

MS N7S 450~470W

MS-48N-BH-450M

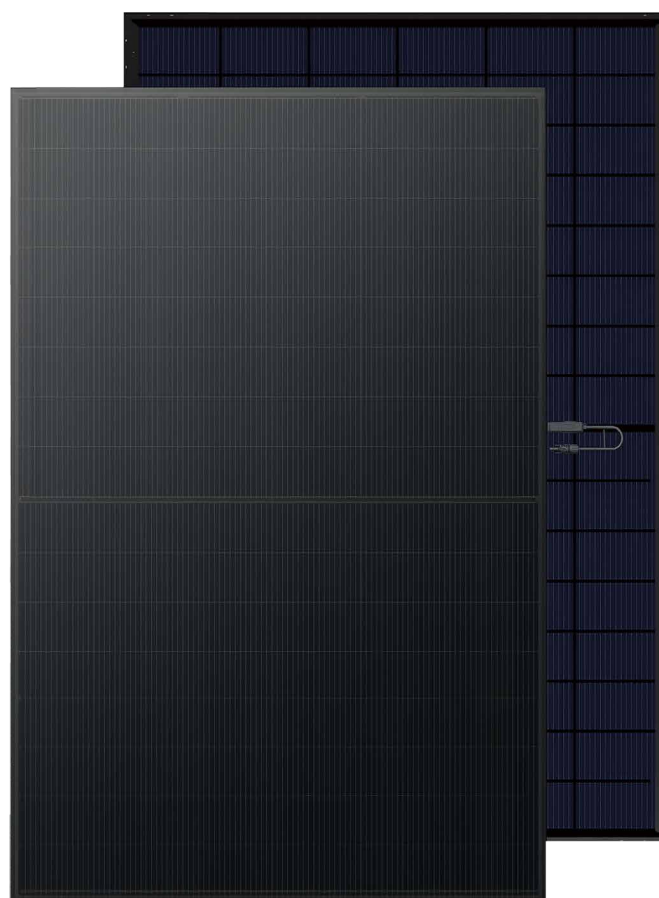
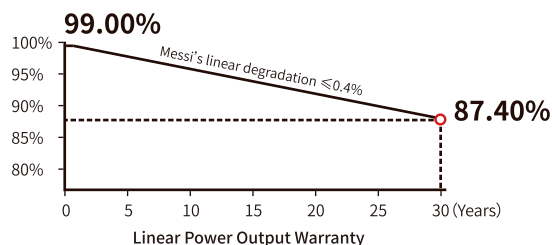
Key Features

-  High Module Efficiency
-  Superior Load Capacity
-  Excellent Low-Light Performance
-  Low BOS and LCOE
-  Higher Bifaciality

Warranty

 25-Year Materials Warranty

 30-Year Power Warranty



**450~
470W**

POWER RANGE

0~+3%

POWER SORTING

23.52%

MAX MODULE
EFFICIENCY

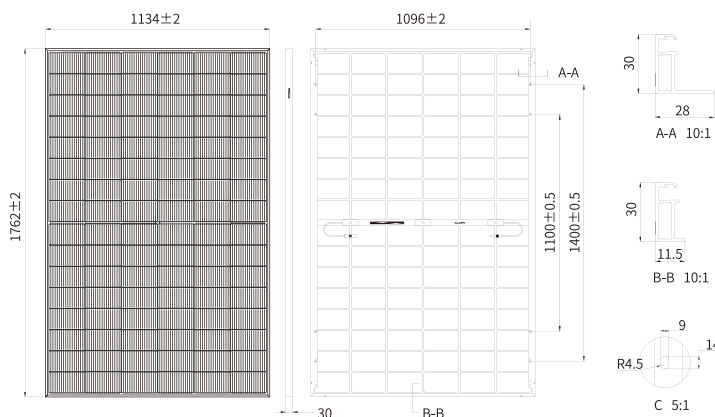
≤1.0%

FIRST YEAR POWER
DEGRADATION

≤0.4%

YEAR 2-30 POWER
DEGRADATION

Drawings (Unit:mm)



