



# TWMND-54HB410-430W

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

## PRODUCT FEATURES



High Power Output  
Low LCOE



Maximum Power  
430W+



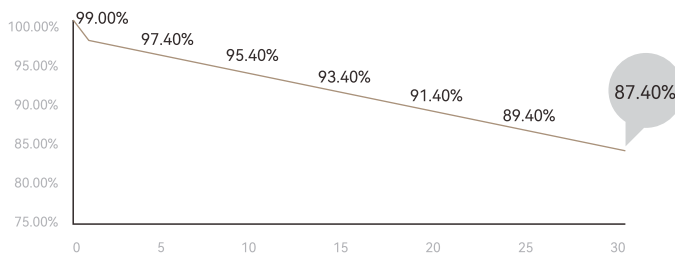
High Reliability



Low LID

## POWER WARRANTY

1st year <1%, 0.4% power degradation per year from 2 to 30 years



12-year Warranty for Materials



30-year Warranty for Linear Power Output

## MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION

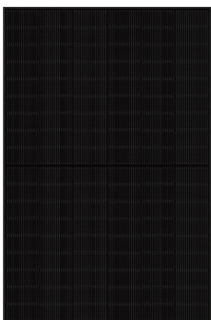
ISO9001: 2015/Quality Management System

ISO14001: 2015/Environment Management System

ISO45001: 2018/Occupational Health and Safety Management System



Front



Rear



## Electrical Characteristics (STC)

Module Type: TWMND-54HBXXX

Maximum Power: Pmax [W]	410	415	420	425	430
Open Circuit Voltage: Voc [V]	37.85	38.01	38.17	38.33	38.49
Short Circuit Current: Isc [A]	14.05	14.10	14.15	14.20	14.25
Voltage at Maximum Power: Vmp [V]	31.20	31.36	31.52	31.68	31.84
Current at Maximum Power: Imp [A]	13.14	13.23	13.32	13.42	13.51
Module Efficiency: $\eta$ [%]	21.0	21.3	21.5	21.8	22.0
STC: Irradiance 1000W/m <sup>2</sup> , Cell Temperature 25°C, Air Mass1.5, Measuring Tolerance: $\pm$ 3%					

## Electrical Characteristics (NMOT)

Maximum Power: Pmax [W]	308.0	312.0	316.0	320.0	324.0
Open Circuit Voltage: Voc [V]	35.92	36.08	36.24	36.40	36.56
Short Circuit Current: Isc [A]	11.25	11.31	11.37	11.43	11.49
Voltage at Maximum Power: Vmp [V]	29.02	29.18	29.34	29.50	29.66
Current at Maximum Power: Imp [A]	10.61	10.69	10.77	10.85	10.92
NMOT: Irradiance 800W/m <sup>2</sup> , Ambient Temperature 20°C, Air Mass1.5, Wind Speed 1m/s					

## Mechanical Parameters

Cells	TNC
Cell Orientation	108[6X18]
Dimension	1722 $\pm$ 2 X 1134 $\pm$ 2X30mm
Weight	20.5kg
Front Glass	3.2mm high transmittance, AR coated tempered glass
Backsheet	Black inside and white outside
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Output Cable	4.0mm <sup>2</sup>
Cable Length	+400mm, -200mm or $\pm$ 1200mm, length can be customized
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet, 936pcs per 40'HC

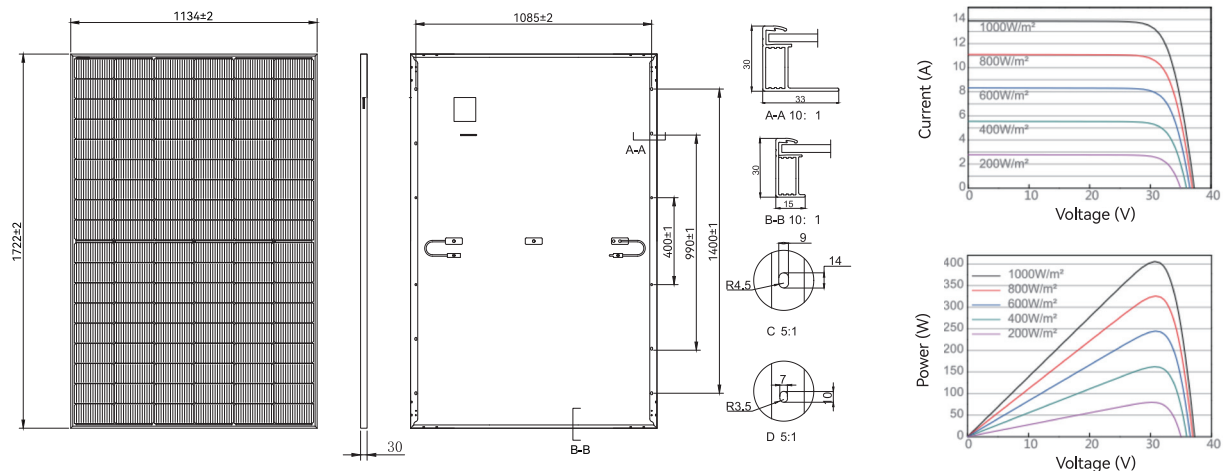
## Operating Parameters

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

## Temperature Ratings

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

## Drawings (Unit: mm)



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