

MBB Half-cell Monofacial Black-frame Module (54)

TW 415 MAP

M10-108-H

PRODUCT FEATURES

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High Power Output
Low LCOE
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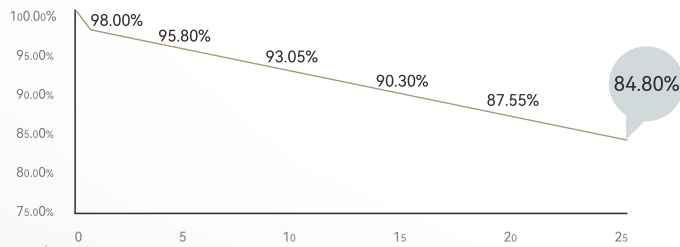
Maximum Power
420W+
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High Reliability
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Low LID

POWER WARRANTY

1st year <2%, 0.55% power degradation per year from 2 to 25 years



25 25-year warranty for materials

25 25-year warranty for linear power output

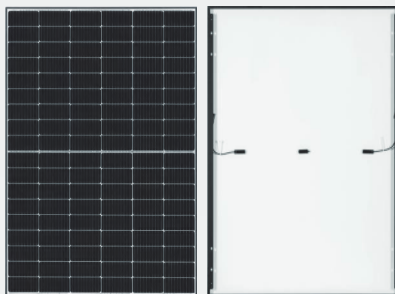
TIER 1 Bloomberg Tier 1 Listed

PRODUCT CERTIFICATIONS

ISO9001: 2015/Quality Management System

ISO14001: 2015/Environment Management System

ISO45001: 2018/Occupational Health and Safety



Front

Rear



Electrical Characteristics (STC)

Module type: TW***MAP-108-H

Maximum power: Pm (W)	400	405	410	415	420
Open circuit voltage: Voc (V)	37.29	37.55	37.79	38.08	38.32
Short circuit current: Isc (A)	13.66	13.73	13.81	13.87	13.95
Voltage at maximum power point: Vm (V)	30.92	31.11	31.30	31.49	31.68
Current at maximum power point: Im (A)	12.94	13.02	13.10	13.18	13.26
Module efficiency: η (%)	20.5	20.7	21.0	21.3	21.5

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

Electrical Characteristics (NMOT)

Maximum power: Pm (W)	300.01	303.63	307.55	311.11	315.08
Open circuit voltage: Voc (V)	35.34	35.59	35.81	36.09	36.32
Short circuit current: Isc (A)	11.08	11.13	11.20	11.25	11.31
Voltage at maximum power point: Vm (V)	28.82	29.00	29.18	29.35	29.53
Current at maximum power point: Im (A)	10.41	10.47	10.54	10.60	10.67

NMOT: Irradiance 800W/m², Ambient Temperature 20 °C, AM=1.5, Wind Speed 1m/s

Mechanical Parameters

Cells	P-PERC
Orientation	108 (6×18)
Size	1722±2×1134±2×30mm
Weight	20.5kg
Glass	3.2mm AR coated heat strengthened glass
Backsheet	White
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Cable	4.0mm ² , Positive: 1200mm, Negative: 1200mm, length can be customized
Connector	EVO2A
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet , 936pcs per 40'HC

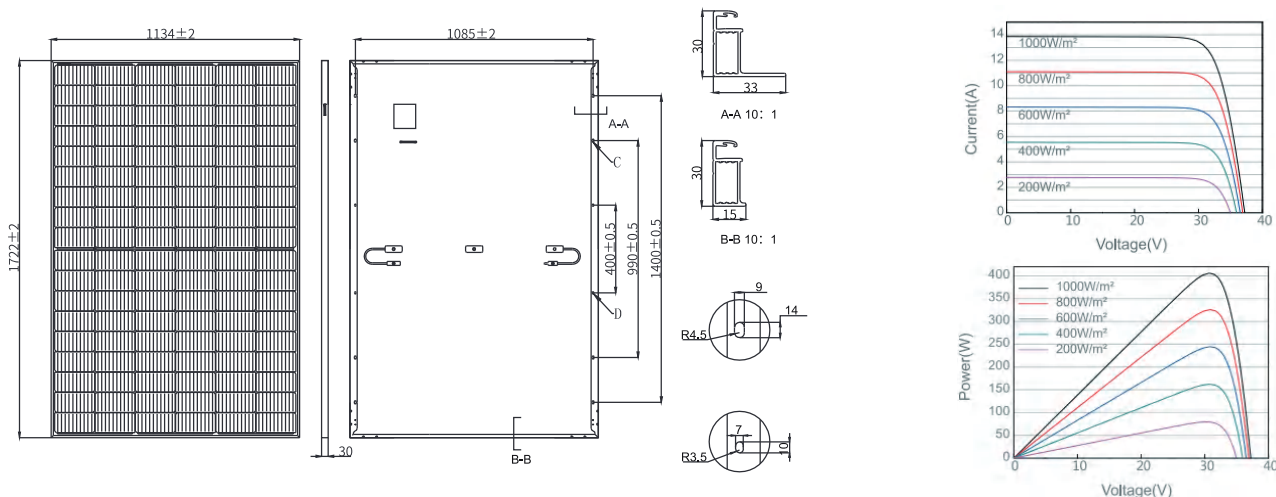
Operating Parameters

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)	-0.341%/°C
Temperature Coefficient (Voc)	-0.262%/°C
Temperature Coefficient (Isc)	+0.054%/°C
NMOT	45±2°C

Drawings (Unit: mm)



Email: sales@tongwei.com Web: www.tw-solar.com Add: 888 Changning Avenue, High-tech Zone, Hefei City, Anhui Province

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