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01

About TW-Solar

TW-Solar is part of the Tongwei Group, a multinational organization based in Hefei, China. The Group has about 300 branches and subsidiaries worldwide, with nearly 50,000 employees. With a market value exceeding 300 billion RMB in 2022, Tongwei Group is a "China Top 500 Enterprise".

The company has invested heavily in technology and new manufacturing capacity in recent years and is now arguably the world's largest vertically integrated solar company.

TW-Solar entered the UK market in 2023 with support from Polysolar Ltd, a leading established BIPV company now acting as its official distributor.



02

TW-Solar Vertically Integrated Manufacturing

Upstream

As a private technical company of Tongwei Co., Ltd. controlled by Tongwei Group, Yongxiang has an annual production capacity of 230,000 tons of high purity crystal silicon, ranking first in the world. At the same time, the company has formed a circular economy industrial chain successfully combining renewable energy and chemicals, from "brine, caustic soda, polyvinyl chloride to calcium carbide slag cement and from "hydrogen chloride and trichlorosilicon to polysilicon new energy".

Midstream



Tongwei Solar is the world's largest of manufacturer crystalline silicon cells, with four bases in Hefei, Chengdu, Meishan and Jintang. At present, the quality of Tongwei's solar cells are first class, with technical indicators reaching the top level in the world. The company has become the No.1 manufacturer in the global cell industry with the largest capacity and shipment, the lowest cost, the highest operating rate and the fastest construction speed. In 2022, the cell production capacity had exceeded 70GW, further consolidating the company's status as the world's leading crystalline silicon solar cell manufacturer.

Downstream



As a leading enterprise in agriculture and renewable energy industry, Tongwei Solar focuses on the full investment process service of solar farm investment and development, planning and design, intelligent operation and maintenance. It has developed fishery + PV integrated projects which generate electricity above the water and raise fishes in the water, realizing efficient and coordinated development of agriculture and photovoltaics.

03

TONGWEI SOLAR (HEFEI) CO.,. LTD.

Established in 2016

Targeting the coordinated development of the whole industry chain, TW Solar established the R&D department for high-efficiency shingled modules in 2016. In early May 2018, TW Solar officially launched the shingled module, with a maximum power output of 421.9W, breaking the world record of PERC modules. In 2018, 1GW shingled modules were successfully put into production, with the highest power reaching 470W using the G1 cell package. A new 1.2GW production capacity was added in 2020. The M3 Phase III project was put into operation in 2021, and the 210-series large-sized module was produced smoothly, marking the entry of the 6.0 era of modules.

14GW Capacity

Tongwei entered the module business in 2013. In 2020, the G12 shingled module of 1.2GW was officially put into production, achieving a single module power output of up to 660W. As of December 2021, Tongwei (Hefei) has formed an annual production capacity of 7.2GW high-efficiency shingled modules, continuously leading the industry and creating a manufacturing demonstration base. With the gradual release of half-cell module production capacity in the Hefei base, the production capacity is expected to reach 14GW in 2022.

Quality Laboratory

Tongwei Solar (HeFei) Co.,Ltd. has its own quality laboratory, which is also a witness lab of TOV Rheinland and TOV NORD, with CNAS qualification, enabling the most stringent reliability test.



04

ENTERPRISE HONOR



- ☞ National High-Tech Enterprise
- ☞ National Green Factory
- ☞ National Quality Award of Encouragement
- ☞ National Advanced Enterprise with Customer Satisfied Projects
- ☞ National Advanced Enterprise Implementing Excellent Performance Model
- ☞ 2019 National Quality Benchmark
- ☞ National Green Supply Chain Management Demonstration Enterprise
- ☞ China International High-Quality New Energy Supplier
- ☞ Anhui Enterprise Technology Center
- ☞ Anhui Provincial quality Award
- ☞ Best partner of Hyundai Energy
- ☞ IT-Industrialization integrated management system certification
- ☞ Enterprise Listed by "Standard Conditions of Photovoltaic Manufacturing Industry"

05

ADVANTAGES OF SHINGLED MODULE



Shingling Technology

Low-temperature bonding, no cell spacing, using Tongwei made cells to realize high-density layout. Developing patented shingled module technology, and innovating the interconnection technique.



Beautiful Appearance

Solderless interconnection, uniform appearance, displaying extreme beauty.



High Safety and Reliability

Multi-cut cells can effectively lower the operating temperature of the module, and continuously increase the energy yield. The flexible technology has better loading resistance. The high reliability make customers feel more at ease in the process of transportation, installation and utilization.



Low System Cost

The ultra-high "interconnection packing density" allows "solar cells" to cover every corner of the whole module. Realizing lower system BOS and LCOE, and creating more value for our customer.



Reduce Hot Spot Risk

Compared with traditional half-cell module, the hot spot temperature of the shingle module is more than 20 degrees lower, greatly improve service life of the module packaging materials. The module has 15 years of warranty for materials and the total energy yield is more than that of the traditional half-cell module.



Small Shading Loss

Compared with traditional half-cell module, the parallel circuit structure design make the power output 20% higher regardless of the shading direction.



Eco-friendly

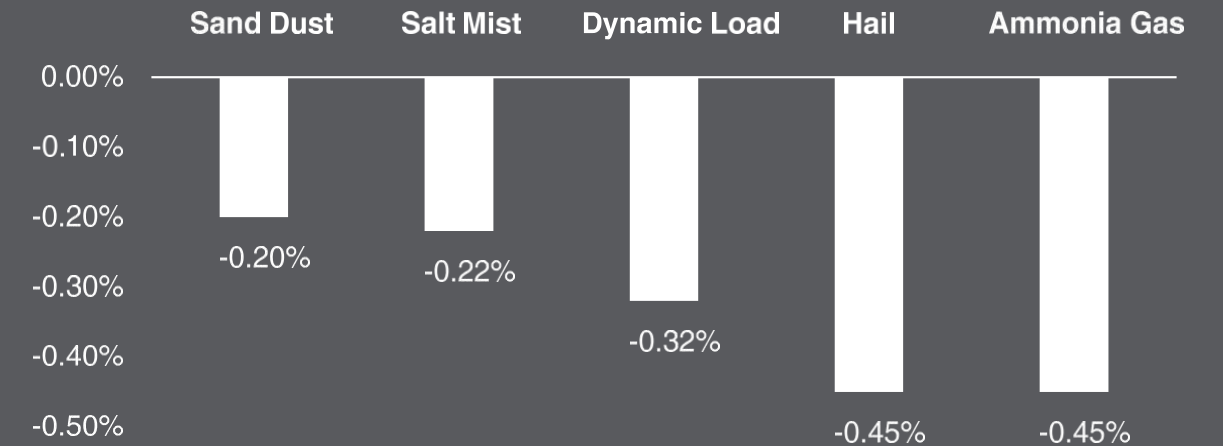
The solderless design reduce the lead content by more than 60% compared with traditional half-cell module. Tongwei shingle module is also low-lead and fluorine-free and more eco-friendly. It adopts green packaging solution truly realize the ideals of green production and sustainable development.