Mechanical Specifications

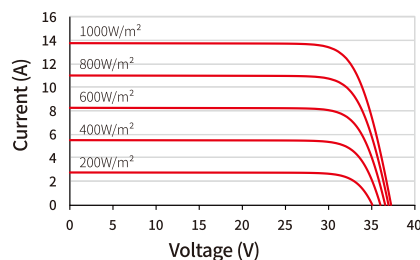
Cells	N-Type Monocrystalline Cell
Cell Orientation	96[6x16]
Dimension	1762±2x1134±2x30mm
Weight	23 kg
Front Glass	2.0mm High-Transmittance Coated Tempered Glass
Rear Glass	2.0mm Semi-Tempered Glass
Frame	Anodized aluminum alloy black frame
Junction Box	IP68, 3 diodes
Connector	Staubli MC4-EVO2
Cable Length	±1200mm, 1x4.0mm ²
Fire Rating	UL: Type 1, IEC: Class C
Maximum Static Load	6,000 Pa (front) / 4,000 Pa (rear)
Packaging	36pcs/pallet, 72pcs/stack, 792pcs per Truck

Electrical Characteristics(STC)

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

Maximum Power:Pmax[W]	450	455	460	465	470
Open Circuit Voltage:Voc[V]	35.03	35.21	35.39	35.57	35.75
Short Circuit Current:Isc[A]	16.05	16.10	16.15	16.20	16.25
Voltage at Maximum Power:Vmp[V]	30.08	30.26	30.44	30.62	30.80
Current at Maximum Power:Imp[A]	14.97	15.04	15.11	15.19	15.26
Module Efficiency:η [%]	22.52	22.77	23.02	23.27	23.52

Current-Voltage (450W)

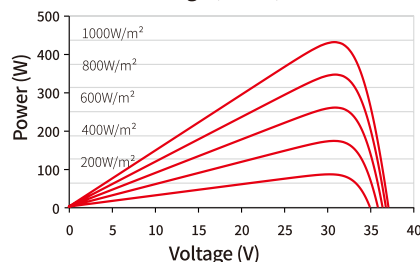


Electrical Characteristics(NMOT)

NMOT: Irradiance 800W/m², Ambient Temperature20°C, Air Mass1.5, Wind Speed 1m/s

Maximum Power:Pmax[W]	338	342	346	349	353
Open Circuit Voltage :Voc[V]	33.28	33.45	33.62	33.79	33.96
Short Circuit Current :Isc[A]	12.96	12.99	13.03	13.07	13.11
Voltage at Maximum Power:Vmp[V]	27.96	28.14	28.31	28.48	28.64
Current at Maximum Power:Imp[A]	12.09	12.15	12.22	12.26	12.32

Power-Voltage (450W)



Electrical Characteristics(Rear Power Gain)

5%	Maximum Power:Pmax[W]	473	478	483	488	494
	Module Efficiency:η [%]	23.65	23.91	24.17	24.44	24.70
15%	Maximum Power:Pmax[W]	518	523	529	535	541
	Module Efficiency:η [%]	25.90	26.19	26.48	26.76	27.05
25%	Maximum Power:Pmax[W]	563	569	575	581	588
	Module Efficiency:η [%]	28.15	28.46	28.78	29.09	29.40

Temperature Parameters

Temperature Coefficient (Pmax)	-0.30%/°C
Temperature Coefficient (Voc)	-0.25%/°C
Temperature Coefficient (Isc)	+0.046%/°C
NMOT	41±2°C

Maximum Ratings

Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500V _{DC}
Maximum Series Fuse Rating	30 A
Power Output Tolerance	0~+3%

Temperature Dependence
of Isc, Voc, Pmax

