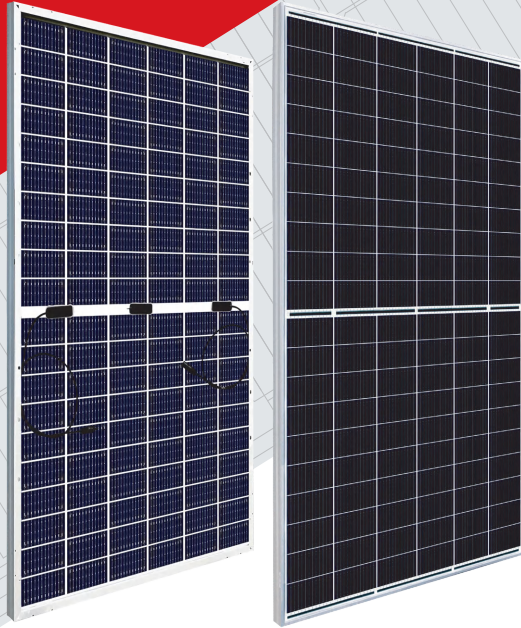


# Mars Series

590W/595W/600W/605W/610W

## SUN 60MD-H12S

HALF-CELL BIFACIAL MBB MONO  
PERC DOUBLE GLASS MODULE  
210MM CELLS



BACK VIEW

FRONT VIEW

### 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



#### Power attenuation rate surpasses industry standards

As the CTC randomization test, our attenuation rate is 1.81%, 0.31% and 0.34% in the 1st, 2nd and 3rd year, which is much less than the national standard value of 2% and 0.45%.



#### 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 boxes offer perfect waterproof performance.

### 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.

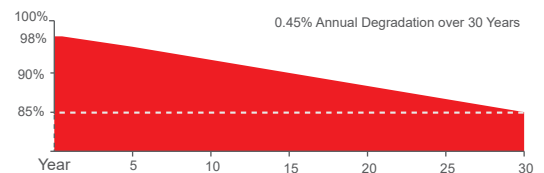
### QUALIFICATIONS AND CERTIFICATES



SUNERGY

### LINEAR PERFORMANCE WARRANTY

- 12 Years Manufacturing Warranty
- 12 Years 93% Power Output
- 30 Years 85% Power Output

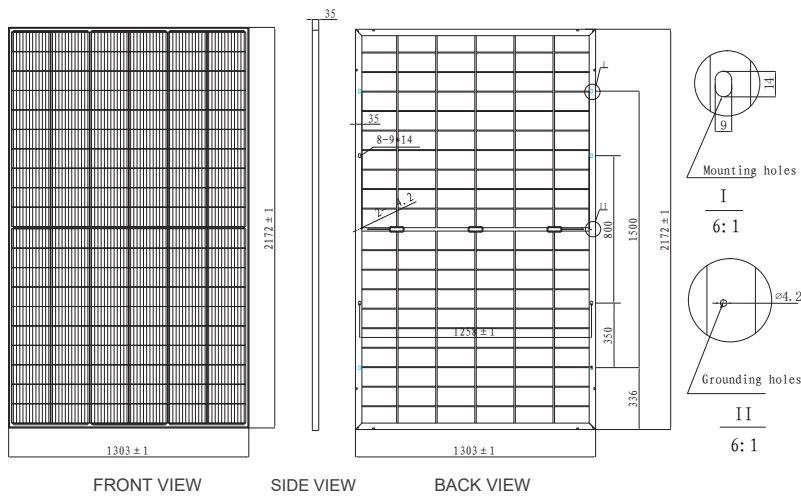


SUNERGY USA WORKS LLC  
[www.sunergyworks.com](http://www.sunergyworks.com)

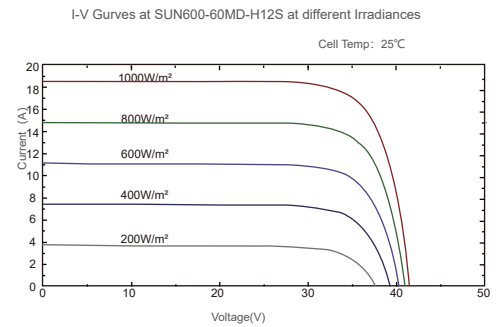


# Mars Series SUN 60MD-H12S

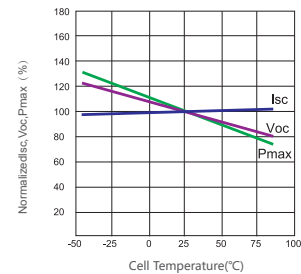
## MECHANICAL DRAWINGS



## I-V CURVES



Power voltage current curve at different temperature



## MECHANICAL SPECIFICATION

Cell Type	Mono Crystalline 210x105mm
Number Of Cells	120 (6x20)
Dimensions(AxBxC)	2172x1303x35mm
Weights	36.0kg
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	31
Pallets Per Container	17
Pieces Per Container	527

## ELECTRICAL CHARACTERISTICS

Module Type	590W		595W		600W		605W		610W	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power At STC(Pmax)	590W	447.2W	595W	451.0W	600W	454.8W	605W	458.6W	610W	462.3W
Short Circuit Current(Isc)	18.33A	14.81A	18.43A	14.89A	18.53A	14.97A	18.58A	15.01A	18.62A	15.04A
Open Circuit Voltage(Voc)	41.1V	38.5V	41.3V	38.7V	41.5V	38.9V	41.7V	39.1V	41.9V	39.2V
Maximum Power Current(Imp)	17.30A	14.04A	17.40A	14.12A	17.50A	14.19A	17.54A	14.23A	17.58A	14.26A
Maximum Power Voltage(Vmpp)	34.1V	31.9V	34.2V	32.0V	34.3V	32.0V	34.5V	32.2V	34.7V	32.4V
Module Efficiency	20.85%		21.02%		21.20%		21.38%		21.55%	
Power Tolerance	0~+5W		0~+5W		0~+5W		0~+5W		0~+5W	
Maximum System Voltage	VDC 1500V									
Maximum Series Fuse	35A									
Increased Snowload Acc.to Iec 61215	5400Pa									
Operating Temperature	-40~+85°C									
Number Of Bypass Diodes	3									
Norminal Operating Cell Temperature(Noct)	45°C±2°C									
Temperature Coefficient Of Pmax	-0.34%/°C									
Temperature Coefficient Of Voc	-0.26%/°C									
Temperature Coefficient Of Isc	0.04%/°C									

## ELECTRICAL CHARACTERISTICS WITH DIFFERENT REAR SIDE POWER GAIN

(Reference to 600W Front)

Backside Power Gain	5%	10%	15%	20%	25%
Maximum Power At STC(Pmax)	630	660	690	720	750
Short Circuit Current(Isc)	19.28	20.20	21.12	21.91	22.82
Open Circuit Voltage(Voc)	41.7	41.7	41.7	50.0	50.0
Maximum Power Current(Imp)	18.16	19.02	19.88	20.63	21.49
Maximum Power Voltage(Vmpp)	34.70	34.70	34.7	34.9	34.9

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

