

**182TOPCon-Half-cell Mono-facial Module(60)**

**Product Feature**



High Power Output  
Low LCOE



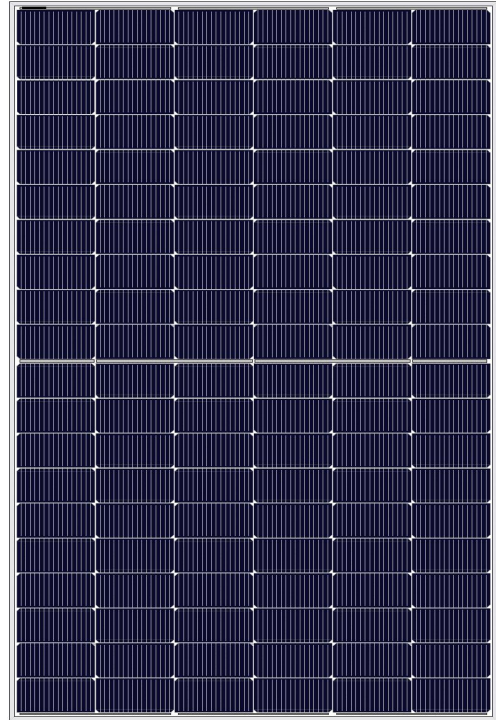
Maximum Power  
up to 490W+



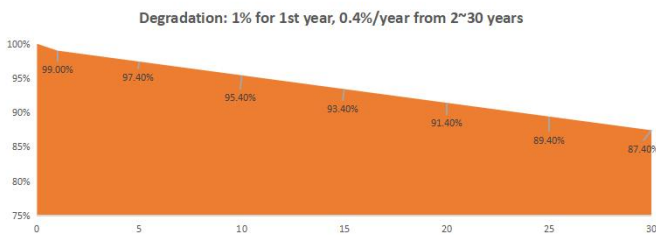
High Reliability



Low Degradation



**Linear Warranty**



Warranty for Material and Processing



Warranty for Linear Power output

**Management System certification**

- ISO9001: 2015/Quality Management System
- ISO14001: 2015/Environmental Management System
- ISO45001: 2018/Occupational Health and Safety Management System
- IEC62941: 2019/Quality system for PV module manufacturing

**Product certification**



### Electrical Characteristics (STC)

Moduel type: TWMND-60HS***						
Maximum Power: Pmax [W]	465	470	475	480	485	490
Open Circuit Voltage: Voc [V]	43.17	43.34	43.51	43.68	43.85	44.02
Short Circuit Current: Isc [A]	13.50	13.55	13.60	13.65	13.70	13.75
Voltage at Maximum Power: Vmp [V]	36.62	36.79	36.96	37.13	37.30	37.47
Current at Maximum Power: Imp [A]	12.70	12.78	12.85	12.93	13.00	13.07
Module Efficiency: $\eta$ [%]	21.5	21.7	22.0	22.2	22.4	22.6
STC: Irradiance 1000W/m <sup>2</sup> , Cell Temperature 25°C, AM=1.5, Test Uncertainty: $\pm$ 3%						

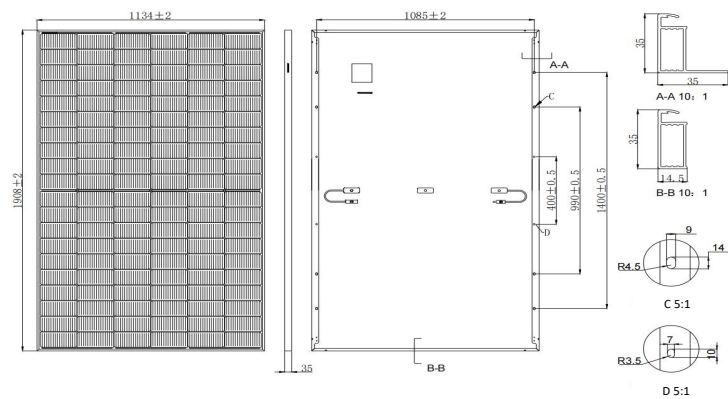
### Electrical Characteristics (NMOT)

Maximum Power: Pmax [W]	351.9	355.7	359.5	363.3	367.0	370.8
Open Circuit Voltage: Voc [V]	41.06	41.22	41.38	41.54	41.71	41.87
Short Circuit Current: Isc [A]	10.63	10.67	10.71	10.74	10.78	10.82
Voltage at Maximum Power: Vmp [V]	35.25	35.41	35.58	35.74	35.90	36.07
Current at Maximum Power: Imp [A]	9.97	10.03	10.09	10.15	10.20	10.26
NMOT: Irradiance 800W/m <sup>2</sup> , Ambient Temperature 20°C, AM=1.5, Wind Speed 1m/s						

