



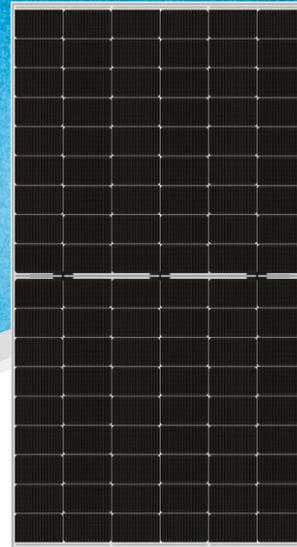
TUNGHSU

Supreme (N-Type)

420W/425W/430W/435W/440W

108 CELLS SMBB HALF-CELL MONO PV MODULE

N-TYPE M10(182mm) SINGLE GLASS MODULE



440W

Maximum Power Output

22.53%

Maximum Module Efficiency

0~+5W

Power Output Tolerance

420-440W

Tungshu components with high efficiency and high reliability

- * Advanced production equipment, highly automated process control, world-class production technology
- * The company has a product research and development laboratory that meets the new ISO/IEC international standards
- * Excellent weak light performance, resistant to salt spray and ammonia corrosion.
- Passing the certification test of the PV standards.
- * Certified by international quality management and environmental management system
- * Application grade: A, Safe grade: II, Fireproofing grade: C

Comprehensive Products And System Certificates

IEC61215/IEC61730/UL1703/IEC61701/IEC62716
 ISO 9001: Quality Management System
 ISO 14001: Environmental Management System
 ISO 45001: Occupation Health and Safety Management System
 GB/T 23001-2017: Management system with Integration of Information Technology and Industrialization



High Power Output

SMBB technology reduces the distance between busbars and finger grid lines, improving reliability and increasing output

ZERO LID (Light Induced Degradation)

N-type solar cell has no LID naturally which can increase power generation

Higher Reliability

No polysilicon wrap around, Full electrical isolation Zero leakage current; Much Safer for roof

Better Weak Illumination Response

Higher power output even under low-light environments like on cloudy or foggy days

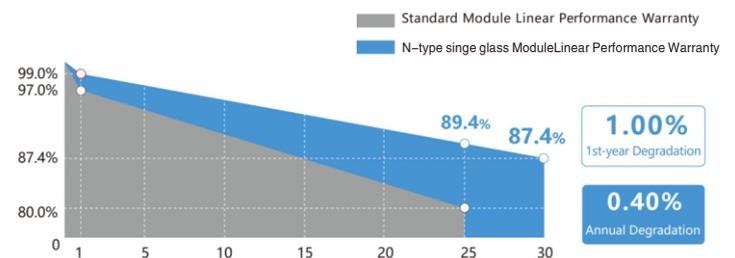
Better Temperature Coefficient

Higher power generation under working conditions. thanks to passivation contact cell technology

Lighter Module Weight

Reduces weight by more than 20% compared to bifacial double glass module

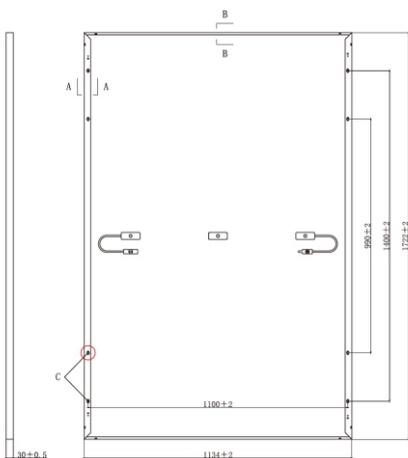
Linear Performance Warranty



15 Years Product Material & Workmanship

30 Years Linear Performance Warranty

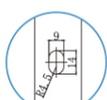
Engineering Drawing (unit: mm)



