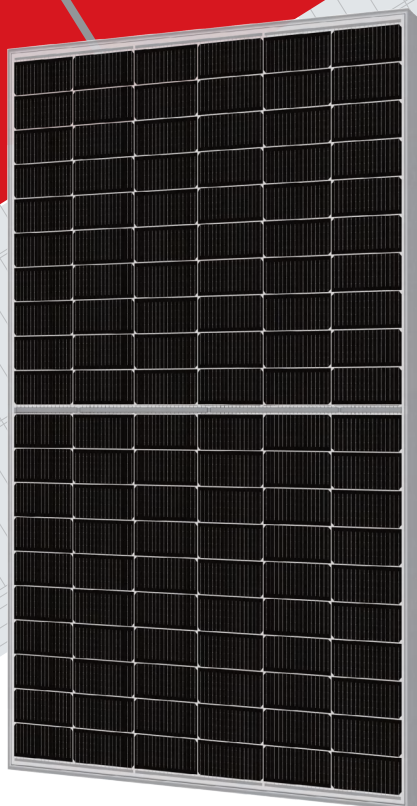


# Mars Series

460W/465W/470W/475W/  
480W/485W

## SUN 60MD-H8NS

HALF-CELL BIFACIAL SMBB MONO  
N-Type TOPCon DOUBLE GLASS MODULE



### SUNERGY USA WORKS LLC

Founded in 2008, Sunergy is a manufacturer of high-performance photovoltaic products. With 12 manufacturing bases and more than 20 branches around the world, the company's business covers modules, photovoltaic power stations and EPC. Sunergy products are available in over 120 countries and regions and are used extensively in ground-mounted power plants, commercial & industrial rooftop PV systems and residential rooftop PV systems.

### QUALIFICATIONS AND CERTIFICATES



### COMPREHENSIVE CERTIFICATES

IEC61215 / IEC61730 / IEC61701 / IEC62716 / IEC62804  
ISO 9001: 2015 Quality management systems;  
ISO 14001: 2015 Environmental management systems;  
OHSAS 18001: 2007 Occupational health and safety management systems;

### Sunergy Advantages



#### Overflow tank can be waterproof

The excess silicone will flow into the overflow tank, can reduce 3% water vapor entering the panels.



#### Stronger frame

The C side of the frame contains curved hook reinforcement, enhanced the mechanical load strength by 10%



#### Current grading

Current classification effectively avoids 2% power loss caused by current mismatch during installation, achieving max output power



#### IP68 junction box

IP68 junction box offer perfect waterproof performance

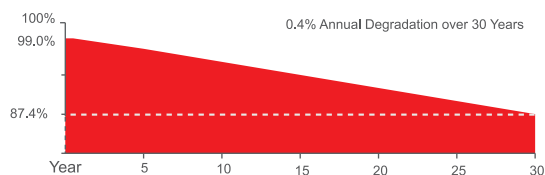


#### Higher fire rating

Fire rating up to Class A, reduce fire hazards;

### LINEAR PERFORMANCE WARRANTY

- 12 Years Manufacturing Warranty
- 12 Years 94.6% Power Output
- 30 Years 87.4% Power Output