### Mechanical Parameters

Cell Type	TNC
Cell Orientation	120[6×20]
Dimensions	1908±2×1134±2×35mm
Weight	23.2 kg
Front Glass	3.2 mm AR coated heat strengthened glass
Backsheet	White
Frame	Anodized aluminum alloy frame
Junction Box	IP68, 3 diodes
Cable	4.0 mm <sup>2</sup>
Cable length	+1200mm,-1200mm,length can be customized
Wind/Snow load	2400Pa/5400Pa
Packaging	744 pcs per 40'HC,744 pcs per 13m flatbed trailer,1054 pcs per 17.5m flatbed trailer
Fire class rating	Class C

### Drawing(Unit:mm)

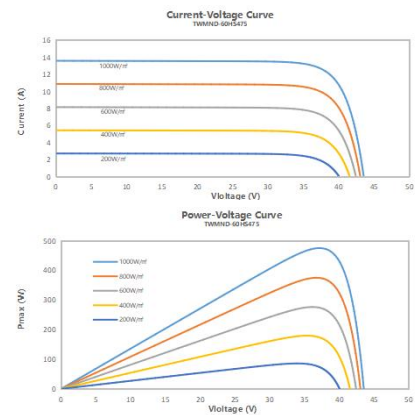


### Temperature rating

Temperature Coefficient of Pmax	-0.30%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of Isc	+0.046%/°C
NMOT	45±2°C

### Operating Parameters

Operating Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC
Maximum Serues Fuse Rating	25A
Power Output Tolerance	0~+5W



Statement: With technological process and product update, there maybe deviation between the technical parameters of Tongwei's module products and the technical parameters contained in the specification, and Tongwei 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.

## **Cable Type**

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Zhejiang Renhe Photovoltaic Technology Co., Ltd.  
Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.  
Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd  
Ningbo Kibor Wire&Cable Co., Ltd.  
Wuxi Xinhongye Wire&Cable Co., Ltd.  
Trina Solar Co., Ltd.  
Changshu JHOSIN Communication Technology Co., Ltd.  
SUZHOU YONGHAO CABLE CO LTD  
QC Solar (Suzhou) Corporation  
Suzhou Baohing Electric Wire & Cable Manufacturer Co., Ltd.  
Changshu JHOSIN Communication Technology Co., Ltd.  
Jiangsu Tongling Electric Co., Ltd.  
Zhejiang Chuangyuan Photovoltaic Technology Co.,Ltd.  
Tongwei Solar (Hefei) Co., Ltd.

## **Connector type**

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05-8, Zhejiang Renhe Photovoltaic Technology Co., Ltd.  
PV-KST4-EVO2/xy\_UR , PV-KBT4-EVO2/xy\_UR, Stäubli Electrical Connectors AG  
PV-KST4-EVO2A/xy, PV-KBT4 EVO2A/xy, Stäubli Electrical Connectors AG  
UTXCFabcd, UTXCMabcd, UTXCFabcde, UTXCMabcde, Amphenol Technology (Shenzhen) Co., Ltd.  
RHC2xyzu, Zhejiang Renhe Photovoltaic Technology Co., Ltd.  
PV-JM608, Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.  
PV-JM601A, Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.  
H4CFC4DMS; H4CMC4DMS, Amphenol Technology (Shenzhen) Co., Ltd.  
PV4-S1yx, Tyco Electronics (Shanghai) Co., Ltd.  
HQC4, Hanwha Q CELLS (Qidong) Co., Ltd  
PV-CO02-xy, SUZHOU UKT NEW ENERGY TECHNOLOGY CO., LTD  
PV-JK03M-2, Jiangxi Jinko PV Material Co., Ltd.  
TS4-xz, Trina Solar Co., Ltd.  
TS4, Trina Solar Co., Ltd.  
Z4S-abcd, Zerun Co., LTD.  
H4Cabcdef, Amphenol Technology (Shenzhen) Co., Ltd.  
PV-CF-C-2, 5-4-SETxxxx, PV-CM-C-2, 5-4-SETxxxx, Phoenix Contact GmbH & Co.KG  
PV-ZH202B, Zhejiang Zhonghuan Sunter PV Technology Co., Ltd.  
QC4.10-cds, QC Solar (Suzhou) Corporation  
PV-MH5, Ningbo Minghe New Energy Technology Co., Ltd.  
TL-CABLE01S-F, TL-CABLE01S, Jiangsu Tongling Electric Co., Ltd.  
BIGabc4efgh, Trina Solar Co., Ltd.  
PV-KST4-EVO2A/xy\_UR; PV-KBT4-EVO2A/xy\_UR, Stäubli Electrical Connectors AG

**Connector type**

PV-XT101.1, Suzhou Xietong Photovoltaic Technology Co., Ltd.

PV-JK03M2/xy, Jiangxi Jinko PV Material Co., Ltd.

TW-PVCON-01, Tongwei Solar (Hefei) Co., Ltd.

PV-CY03L, Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd.

PV-CY20L, Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd.