



**Tier1**

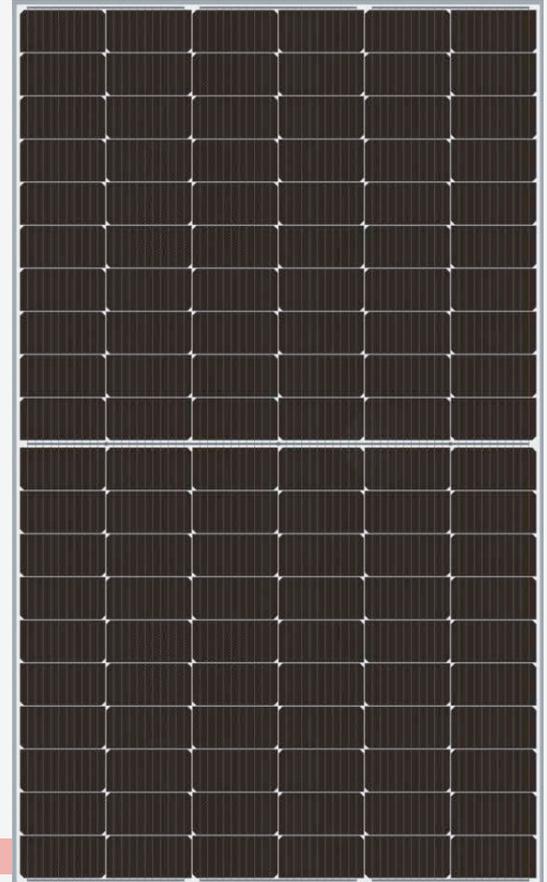
BloombergNEF

*Power the future*

**PERC**

**445-470W**

· Silver frame



 UTILITY

 C&I

**Module efficiency**

**21.70%**



**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 **12 years**

Power Warranty **25 years**

**CERTIFICATE**



## ELECTRIC CHARACTERISTICS

SP (445/470W)-120M10

Model of modules	SP445-108M10	SP450-120M10	SP455-120M10	SP460-120M10	SP465-120M10	SP470-120M10
	STC	STC	STC	STC	STC	STC
Power ( Pmax/W )	445	450	455	460	465	470
Maximum power voltage ( Vmp )	34.56	34.81	35.06	35.31	35.56	35.81
Maximum power current ( Imp )	12.88	12.93	12.98	13.03	13.08	13.13
Open circuit voltage ( Voc )	41.30	41.50	41.70	41.90	42.10	42.30
Short circuit current ( Isc )	13.65	13.70	13.75	13.80	13.85	13.90
Module efficiency	20.55%	20.78%	21.01%	21.24%	21.47%	21.70%

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

## ELECTRICAL PARAMETERS AT NMOT TEST CONDITIONS

Front power Pmax/W	331	335	339	342	346	350
Maximum power voltage ( Vmp )	31.80	32.10	32.30	32.50	32.70	32.90
Maximum power current ( Imp )	10.40	10.44	10.49	10.54	10.58	10.63
Open circuit voltage ( Voc )	38.50	38.70	38.90	39.10	39.30	39.40
Short circuit current ( Isc )	11.00	11.04	11.08	11.12	11.16	11.20

NMOT ( Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM1.5, Wind Speed 1m/s )

## STRUCTURAL CHARACTERISTICS

Module size (L*W*H)	1910x1134x35mm
Weight	22.5 kg
Cell	120 cells, Mono-Crystalline PERC, 182mm x 91mm
Front glass	3.2mm ultra clear embossed semi-tempered coated glass
Frame	Anodized aluminum alloy
Junction box	IP68
Output wire	4mm <sup>2</sup>
Wire length	Line length 1100mm
Connector	MC4 Compatible IP68
Packing Specification	31 pcs/Pallet ; 744 pcs/40' HQ

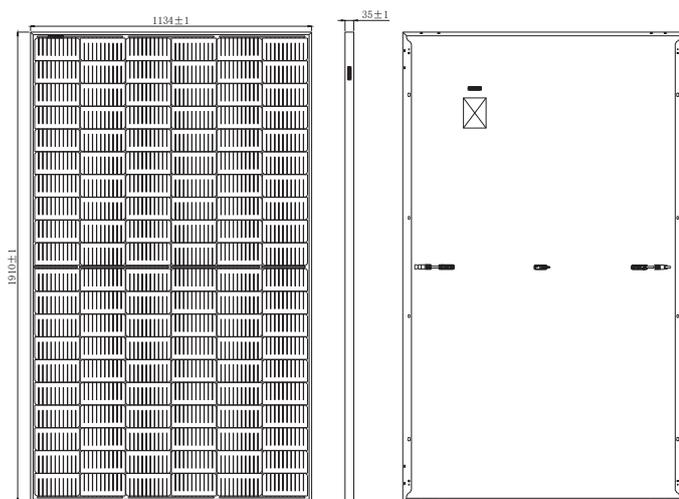
## OPERATING PARAMETERS

Power tolerance (W)	(0~+5W)
Maximum system voltage (V)	1500(TÜV,UL) / 1000V(CUL)
Maximum rated fuse current (A)	25A
Current operating temperature (C)	-40~+85°C
Mechanical load	+5400Pa/-2400Pa

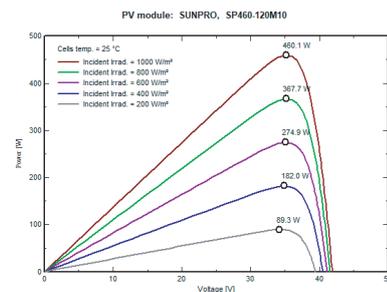
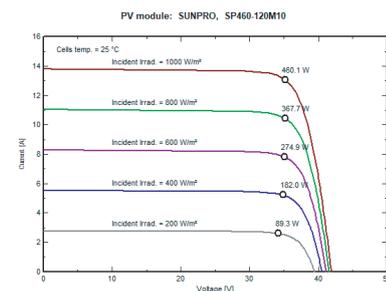
## TEMPERATURE CHARACTERISTICS

Temp. Coeff. of Isc (TK Isc)	0.048% / °C
Temp. Coeff. of Voc (TK Voc)	-0.27% / °C
Temp. Coeff. of Pmax (TK Pmax)	-0.34% / °C
Normal Operating Cell Temperature	44±2°C

## MODULE DIMENSIONS(MM)



## I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



**Zhejiang Sunpro Power Technology Co., Ltd**

Add: Qinggang Industrial Zone, Yuhuan City, Zhejiang Province

Tel: +86 0576-80730906 E-mail: info@sunpropower.com Website: www.sunpropower.com

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