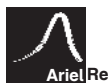


S435M54NF3BFB S440M54NF3BFB S445M54NF3BFB S450M54NF3BFB

Shinson is a leading professional supplier in the renewable energy industry, specializing in the production and distribution of high-quality PV modules, completed PV kits, and energy storage solutions. With a commitment to sustainable energy solutions, we strive to provide innovative and reliable products to meet the growing global demand for clean and efficient power generation.

With a focus on quality, innovation, and customer satisfaction, we strive to empower individuals, businesses, and communities with reliable and sustainable energy solutions. By harnessing the power of the sun and embracing renewable energy, we are driving the transition towards a greener and more sustainable future.

S-Nano[™] series of PV modules are designed for residential and small commercial installations with compact sizes and aesthetic appearances.



Roofing Aesthetics

S-Nano[™] series has been designed with aesthetic in mind, the ultra black color looks well integrated to roofing ,creates on modern and improved aesthetic.



Higher efficiency ,Lower weight

Built with latest technology of TOPcon solar cells, the module efficiency can be up to 22.27% . Light weighted only 20.5kgs makes the module is more friendly for installation.



Longer life span with 30 years warranty

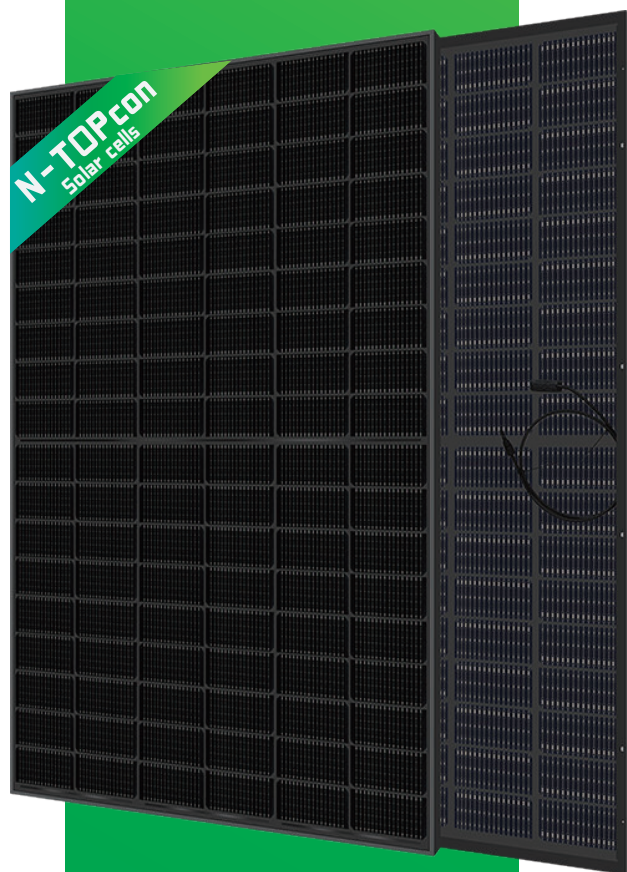
With double glassed and bifacial technology, shinson extended the warranty period up to 30 years for both performance and workmanship which is on top level of the industry.



Lower power degradation with more generation

Ensured PID resistance through cell process and module materialcontrol to help harvest more, guaranteed only 0.4% annual power degradation .

S. nano[™] Solar Modules N-TOPcon Bifacial / Ultra Black



Electrical Data (STC)

Part Number	S435M54NF3BFB	S440M54NF3BFB	S445M54NF3BFB	S450M54NF3BFB
Peak Power Watts- $P_{MAX}(Wp)^*$	435	440	445	450
Power Output Tolerance	0/+5W			
Open Circuit Voltage- $V_{oc}(V)$	39.60	39.80	40.00	40.20
Short Circuit Current- $I_{sc}(A)$	13.76	13.82	13.87	13.94
Maximum Power Voltage- $V_{MPP}(V)$	32.64	32.82	33.02	33.22
Maximum Power Current- $I_{MPP}(A)$	13.33	13.41	13.48	13.55
Panel Efficiency(%)	21.77	22.02	22.27	22.52

