



**Tier1**

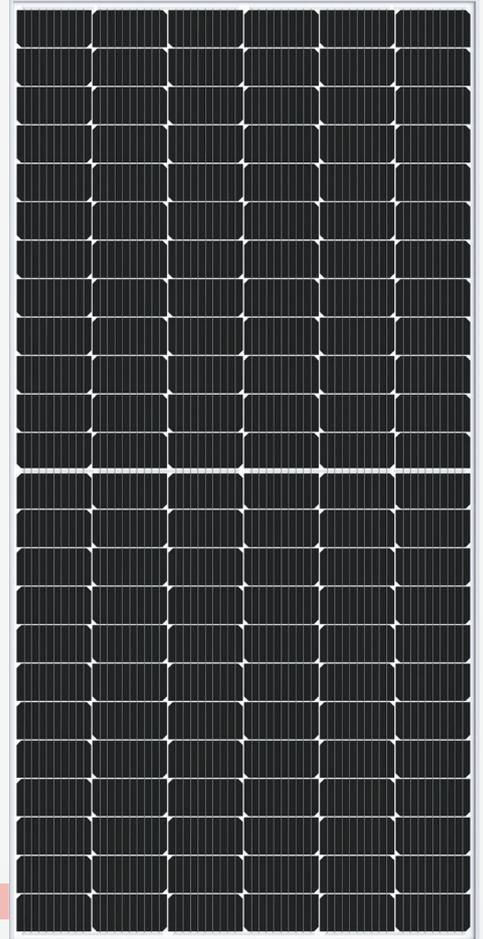
BloombergNEF

*Power the future*

**PERC**

**435-460W**

· Silver frame



 UTILITY

 C&I

**Module efficiency**

**21.16%**



**Better leveled cost of energy**



**Better high temperature stability**

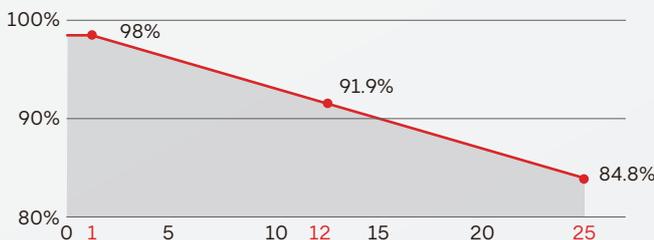


**Improved low-light performance**



**Excellent bifacial performance**

Linear performance guarantee for 30 years



**WARRANTY**

Quality Guarantee **12 years**

Power Warranty **25 years**

**CERTIFICATE**



Model of modules	SP435-144M	SP440-144M	SP445-144M	SP455-144M	SP460-144M	SP465-144M
	STC	STC	STC	STC	STC	STC
Power ( Pmax/W )	435	440	445	455	460	465
Maximum power voltage ( Vmp )	40.70	40.80	40.90	41.00	41.10	41.20
Maximum power current ( Imp )	10.69	10.79	10.89	10.98	11.08	11.17
Open circuit voltage ( Voc )	49.50	49.60	49.70	49.80	49.90	50.00
Short circuit current ( Isc )	11.23	11.34	11.45	11.56	11.65	11.69
Module efficiency	20.01%	20.24%	20.47%	20.70%	20.93%	21.16%

STC ( Electrical parameters at standard test conditions. STC:AM=1.5, 1000W/m<sup>2</sup>, Cells Temperature25°C )

**ELECTRICAL PARAMETERS AT NMOT TEST CONDITIONS**

Front power Pmax/W	324.00	328.00	332.00	335.00	339.00	343.00
Maximum power voltage ( Vmp )	37.90	38.00	38.10	38.20	38.30	38.50
Maximum power current ( Imp )	8.54	8.61	8.70	8.78	8.85	8.91
Open circuit voltage ( Voc )	46.10	46.20	46.30	46.40	46.50	46.60
Short circuit current ( Isc )	9.07	9.16	9.24	9.33	9.40	9.44

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

**STRUCTURAL CHARACTERISTICS**

Module size (L*W*H)	2094x1038x35mm
Weight	22.6 kg
Cell	144 cells, Mono-Crystalline PERC, 166mm x 83mm
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 1300mm
Connector	MC4 Compatible IP68
Packing Specification	31 pcs/Pallet ; 726 pcs/40' HQ

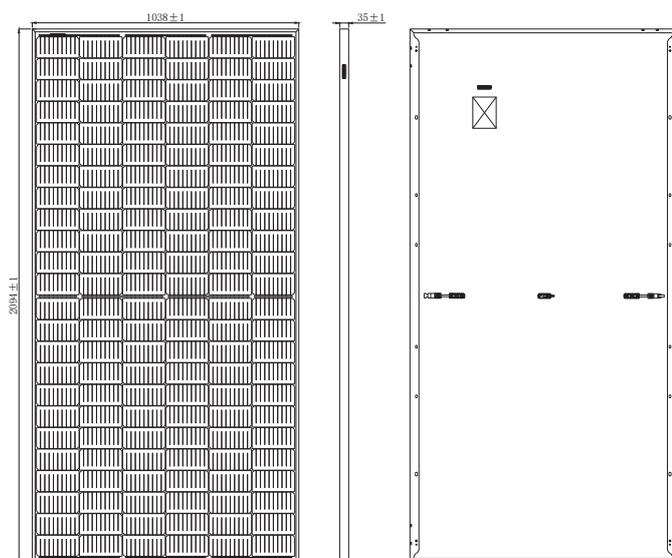
**OPERATING PARAMETERS**

Power tolerance (W)	(0~+5W)
Maximum system voltage (V)	1500(TÜV)
Maximum rated fuse current (A)	20A
Current operating temperature (C)	-40~+85°C
Mechanical load	+5400Pa/-2400Pa

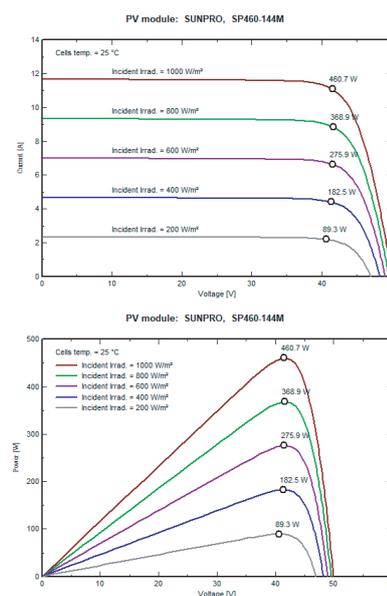
**TEMPERATURE CHARACTERISTICS**

Temp. Coeff. of Isc (TK Isc)	0.05% / °C
Temp. Coeff. of Voc (TK Voc)	-0.29% / °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**



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