



Tier1

BloombergNEF

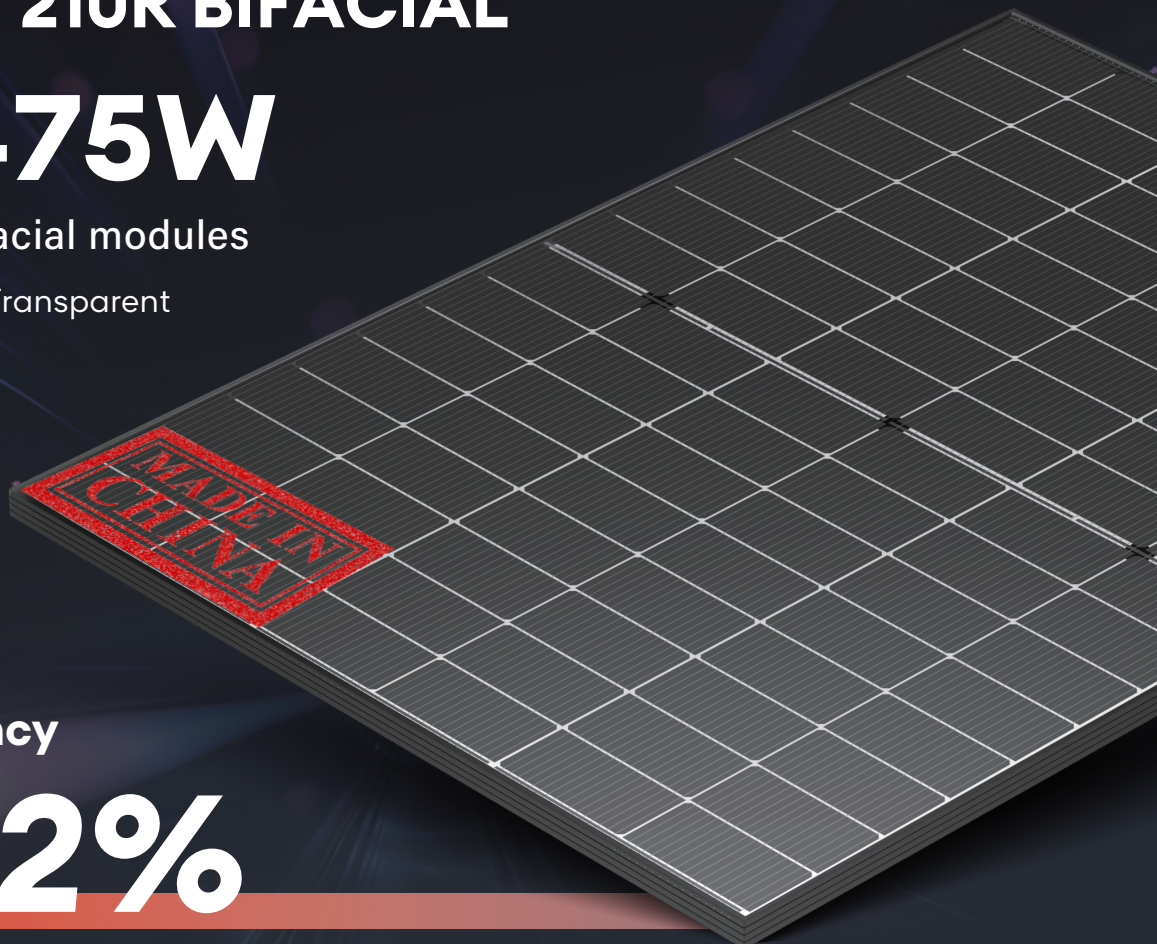
Power the future

TOPCon 210R BIFACIAL

460-475W

High efficiency bifacial modules

· Black frame, Bifacial Transparent



 UTILITY

 C&I

Module efficiency

23.02%



Better leveled cost of energy



Better high temperature stability

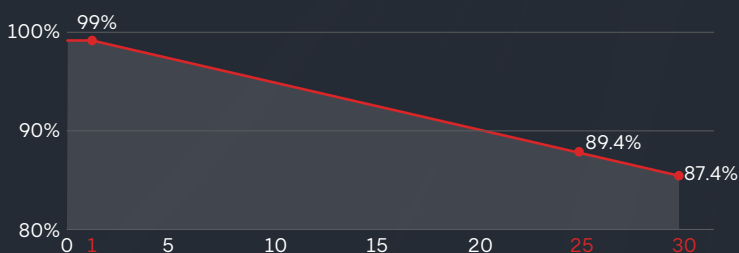


Improved low-light performance



Excellent bifacial performance

Linear performance guarantee for 30 years



WARRANTY

Quality Guarantee **30 years**

Power Warranty **30 years**

CERTIFICATE



Ariet Green



Model of modules	SPDG460-N96R12			SPDG465-N96R12			SPDG470-N96R12			SPDG475-N96R12		
	STC	NMOT	BNPI	STC	NMOT	BNPI	STC	NMOT	BNPI	STC	NMOT	BNPI
Power (Pmax/W)	460.00	348.90	529.00	465.00	353.50	534.75	470.00	357.40	540.50	475.00	361.30	546.25
Maximum power voltage (Vmp)	30.39	28.60	30.39	30.48	28.80	30.62	30.56	28.90	30.84	30.65	29.00	31.07
Maximum power current (Imp)	15.14	12.18	17.41	15.26	12.28	17.46	15.38	12.38	17.53	15.50	12.47	17.58
Open circuit voltage (Voc)	36.30	34.50	36.30	36.37	34.60	36.54	36.44	34.70	36.78	36.50	34.80	37.02
Short circuit current (Isc)	15.99	12.88	18.39	16.11	12.97	18.44	16.23	13.06	18.49	16.35	13.16	18.54
Module efficiency	23.02%			23.27%			23.52%			23.77%		