A Long Frame



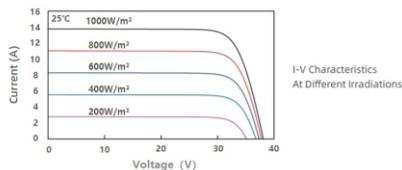
B Short Frame



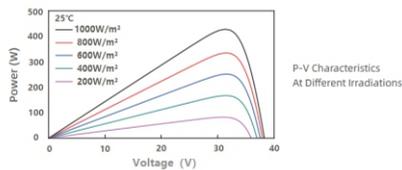
C Mounting Hole

Front View

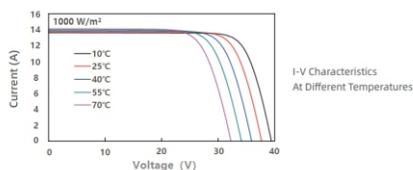
Characteristic Curves | HT108N-420



I-V Characteristics At Different Irradiances



P-V Characteristics At Different Irradiances



I-V Characteristics At Different Temperatures

Electrical Properties | STC*

Peak Power (Pmax) (W)	420	425	430	435	440
MPP Voltage (Vmp) (V)	31.9	32.1	32.3	32.5	32.7
MPP Current (Imp) (A)	13.17	13.24	13.32	13.39	13.46
Open Circuit Voltage (Voc) (V)	37.9	38.1	38.3	38.4	38.6
Short Circuit Current (Isc) (A)	13.98	14.05	14.12	14.18	14.25
Module Efficiency (%)	21.51	21.76	22.02	22.27	22.53

*STC: Irradiance 1000 W/m², Cell Temperature 25° C, AM1.5
The data above is for reference only and the actual data is in accordance with the practical testing
Power Measurement Tolerance ± 3%

Electrical Properties | NOCT*

Peak Power (Pmax) (W)	318	322	325	330	334
MPP Voltage (Vmp)(V)	29.9	30.1	30.3	30.5	30.7
MPP Current (Imp) (A)	10.62	10.67	10.74	10.82	10.88
Open Circuit Voltage (Voc) (V)	36.2	36.4	36.6	36.8	37.0
Short Circuit Current (Isc) (A)	11.27	11.33	11.38	11.44	11.49

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

Mechanical Properties

Cell Size	182.00mm*91.00mm
Number of Cells	108pcs(12*9)
Module Dimension	1722mm*1134mm*30mm
Weight	21.5kg
Front /Glass*	3.2mm
Frame	Anodized Aluminium Alloy
Junction Box	Ip68 (3 diodes)
Length of Cable	4.0mm ² , +300mm/-300mm (Cable length can be customized)

*Heat strengthened glass

Temperature Coefficient

Temperature Coefficient of Pmax*	-0.300%/°C
Temperature Coefficient of Voc	-0.250%/°C
Temperature Coefficient of Isc	+0.045%/°C
Nominal Operating Cell Temperature (NOCT)	42±2°C

*Temperature Coefficient of Pmax+0.03%/°C

Operating Properties

Operating Temperature(°C)	-40~+85°C
Maximum System Voltage (V)	1500V DC (IEC)
Maximum Series Fuse Rating (A)	30
Power Tolerance	0~+5W
Bifaciality*	80%

Bifaciality=Pmaxrear (STC) /Pmaxfront (STC) . Bifaciality tolerance:+5%

Packaging Configuration

Packing Type	20'GP	40'GP	40'HQ
Piece/Pallet		36	
Pallet/Container	6	13	26
Piece/Container	216	468	936

WARRANTY

15 year Product Workmanship Warranty
30 year Linear Power Warranty

Note: Read the safety and installation instructions before using the product.
Affirm: With technological progress and product updates, the technical parameters of Anhui RiChao's later component products may deviate from the technical parameters contained in this specification. Anhui RiChao has the right to adjust various technical parameters at any time without notifying the customer. The final interpretation right of this technical specification belongs to Anhui RiChao New Energy Technology Co., Ltd.