STC :Irradiance 1000w/m²,Cell Temperature 25°C, Binning Tolerance:±5W

Electrical Data (BNPI)

MaximumPower- $P_{MAX}(Wp)^*$	480	485	490	495
Open Circuit Voltage- $V_{oc}(V)$	15.13	15.16	15.23	15.30
Short Circuit Current- $I_{sc}(A)$	39.82	40.03	40.23	40.32
Maximum Power Voltage- $V_{MPP}(V)$	32.85	33.04	33.23	33.42
Maximum Power Current- $I_{MPP}(A)$	14.62	14.68	14.75	14.82

STC :Irradiance 1000w/m²,Cell Temperature 25°C, Binning Tolerance:±5W

Mechanical Data

Panel Dimension(H/W/O)	1762 x 1134 x 28 mm
Weight	20.5kg
Cell Type	TOPcon Mono Cells
Cell Number	108
Front / Back Glass	1.6mm+1.6mm Double Glass AR coating semi-tempered glass
Frame Type	Black Anodized Aluminium Alloy
Junction Box Diodes	3
Junction Box Protection Class	IP68
Connector Type	MC4
Cable	4.0mm ² ,1100mm(+)/1100mm(-) or Customized Length

Temperature Ratings

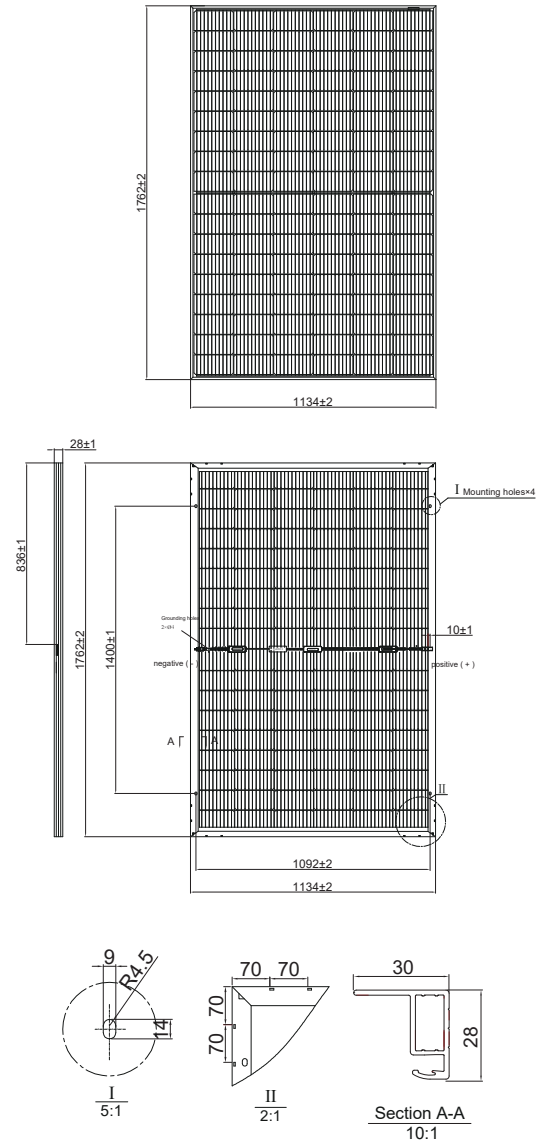
Nominal Operating Cell Temp.(NOCT)	42°C(±2°C)
Temperature Coefficient of P_{MAX}	-0.310%/°C
Temperature Coefficient of V_{oc}	-0.260%/°C
Temperature Coefficient of I_{sc}	+0.046%/°C

* Do not connect Fuse in Combiner Box with two or more strings in parallel connection

Packaging Configuration

Modules per box	39 pieces
Modules per 40'container	1014 pieces

Dimensions of PV Module(mm)



Maximum Ratings

Operational Temperature	-40~±85 °C
Front/Rear Side Load	5400/2400pa
Max Series Fuse Rating	25A
Max System Voltage	1500V (IEC)
Fire Rating	Class 1 (UN19177)

Warranty

Product Workmanship Warranty	30 years
Output Power Warranty	30 years

