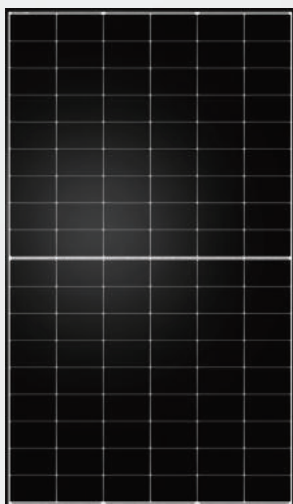


# TNC

## N-type Half-cell Bifacial Dual glass Black Frame and Transparent Module (54) TWMNH-54HD



High light transmittance, suitable for carports and balcony scenarios



Compact size and lightweight, hassle-free operation and low maintenance

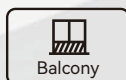


Increased power, lower transportation cost

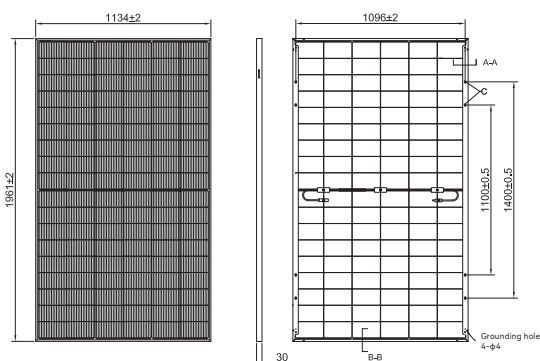


Integrated design, perfectly blending with architectural aesthetics

### 500-520W



## Drawings (Unit: mm)



## Electrical Characteristics (STC)

| Module type:                      | TWMNH-54 HD500 | TWMNH-54 HD505 | TWMNH-54 HD510 | TWMNH-54 HD515 | TWMNH-54 HD520 |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Maximum Power: Pmax [W]           | 500            | 505            | 510            | 515            | 520            |
| Open Circuit Voltage: Voc [V]     | 40.06          | 40.24          | 40.42          | 40.60          | 40.80          |
| Short Circuit Current: Isc [A]    | 15.89          | 15.92          | 15.95          | 15.98          | 16.05          |
| Voltage at Maximum Power: Vmp [V] | 33.70          | 33.94          | 34.19          | 34.43          | 34.67          |
| Current at Maximum Power: Imp [A] | 14.84          | 14.88          | 14.92          | 14.96          | 15.00          |
| Module Efficiency: η [%]          | 22.48          | 22.71          | 22.93          | 23.16          | 23.38          |

\* STC: Irradiance 1000W/m<sup>2</sup>, Cell temperature 25°C, AM=1.5, Power measurement tolerance: ±3%, Voc measurement tolerance: ±5%, Isc measurement tolerance: ±5%

## Electrical Characteristics (BNPI)

|                                   |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|
| Maximum Power: Pmax [W]           | 552.0 | 557.6 | 563.1 | 568.8 | 574.1 |
| Open Circuit Voltage: Voc [V]     | 40.06 | 40.24 | 40.42 | 40.60 | 40.80 |
| Short Circuit Current: Isc [A]    | 17.54 | 17.57 | 17.61 | 17.64 | 17.72 |
| Voltage at Maximum Power: Vmp [V] | 33.70 | 33.94 | 34.19 | 34.43 | 34.67 |
| Current at Maximum Power: Imp [A] | 16.38 | 16.43 | 16.47 | 16.52 | 16.56 |

\* BNPI: Front side irradiance 1000W/m<sup>2</sup>, Rear side irradiance 135W/m<sup>2</sup>, Cell Temperature=25°C, AM=1.5, Power measurement tolerance: ±3%, Voc measurement tolerance: ±5%, Isc measurement tolerance: ±5%

## Electrical Characteristics (BSI)

|                                |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|
| Short Circuit Current: Isc [A] | 19.56 | 19.60 | 19.63 | 19.67 | 19.76 |
|--------------------------------|-------|-------|-------|-------|-------|

\* BSI: Front side irradiance 1000W/m<sup>2</sup>, Rear side irradiance 300W/m<sup>2</sup>, Cell Temperature=25°C, AM=1.5, Isc measurement tolerance: ±5%

## Electrical characteristics with different rear side power gain

| 5%  | Maximum Power: Pmax[W]   | 525   | 530   | 535   | 540   | 546   |
|-----|--------------------------|-------|-------|-------|-------|-------|
|     | Module Efficiency: η [%] | 23.61 | 23.83 | 24.06 | 24.28 | 24.55 |
| 15% | Maximum Power: Pmax[W]   | 575   | 580   | 586   | 592   | 598   |
|     | Module Efficiency: η [%] | 25.86 | 26.08 | 26.35 | 26.62 | 26.89 |
| 25% | Maximum Power: Pmax[W]   | 625   | 631   | 637   | 643   | 650   |
|     | Module Efficiency: η [%] | 28.11 | 28.38 | 28.64 | 28.91 | 29.23 |

