



445-465w

Twinplus Module Series

HIGH EFFICIENCY MONO-PERC M4-9B-R

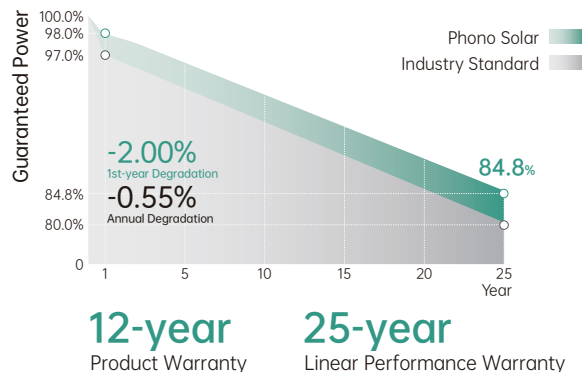
Bloomberg
NEW ENERGY FINANCE

Tier1



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

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



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 (Pmpp)		445	331	450	335	455	339	460	342	465	346
Rated Current (Impp)		10.80	8.73	10.87	8.78	10.94	8.84	11.01	8.90	11.08	8.95
Rated Voltage (Vmpp)		41.21	37.94	41.40	38.12	41.60	38.30	41.79	38.47	41.97	38.64
Short Circuit Current (Isc)		11.29	9.12	11.38	9.20	11.47	9.27	11.58	9.36	11.69	9.45
Open Circuit Voltage (Voc)		49.11	46.36	49.24	46.48	49.37	46.61	49.52	46.75	49.65	46.87
Module Efficiency (%)		20.39		21.09		20.84		21.07		21.30	

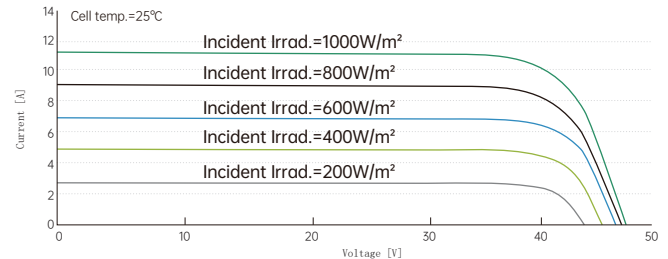
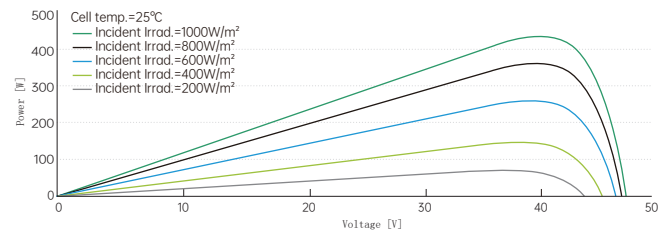
STC(Standard Testing Conditions): Irradiance 1000W/m², AM 1.5, Cell Temperature 25°C

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m², 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: 35mm (1.38 inch)
Weight	24.0kg (52.91 lbs)
Glass	3.2mm toughened glass
Frame	Anodized Aluminium Alloy
Cable (Including Connector)	4mm ² (IEC), (+): 450mm,(-): 250mm or Customized Length
Junction Box	IP 68 Rated

Electrical Characteristics



Temperature Ratings

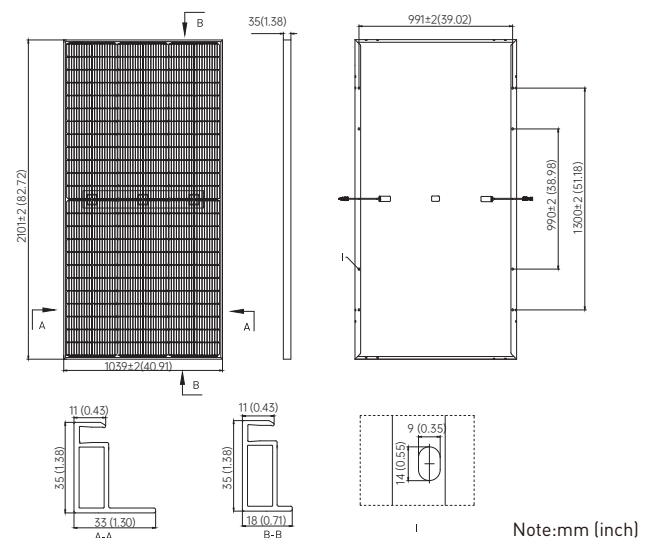
Voltage Temperature Coefficient	-0.28%/°C
Current Temperature Coefficient	+0.05%/°C
Power Temperature Coefficient	-0.35%/°C
Tolerance	0~+5w
NOCT	45±2°C

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 (IEC61730)	C
Maximum System Voltage	DC 1000V/1500V

Packing Configuration

Container	20' HQ	40' HQ
Pieces/Container	255	682



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