

HiSEER 4N

SH21R-48H-S 435-455W

All Black Topcon Module



435-455W

Max. Power Output



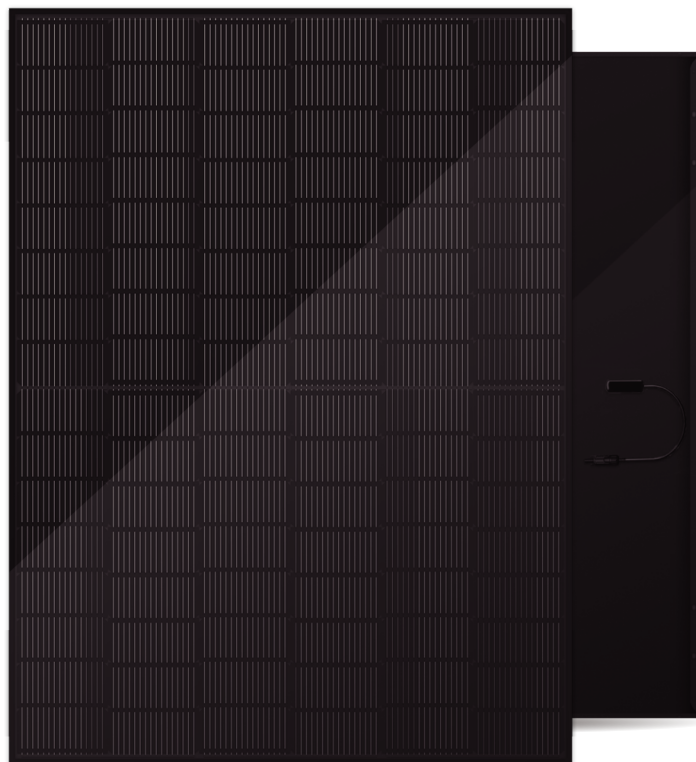
1762*1134mm

Size



22.8%

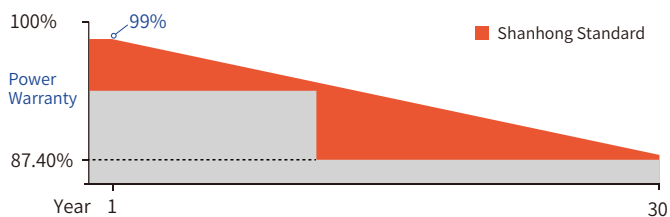
Module Efficiency



LINEAR PERFORMANCE WARRANTY

30 Years linear power output warranty

15 Years product warranty on materials and workmanship



30 years decay $\leq 0.40\%$ annually on average

Product and System Certification

- IEC61215(2016)/IEC61730(2018)
- IEC61701/IEC62716/IEC60068 ● ISO9001:2015
- ISO14001:2015 ● ISO45001:2018

Product advantages



N-type TOPCon technology for lower LCOE

The lower temperature coefficient and better low irradiance performance of HJT technology can effectively reduce LCOE.



Fire class A, harsh environment adaptability

The module adopt a double glass structure, which can adapt to all kinds of harsh environment, and the fire rating can reach Class A.



30-year power warranty

The average life of dual-glass module is 30 years, 5 years longer than that of single-glass modules.



Double-sided power generation, higher income

The dual-glass module has a bifaciality of up to 80% and a power generation gain of 5%-25% on the back side.



**Due to different certification requirements in each market, please consult with SHANHONG sales department for appropriate certification.

Electrical Characteristics(STC)

Maximum Power (Pmax)	435	440	445	450	455
Maximum Power Voltage (Vmp)	29.40	29.58	29.76	29.94	30.12
Maximum Power Current (Imp)	14.80	14.87	14.95	15.03	15.11
Open-circuit Voltage (Voc)	34.80	34.98	35.16	35.34	35.52
Short-circuit Current (Isc)	15.85	15.90	15.95	16.00	16.05
Module Efficiency [%]	21.8	22	22.3	22.5	22.8
Measuring tolerance [%]	0~+5%	0~+5%	0~+5%	0~+5%	0~+5%

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5

Electrical Characteristics(NOCT)

Maximum Power (Pmax)	328	332	336	340	344
Maximum Power Voltage (Vmp)	27.48	27.66	27.84	28.02	28.20
Maximum Power Current (Imp)	11.93	12.00	12.07	12.13	12.20
Open-circuit Voltage (Voc)	32.86	33.04	33.22	33.40	33.58
Short-circuit Current (Isc)	12.86	12.91	12.96	13.01	13.06

NOCT: Irradiance 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s

Mechanical Data

Module Dimensions	1762*1134*30mm
Solar Cells	Monocrystalline (182*210)
No. of Cells	96 [2 x (8 x 6)]
Glass	2*1.6mm, Heat Strengthened Glass
Frame	Black Anodized Aluminium Alloy
Encapsulant	EPE/EVA
J-Box	IP68
Connector	MC4 Compatible
Output Cable	4.0mm ² , 300/300mm
Weight	20.5kg

Operating Data

Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC(IEC)
Maximum Series Fuse Rating	30A
Bifacility	/

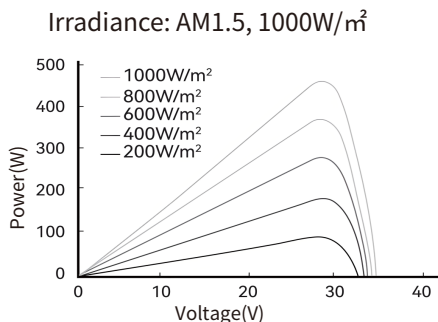
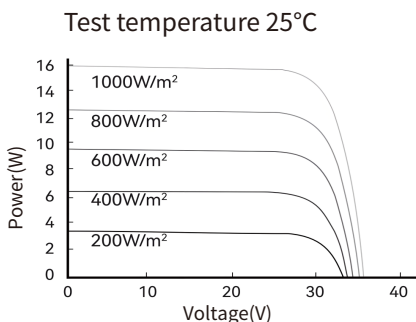
Temperature Ratings

Nominal operating cell temperature	45°C(±2°C)
Temperature Coefficient of Pmax	-0.290%/°C
Temperature Coefficient of Voc	-0.250%/°C
Temperature Coefficient of Isc	+0.040%/°C

Packaging

Pallet Dimensions	1792×1130×1250 mm
Information	36Pcs per Pallet, 936Pcs per 40' HC

IV Curve and PV Curve



Structural Diagram(mm)

