



High Power Output  
Low LCOE



Maximum Power  
515W+



# TWMNH

N-type Half-cell  
Bifacial Black Frame Module (54)

## 54HD495-515W

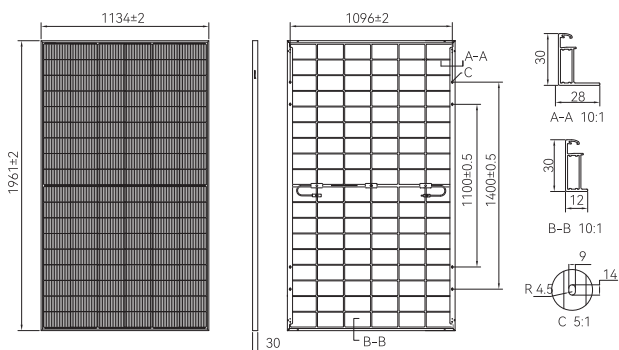


<https://en.tongwei.cn/>



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**DRAWINGS (Unit: mm)**



**MECHANICAL PARAMETERS**

Cell Type	TNC (N Type Monocrystalline Cell)
Cell Orientation	108[6×18]
Dimensions	1961±2×1134±2×30mm
Weight	27.0kg
Front Glass	2.0mm AR coated heat strengthened glass
Rear Glass	2.0mm heat strengthened glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Cable	4.0mm <sup>2</sup>
Cable length	±1200mm, length can be customized
Wind/Snow load	2400Pa/5400Pa
Packaging	36pcs per pallet, 864pcs per 40'HC

**ELECTRICAL CHARACTERISTICS (STC)**

Module Type: TWMNH-54HDXXX

Maximum Power: Pmax [W]	495	500	505	510	515
Open Circuit Voltage: Voc [V]	39.88	40.06	40.24	40.42	40.60
Short Circuit Current: Isc [A]	15.86	15.89	15.92	15.95	15.98
Voltage at Maximum Power: Vmp [V]	33.45	33.70	33.94	34.19	34.43
Current at Maximum Power: Imp [A]	14.80	14.84	14.88	14.92	14.96
Module Efficiency: η [%]	22.3	22.5	22.7	22.9	23.2

\* STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass1.5

**ELECTRICAL CHARACTERISTICS (NMOT)**

Maximum Power: Pmax [W]	374	378	381	385	389
Open Circuit Voltage: Voc [V]	37.97	38.14	38.31	38.48	38.65
Short Circuit Current: Isc [A]	12.80	12.83	12.85	12.88	12.90
Voltage at Maximum Power: Vmp [V]	31.30	31.56	31.73	31.96	32.21
Current at Maximum Power: Imp [A]	11.95	11.98	12.01	12.05	12.08

\* NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s

**Electrical characteristics with different rear side power gain**

5%	Maximum Power: Pmax [W]	519	525	530	535	540
	Module Efficiency: η [%]	23.3	23.6	23.8	24.1	24.3
15%	Maximum Power: Pmax [W]	569	575	580	586	592
	Module Efficiency: η [%]	25.6	25.9	26.1	26.4	26.6
25%	Maximum Power: Pmax [W]	618	625	631	637	643
	Module Efficiency: η [%]	27.8	28.1	28.4	28.6	28.9

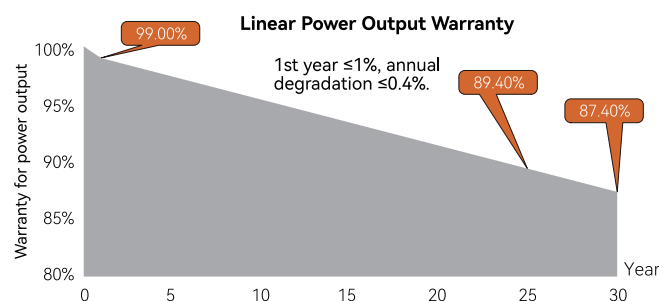
**TEMPERATURE RATING**

Temperature Coefficient of Pmax	-0.28%/°C
Temperature Coefficient of Voc	-0.24%/°C
Temperature Coefficient of Isc	+0.046%/°C
NMOT	45±2°C

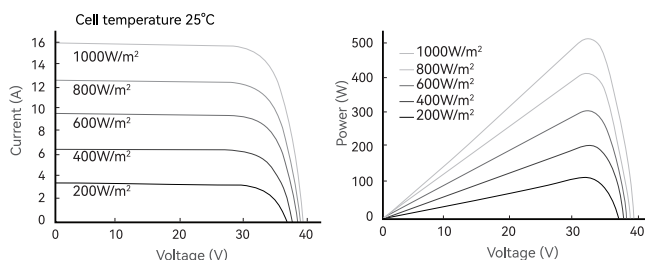
**OPERATING PARAMETERS**

Operating Temperature	-40°C~+85°C
Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	30A
Power Output Tolerance	0~+3%
Bifaciality	80±5%

**WARRANTY**



**I-V CURVE**



**CERTIFICATIONS**

**Quality Management System and Product Certification**

- ISO 9001: 2015/Quality management system
- ISO 14001: 2015/Environmental management system
- ISO 45001: 2018/Occupation health safety management system
- ISO 50001: 2018/Energy management system
- IEC 62941: 2019/Quality system for PV module manufacturing
- IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt), IEC 62716 (Ammonia), IEC 60068-2-68(Sand)

