



**Tier1**

BloombergNEF

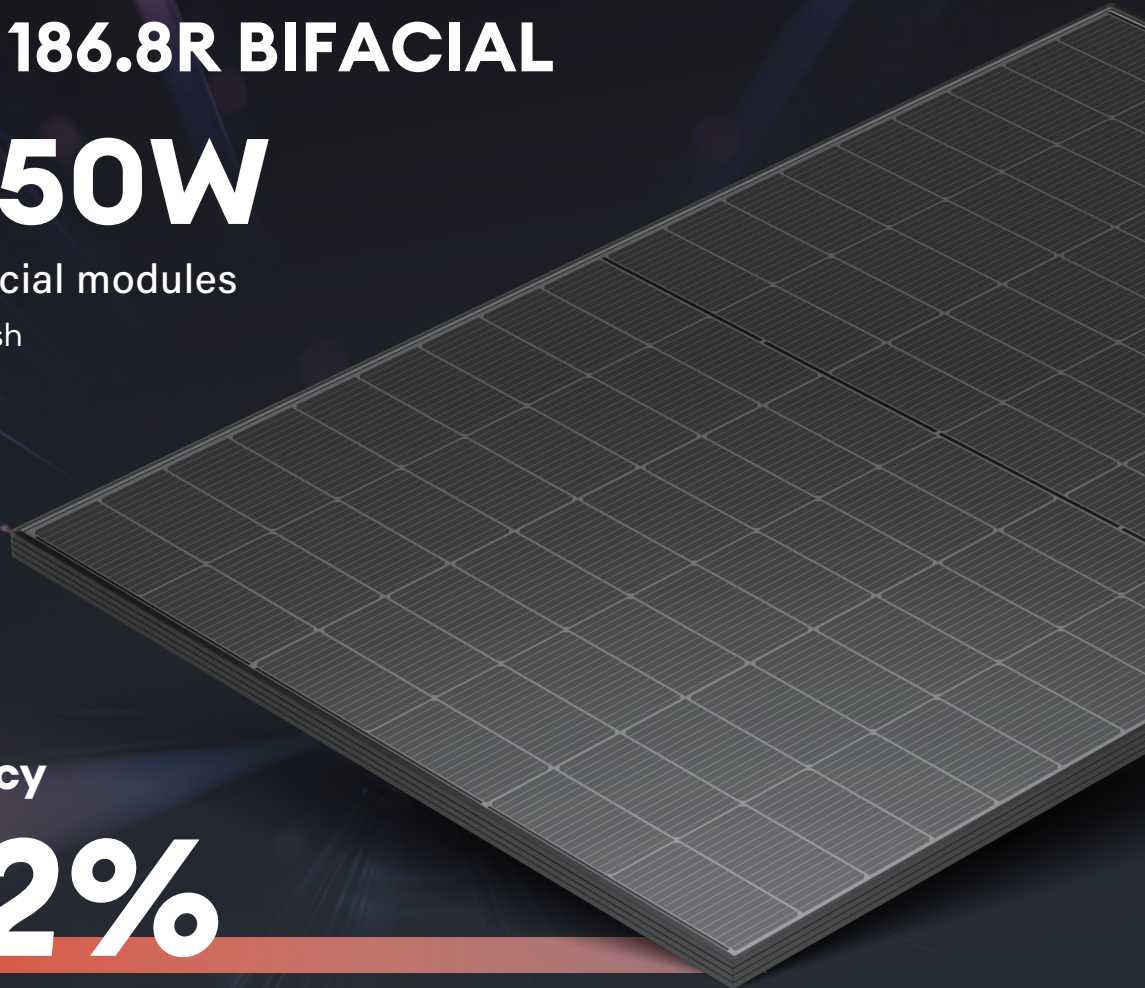
*Power the future*

# TOPCon 186.8R BIFACIAL

# 435-450W

High efficiency bifacial modules

· Black frame, Black mesh



 UTILITY

 C&I

Module efficiency

# 22.52%



Better leveled cost of energy



Better high temperature stability

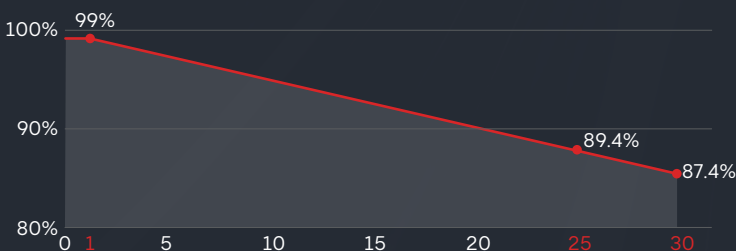


Improved low-light performance



Excellent bifacial performance

Linear performance guarantee for 30 years



## WARRANTY

Quality Guarantee **25** years

Power Warranty **30** years

## CERTIFICATE



## ELECTRIC CHARACTERISTICS

## SPDG (435/450W)-N108R10

Model of modules	SPDG435-N108R10		SPDG440-N108R10		SPDG445-N108R10		SPDG450-N108R10	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Power ( Pmax/W )	435	328.60	440	332.40	445	336.50	450	340.30
Maximum power voltage ( Vmp )	32.41	30.8	32.60	31	32.79	31.2	32.98	31.3
Maximum power current ( Imp )	13.43	10.68	13.50	10.73	13.58	10.8	13.65	10.86
Open circuit voltage ( Voc )	39.09	36.9	39.27	37.1	39.45	37.3	39.63	37.5
Short circuit current ( Isc )	13.98	11.27	14.05	11.32	14.13	11.39	14.21	11.45
Module efficiency	21.77%		22.02%		22.27%		22.52%	

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

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

