

# TWINPLUS MODULE SERIES

HIGH EFFICIENCY MONO-PERC M4-9B-R

# 445-465W



## OUTSTANDING PRODUCT PERFORMANCE

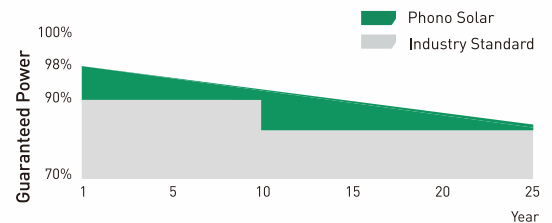
- Competitive high-temperature performance with ameliorated temperature coefficient
- Minimized power loss in cell connection
- Better performance under shading effect
- Decreased nominal operating cell temperature to  $45 \pm 2^{\circ}\text{C}$
- Higher power generation with multi-busbar and half-cut technology

## TRUSTWORTHY QUALITY AND RELIABILITY

- Guaranteed 0~+5W positive tolerance secures reliable power output
- 5400Pa maximum snow load, 2400Pa maximum wind load
- Optimized electrical design lowers hot spot risk and operating current

## PID RESISTANT

- Industry-leading cell processing technology and electrical design ensure solid PID resistance



12-year Product Warranty | 25-year Linear Performance Warranty

## MANAGEMENT SYSTEM CERTIFICATES

IEC 61215, IEC 61730

ISO 9001:2015 / Quality management system

ISO 14001:2015 / Standards for environmental management system

ISO 45001:2018 / International standards for occupational health & safety



Bloomberg Tier<sup>1</sup>  
NEW ENERGY FINANCE



## ELECTRICAL TYPICAL VALUES

Model	1000V	PS445M4-24/TH		PS450M4-24/TH		PS455M4-24/TH		PS460M4-24/TH		PS465M4-24/TH	
	1500V	PS445M4H-24/TH		PS450M4H-24/TH		PS455M4H-24/TH		PS460M4H-24/TH		PS465M4H-24/TH	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
Rated Power (P <sub>mpp</sub> )	445	331	450	335	455	339	460	342	465	346	
Rated Current (I <sub>mpp</sub> )	10.80	8.73	10.87	8.78	10.94	8.84	11.01	8.90	11.08	8.95	
Rated Voltage (V <sub>mpp</sub> )	41.21	37.94	41.40	38.12	41.60	38.30	41.79	38.47	41.97	38.64	
Short Circuit Current (I <sub>sc</sub> )	11.29	9.12	11.38	9.20	11.47	9.27	11.58	9.36	11.69	9.45	
Open Circuit Voltage (V <sub>oc</sub> )	49.11	46.36	49.24	46.48	49.37	46.61	49.52	46.75	49.65	46.87	
Module Efficiency (%)	20.39		20.61		20.84		21.07		21.30		

STC(Standard Testing Conditions):Irradiance 1000W/m<sup>2</sup>, AM 1.5, Cell Temperature 25°C

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/S

## MECHANICAL CHARACTERISTICS

Cell Type	Monocrystalline 166mm x 83mm
Dimension (L× W × H)	Length: 2101mm (82.72 inch)
	Width: 1039mm (40.91 inch)
	Height: 30mm (1.18 inch)
Weight	25.0kg (55.12 lbs)
Front Glass	3.2mm Toughened Glass
Frame	Anodized Aluminium Alloy
Cable (Including Connector)	4mm <sup>2</sup> (IEC), [+]:450mm,[-]:250mm or Customized Length
Junction Box	IP 68 Rated

## TEMPERATURE RATINGS

Voltage Temperature Coefficient	-0.28%/°C
Current Temperature Coefficient	+0.05%/°C
Power Temperature Coefficient	-0.35%/°C
Tolerance	0~+5w
NOCT	45±2°C

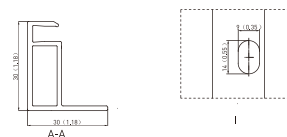
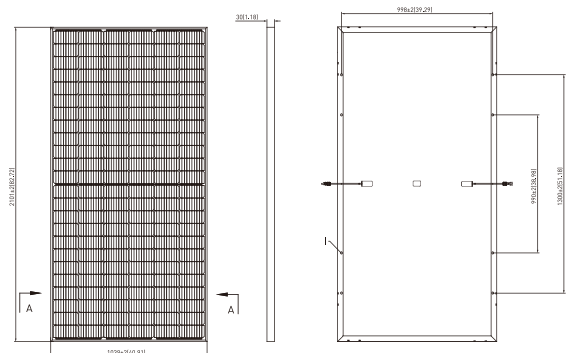
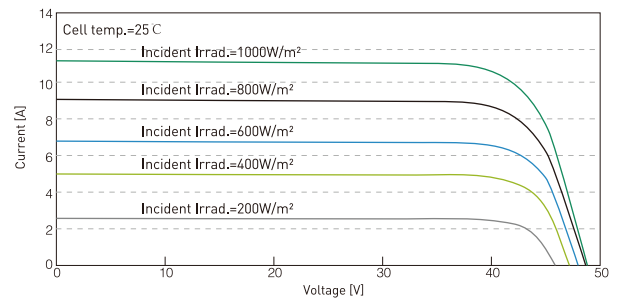
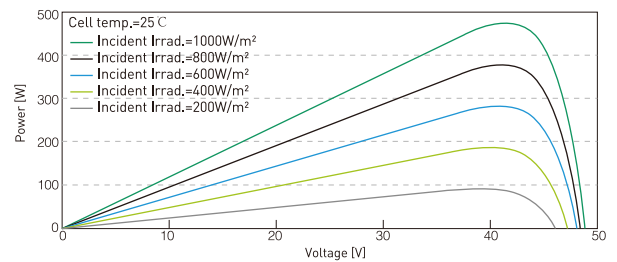
## ABSOLUTE MAXIMUM RATING

Operating Temperature	From -40 to +85°C
Hail Diameter @ 80km/h	Up to 25mm
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Maximum Series Fuse Rating	20A
PV Module Classification	II
Fire Rating (IEC 61730)	C
Maximum System Voltage	DC 1500V/1000V

## PACKING CONFIGURATION

Container	20' GP	40' HQ
Pieces/Container	280	792

## ELECTRICAL CHARACTERISTICS



Note:mm (inch)