STC (Electrical parameters at standard test conditions. STC:AM=1.5, 1000W/m², Cells Temperature25°C)

NMOT (Irradiance 800W/m², Ambient Temperature 20°C,AM1.5,Wind Speed 1m/s) BNPI (Electrical Characteristics With 15% Rear Side Power Gain)

1000 W/M2 ON THE MODULE FRONT, AND 135 W/M1 ON THE MODULE REAR

Front power Pmax/W	510.00	516.00	521.00	527.00
Maximum power voltage (Vmp)	30.41	30.50	30.58	30.67
Maximum power current (Imp)	16.78	16.91	17.04	17.18
Open circuit voltage (Voc)	36.32	36.39	36.46	36.52
Short circuit current (Isc)	17.72	17.86	17.99	18.12
BSI(aBSI): Short Circuit Current(Isc)	19.83	19.98	20.13	20.27
measurement tolerances(Pmax)	10.84	10.84	10.84	10.84
measurement tolerances(Voc)	0.06	0.05	0.05	0.05
measurement tolerances (Isc)	10.90	10.90	10.90	10.90

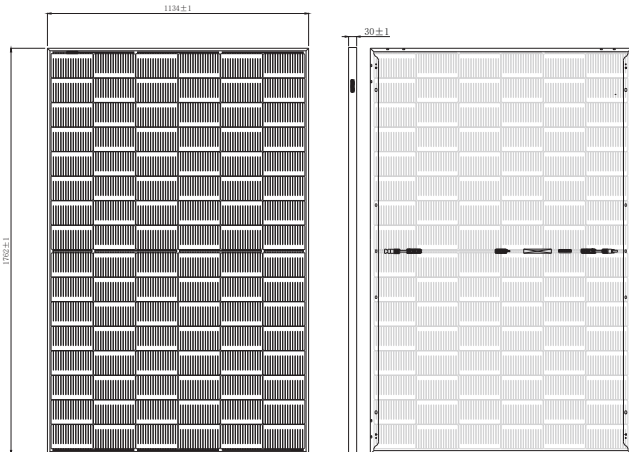
STRUCTURAL CHARACTERISTICS

Module size (L*W*H)	1762x1134x30mm
Weight	23.8kg
Cell	96 cells,N type Mono-Crystalline , 182.2mm×105 mm
Front glass	2.0mm , Anti-Reflection Coating
Back glass	2.0mm , Heat Strengthened Glass
Frame	Anodized aluminum alloy
Junction box	IP68 , 3 bypass diodes
Output wire	4mm ²
Wire length	Line length 1100mm/customized
Connector	NINGBO GZX PV TECHNOLOGY CO.,LTD PV-GZX1500 , 1500VDC , 39A , IP68
Packing Specification	37 pcs/Pallet ; 962 pcs/40' HQ

OPERATING PARAMETERS

Power selection (W)	±3
Power to larence	±3%
Maximum system voltage (V)	1500V
Maximum rated fuse current (A)	30A
Current operating temperature (C)	-40~+70°C
Module[T98] Max	+70°C
Mechanical load	+5400Pa/-2400Pa
Voc/Isc Measurement Tolerance	±3%
Fire class rating	Class C

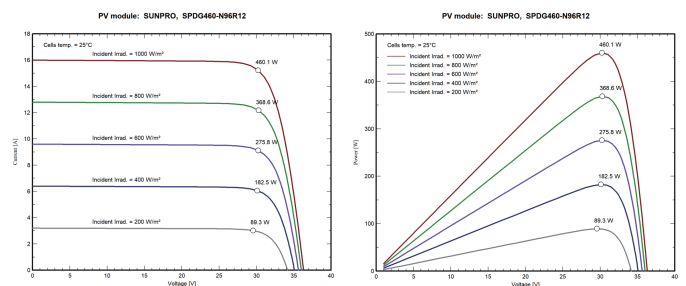
MODULE DIMENSIONS(MM)



TEMPERATURE CHARACTERISTICS

Temp. Coeff. of Isc (TK Isc)	0.045% / °C
Temp. Coeff. of Voc (TK Voc)	-0.25% / °C
Temp. Coeff. of Pmax (TK Pmax)	-0.30% / °C
Normal Operating Cell Temperature	45±2°C

I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



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*The above parameters are for reference only, and the actual parameters of the factory shall prevail

Certificate Holder Name:Zhejiang Sunpro Power Technology Co.,Ltd.(Only Available In Australia)