München Energieprodukte
MAXIMALENERGIE

Shingled monofacial module

MSMDxxxM6-PMB5

60SBF (All Black)

Features of Module

Shingling Technology
Innovative structure, low-temperature adhesive bonding, high-density layout.

Beautiful Appearance
Uniform layout, better aesthetic.

Superior Safety and Reliability
No hidden welding crack, low operating temperature, high pressure resistance.

Low System Cost
High module efficiency, reducing system cost.

Low Hot Spot Risk
Parallel circuit design reduces shading loss.

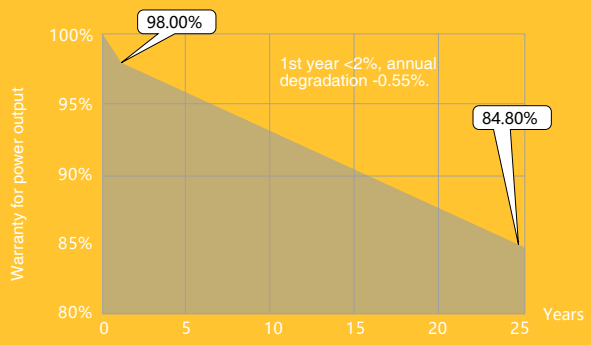
Low Shading Loss
Full parallel arrangement brings high effective power generation hours.

Eco-friendly
Adhering to green philosophy, no fluorine and low lead.

Linear Power Output Warranty

15 15-year warranty for materials.

25 25-year warranty for linear power output.



Quality Management System and Product Certification

IEC61215/61730、IEC62804(PID)、IEC61701(Salt)、
IEC62716 (Ammonia)、IEC60068-2-68(Sand)
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

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Electrical Characteristics (STC)

Module type: TH***PMB5-60SBF	415	410	405	400	395	390	385	380
Maximum power - Pm (W)	415	410	405	400	395	390	385	380
Open circuit voltage - Voc (V)	46.7	46.6	46.5	46.4	46.3	46.3	46.2	46.1
Short circuit current Isc (A)	11.12	11.07	11.02	10.97	10.92	10.87	10.82	10.77
Voltage at maximum power point - Vm (V)	38.9	38.8	38.7	38.6	38.5	38.5	38.4	38.3
Current at maximum power point - Im (A)	10.67	10.57	10.47	10.36	10.26	10.13	10.03	9.92
Module efficiency -η (%)	21.2	20.9	20.7	20.4	20.2	19.9	19.6	19.4

Electrical Characteristics (NMOT)

Maximum power - Pm (W)	312	309	305	301	297	294	290	286
Open circuit voltage - Voc (V)	44.5	44.4	44.3	44.2	44.1	44.1	44.0	43.9
Short circuit current Isc (A)	8.97	8.93	8.89	8.85	8.81	8.77	8.73	8.69
Voltage at maximum power point - Vm (V)	37.1	37.0	36.9	36.8	36.7	36.7	36.6	36.5
Current at maximum power point - Im (A)	8.43	8.35	8.27	8.18	8.10	8.00	7.92	7.84

* STC: Irradiation 1000W/m²; AM1.5; environmental temperature 25°C; tested according to EN 60904-3;
* NMOT: irradiation 800W/m²; wind speed 1m/s; environmental temperature 20°C;
* Pm tolerance: 0~+5W ; power test uncertainty: ±3%; Voc[V], Isc[A], Vm[V] and Im[A] test tolerance: ±3%

Mechanical Parameters

Size	1719×1140×30mm (L×W×H)
Weight	21.0kg
Glass	3.2mm toughened glass
Frame	Anodic alumina profile
Cells	Monocrystalline silicon cell
Cell Orientation	340 (34*10)
Junction Box	IP68, 2 diodes
Cable	1200mm long, 4mm² cross section, customizable
Packaging mode	36pcs/box; 936pcs/40'cabinet; 1368pcs/truck

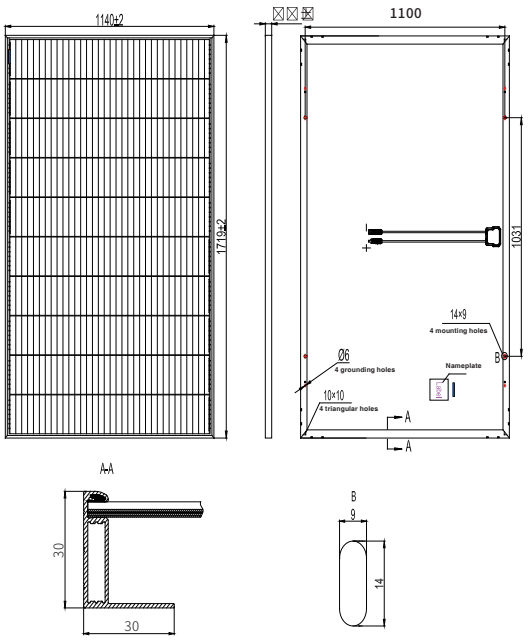
Temperature Parameters

NMOT	42.30 °C (±2°C)
Open circuit voltage temperature coefficient	-0.27%/°C
Short circuit current temperature coefficient	+0.04%/°C
Maximum power temperature coefficient	-0.34%/°C

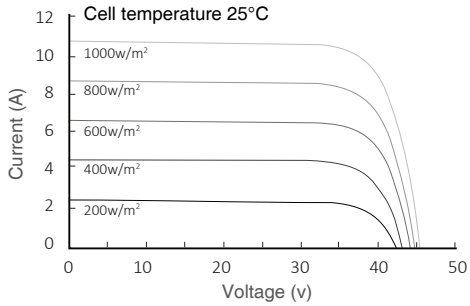
Maximum Rated Parameters

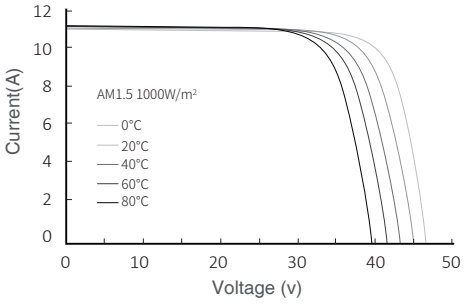
Maximum system voltage (V)	DC1500/1000 (IEC)
Maximum fuse rated current (A)	20
Maximum front static load (Pa)	Front snow load 5400-Back wind load 2400
Working temperature (°C)	-40~+ 85
Hail resistance	Maximum diameter 25mm, impact speed 23m/s

Drawings



I-V Curve





Statement:
With technological progress and product updates, there may be deviations between the technical parameters of München Solar's module products and the technical parameters contained in this specification, and München Solar has the right to adjust the technical parameters at any time without notifying the customer, the final interpretation of the technical specification is vested in München Solar.