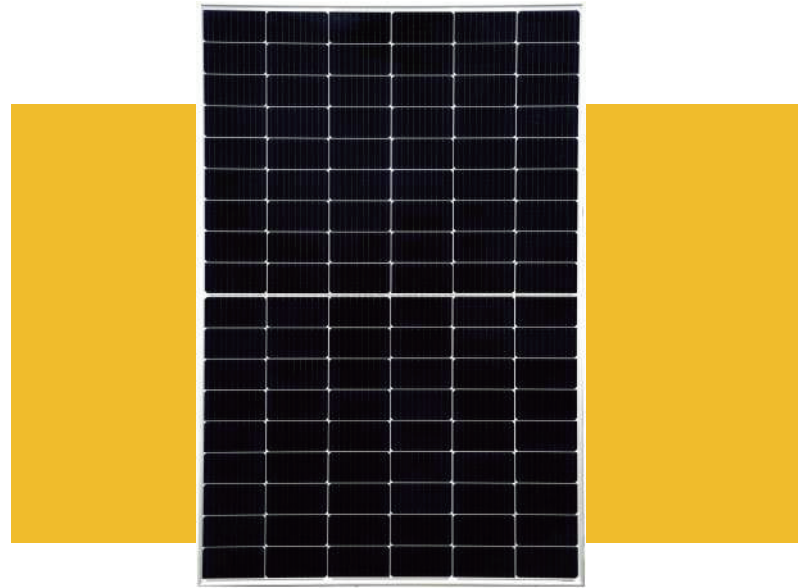


MSMDxxxM10N-120BG

470-480w

120-cell TOPCon Half Cell Bifacial Dual Glass Module



Product Advantages



High module conversion efficiency

Module efficiency up to 22.2% achieved through advanced cell technology and manufacturing process



Lower operating temperature

Lower operating temperature and temperature coefficient increase the power output



Excellent weak light performance

More power output in weak light condition, such as cloudy, morning and sunset



Extended wind and snow load tests

Module certified to withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)



IP68 junction box

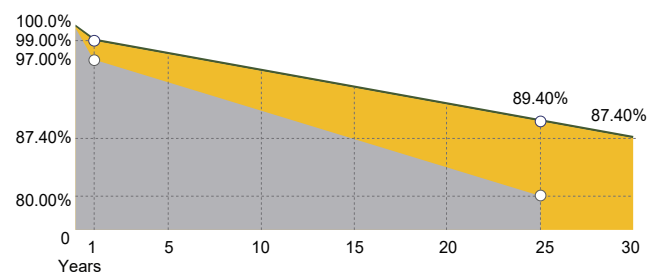
High waterproof & dustproof level

22.2%
Module efficiency

480W
Highest power output

Performance Warranty

● Standard Module ● MSMD TOPCon Module



-1.00%
First year power degradation

-0.40%
Annual degradation

15
Years
Materials and workmanship warranty

30
Years
Linear power warranty

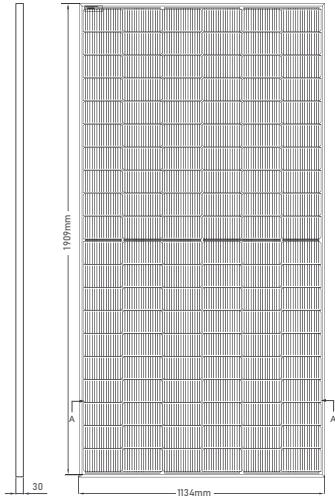
Product Certification



MSMDxxxM10N-120BG

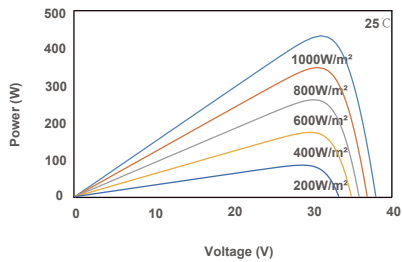
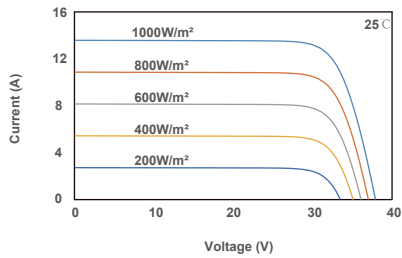
Engineering Drawings

Unit: mm



I-V CURVE

Current-Voltage & Power-Voltage Curve (470)



Temperature Characteristics

Nominal Operating Cell Temp. (NOCT)	42°C (±2°C)
Temperature Coefficiency of Pmax	-0.30%/°C
Temperature Coefficiency of Voc	-0.25%/°C
Temperature Coefficiency of Isc	0.046%/°C

Safety & Warranty

Safety Class	Class II
Product Warranty	15 yrs Workmanship
Performance Warranty	30 yrs Linear Warranty*

*1st year 99%, after 2nd year 0.40% annual degradation to year 30.

Electrical Characteristics (STC*)

MSMDxxxM10N-120BG	470	475	480
Maximum Power (Pmax)	470W	475W	480W
Module Efficiency ηm (%)	21.7%	21.9%	22.2%
Optimum Operating Voltage (Vmp)	35.7V	35.9V	36.1V
Optimum Operating Current (Imp)	13.17A	13.24A	13.30A
Open Circuit Voltage (Voc)	43.0V	43.2V	43.4V
Short Circuit Current (Isc)	13.91A	13.99A	14.08A
Operating Module Temperature	-40 to +85 C		
Maximum System Voltage	DC 1500V(IEC)		
Maximum Series Fuse	25A		
Power Tolerance	0~+5W		

*STC: Irradiance 1000 W/m², cell temperature 25 C, AM=1.5, Tolerance of Pmax is within +/- 3%.

NMOT**

Maximum Power (Pmax)	361W	365W	369W
Optimum Operating Voltage (Vmp)	33.6V	33.8V	34.0V
Optimum Operating Current (Imp)	10.75A	10.80A	10.86A
Open Circuit Voltage (Voc)	40.7V	40.9V	41.1V
Short Circuit Current (Isc)	11.30A	11.37A	11.44A

**NMOT: Irradiance 800W/ m², ambient temperature 20°C, AM=1.5, wind speed 1m/s

Mechanical Characteristics

Solar Cells	N-Type TOPCon Monocrystalline 182*91mm
Cell Orientation	120 (6 × 20)
Module Dimensions	1909 × 1134 × 30 mm
Weight	27.5 kg
Junction Box	IP 68 rated
Output Cable	350 mm or customized length
Connectors Type	MC4 compatible
Frame	Anodised aluminum alloy
Front Load	5400 Pa
Rear Load	2400 Pa
Glass Thickness	2.0 mm tempered glass

Shipping Configurations

Container Length	HC
Pallets Per Container	40'
Modules Per Pallet (pcs)	24
Modules Per Container (pcs)	31
Modules Per Container (pcs)	744