06

TECHNICAL SPECIFICATION OF MODULE

IEC ≤ 5%



Shingled bifacial module

TH645~670PMB6 69SDC

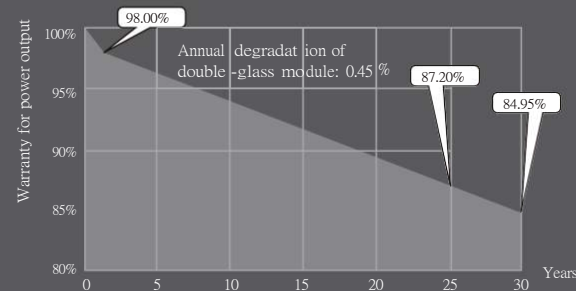


Features of Module

-  **Shingling Technology**
Innovative structure, low-temperature adhesive bonding, high-density layout.
-  **Beautiful Appearance**
Uniform layout, better aesthetic.
-  **Superior Safety and Reliability**
No hidden welding crack, low operating temperature, high pressure resistance.
-  **Low System Cost**
High module efficiency, reducing system cost.
-  **Low Hot Spot Risk**
Parallel circuit design reduces shading loss.
-  **Low Shading Loss**
Full parallel arrangement brings high effective power generation hours.
-  **Eco-friendly** green philosophy, no Adhering fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **30** 30-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module type: TH *** PMB6-69SDC | 670 | 665 | 660 | 655 | 650 | 645 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum power - Pm (W) | 670 | 665 | 660 | 655 | 650 | 645 |
| Open circuit voltage - Voc (V) | 47.1 | 47.0 | 46.9 | 46.8 | 46.7 | 46.6 |
| Short circuit current Isc (A) | 18.26 | 18.16 | 18.06 | 17.97 | 17.84 | 17.74 |
| Maximum Power Voltage-Vm (V) | 39.1 | 39.0 | 38.9 | 38.8 | 38.8 | 38.7 |
| Maximum Power Current-Im (A) | 17.16 | 17.07 | 16.98 | 16.89 | 16.77 | 16.68 |
| Module Efficiency- η (%) | 21.6 | 21.4 | 21.2 | 21.1 | 20.9 | 20.8 |

Electrical Characteristics (NMOT)

| | | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum power - Pm (W) | 504 | 501 | 497 | 493 | 489 | 486 |
| Open circuit voltage - Voc (V) | 44.9 | 44.8 | 44.7 | 44.5 | 44.4 | 44.3 |
| Short circuit current Isc (A) | 14.71 | 14.63 | 14.55 | 14.47 | 14.37 | 14.29 |
| Maximum Power Voltage-Vm (V) | 37.3 | 37.2 | 37.1 | 37.0 | 37.0 | 36.9 |
| Maximum Power Current-Im (A) | 13.54 | 13.46 | 13.39 | 13.32 | 13.25 | 13.17 |

* STC: Irradiation 1000W/m²; AM1.5; environmental temperature 25°C; tested according to EN 60904-3;
 * NMOT: irradiation 800W/m²; wind speed 1m/s; environmental temperature 20°C;
 * Pm tolerance: 0~+5W ; power test uncertainty: ±3%; Voc[V], Isc[A], Vm[V] and Im[A] test tolerance: ±3%
 * Bifaciality: 70%±5%

Comparison of Rear Power Gains (660W)

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Power Gain-PG | 5% | 10% | 15% | 20% | 25% | 30% |
| Maximum Power-Pm (W) | 693 | 726 | 759 | 792 | 825 | 858 |
| Open Circuit Voltage-Voc (V) | 46.9 | 46.9 | 46.9 | 47.0 | 47.0 | 47.0 |
| Short Circuit Current-Isc (A) | 18.97 | 19.87 | 20.77 | 21.68 | 22.58 | 23.48 |
| Maximum Power Voltage-Vm (V) | 38.9 | 38.9 | 38.9 | 39.0 | 39.0 | 39.0 |
| Maximum Power Current-Im (A) | 17.83 | 18.68 | 19.53 | 20.38 | 21.23 | 22.07 |

Mechanical Parameters

| | |
|------------------|-------------------------------------------------------------------------|
| Dimensions | 2384 × 1303 × 35 mm (L×W×H) |
| Weight | 38.5 kg |
| Front Glass | Tempered glass,2.0mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 414 (69*6) |
| Junction Box | IP68, three diodes |
| Cable | 4mm ² , +600mm/-1200mm(Vertical), +220mm/-180mm (Horizontal) |
| Packaging mode | 31pcs/ box; 558pcs/ 40' HQ; 744pcs/ flat car |

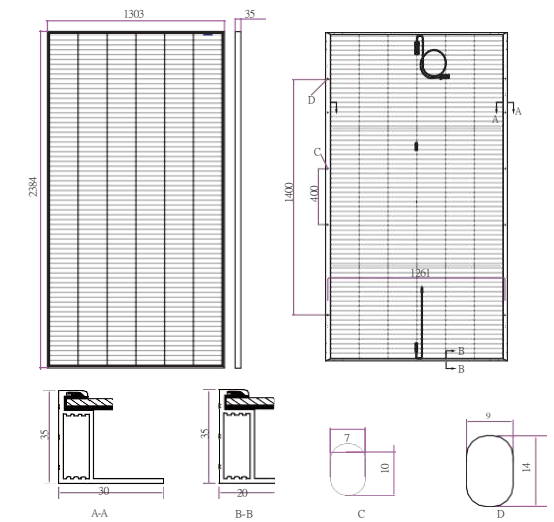
Temperature Parameters

| | |
|--------------------------------|--------------|
| NMOT | 42.3°C(±2°C) |
| Temperature Coefficient of Voc | -0.27%/C |
| Temperature Coefficient of Isc | 0.04%/C |
| Temperature Coefficient of Pm | -0.34%/C |

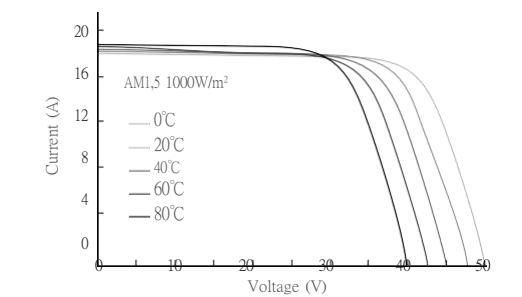
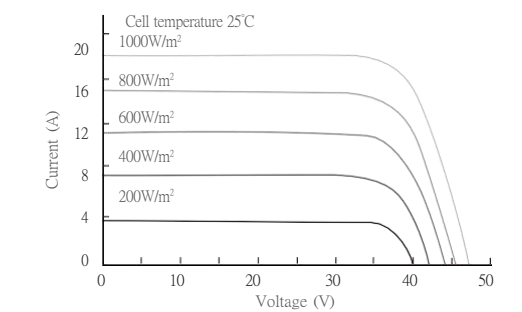
Maximum Rated Parameters

| | |
|----------------------------|-------------------------------------------------------|
| Maximum System Voltage (V) | DC1500 |
| Series Fuse Rating (A) | 30 |
| Surface Load Capacity (Pa) | Front5400/ Back2400 |
| Temperature Range (°C) | -40~+ 85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH535~560PMB6

58SC

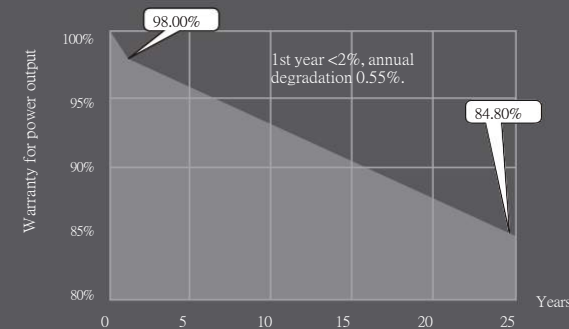


Features of Module

- 
Shingling Technology
 Innovative structure, low-temperature adhesive bonding, high-density layout.
- 
Beautiful Appearance
 Uniform layout, better aesthetic.
- 
Superior Safety and Reliability
 No hidden welding crack, low operating temperature, high pressure resistance.
- 
Low System Cost
 High module efficiency, reducing system cost.
- 
Low Hot Spot Risk
 Parallel circuit design reduces shading loss.
- 
Low Shading Loss
 Full parallel arrangement brings high effective power generation hours.
- 
Eco-friendly
 Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module Type: TH***PMB6-58SC | 560 | 555 | 550 | 545 | 540 | 535 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power - Pm (W) | 560 | 555 | 550 | 545 | 540 | 535 |
| Open Circuit Voltage - Voc (V) | 47.3 | 47.2 | 47.1 | 47.0 | 46.9 | 46.8 |
| Short Circuit Current-Isc [A] | 15.17 | 15.07 | 14.97 | 14.86 | 14.76 | 14.65 |
| Maximum Power Voltage-Vm [V] | 39.3 | 39.2 | 39.1 | 39.0 | 38.9 | 38.8 |
| Maximum Power Current-Im [A] | 14.26 | 14.17 | 14.07 | 13.97 | 13.87 | 13.77 |
| Module Efficiency- η [%] | 21.4 | 21.2 | 21.0 | 20.9 | 20.7 | 20.5 |

