



High Power Output
Low LCOE

Maximum Power
435W+

TWMND

N-type Half-cell
Monofacial Full-black Module (54)

54HB415-435W

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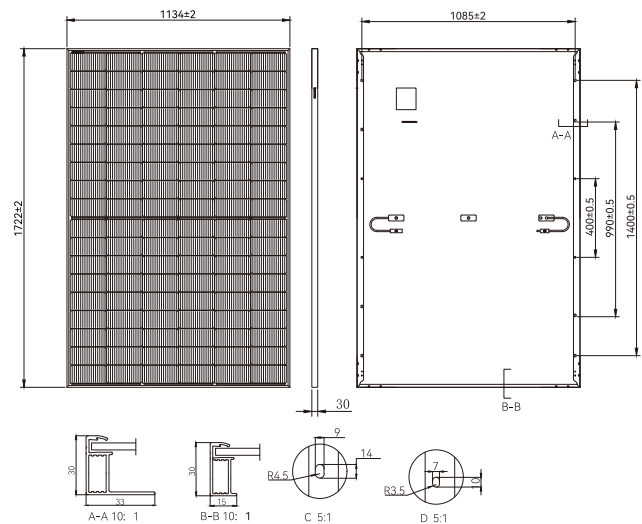
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Monofacial Full-black Module (54)

54HB415-435W

DRAWINGS (Unit: mm)



ELECTRICAL CHARACTERISTICS (STC)

Module Type: TWMND-54HBXXX					
Maximum Power: Pmax [W]	415	420	425	430	435
Open Circuit Voltage: Voc [V]	38.70	38.85	39.00	39.15	39.30
Short Circuit Current: Isc [A]	13.52	13.57	13.62	13.67	13.72
Voltage at Maximum Power: Vmp [V]	32.75	32.92	33.09	33.26	33.43
Current at Maximum Power: Imp [A]	12.67	12.76	12.85	12.93	13.01
Module Efficiency: η [%]	21.3	21.5	21.8	22.0	22.3

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power: Pmax [W]	312.0	316.0	320.0	324.0	327.8
Open Circuit Voltage: Voc [V]	36.73	36.89	37.04	37.19	37.33
Short Circuit Current: Isc [A]	10.84	10.90	10.96	11.02	11.06
Voltage at Maximum Power: Vmp [V]	30.47	30.64	30.81	30.98	31.14
Current at Maximum Power: Imp [A]	10.24	10.31	10.39	10.46	10.52

* STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: ±3%
* NMOT: Irradiance 800W/m², 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

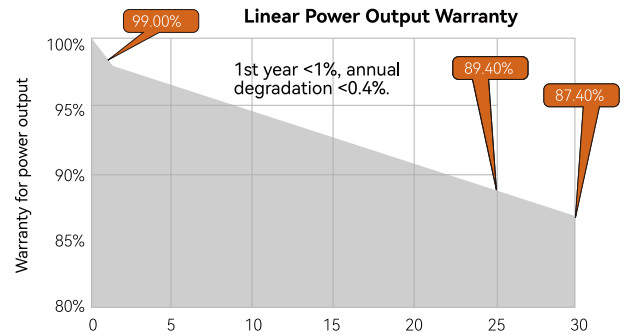
MAXIMUM RATINGS

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

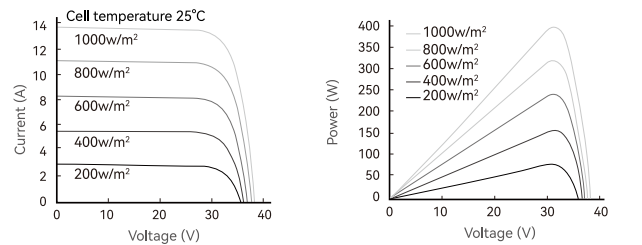
MECHANICAL PARAMETERS

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	Black inside and white outside/Black
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm ²
Cable Length	±1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

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 50001:2011 / 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 Tongwei Solar's future products and the technical parameter in this specification, The Tongwei Solar reserves the right to adjust the technical parameter at any time without notifying the customers, Tongwei Solar reserves the final right of interpretation.