## ELECTRICAL CHARACTERISTICS WITH 15% REAR SIDE POWER GAIN

Front power Pmax/W	500.25	506.00	511.75	517.50
Maximum power voltage ( Vmp )	32.41	32.60	32.79	32.98
Maximum power current ( Imp )	15.44	15.52	15.61	15.69
Open circuit voltage ( Voc )	39.09	39.27	39.45	39.63
Short circuit current ( Isc )	16.08	16.16	16.25	16.34

## STRUCTURAL CHARACTERISTICS

Module size (L*W*H)	1762x1134x30mm
Weight	23.8kg
Cell	108 cells,N type Mono-Crystalline , 182mm×93.4mm
Front glass	2.0mm , Anti-Reflection Coating
Back glass	2.0mm , Heat Strengthened Glass
Frame	Anodized aluminum alloy
Junction box	IP68 , 3 bypass diodes
Output wire	4mm <sup>2</sup>
Wire length	Line length 1100mm/customized
Connector	MC4 Compatible
Packing Specification	37 pcs/Pallet ; 962pcs/40' HQ

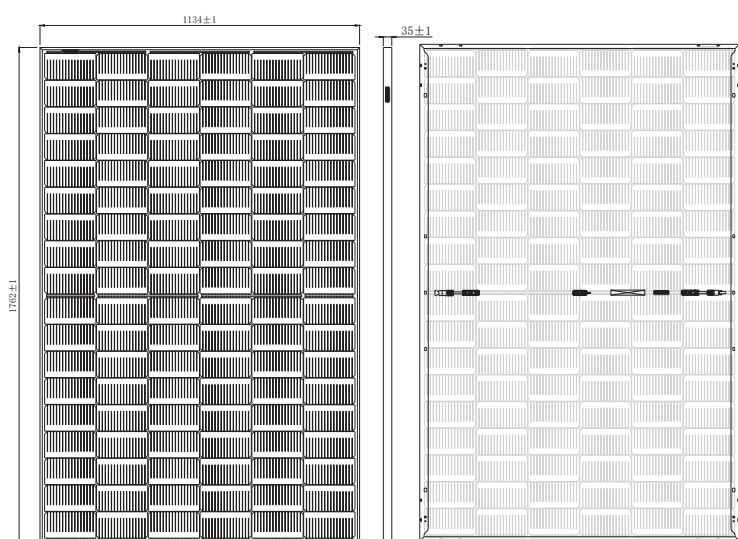
## OPERATING PARAMETERS

Power tolerance (W)	(0~+5W)
Maximum system voltage (V)	1500V
Maximum rated fuse current (A)	30A
Current operating temperature (C)	-40~+85°C
Mechanical load	+5400Pa/-2400Pa

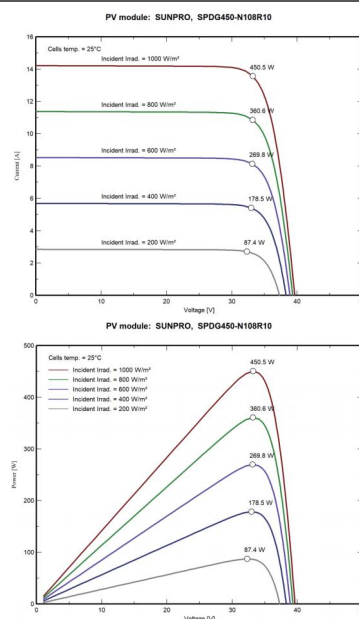
## TEMPERATURE CHARACTERISTICS

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
Normal Operating Cell Temperature	45±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