Electrical Characteristics at NMOT

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 422 | 418 | 414 | 410 | 407 | 403 |
| Open Circuit Voltage-Voc [V] | 45.1 | 45.0 | 44.9 | 44.8 | 44.7 | 44.6 |
| Short Circuit Current-Isc [A] | 12.22 | 12.14 | 12.06 | 11.97 | 11.89 | 11.80 |
| Maximum Power Voltage-Vm [V] | 37.4 | 37.3 | 37.3 | 37.2 | 37.1 | 37.0 |
| Maximum Power Current-Im [A] | 11.27 | 11.19 | 11.11 | 11.03 | 10.96 | 10.88 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|----------------------------------------------------------------------|
| Dimensions | 2384 × 1096 × 35 mm |
| Weight | 28.3 kg |
| Front glass | tempered glass, 3.2mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 345 (69*5) |
| Junction Box | IP68, three diodes |
| Cable | 4mm ² , +500mm/-1100(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 31pcs/box; 620pcs/40'container; 868pcs/flat car |

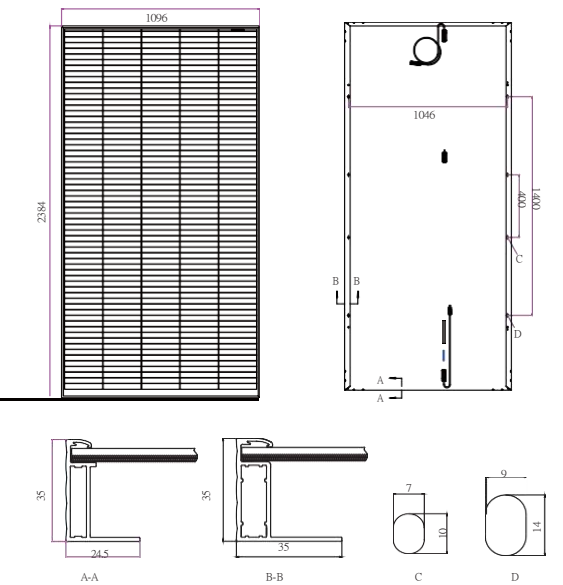
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

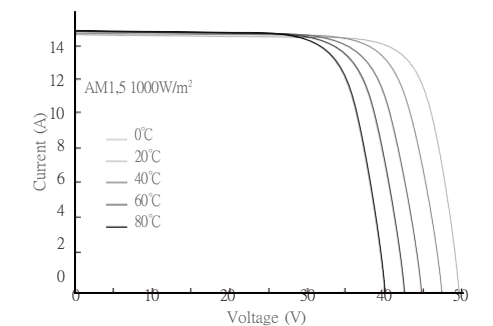
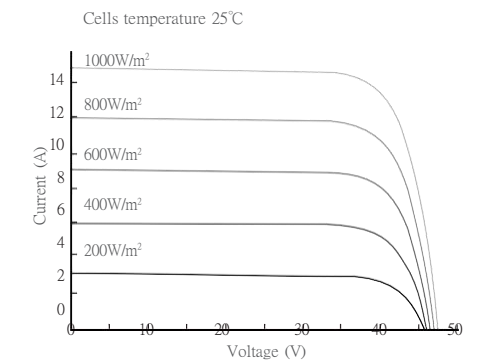
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ +85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



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Shingled bifacial module

TH530~555PMB6

58SDC



Features of Module



Shingling Technology
Innovative structure, low-temperature adhesive bonding, high-density layout.



Beautiful Appearance
Uniform layout, better aesthetic.



Superior Safety and Reliability
No hidden welding crack, low operating temperature, high pressure resistance.



Low System Cost
High module efficiency, reducing system cost.



Low Hot Spot Risk
Parallel circuit design reduces shading loss.



Low Shading Loss
Full parallel arrangement brings high effective power generation hours.



Eco-friendly philosophy, no Adhering to green fluorine and low lead.

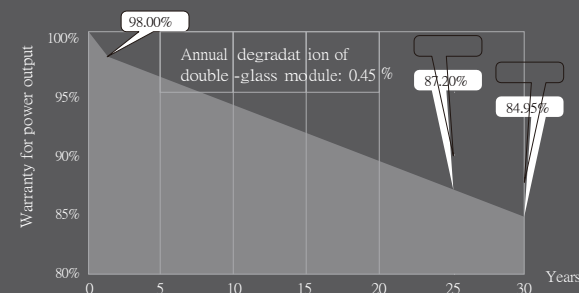
Linear Power Output Warranty

15

15-year warranty for materials.

30

30-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
ISO 9001 2015 / quality management system
ISO 14001 2015 / environmental management system
ISO 45001 2018 / occupation health safety management system
ISO 50001 2011 / energy management system
IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics at Standard Test Conditions(STC)

| Module Type:TH *** PMB6-58SDC | 555 | 550 | 545 | 540 | 535 | 530 |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 555 | 550 | 545 | 540 | 535 | 530 |
| Open Circuit Voltage-Voc [V] | 47.2 | 47.1 | 47.0 | 46.9 | 46.8 | 46.7 |
| Short Circuit Current-Isc [A] | 15.07 | 14.97 | 14.86 | 14.76 | 14.65 | 14.55 |
| Maximum Power Voltage-Vm [V] | 39.2 | 39.1 | 39.0 | 38.9 | 38.8 | 38.8 |
| Maximum Power Current-Im [A] | 14.17 | 14.07 | 13.98 | 13.89 | 13.79 | 13.67 |
| Module Efficiency-η [%] | 21.2 | 21.0 | 20.9 | 20.7 | 20.5 | 20.3 |

Temperature Characteristics

| | 416 | 413 | 409 | 405 | 401 | 398 |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 416 | 413 | 409 | 405 | 401 | 398 |
| Open Circuit Voltage-Voc [V] | 44.9 | 44.8 | 44.7 | 44.6 | 44.5 | 44.4 |
| Short Circuit Current-Isc [A] | 12.14 | 12.06 | 11.97 | 11.89 | 11.80 | 11.72 |
| Maximum Power Voltage-Vm [V] | 37.3 | 37.2 | 37.1 | 37.0 | 37.0 | 36.9 |
| Maximum Power Current-Im [A] | 11.17 | 11.09 | 11.01 | 10.94 | 10.86 | 10.78 |

1. Standard Test Conditions [STC]: irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
3. Tolerance of Pm: 0~±5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.
4. Bifaciality: Glazing 70%±5%

Electrical characteristics with different rear side power gain (Reference to 545W front)

| Power Gain-PG | 5% | 10% | 15% | 20% | 25% | 30% |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 572 | 600 | 627 | 654 | 681 | 709 |
| Open Circuit Voltage-Voc [V] | 47.0 | 47.0 | 47.0 | 47.1 | 47.1 | 47.1 |
| Short Circuit Current-Isc [A] | 15.61 | 16.35 | 17.09 | 17.84 | 18.58 | 19.32 |
| Maximum Power Voltage-Vm [V] | 39.0 | 39.0 | 39.0 | 39.1 | 39.1 | 39.1 |
| Maximum Power Current-Im [A] | 14.77 | 15.48 | 16.18 | 16.88 | 17.59 | 18.29 |

Mechanical Characteristics

| | |
|------------------|---------------------------------------------------------------------------------|
| Dimensions | 2384 × 1096 × 30mm |
| Weight | 32.0kg ± 3% |
| Front Glass | tempered glass, 2.0mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 345 (69*5) |
| Junction Box | IP68, three diodes |
| Cable | 4mm ² , +500mm/-1000(V), +220mm/-180mm(H), be customized by customer |
| Packaging | 36pcs/box; 720pcs/40'HQ; 1008 pcs/flat car |

Temperature Characteristics

| | |
|--------------------------------|------------------|
| NMOT | 42.3 °C (± 2 °C) |
| Temperature Coefficient of Voc | -0.27% / °C |
| Temperature Coefficient of Isc | 0.04% / °C |
| Temperature Coefficient of Pm | -0.34% / °C |

