

Tier1

BloombergNEF



ISO 9001  
ISO 45001



ISO 14001  
OHSAS 18001



SA 8000



## 210R TOPCON BIFACIAL

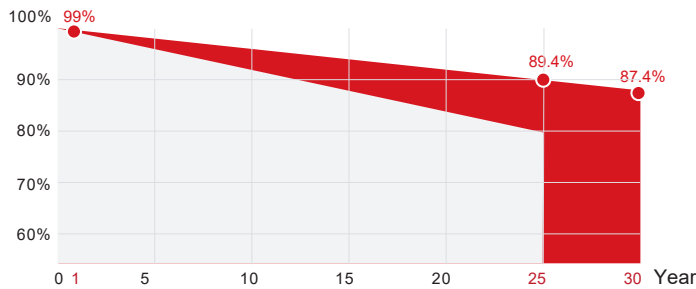
SPDGxxx-N108R12

480~505W

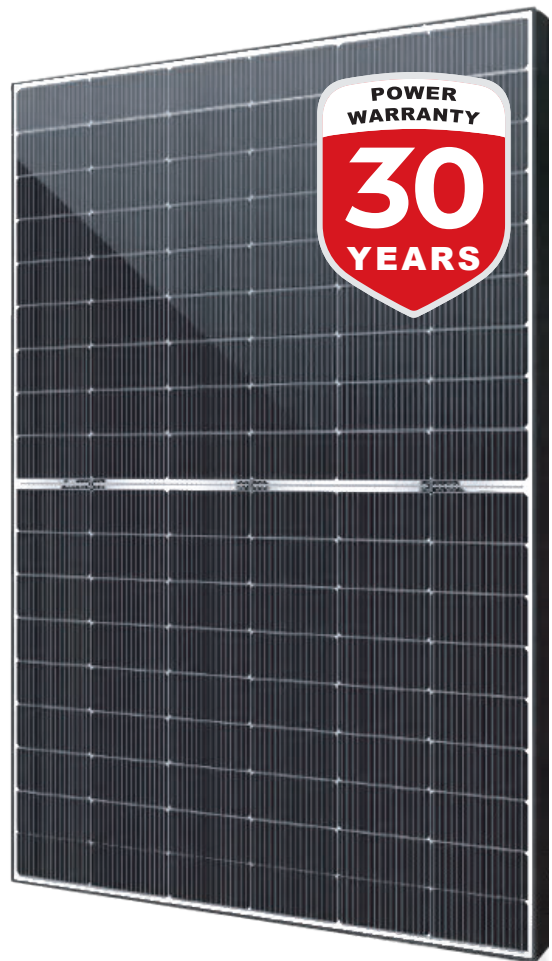
- Double glass
- Black frame
- Bifacial Transparent

25 Yr quality guarantee | 30 Yr power warranty

■ SUNPRO TOPCon module (Additional value from 30-year warranty)  
 ■ Common module



\*SUNPRO Standard tiered warranty



### WARRANTY & GUARANTEE

Linear output power guarantee  
25 years: 89.4% power output  
30 years: 87.4% power output



### WITHSTAND STRONG

Snow load 5400Pa  
Wind load 2400Pa



### PID RESISTANCE

Power positive tolerance:  
0~+5W.  
The attenuation probability of PID phenomenon is minimized through battery production technology optimization and material control



### R&D AND PRODUCTION

Advanced production line. Bifaciality>80%, effectively improves backside power generation. The leading solar cell cutting process and multi busbar design with SUNPRO Technology.



### HIGH EFFICIENCY

N-type, Components have better reliability and lower LID/LETID attenuation. Efficiency can reach 22.72%. Excellent low light performance. Higher power output under the conditions of haze, overcast, etc.

## Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m<sup>2</sup>, Cells Temperature 25°C)

Typical type	480W	485W	490W	495W	500W	505W
Max power(Pmax)	480	485	490	495	500	505
Max power voltage(Vmp)	32.42	32.66	32.91	33.14	33.38	33.6
Max power current(Imp)	14.81	14.85	14.89	14.94	14.98	15.03
Open circuit voltage(Voc)	38.96	39.24	39.49	39.75	40.01	40.24
Short circuit current(Isc)	15.66	15.7	15.75	15.79	15.83	15.88
Module Efficiency(%)	21.60	21.82	22.05	22.27	22.50	22.72
Max system voltage	DC 1500V (TÜV)					
Maximum Series Fuse Rating	30A					

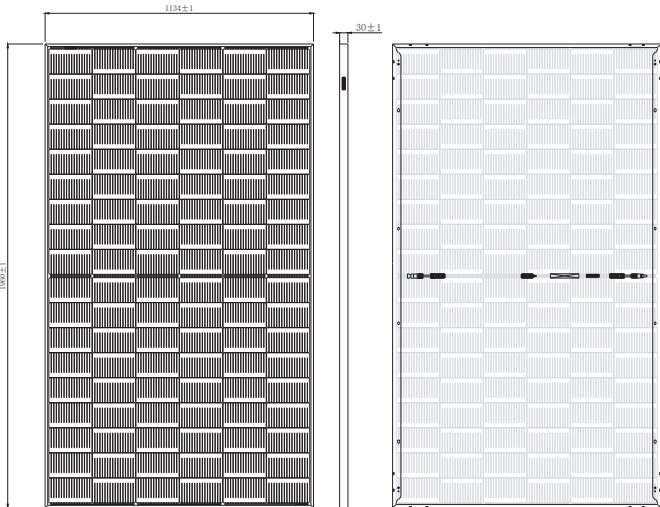
### Electrical Characteristics with 15% Rear Side Power Gain

Front power Pmax/W	480W	485W	490W	495W	500W	505W
Total power Pmax/W	552	557.75	563.5	569.25	575	580.75
Vmp/V(Total)	32.42	32.66	32.91	33.14	33.38	33.60
Imp/A(Total)	17.03	17.08	17.12	17.18	17.23	17.28
Voc/V(Total)	38.96	39.24	39.49	39.75	40.01	40.24
Isc/A(Total)	18.01	18.06	18.11	18.16	18.20	18.26

### Electrical parameters at NMOT test conditions (Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

Typical type	480W	485W	490W	495W	500W	505W
Max power(Pmax)	361.8	365.9	370	374	378.1	382.2
Max power voltage(Vmp)	30.40	30.70	30.90	31.10	31.40	31.60
Max power current(Imp)	11.89	11.93	11.97	12.01	12.04	12.08
Open circuit voltage(Voc)	36.80	37.10	37.40	37.60	37.90	38.10
Short circuit current(Isc)	12.61	12.64	12.68	12.72	12.75	12.79

### DIMENSIONS AND STRUCTURE



### Mechanical Data

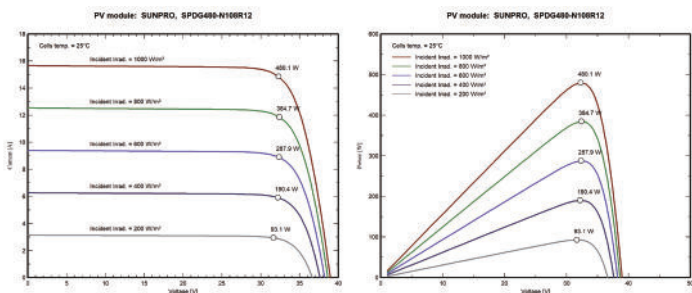
Dimensions	1960×1134×30mm
Weight	26.6 kg
Glass	(F)2.0mm ultra clear embossed double layer colorless glass (B)2.0mm black mesh semi-tempered glass
Output cables	4mm <sup>2</sup> , symmetrical lengths 1100mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline, N type Bifacial, 105mm×182.2mm
Number of cells	108cells ( Half-Cell )

### Temperature Characteristics

### Packing Configuration

Temp.Coeff.of Isc(TK Isc)	0.045%/°C	Container	40'HQ
Temp.Coeff.of Voc(TK Voc)	-0.25%/°C	Pieces per pallet	36
Temp.Coeff.of Pmax(TK Pmax)	-0.30%/°C	Pallets per container	24
Operating temperature	-40~+85°C	Pieces per container	864
Normal operating cell temperature	45±2°C		

### I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



### Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730
System certs	ISO 9001, ISO14001, ISO45001 OHSAS 18001, SA 8000
Certifications	TÜV, CE, INMETRO, CEC, WEEE
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+5W
Junction box	IP 68
Warranties	25 years product warranty and 30 years 87.4% of power