



Tier1

BloombergNEF

Power the future

TOPCon 210R BIFACIAL

445-460W

High efficiency bifacial modules

· Black frame, Bifacial Transparent



 UTILITY

 C&I

Module efficiency

23.02%



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



Model of modules	SPDG445-N96R12		SPDG450-N96R12		SPDG455-N96R12		SPDG460-N96R12	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Power (Pmax/W)	445	336.50	450	340.70	455	344.80	460	348.90
Maximum power current (Vmp)	29.69	27.90	29.93	28.10	30.16	28.40	30.39	28.60
Maximum power current (Imp)	14.99	12.06	15.04	12.11	15.09	12.14	15.14	12.18
Open circuit voltage (Voc)	35.54	33.70	35.8	33.90	36.06	34.20	36.3	34.50
Short circuitcurrent (Isc)	15.86	12.77	15.9	12.80	15.94	12.84	15.99	12.88
Module efficiency	22.27%		22.52%		22.77%		23.02%	

STC (Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m² ,Cells Temperature25°C)

NMOT (Irradiance 800W/m², Ambient Temperature 20°C,AM1.5,Wind Speed 1m/s)

ELECTRICAL CHARACTERISTICS WITH 15% REAR SIDE POWER GAIN

Front power Pmax/W	511.75	517.50	523.25	529.00
Maximum power voltage (Vmp)	29.69	29.93	30.16	30.39
Maximum power current (Imp)	17.24	17.29	17.35	17.41
Open circuit voltage (Voc)	35.54	35.80	36.06	36.3
Short circuitcurrent (Isc)	18.24	18.29	18.33	18.39

STRUCTURAL CHARACTERISTICS

Module size (L*W*H)	1762x1134x30mm
Weight	23.8kg
Cell	96 cells,N type Mono-Crystalline , 182.2mm×105 mm
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 ²
Wire length	Line length 1100mm/customized
Connector	MC4 Compatible
Packing Specification	37 pcs/Pallet ; 962 pcs/40' HQ

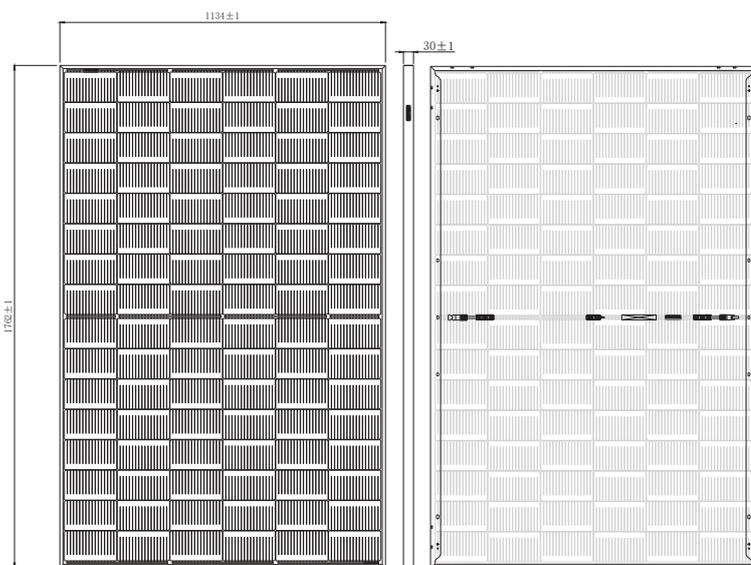
OPERATING PARAMETERS

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)	0.045% / °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