Maximum Ratings

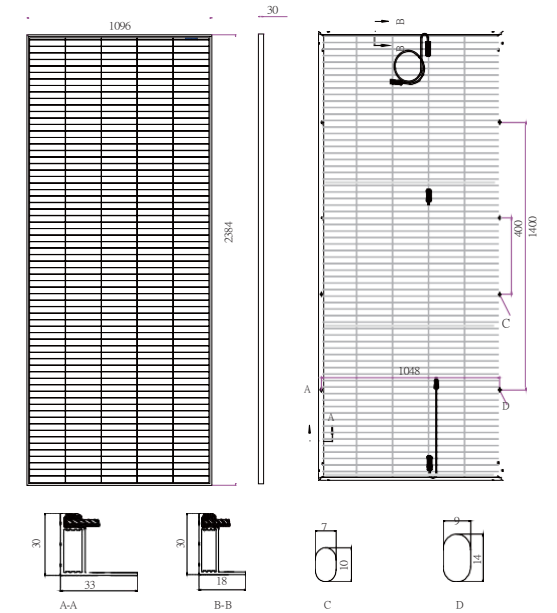
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|----------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC 1500 |
| Series Fuse Rating [A] | 30 |
| Surface Load Capacity [Pa] | Front5400 / Back2400 |
| Temperature Range [°C] | -40 ~ +85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Sales Hotline: 0551-62896556

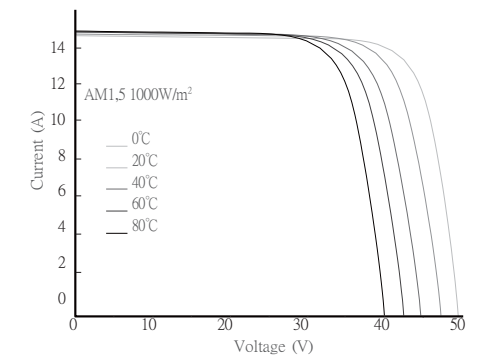
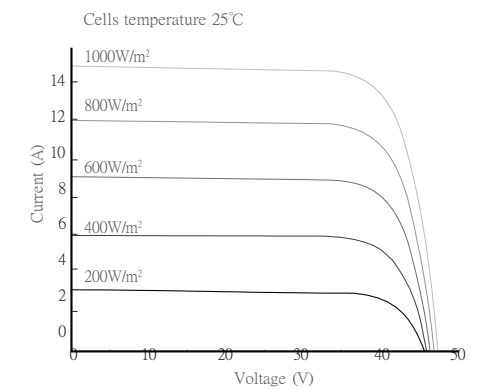
Email: ZUJYXB01@tongwei.com

Add: 888 Changning Avenue, High-tech Zone, Hefei City, Anhui Province

Drawings



I-V Curve



Statement:
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Shingled monofacial module

TH420~445PMB7

46SC

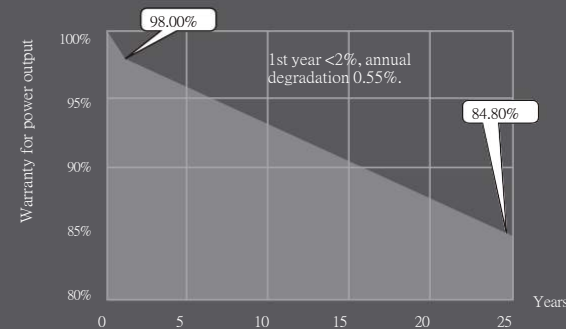


Features of Module

- 
Shingling Technology
 Innovative structure, low-temperature adhesive bonding, high-density layout.
- 
Beautiful Appearance
 Uniform layout, better aesthetic.
- 
Superior Safety and Reliability
 No hidden welding crack, low operating temperature, high pressure resistance.
- 
Low System Cost
 High module efficiency, reducing system cost.
- 
Low Hot Spot Risk
 Parallel circuit design reduces shading loss.
- 
Low Shading Loss
 Full parallel arrangement brings high effective power generation hours.
- 
Eco-friendly
 Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module Type: TH***PMB7-46SC | 445 | 440 | 435 | 430 | 425 | 420 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power - Pm (W) | 445 | 440 | 435 | 430 | 425 | 420 |
| Open Circuit Voltage - Voc (V) | 43.8 | 43.7 | 43.6 | 43.5 | 43.4 | 43.3 |
| Short Circuit Current-Isc [A] | 13.01 | 12.90 | 12.79 | 12.68 | 12.56 | 12.46 |
| Maximum Power Voltage-Vm [V] | 36.4 | 36.3 | 36.2 | 36.1 | 36.0 | 35.9 |
| Maximum Power Current-Im [A] | 12.23 | 12.13 | 12.02 | 11.92 | 11.81 | 11.71 |
| Module Efficiency-η [%] | 21.4 | 21.1 | 20.9 | 20.7 | 20.4 | 20.2 |

Electrical Characteristics at NMOT

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 335 | 331 | 328 | 324 | 320 | 316 |
| Open Circuit Voltage-Voc [V] | 41.8 | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 |
| Short Circuit Current-Isc [A] | 10.50 | 10.41 | 10.32 | 10.23 | 10.14 | 10.05 |
| Maximum Power Voltage-Vm [V] | 34.7 | 34.6 | 34.5 | 34.4 | 34.3 | 34.2 |
| Maximum Power Current-Im [A] | 9.66 | 9.57 | 9.49 | 9.41 | 9.32 | 9.24 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|------------------------------------------------------------------------|
| Dimensions | 1899 × 1096 × 30 mm |
| Weight | 21.8 kg |
| Front glass | tempered glass, 3.2mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 320 (64 × 5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² , +300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;864pcs/40'container;1296pcs/flat car |

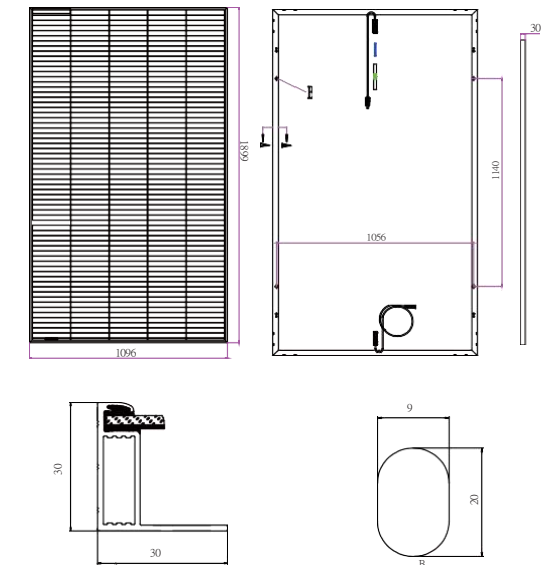
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

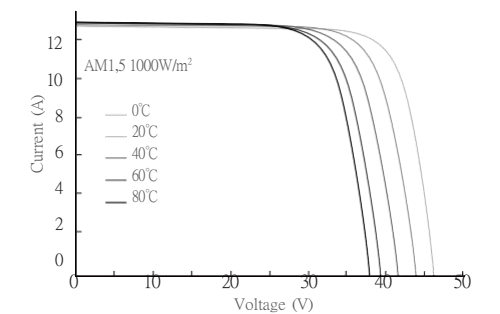
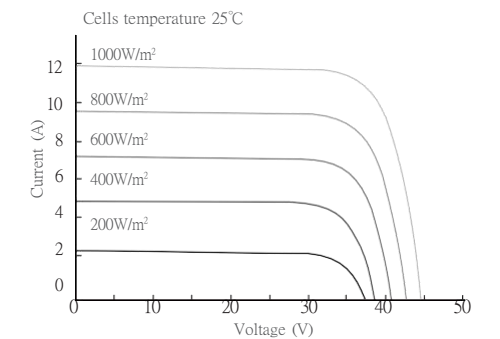
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ + 85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH420~445PMB7