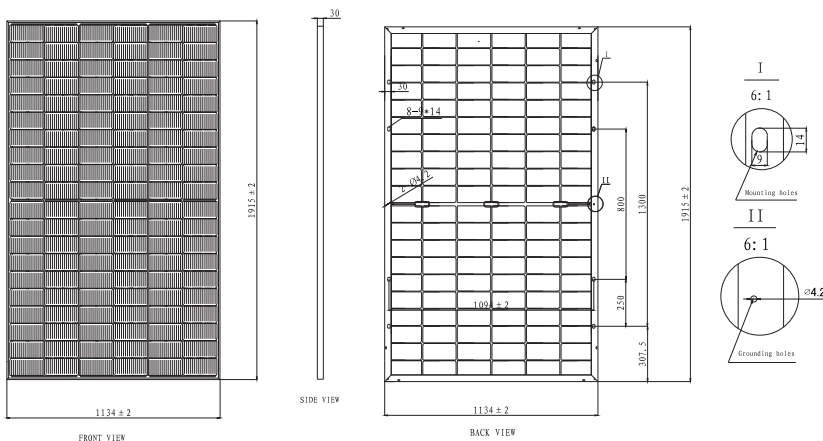


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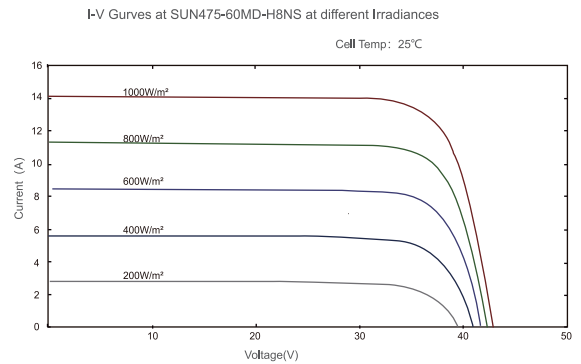


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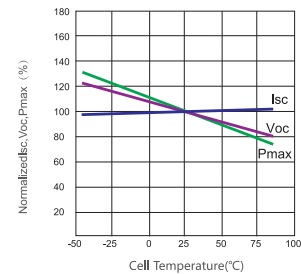
## MECHANICAL DRAWINGS



## I-V CURVES



Power voltage current curve at different temperature



## MECHANICAL SPECIFICATION

Cell Type	N-Type Mono Crystalline 182x91mm
Number Of Cells	120 (6x20)
Dimensions(AxBxC)	1915x1134x30mm
Weights	28.0kg
Glass	2.0/2.0mm Tempered Low Iron Glass
Aluminium Frame	Anodised Aluminium
Junction Box	Split Junction Box (IP68 ,three diode)
Connector	Mc4 Compatible
Output Cables	4.0mm²,+300mm,-300mm Customized Length

## PACKING CONFIGURATION

Container	40' HQ
Pieces Per Pallet	36
Pallets Per Container	24
Pieces Per Container	864

## ELECTRICAL CHARACTERISTICS

Module Type	460W		465W		470W		475W		480W		485W	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power At STC(Pmax)	460W	347.2W	465W	351.0W	470W	354.8W	475W	358.5W	480W	362.3W	485W	366.1W
Short Circuit Current(Isc)	13.89A	11.28A	13.98A	11.36A	14.09A	11.44A	14.16A	11.50A	14.26A	11.58A	14.34A	11.65A
Open Circuit Voltage(Voc)	42.34V	40.10V	42.49V	40.24V	42.64V	40.39V	42.79V	40.53V	42.94V	40.67V	43.09V	40.81V
Maximum Power Current(Imp)	13.14A	10.66A	13.22A	10.73A	13.31A	10.82A	13.39A	10.87A	13.48A	10.95A	13.56A	11.01A
Maximum Power Voltage(Vmpp)	35.03V	32.56V	35.18V	32.70V	35.33V	32.80V	35.48V	32.98V	35.63V	33.10V	35.78V	33.25V
Module Efficiency	21.2%		21.4%		21.6%		21.9%		22.1%		22.3%	
Power Tolerance	0~+5W		0~+5W		0~+5W		0~+5W		0~+5W		0~+5W	

## ELECTRICAL CHARACTERISTICS WITH DIFFERENT REAR SIDE POWER GAIN

(Reference to 470W Front)

Backside Power Gain	10%	15%	20%	25%	30%
Maximum Power At STC(Pmax)	517.0	540.5	564.0	587.5	611.0
Short Circuit Current(Isc)	15.42	16.11	16.80	17.48	18.17
Open Circuit Voltage(Voc)	42.84	43.04	43.24	43.44	43.64
Maximum Power Current(Imp)	14.55	15.20	15.85	16.49	17.14
Maximum Power Voltage(Vmpp)	35.53	35.56	35.59	35.62	35.65

STC: 1000W/m2 irradiance, 25°C cell temperature, AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, wind speed 1m/s.



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