



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

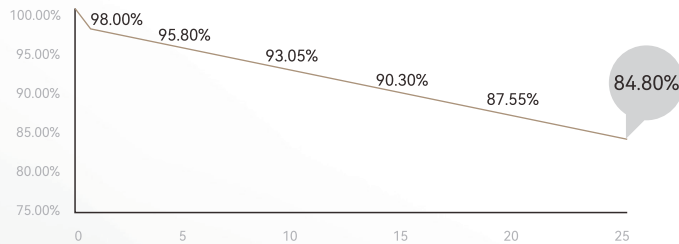
TW400~420MAP 108-H-S (Black Frame)

PRODUCT FEATURES

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

POWER WARRANTY

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



12 12-year warranty for materials

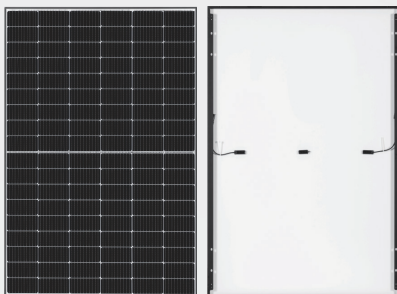
25 25-year warranty for linear power output

MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION

ISO45001: 2018/Occupational Health and Safety Management System

ISO14001: 2015/Environment Management System

ISO9001: 2015/Quality Management System



Front

Rear

Electrical Characteristics (STC)

Module type: TW***MAP-108-H-S (Black Frame)

Maximum power: Pmax (W)	400	405	410	415	420
Open circuit voltage: Voc (V)	37.08	37.23	37.38	37.53	37.68
Short circuit current: Isc (A)	13.77	13.87	13.92	13.95	13.98
Voltage at maximum power point: Vmp (V)	30.58	30.73	30.88	31.03	31.18
Current at maximum power point: Imp (A)	13.08	13.18	13.28	13.38	13.47
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: $\pm 3\%$

Electrical Characteristics (NMOT)

Maximum power: Pmax (W)	302.8	306.6	310.3	314.1	317.9
Open circuit voltage: Voc (V)	34.72	34.86	35	35.15	35.29
Short circuit current: Isc (A)	10.82	10.9	10.97	11.05	11.12
Voltage at maximum power point: Vmp (V)	28.76	28.9	29.04	29.18	29.32
Current at maximum power point: Imp (A)	10.52	10.6	10.68	10.76	10.84

NMOT: Irradiance 800W/m², Ambient Temperature 20 °C, Air Mass1.5, Wind Speed 1m/s

Mechanical Parameters

Cells	P-TPC
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: 280mm, Negative: 280mm, length can be customized
Connector	MC4 Compatible or MC4 original
Wind/Snow Load	2400Pa/5400Pa
Packaging	36pcs per pallet , 936pcs per 40'HC

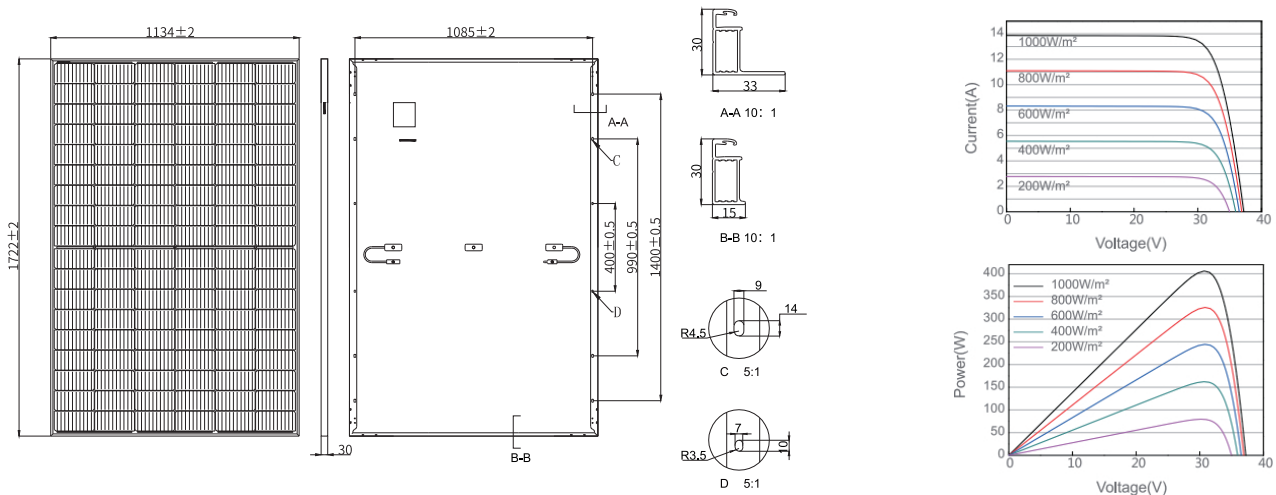
Operating Parameters

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)	-0.35%/°C
Temperature Coefficient (Voc)	-0.27%/°C
Temperature Coefficient (Isc)	+0.045%/°C
NMOT	45±2°C

Drawings (Unit: mm)



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