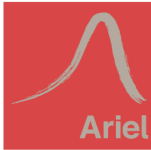
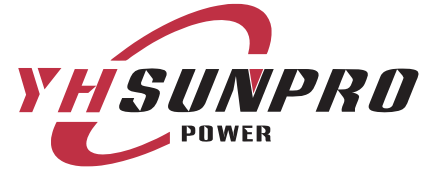


Tier1

BloombergNEF



Lloyd's Syndicate 1910



ISO14001

ISO9001

ISO45001



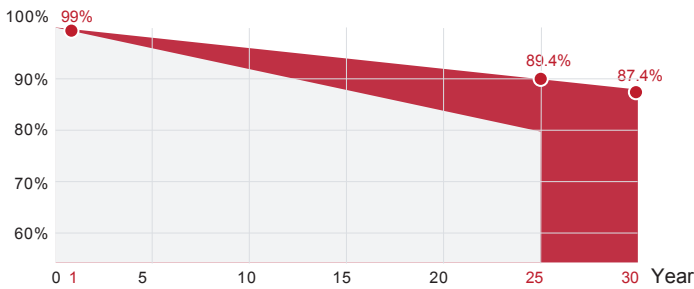
M10 N TYPE MONO

SPDGxxx-N120M10

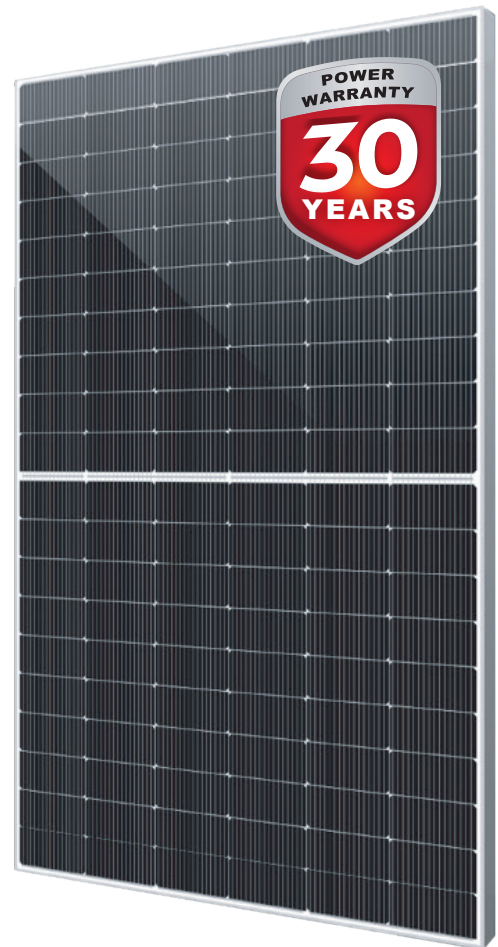
- Double glass (xxx=455~475W)
- Silver frame
- Black frame
- Full black

15 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~+3%.
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 21.93%. 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/m², Cells Temperature 25°C)

Typical type	455W	460W	465W	470W	475W
Max power(Pmax)	455	460	465	470	475
Max power voltage(Vmp)	34.76	34.88	34.99	35.11	35.24
Max power current(Imp)	13.09	13.19	13.29	13.39	13.48
Open circuit voltage(Voc)	42.10	42.24	42.38	42.52	42.66
Short circuit current(Isc)	13.83	13.94	14.03	14.12	14.20
Module Efficiency(%)	21.01	21.24	21.47	21.70	21.93
Max system voltage	DC 1500V (TUV) /1500V(UL)				
Maximum Series Fuse Rating	25A				

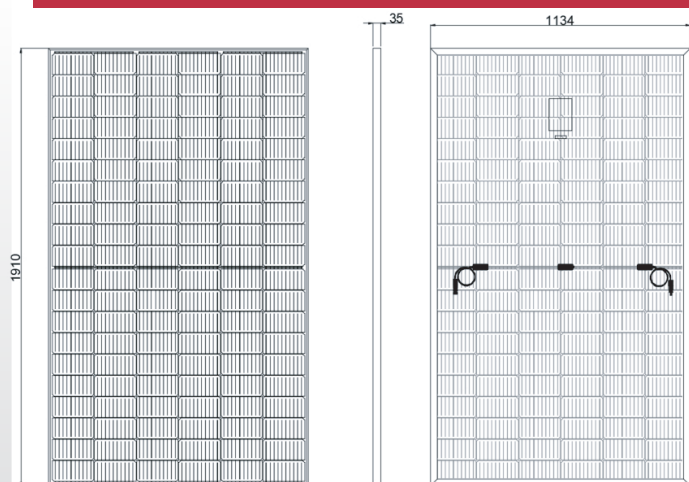
Electrical Characteristics with 15% Rear Side Power Gain

Front power Pmax/W	455W	460W	465W	470W	475W
Total power Pmax/W	523.3	529.0	534.8	540.5	546.3
Vmp/V(Total)	34.76	34.88	34.99	35.11	35.24
Imp/A(Total)	15.05	15.17	15.28	15.39	15.50
Voc/V(Total)	42.10	42.24	42.38	42.52	42.66
Isc/A(Total)	15.90	16.03	16.13	16.24	16.33

Electrical parameters at NMOT test conditions (Irradiance 800W/m², Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

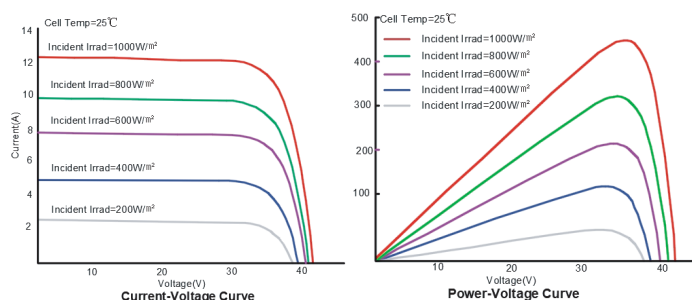
Typical type	460W	465W	470W	475W
Max power(Pmax)	346	350	353	357
Max power voltage(Vmp)	32.60	32.77	32.94	33.10
Max power current(Imp)	10.61	10.67	10.73	10.79
Open circuit voltage(Voc)	39.94	40.10	40.25	40.41
Short circuit current(Isc)	11.29	11.36	11.42	11.49

DIMENSIONS AND STRUCTURE



Length: + 2mm
Width: + 2mm
Thickness: + 1mm
Hole pitch: + 2mm

I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



Mechanical Data

Dimensions	1910x1134x35mm
Weight	28kg
Glass	(F) 2.0 mm High Transmission, AR Coated Heat Strengthened Glass (B) 2.0 mm High Transmission, AR Coated Heat Strengthened Glass
Output cables	4mm ² , symmetrical lengths 1100mm
Connectors	MC4 compatible IP68
Cell type	N type Mono-Crystalline, 16BB, 182x91mm
Number of cells	120cells (Half-Cell)

Temperature Characteristics

Temp.Coeff.of Isc(TK Isc)	0.046%/°C
Temp.Coeff.of Voc(TK Voc)	-0.25%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.30%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	45±2°C

Packing Configuration

Container	40'GP
Pieces per pallet	31
Pallets per container	24
Pieces per container	744

Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TUV, CE, WEEE, INMETRO, FIRE CERTIFICATE C1
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	15 years product warranty and 30 years 87.4% of power