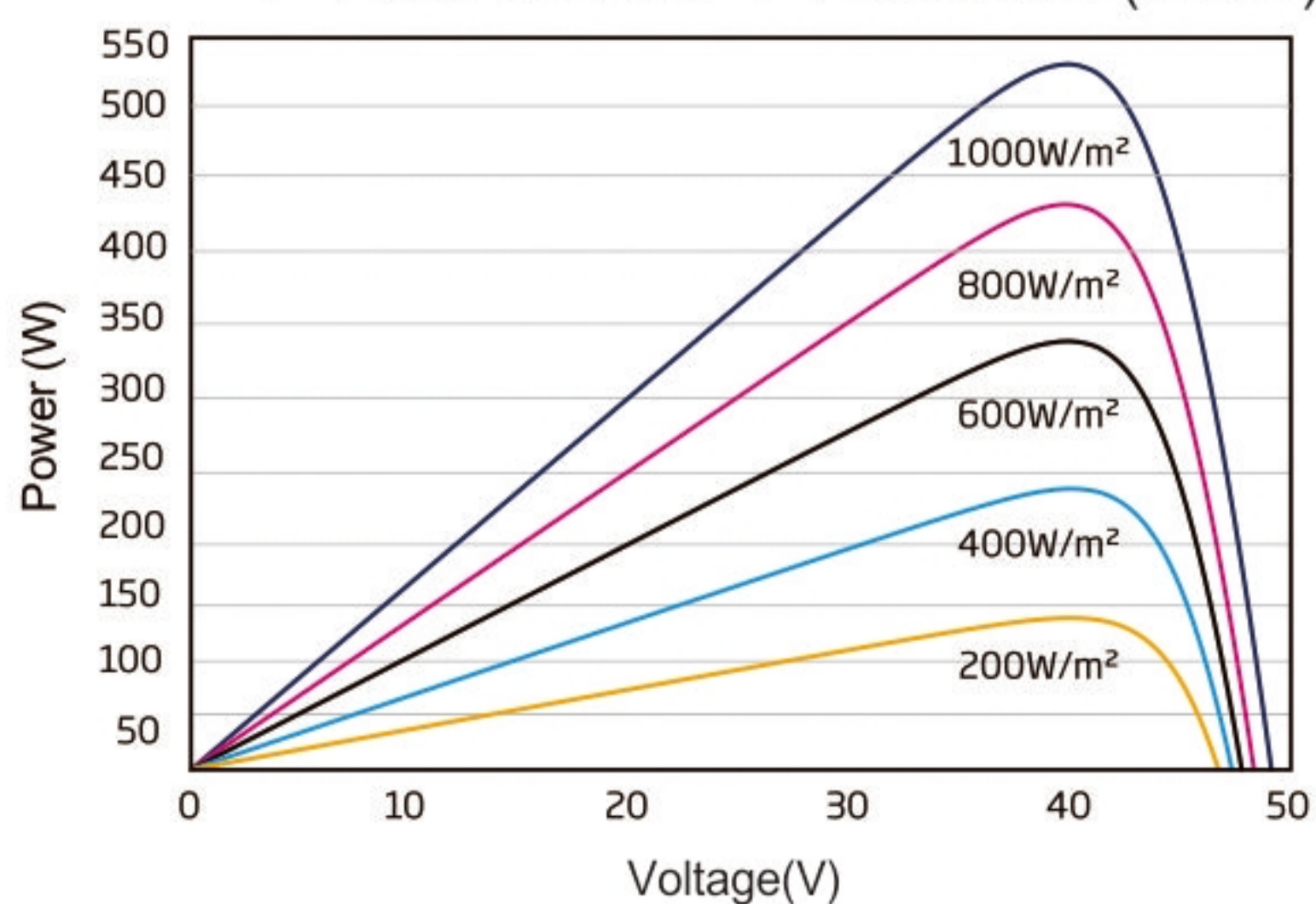


Back View

## I-V CURVES OF PV MODULE(540W)



## P-V CURVES OF PV MODULE(540W)



## ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)	525	530	535	540	545	550
Power Output Tolerance- $P_{MAX}$ (W)	0~ +5					
Maximum Power Voltage- $V_{MPP}$ (V)	41.15	41.31	41.47	41.64	41.80	41.96
Maximum Power Current- $I_{MPP}$ (A)	12.76	12.83	12.90	12.97	13.04	13.11
Open Circuit Voltage- $V_{OC}$ (V)	49.15	49.30	49.45	49.60	49.75	49.90
Short Circuit Current- $I_{SC}$ (A)	13.65	13.72	13.79	13.86	13.93	14.00
Module Efficiency $\eta_m$ (%)	20.3	20.5	20.7	20.9	21.1	21.3

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.

## ELECTRICAL PARAMETERS AND DIFFERENT POWER GAIN BACK (Take 10% irradiation ratio as an example)

Maximum Power- $P_{MAX}$ (Wp)	562	567	572	578	583	589
Maximum Power Voltage- $V_{MPP}$ (V)	41.53	41.77	41.99	42.24	42.43	42.67
Maximum Power Current- $I_{MPP}$ (A)	13.52	13.58	13.63	13.69	13.74	13.79
Open Circuit Voltage- $V_{OC}$ (V)	49.54	49.67	49.80	49.93	50.03	50.21
Short Circuit Current- $I_{SC}$ (A)	14.34	13.49	14.45	14.50	14.56	14.63

Back gain: Under standard test conditions, the additional gain from the back and the front power depends on the installation and ground albedo parameters.

## ELECTRICAL DATA (NOCT)

Maximum Power- $P_{MAX}$ (Wp)	397	401	405	408	412	416
Maximum Power Voltage- $V_{MPP}$ (V)	38.36	38.57	38.78	38.99	39.20	39.43
Maximum Power Current- $I_{MPP}$ (A)	10.35	10.39	10.43	10.47	10.51	10.55
Open Circuit Voltage- $V_{OC}$ (V)	46.05	46.18	46.31	46.43	46.55	46.68
Short Circuit Current- $I_{SC}$ (A)	10.97	11.01	11.05	11.09	11.13	11.17

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

## MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	144 cell (6x24)
Module Dimensions	2279x1134x35mm (89.72x 44.65x 1.38 inches)
Weight	28.5kg(62.83lb)
Front Glass	2.0mm (0.08inches), High Transmission, Tempered Coated Glass
Encapsulant Material	EVA
Backsheet	Transparent backsheet (white grid)
Frame	30mm (1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	4.0mm <sup>2</sup> , 350mm photovoltaic special cable, or customized
Connector	MC4、QC4

## TEMPERATURE RATING

NOCT (Nominal Operating Cell Temperature)	45°C (± 2°C)
Temperature Coefficient of $P_{MAX}$	- 0.350%/°C
Temperature Coefficient of $V_{OC}$	- 0.25%/°C
Temperature Coefficient of $I_{SC}$	0.045%/°C

## LIMIT PARAMETERS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	20A

(DO NOT connect Fuse in Combiner Box with two or more strings in)

## WARRANTY

15 year Product Workmanship Warranty
30 year Linear Power Warranty

## PACKAGING CONFIGURATION

Modules per box: 31 pieces
Modules per 40' container: 620 pieces

