



High Power Output  
Low LCOE



Maximum Power  
440W+



# TWMND

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

## 54HS420-440W



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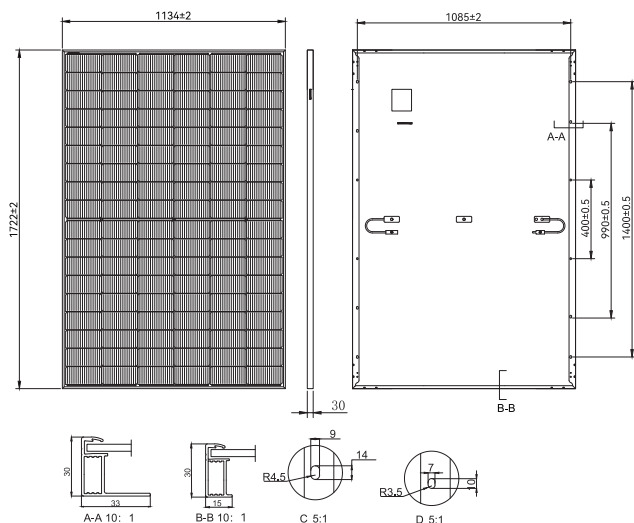
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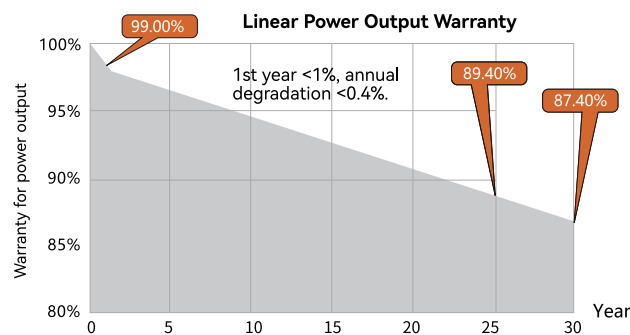
**DRAWINGS (Unit: mm)**



**MECHANICAL PARAMETERS**

Cells	TNC (N Type Monocrystalline Cell)
Cell Orientation	108[6X18]
Dimension	1722±2X1134±2X30mm
Weight	20.5kg
Front Glass	3.2mm high transmittance, AR coated tempered glass
Backsheet	White
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm <sup>2</sup>
Cable Length	±1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

**WARRANTY**



**ELECTRICAL CHARACTERISTICS (STC)**

Module Type:	TWMND-54HSXXX				
Maximum Power: Pmax [W]	420	425	430	435	440
Open Circuit Voltage: Voc [V]	38.85	39.00	39.15	39.30	39.45
Short Circuit Current: Isc [A]	13.57	13.62	13.67	13.72	13.77
Voltage at Maximum Power: Vmp [V]	32.92	33.09	33.26	33.43	33.60
Current at Maximum Power: Imp [A]	12.76	12.85	12.93	13.01	13.10
Module Efficiency: η [%]	21.5	21.8	22.0	22.3	22.5

**ELECTRICAL CHARACTERISTICS (NMOT)**

Maximum Power: Pmax [W]	316.0	320.0	324.0	327.8	331.8
Open Circuit Voltage: Voc [V]	36.89	37.04	37.19	37.33	37.47
Short Circuit Current: Isc [A]	10.90	10.96	11.02	11.06	11.10
Voltage at Maximum Power: Vmp [V]	30.64	30.81	30.98	31.14	31.30
Current at Maximum Power: Imp [A]	10.31	10.39	10.46	10.52	10.60

\* STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: ±3%  
\* NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s

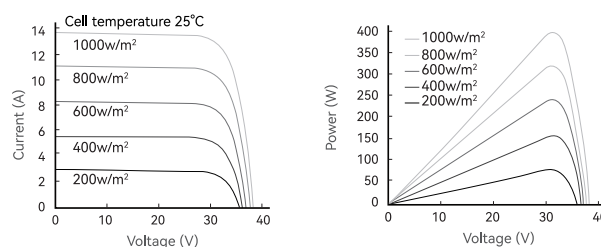
**TEMPERATURE PARAMETERS**

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

**MAXIMUM RATINGS**

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

**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 50001:2011 / energy management system
- IEC TS 62941—2016 / PV industry quality management system
- IEC 61215/61730, IEC 62804(PID), IEC 61701(Salt), IEC 62716 (Ammonia), IEC 60068-2-68(Sand)



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Declaration: With the technical progress and product updates, there exists a deviation between the technical parameter of the TW Solar's future products and the technical parameter in this specification, The TW Solar reserves the right to adjust the technical parameter at any time without notifying the customers, TW Solar reserves the final right of interpretation. (20230802\_A1)