



# Mono Crystalline Half 144 Cells 435-460 watt

## HALF-CELL MONO MODULE

Positive power tolerance of 0~+3%

ISO9001:2015 ISO14001:2015

IEC61215/IEC61730



### 9 Busbar Solar Cell

9 busbar solar cell adopts new technology to improve the efficiency of modules, offers a better aesthetic appearance, making it perfect for rooftop installation.



### High Efficiency

Higher module conversion efficiency (up to 20.70%) benefit from half cellstructure (low resistance characteristic).



### PID Resistance

Excellent Anti-PID performance guarantee limited power degradation for mass production.



### Low-light Performance

Advanced glass and cell surface textured design ensure excellent performance in low-light environment.



### Severe Weather Resilience

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

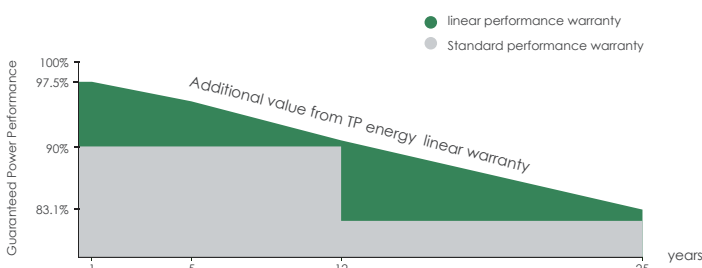


### Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance certified by TUV NORD.

## ► Superior Warranty

### TP ENERGY SOLAR PERFORMANCE WARRANTY

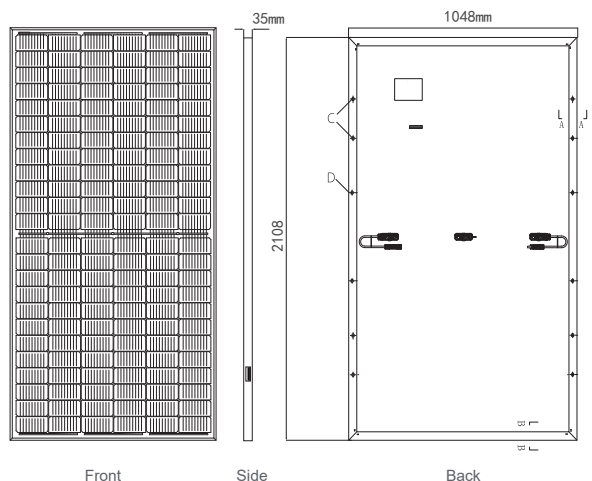


## ► Comprehensive Certificates

IEC61215/IEC61730/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 OHSAS 18001: Occupation Health and Safety Management System



### ► DIMENSIONS OF PV MODULE(mm)



### ► MECHANICAL DIAGRAMS

Cell Type	Mono PERC 166x83mm
No. of cells	6 x 12 x 2
Dimensions	2108x 1048x35mm
Weight	23.5kg
Front Glass	3.2mm Anti-Reflection, Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
J-Box	IP 68 rated
Output Cables	TÜV 1 x 4.0mm <sup>2</sup> Length 300+/400- (mm) length can be customized

### ► Electrical Characteristics

Module Type	TP144-435M/MB-7		TP144-440M/MB-7		TP144-445M/MB-7		TP144-450M/MB-7		TP144-455M/MB-7		TP144-460M/MB-7	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	435Wp	322.2Wp	440Wp	326.0Wp	445Wp	329.7Wp	450Wp	333.4Wp	455Wp	337.5Wp	460Wp	340.8Wp
Maximum Power Voltage (Vmp)	40.90V	37.80V	41.10V	38.00V	41.30V	38.10V	41.50V	38.30V	41.70V	38.50V	41.90V	38.70V
Maximum Power Current (Imp)	10.64A	8.53A	10.71A	8.59A	10.78A	8.64A	10.85A	8.70A	10.92A	8.76A	10.98A	8.82A
Open-circuit Voltage (Voc)	48.70V	45.50V	48.90V	45.70V	49.10V	45.90V	49.30V	46.10V	49.50V	46.30V	49.70V	45.50V
Short-circuit Current (Isc)	11.39A	9.18A	11.46A	9.21A	11.53A	9.30A	11.60A	9.35A	11.67A	9.40A	11.78A	9.45A
Module Efficiency STC (%)	20.00%		20.20%		20.50%		20.70%		20.90%		21.10%	

### ► Temperature Ratings

NMOT (Nominal Module Operating Temperature)	45°C (±2°C)
Temperature Coefficient of Pmax	- 0.37%/°C
Temperature Coefficient of Voc	- 0.286%/°C
Temperature Coefficient of Isc	0.057%/°C

### ► Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1000/1500VDC (IEC)
Max Series Fuse Rating	20A

### ► Warranty

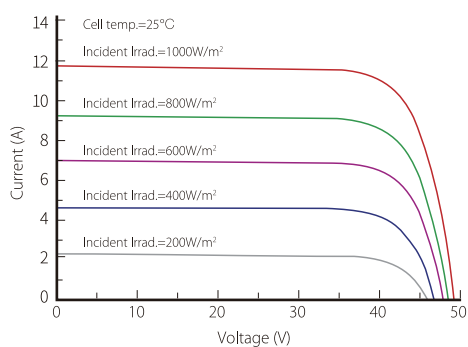
12 Years Product Workmanship Warranty
25 Years Power Warranty

### ► Packaging Configuration

Modules per pallet:	30pcs
Modules per 40HQ container	660pcs

### ► I-V-Curve

Current-Voltage & Power-Voltage Curves



Temperature Dependence of Isc, Voc, Pmax

