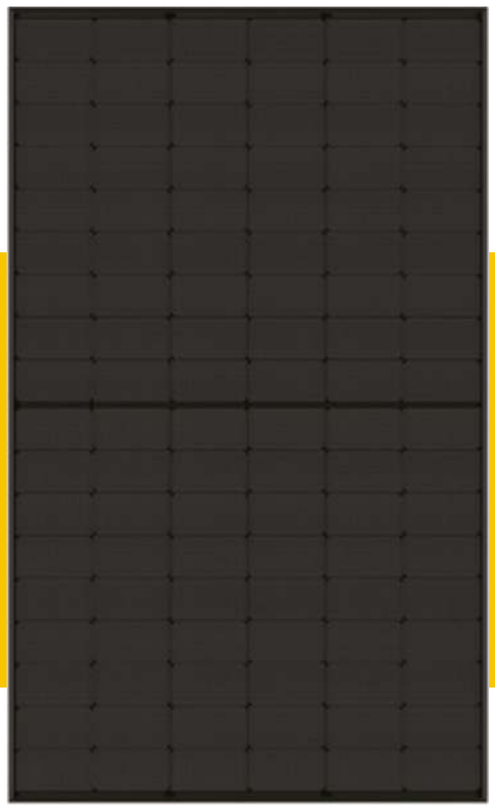
München Energieprodukte
MAXIMALENERGIE



MSMDxxxM10N-108BG

415-440W

108-Cell Half Cut Bifacial Dual Glass Module

Product Advantages

High module conversion efficiency
Module efficiency up to 22.0% 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

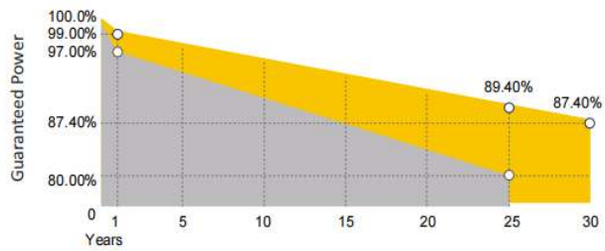
Extended wind and snow load tests
Module certified to withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)

IP68 junction box
High waterproof & dustproof level

22.5%	440W
Module efficiency	Highest power output

Performance Warranty

Standard Module ● MSMD TOPCon Module



-1.00%	-0.40%
First year power degradation	Annual degradation

15 Years	30 Years
Materials and workmanship warranty	Linear power warranty

Product Certification

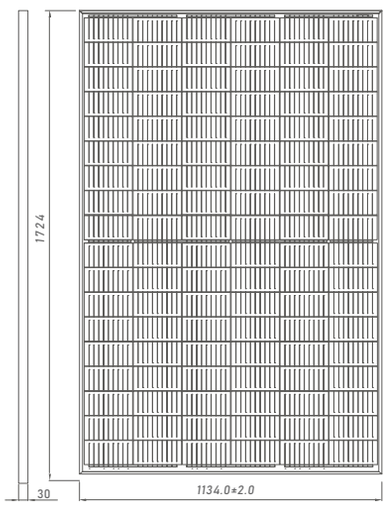
info@muenchen-energieprodukte.de

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MSMDxxxM10N-108BG

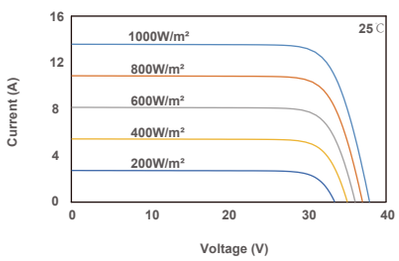
Engineering Drawings

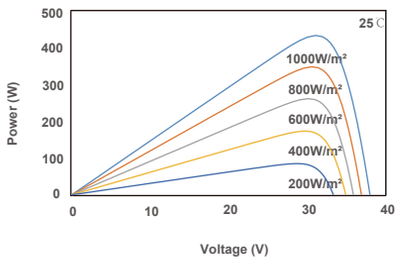
Unit: mm



I-V CURVE

Current-Voltage & Power-Voltage Curve (430)





Temperature Characteristics

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

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-108		415	420	425	430	435	440
Maximum Power	(Pmax)	415W	420W	425W	430W	435W	440W
Module Efficiency	(%)	21.2%	21.5%	21.7%	22.0%	22.3%	22.5%
Optimum Operating Voltage	(Vmp)	31.9V	32.1V	32.3V	32.5V	32.7V	32.9V
Optimum Operating Current	(Imp)	13.01A	13.09A	13.16A	13.24A	13.31A	13.38A
Open Circuit Voltage	(Voc)	38.5V	38.7V	38.9V	39.1V	39.3V	39.5V
Short Circuit Current	(Isc)	13.72A	13.81A	13.91A	14.01A	14.10A	14.19A
Operating Module Temperature		-40 to +85℃					
Maximum System Voltage		DC1500V (IEC)					
Maximum Series Fuse		25A					
Power Tolerance		0~+5W					

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

NMOT**

Maximum Power	(Pmax)	317W	321W	325W	329W	333W	337W
Optimum Operating Voltage	(Vmp)	30.0V	30.2V	30.4V	30.6V	30.8V	31.0V
Optimum Operating Current	(Imp)	10.57A	10.63A	10.70A	10.76A	10.82A	10.88A
Open Circuit Voltage	(Voc)	36.4V	36.6V	36.8V	37.0V	37.2V	37.4V
Short Circuit Current	(Isc)	11.1A	11.18A	11.25A	11.33A	11.41A	11.48A

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

Mechanical Characteristics

Cell Type	N-Type TOPCon Monocrystalline 182*91mm
Cell Connection	108 (6×18)
Module Dimension	1724×1134×30 mm
Weight	22 kg
Junction Box	IP68
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

Shipping Configurations

		HC
Container Length		40'
Pallets Per Container		26
Modules Per Pallet	(pcs)	36
Modules Per Container	(pcs)	936

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