

Tier1

BloombergNEF



ISO 9001  
ISO 45001

ISO 14001  
OHSAS 18001

SA 8000

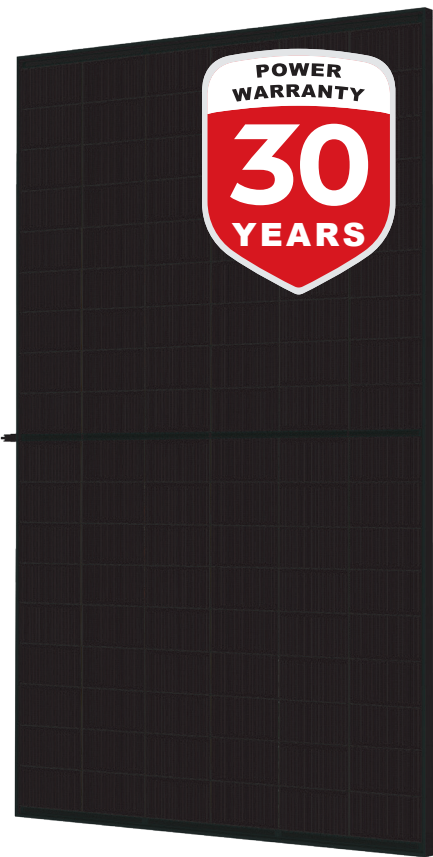


## 210R TOPCON BIFACIAL

SPDGxxx-N108R12

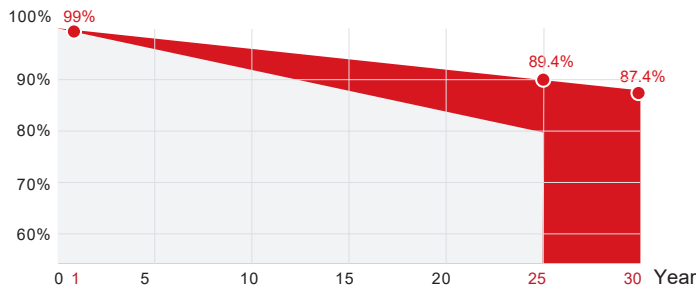
480~505W

- Double glass
- Black frame
- Black mesh



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

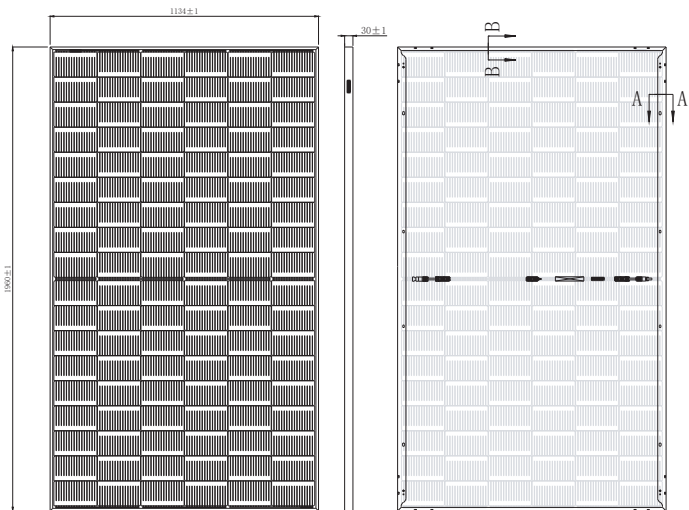
| Front power Pmax/W | 480W  | 485W   | 490W  | 495W   | 500W  | 505W   |
|--------------------|-------|--------|-------|--------|-------|--------|
| Total power Pmax/W | 552   | 557.75 | 563.5 | 569.25 | 575   | 580.75 |
| Vmp/V(Total)       | 32.42 | 32.66  | 32.91 | 33.14  | 33.38 | 33.60  |
| Imp/A(Total)       | 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

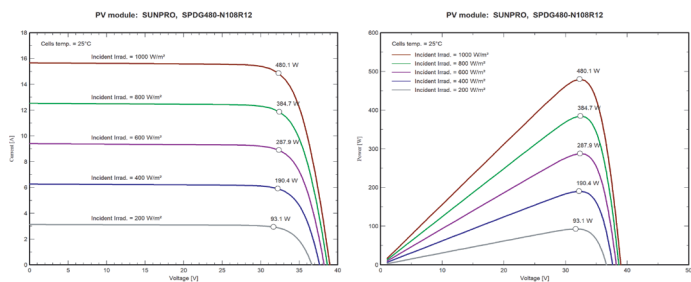
|                 |   |
|-----------------|---|
| Dimensions      | 1960×1134×30mm  |
| Weight          | 26.6 kg   |
| Glass           | (F)2.0mm ultra clear embossed double layer colorless glass<br>(B)2.0mm black mesh semi-tempered glass |
| Output cables   | 4mm <sup>2</sup> , symmetrical lengths 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, IEC 61701, IEC 62716, PPP 58042           |
| System certs                        | ISO 9001, ISO14001, ISO45001                                    |
| Certifications                      | TÜV, CE, 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           |