Phono® Solar

BIFACIAL TWINPLUS MODULE SERIES

HIGH EFFICIENCY MONO-PERC BM4-9B-G

440-460W

EXTRAORDINARY PRODUCT PERFORMANCE

- Up to 25% additional power yield benefited from bifacial technology
- Lower power loss in cell connection and under shading conditions
- Competitive high-temperature performance with ameliorated temperature coefficient
- Higher power generation with multi-busbar and half-cut technology

HIGH QUALITY RELIABILITY

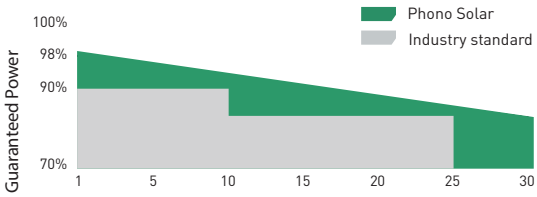
- Optimized electrical design lowers hot spot risk and operating current
- Corrosion resistance guarantees enhanced reliability in harsh environments
- Minimized Risk of microcrack and snail trail

EASY INSTALLATION

- Framed design improves mounting and racking method compatibilit
- Safer and easier handling during transportation and installation

PID RESISTANT

- Encapsulation with POE and dual glass contributes to PID-free characteristic



12-year Product Warranty | **30-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 NEW ENERGY FINANCE Tier 1

TOP PERFORMER 2022 PVEL PV MODULE RELIABILITY SCORECARD

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ELECTRICAL TYPICAL VALUES

Model	1000V	PS440M5GF-24/TH		PS445M5GF-24/TH		PS450M5GF-24/TH		PS455M5GF-24/TH		PS460M5GF-24/TH	
	1500V	PS440M5GFH-24/TH		PS445M5GFH-24/TH		PS450M5GFH-24/TH		PS455M5GFH-24/TH		PS460M5GFH-24/TH	
Testing Condition		STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Rated Power (Pmpp)		440	327	445	331	450	335	455	339	460	342
Rated Current (Impp)		10.60	8.56	10.70	8.65	10.80	8.73	10.90	8.81	11.00	8.89
Rated Voltage (Vmpp)		41.51	38.22	41.59	38.29	41.67	38.37	41.75	38.44	41.82	38.51
Short Circuit Current (Isc)		11.24	9.08	11.30	9.13	11.36	9.18	11.42	9.23	11.48	9.28
Open Circuit Voltage (Voc)		49.51	46.74	49.57	46.79	49.63	46.85	49.69	46.91	49.75	46.96
Module Efficiency (%)		20.24		20.47		20.70		20.93		21.16	

STC(Standard Testing Conditions):Irrandiance 1000W/m², AM 1.5, Cell Temperature25℃

NOCT (Nominal Operation Cell Temperature): Irradiance 800W/m², Ambient Temperature 20℃, Spectra at AM1.5, Wind at 1m/S

BIFACIAL ELECTRICAL VALUES

5%	Maximum Power (W)	455	461	466	471	476
	Module Efficiency (%)	20.95	21.19	21.43	21.67	21.90
15%	Maximum Power (W)	486	492	497	503	508
	Module Efficiency (%)	22.37	22.62	22.88	23.13	23.39
25%	Maximum Power (W)	517	523	529	535	541
	Module Efficiency (%)	23.79	24.06	24.33	24.60	24.87

MECHANICAL CHARACTERISTICS

Cell Type	Monocrystalline 166 x 83mm
Dimension (L× W × H)	Length: 2094mm (82.44 inch) Width: 1038mm (40.87 inch) Height: 30mm (1.18 inch)
Weight	27.5kg (60.63 lbs)
Glass	2.0mm/2.0mm toughened glass
Frame	Anodized Aluminium Alloy
Cable (Including Connector)	4mm² (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
Bifaciality	70±5%

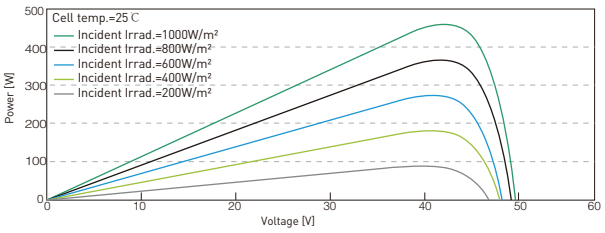
ABSOLUTE MAXIMUM RATING

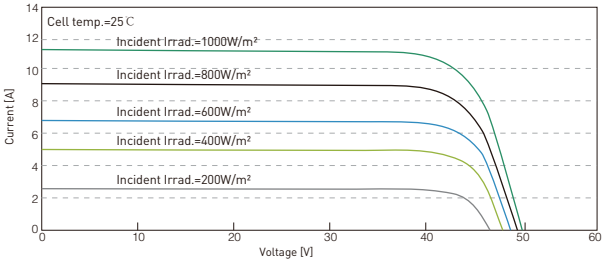
Operating Temperature	From -40 to +85°C
Hail Diameter @ 80km/h	Up to 25mm
Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Maximum Series Fuse Rating	25A
PV Module Classification	Ⅱ
Fire Rating (IEC 61730)	C
Maximum System Voltage	DC 1000V/1500V

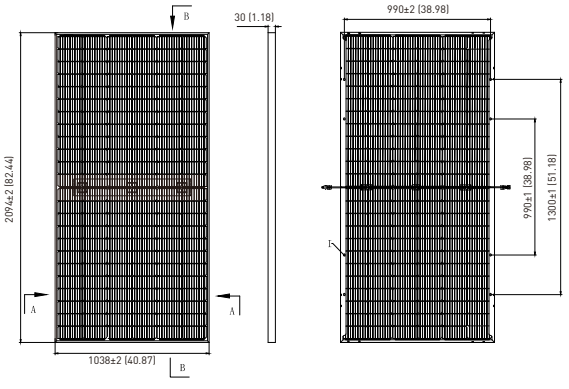
PACKING CONFIGURATION

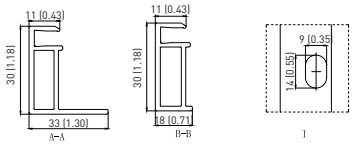
Container	20' GP	40' HQ
Pieces/Container	290	792

ELECTRICAL CHARACTERISTICS









Note:mm (inch)

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