## Temperature Rating

|                                 |            |
|---------------------------------|------------|
| Temperature Coefficient of Pmax | -0.28%/°C  |
| Temperature Coefficient of Voc  | -0.24%/°C  |
| Temperature Coefficient of Isc  | +0.046%/°C |

## Operating Parameters

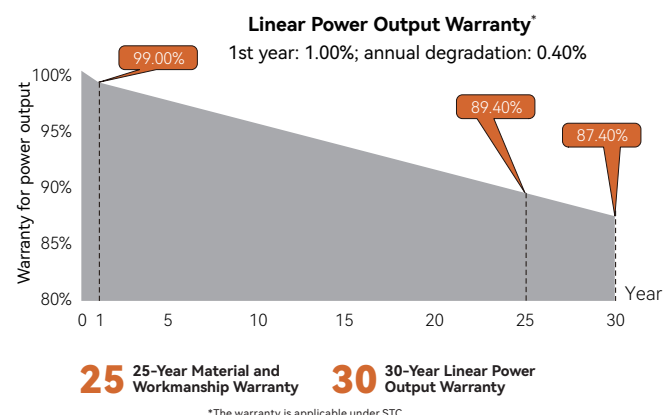
|                                 |                           |
|---------------------------------|---------------------------|
| Operating Temperature*          | [T <sub>98</sub> ] ≤ 70°C |
| Maximum System Voltage          | 1500V DC                  |
| Maximum Series Fuse Rating      | 30A                       |
| Power Output Tolerance          | 0~+3%                     |
| Bifaciality coefficient of Pmax | 80±5%                     |
| Bifaciality coefficient of Voc  | 98±5%                     |
| Bifaciality coefficient of Isc  | 80±5%                     |
| Fire Class Rating               | Class C                   |

\*The module operating temperature can reach up to 85°C for short term.

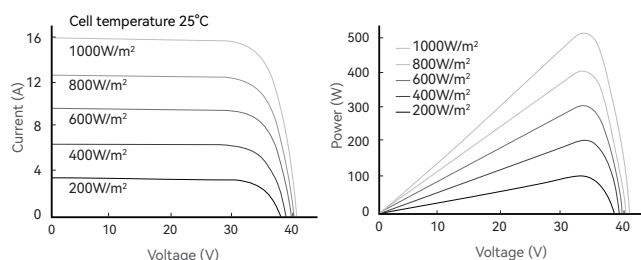
## Mechanical Parameters

|                          |                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cell Type                | TNC                                                                                                                                                                              |
| Cell Orientation         | 108[6×18]                                                                                                                                                                        |
| Dimension                | 1961±2×1134±2×30mm                                                                                                                                                               |
| Weight                   | 27.2 kg                                                                                                                                                                          |
| Front Glass              | 2.0 mm AR coating semi tempered glass                                                                                                                                            |
| Rear Glass               | 2.0 mm semi tempered glass                                                                                                                                                       |
| Frame                    | Anodized aluminum alloy black frame                                                                                                                                              |
| Junction Box             | IP68, 3 diodes                                                                                                                                                                   |
| Cable                    | 4.0 mm <sup>2</sup>                                                                                                                                                              |
| Cable Length             | +1200mm,-1200mm,length can be customized                                                                                                                                         |
| Connector                | TW-PVCON-01,TW-PVCON-02(Tongwei Solar)<br>PV-KST4-EVO2/xy_UR, PV-KBT4-EVO2/xy_UR(Staubli)<br>PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy(Staubli)<br>PV-ZH202B(Zhejiang Zhonghuan Sunter) |
| Maximum Static Test Load | 5400Pa (positive) / 2400Pa (negative)                                                                                                                                            |
| Packaging (Per pallet)   | 36 pcs                                                                                                                                                                           |
| Packaging                | 936 pcs per 40'HC                                                                                                                                                                |

## Warranty



## Curve



## Certifications

### Quality Management System and Product Certification

ISO 9001: 2015 / Quality Management System  
ISO 14001: 2015 / Environmental Management System  
ISO 45001: 2018 / Occupational Health and Safety Management System  
ISO 50001: 2018 / Energy Management System  
IEC 62941: 2019 / Quality System for PV Module Manufacturing  
IEC 61215 (2021) / IEC 61730 (2023), IEC TS 62804,  
IEC 61701, IEC 62716, IEC 60068-2-68