46SCS

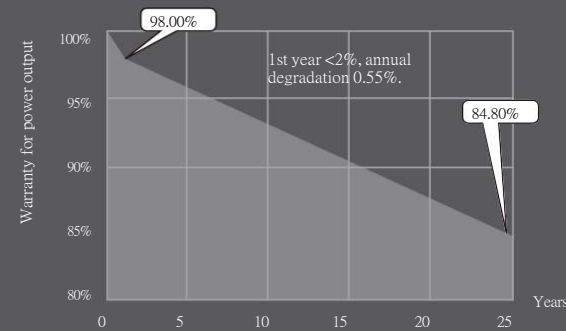


Features of Module

-  **Shingling Technology**
Innovative structure, low-temperature adhesive bonding, high-density layout.
-  **Beautiful Appearance**
Uniform layout, better aesthetic.
-  **Superior Safety and Reliability**
No hidden welding crack, low operating temperature, high pressure resistance.
-  **Low System Cost**
High module efficiency, reducing system cost.
-  **Low Hot Spot Risk**
Parallel circuit design reduces shading loss.
-  **Low Shading Loss**
Full parallel arrangement brings high effective power generation hours.
-  **Eco-friendly**
Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| | | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Module Type: TH***PMB7-46SCS | 445 | 440 | 435 | 430 | 425 | 420 |
| Maximum Power - Pm (W) | 445 | 440 | 435 | 430 | 425 | 420 |
| Open Circuit Voltage - Voc (V) | 43.8 | 43.7 | 43.6 | 43.5 | 43.4 | 43.3 |
| Short Circuit Current-Isc [A] | 13.01 | 12.90 | 12.79 | 12.68 | 12.56 | 12.46 |
| Maximum Power Voltage-Vm [V] | 36.4 | 36.3 | 36.2 | 36.1 | 36.0 | 35.9 |
| Maximum Power Current-Im [A] | 12.23 | 12.13 | 12.02 | 11.92 | 11.81 | 11.71 |
| Module Efficiency-η [%] | 21.4 | 21.1 | 20.9 | 20.7 | 20.4 | 20.2 |

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 335 | 331 | 328 | 324 | 320 | 316 |
| Open Circuit Voltage-Voc [V] | 41.8 | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 |
| Short Circuit Current-Isc [A] | 10.50 | 10.41 | 10.32 | 10.23 | 10.14 | 10.05 |
| Maximum Power Voltage-Vm [V] | 34.7 | 34.6 | 34.5 | 34.4 | 34.3 | 34.2 |

| | | | | | | |
|------------------------------|------|------|------|------|------|------|
| Maximum Power Current-Im [A] | 9.66 | 9.57 | 9.49 | 9.41 | 9.32 | 9.24 |
|------------------------------|------|------|------|------|------|------|

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|------------------------------------------------------------------------|
| Dimensions | 1899 × 1096 × 30 mm |
| Weight | 21.8 kg |
| Front glass | tempered glass, 3.2mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 320 (64 × 5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² , +300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;864pcs/40'container;1296pcs/flat car |

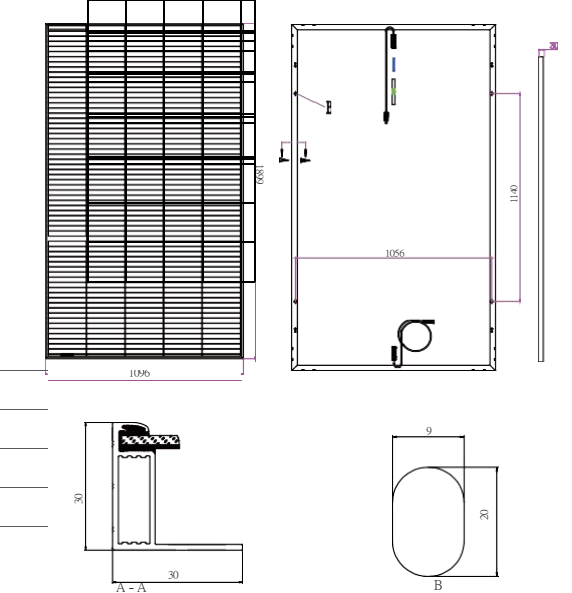
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

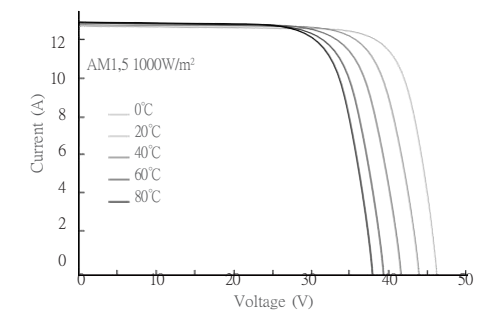
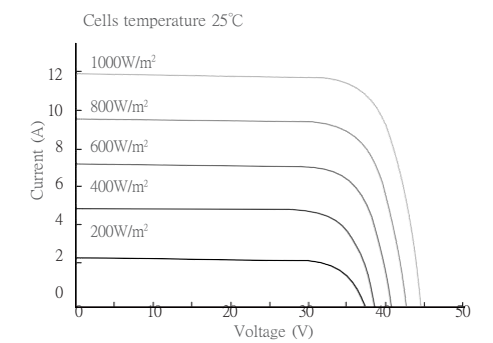
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ + 85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH420~445PMB7

46SCF

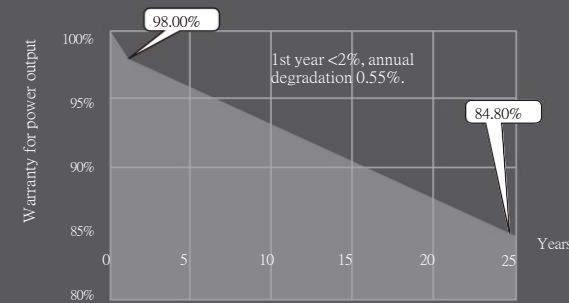


Features of Module

-  **Shingling Technology**
Innovative structure, low-temperature adhesive bonding, high-density layout.
-  **Beautiful Appearance**
Uniform layout, better aesthetic.
-  **Superior Safety and Reliability**
No hidden welding crack, low operating temperature, high pressure resistance.
-  **Low System Cost**
High module efficiency, reducing system cost.
-  **Low Hot Spot Risk**
Parallel circuit design reduces shading loss.
-  **Low Shading Loss**
Full parallel arrangement brings high effective power generation hours.
-  **Eco-friendly**
Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module Type: TH***PMB7-46SCF | 445 | 440 | 435 | 430 | 425 | 420 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power - Pm (W) | 445 | 440 | 435 | 430 | 425 | 420 |
| Open Circuit Voltage - Voc (V) | 43.8 | 43.7 | 43.6 | 43.5 | 43.4 | 43.3 |
| Short Circuit Current-Isc [A] | 13.01 | 12.90 | 12.79 | 12.68 | 12.56 | 12.46 |
| Maximum Power Voltage-Vm [V] | 36.4 | 36.3 | 36.2 | 36.1 | 36.0 | 35.9 |
| Maximum Power Current-Im [A] | 12.23 | 12.13 | 12.02 | 11.92 | 11.81 | 11.71 |
| Module Efficiency-η [%] | 21.4 | 21.1 | 20.9 | 20.7 | 20.4 | 20.2 |

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 335 | 331 | 328 | 324 | 320 | 316 |
| Open Circuit Voltage-Voc [V] | 41.8 | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 |
| Short Circuit Current-Isc [A] | 10.50 | 10.41 | 10.32 | 10.23 | 10.14 | 10.05 |
| Maximum Power Voltage-Vm [V] | 34.7 | 34.6 | 34.5 | 34.4 | 34.3 | 34.2 |
| Maximum Power Current-Im [A] | 9.66 | 9.57 | 9.49 | 9.41 | 9.32 | 9.24 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s , ambient temperature 20°C.
 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|------------------------------------------------------------------------|
| Dimensions | 1899 × 1096 × 30 mm |
| Weight | 21.8 kg |
| Front glass | tempered glass, 3,2mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 320 (64 × 5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² , +300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;864pcs/40'container;1296pcs/flat car |

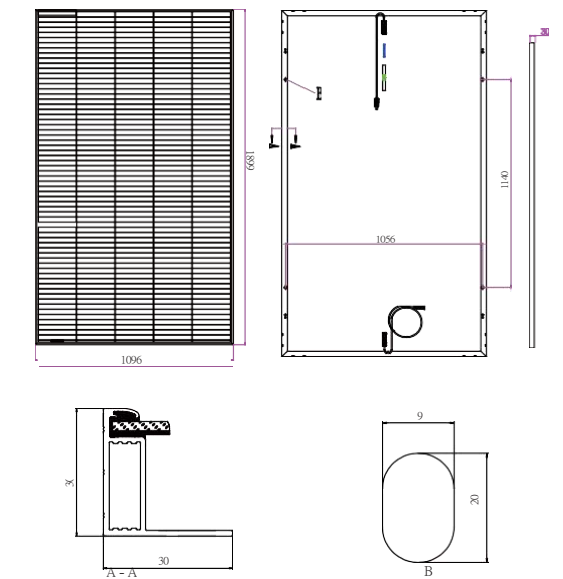
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

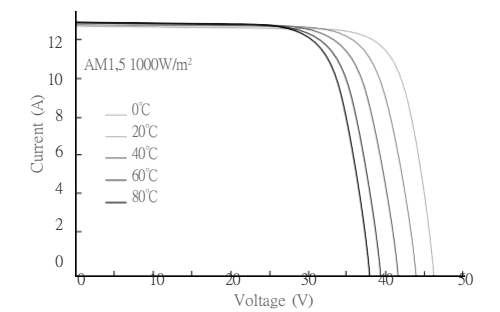
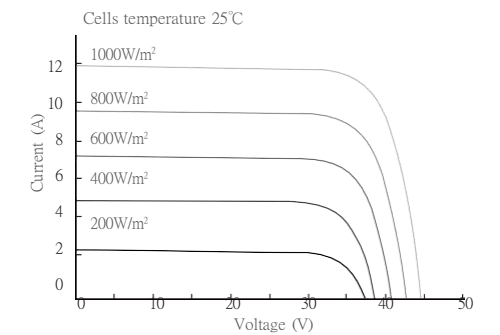
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ + 85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH405~430PMB7

44SC

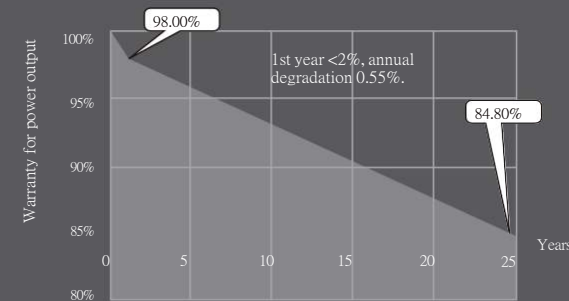


Features of Module

- 
Shingling Technology
 Innovative structure, low-temperature adhesive bonding, high-density layout.
- 
Beautiful Appearance
 Uniform layout, better aesthetic.
- 
Superior Safety and Reliability
 No hidden welding crack, low operating temperature, high pressure resistance.
- 
Low System Cost
 High module efficiency, reducing system cost.
- 
Low Hot Spot Risk
 Parallel circuit design reduces shading loss.
- 
Low Shading Loss
 Full parallel arrangement brings high effective power generation hours.
- 
Eco-friendly
 Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| | | | | | | |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Module Type: TH***PMB7-44SC | 430 | 425 | 420 | 415 | 410 | 405 |
| Maximum Power - Pm (W) | 430 | 425 | 420 | 415 | 410 | 405 |
| Open Circuit Voltage - Voc (V) | 41.8 | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 |
| Short Circuit Current-Isc [A] | 13.05 | 13.03 | 12.92 | 12.80 | 12.65 | 12.53 |
| Maximum Power Voltage-Vm [V] | 34.7 | 34.6 | 34.5 | 34.4 | 34.4 | 34.3 |
| Maximum Power Current-Im [A] | 12.40 | 12.30 | 12.19 | 12.08 | 11.97 | 11.86 |
| Module Efficiency-η [%] | 21.7 | 21.4 | 21.1 | 20.9 | 20.6 | 20.4 |

Electrical Characteristics at NMOT

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 324 | 320 | 316 | 312 | 309 | 305 |
| Open Circuit Voltage-Voc [V] | 39.8 | 39.8 | 39.7 | 39.6 | 39.5 | 39.4 |
| Short Circuit Current-Isc [A] | 10.51 | 10.50 | 10.41 | 10.31 | 10.19 | 10.09 |
| Maximum Power Voltage-Vm [V] | 33.1 | 33.0 | 32.9 | 32.8 | 32.8 | 32.7 |
| Maximum Power Current-Im [A] | 9.79 | 9.70 | 9.62 | 9.53 | 9.41 | 9.33 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3; 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s ; ambient temperature 20°C. 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|-----------------------------------------------------------------------|
| Dimensions | 1812 × 1096 × 30 mm |
| Weight | 20.8 kg ± 3% |
| Front glass | tempered glass, 3.2mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 305 (61*5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² ,+300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;924pcs/40'container;1296pcs/flat car |

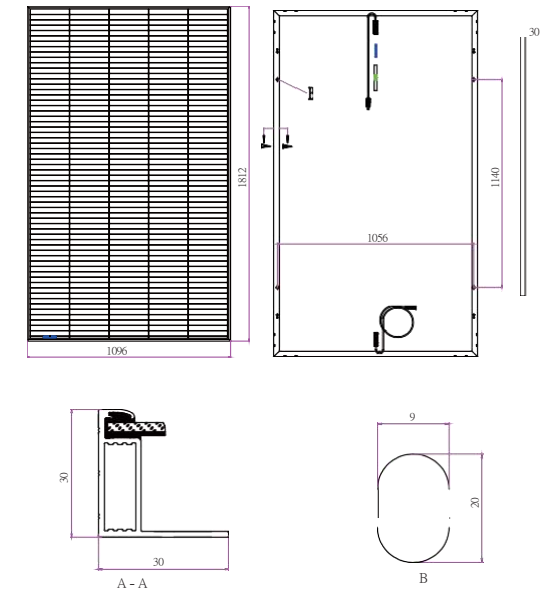
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.54%/°C |

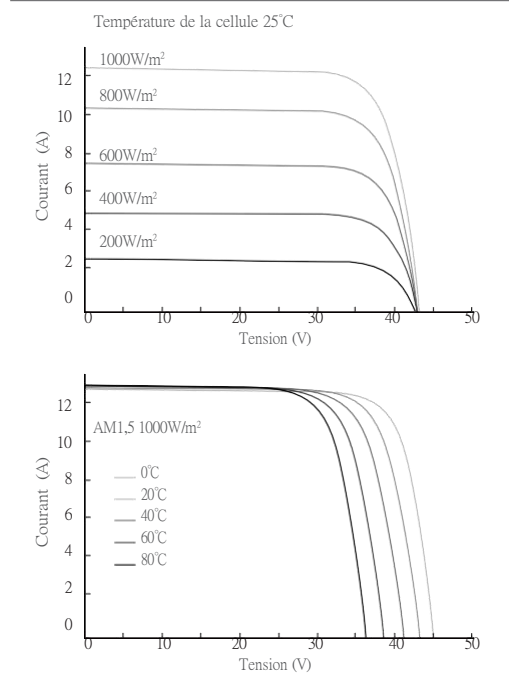
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ + 85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH405~430PMB7

44SCS

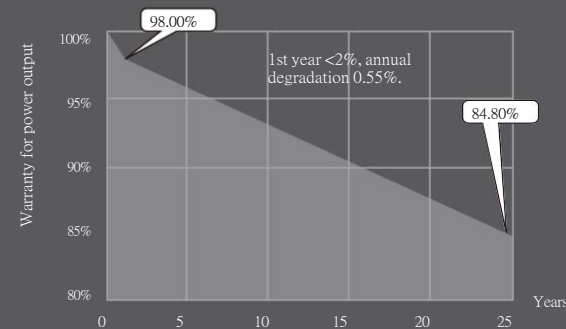


Features of Module

-  **Shingling Technology**
Innovative structure, low-temperature adhesive bonding, high-density layout.
-  **Beautiful Appearance**
Uniform layout, better aesthetic.
-  **Superior Safety and Reliability**
No hidden welding crack, low operating temperature, high pressure resistance.
-  **Low System Cost**
High module efficiency, reducing system cost.
-  **Low Hot Spot Risk**
Parallel circuit design reduces shading loss.
-  **Low Shading Loss**
Full parallel arrangement brings high effective power generation hours.
-  **Eco-friendly**
Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module Type: | TH405 | TH425 | TH420 | TH415 | TH410 | TH405 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power - Pm (W) | 430 | 425 | 420 | 415 | 410 | 405 |
| Open Circuit Voltage - Voc (V) | 41.8 | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 |
| Short Circuit Current-Isc [A] | 13.05 | 13.03 | 12.92 | 12.80 | 12.65 | 12.53 |
| Maximum Power Voltage-Vm [V] | 34.7 | 34.6 | 34.5 | 34.4 | 34.4 | 34.3 |
| Maximum Power Current-Im [A] | 12.40 | 12.30 | 12.19 | 12.08 | 11.97 | 11.86 |
| Module Efficiency-η [%] | 21.7 | 21.4 | 21.1 | 20.9 | 20.6 | 20.4 |

Electrical Characteristics at NMOT

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 324 | 320 | 316 | 312 | 309 | 305 |
| Open Circuit Voltage-Voc [V] | 39.8 | 39.8 | 39.7 | 39.6 | 39.5 | 39.4 |
| Short Circuit Current-Isc [A] | 10.51 | 10.50 | 10.41 | 10.31 | 10.19 | 10.09 |
| Maximum Power Voltage-Vm [V] | 33.1 | 33.0 | 32.9 | 32.8 | 32.8 | 32.7 |
| Maximum Power Current-Im [A] | 9.79 | 9.70 | 9.62 | 9.53 | 9.41 | 9.33 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
 3. Tolerance of Pm: 0~±5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|------------------------------------------------------------------------|
| Dimensions | 1812 × 1096 × 30 mm |
| Weight | 20.8 kg ± 3% |
| Front glass | tempered glass, 3.2 mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 305 (61*5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² , +300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;924pcs/40'container;1296pcs/flat car |

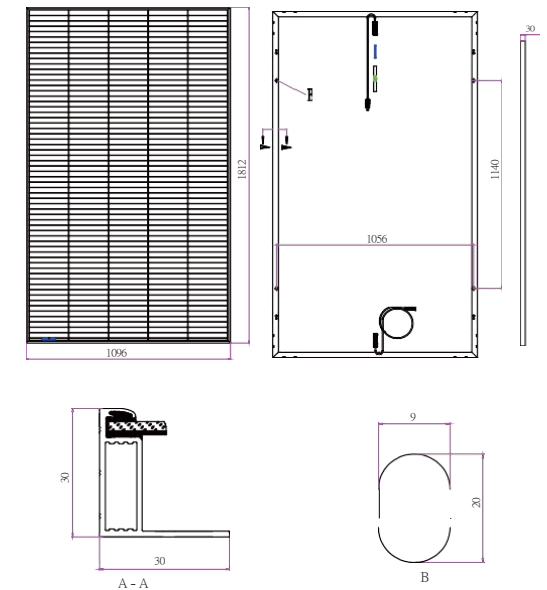
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

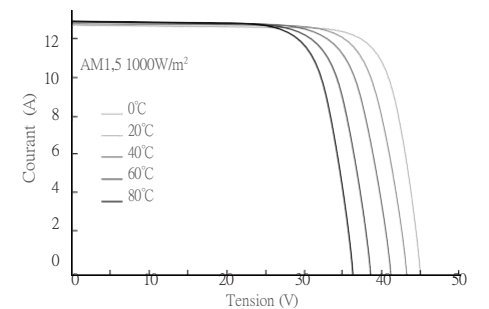
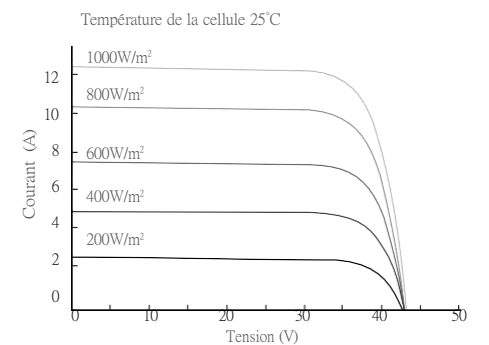
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ +85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

Shingled monofacial module

TH400~425PMB7

44SCF

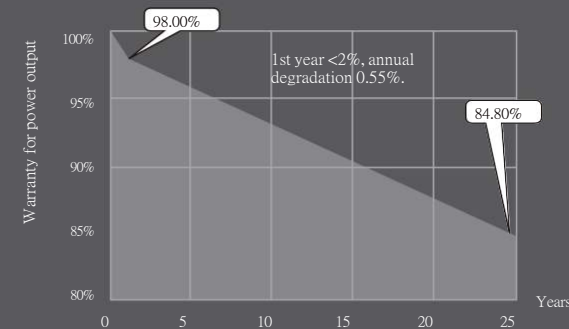


Features of Module

- 
Shingling Technology
 Innovative structure, low-temperature adhesive bonding, high-density layout.
- 
Beautiful Appearance
 Uniform layout, better aesthetic.
- 
Superior Safety and Reliability
 No hidden welding crack, low operating temperature, high pressure resistance.
- 
Low System Cost
 High module efficiency, reducing system cost.
- 
Low Hot Spot Risk
 Parallel circuit design reduces shading loss.
- 
Low Shading Loss
 Full parallel arrangement brings high effective power generation hours.
- 
Eco-friendly
 Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials. **25** 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730 · IEC62804(PID) · IEC61701(Salt) · IEC62716 (Ammonia) · IEC60068-2-68(Sand)
 ISO 9001 2015 / quality management system
 ISO 14001 2015 / environmental management system
 ISO 45001 2018 / occupation health safety management system
 ISO 50001 2011 / energy management system
 IEC TS 62941—2016 / PV industry quality management system



Electrical Characteristics (STC)

| Module Type: TH***PMB7-44SCF | 425 | 420 | 415 | 410 | 405 | 400 |
|--------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power - Pm (W) | 425 | 420 | 415 | 410 | 405 | 400 |
| Open Circuit Voltage - Voc (V) | 41.7 | 41.6 | 41.5 | 41.4 | 41.3 | 41.2 |
| Short Circuit Current-Isc [A] | 13.03 | 12.92 | 12.80 | 12.65 | 12.53 | 12.41 |
| Maximum Power Voltage-Vm [V] | 34.6 | 34.5 | 34.4 | 34.4 | 34.3 | 34.2 |
| Maximum Power Current-Im [A] | 12.30 | 12.19 | 12.08 | 11.97 | 11.86 | 11.75 |
| Module Efficiency-η [%] | 21.4 | 21.1 | 20.9 | 20.6 | 20.4 | 20.1 |

Electrical Characteristics at NMOT

| | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-Pm [W] | 320 | 316 | 312 | 309 | 305 | 301 |
| Open Circuit Voltage-Voc [V] | 39.8 | 39.7 | 39.6 | 39.5 | 39.4 | 39.3 |
| Short Circuit Current-Isc [A] | 10.50 | 10.41 | 10.31 | 10.19 | 10.09 | 10.00 |
| Maximum Power Voltage-Vm [V] | 33.0 | 32.9 | 32.8 | 32.8 | 32.7 | 32.6 |
| Maximum Power Current-Im [A] | 9.70 | 9.62 | 9.53 | 9.41 | 9.33 | 9.24 |

Note: 1. Standard Test Conditions (STC): irradiance 1000 W/m²; AM 1.5; ambient temperature 25°C, according to EN 60904-3;
 2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m²; wind speed 1m/s, ambient temperature 20°C.
 3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

Mechanical Parameters

| | |
|------------------|------------------------------------------------------------------------|
| Dimensions | 1812 × 1096 × 30 mm |
| Weight | 20.8 kg ± 3% |
| Front glass | tempered glass, 3.2 mm |
| Frame | Anodized aluminum profile |
| Cells | Mono-crystalline solar cell |
| Cell Orientation | 305 (61*5) |
| Junction Box | IP68, two diodes |
| Cable | 4mm ² , +300mm/-1000mm(Vertical), +220mm/-180mm(Horizontal) |
| Packaging | 36pcs/box;924pcs/40'container;1296pcs/flat car |

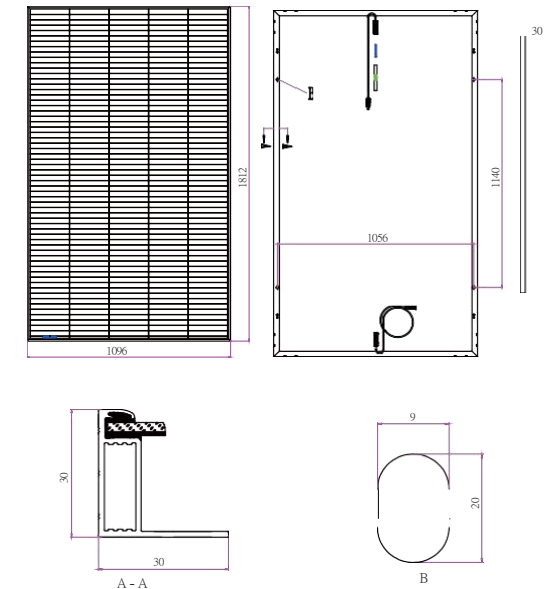
Temperature Parameters

| | |
|--------------------------------|-----------------|
| NMOT | 42.30 °C (±2°C) |
| Temperature Coefficient of Voc | -0.27%/°C |
| Temperature Coefficient of Isc | +0.04%/°C |
| Temperature Coefficient of Pm | -0.34%/°C |

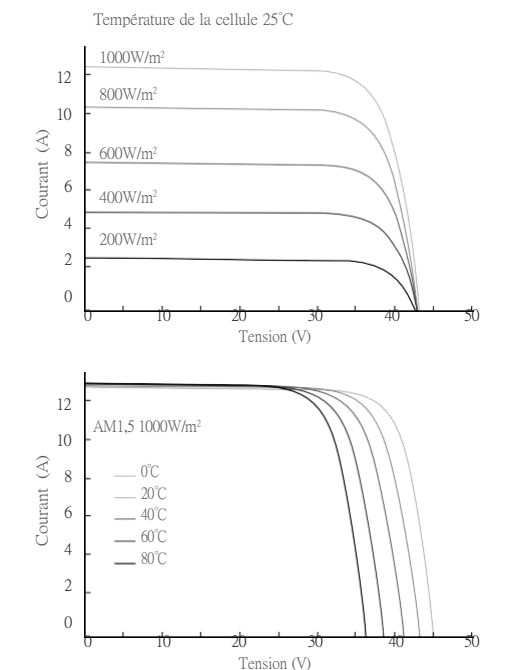
Maximum Ratings

| | |
|------------------------------------|-------------------------------------------------------|
| Maximum System Voltage [V] | DC1500 (IEC) |
| Series Fuse Rating [A] | 25 |
| Maximum Surface Load Capacity [Pa] | Front 5400 / Back 2400 |
| Temperature Range [°C] | -40 ~ +85 |
| Withstanding Hail | Maximum diameter of 25 mm with impact speed of 23 m/s |

Drawings



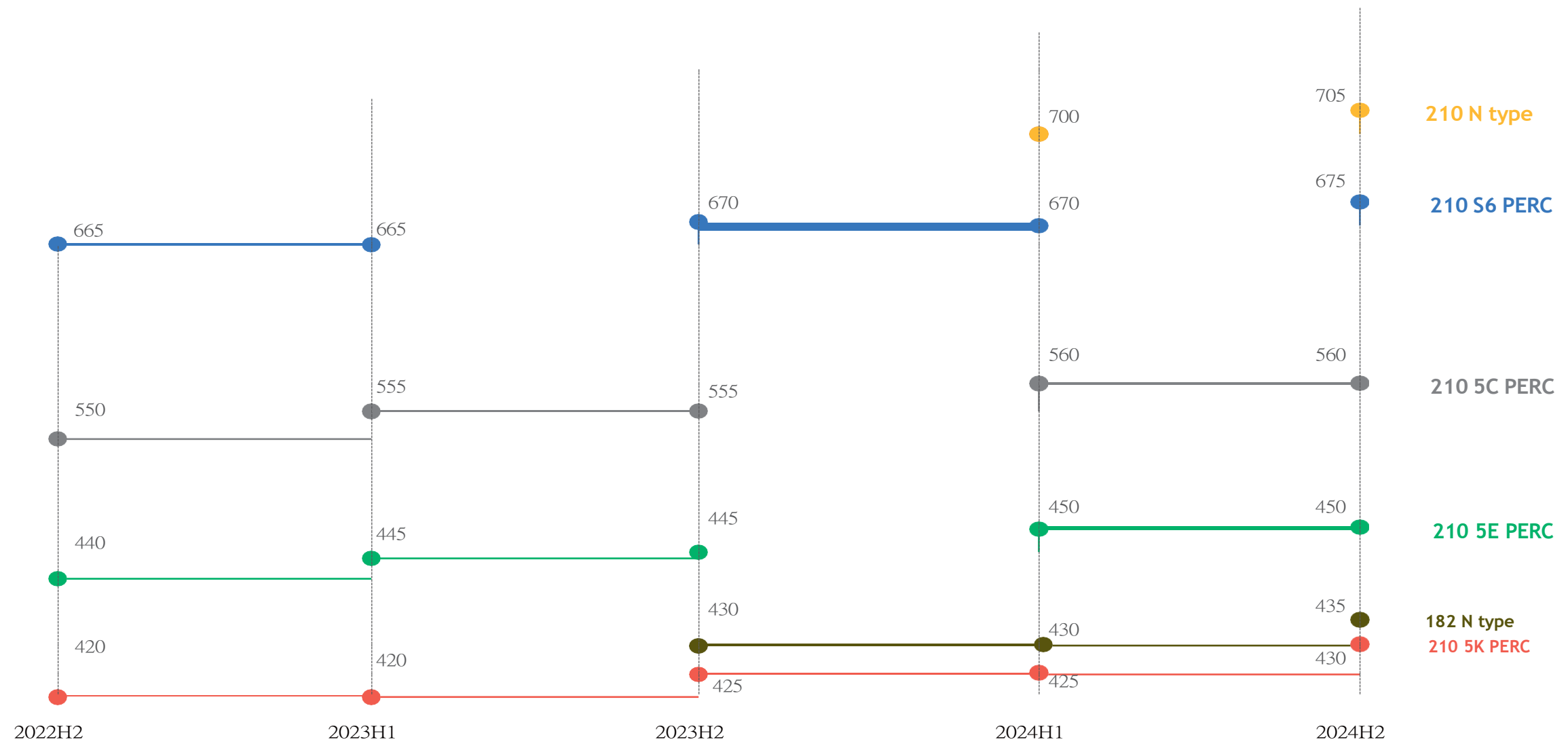
I-V Curve



Statement:
 With technological progress and product updates, there may be deviations between the technical parameters of Tongwei's module products and the technical parameters contained in this specification, and Tongwei Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in Tongwei Solar.

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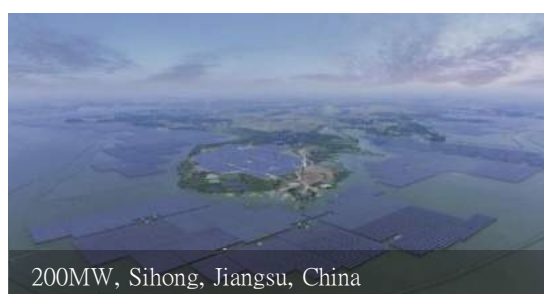
PRODUCT ROADMAP



08

PROJECT





09

PARTNERS

Tongwei's module division has established a long-term cooperative relationship with many partners at home and abroad by virtue of reliable product and excellent customer service. At present, Tongwei has continuously contributed green and clean energy in many countries and regions, received high remarks from customers in all regions and high recognition inside and outside the industry by virtue of high product quality and manufacturing strength.



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