

# Mars Series

445W/450W/455W/460W

**BLACK FRAME**

## SUN 72M-H6(BF)

MBB HALF-CELL MONO PV MODULE



### 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 surpass than 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 0.55%



#### 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

### SUNERGY USA WORKS LLC

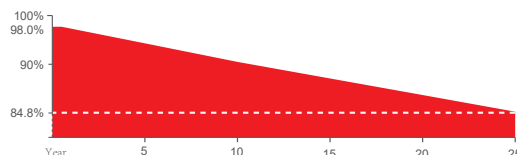
Founded in 2008, Sunergy is a manufacturer of high-performance photovoltaic products. With 12 manufacturing bases and more than 20 branches around the world, the company's business covers modules, photovoltaic power stations and EPC. Sunergy products are available in over 120 countries and regions and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

### QUALIFICATIONS AND CERTIFICATES



### LINEAR PERFORMANCE WARRANTY

- 12 Years Manufacturing Warranty
- 12 Years 92.0% Power Output
- 25 Years 84.8% Power Output

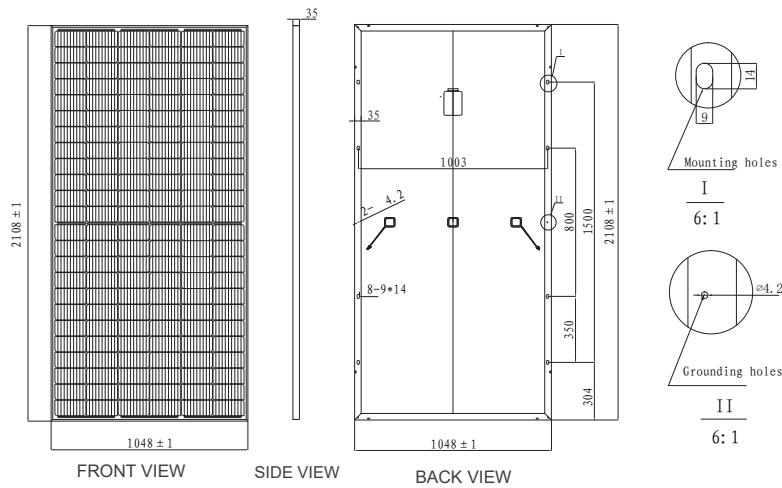


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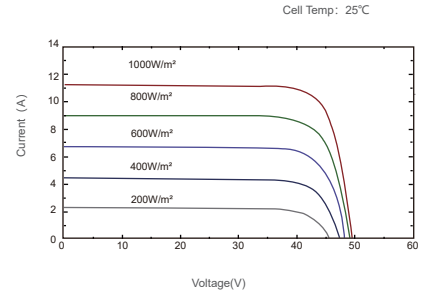
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## MECHANICAL DRAWINGS

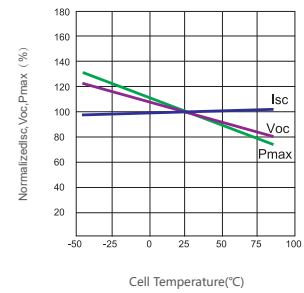


## I-V CURVES

I-V Curves at SUN450-72M-H6(BF) at different Irradiances



Power voltage current curve at different temperature



## MECHANICAL SPECIFICATION

|                   |  |
|-------------------|--|
| Cell Type         | Mono Crystalline 166x83mm              |
| Number Of Cells   | 144 (6x24)                             |
| Dimensions(AxBxC) | 2108x1048x35mm                         |
| Weights           | 24.5kg                                 |
| Glass             | 3.2mm Tempered Low Iron Glass          |
| Aluminium Frame   | Black 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 | 22     |
| Pieces Per Container  | 704    |

## ELECTRICAL CHARACTERISTICS

| Module Type                               | 445W      |        | 450W   |        | 455W   |        | 460W   |        |
|---|-----------|--------|--------|--------|--------|--------|--------|--------|
|   | STC       | NOCT   | STC    | NOCT   | STC    | NOCT   | STC    | NOCT   |
| Maximum Power At STC(Pmax)                | 445W      | 334.5W | 450W   | 338.3W | 455W   | 342.0W | 460W   | 345.8W |
| Short Circuit Current(Isc)                | 11.29A    | 9.12A  | 11.36A | 9.18A  | 11.43A | 9.24A  | 11.50A | 9.29A  |
| Open Circuit Voltage(Voc)                 | 49.7V     | 46.3V  | 50.0V  | 46.6V  | 50.3V  | 46.9V  | 50.6V  | 47.2V  |
| Maximum Power Current(Imp)                | 10.80A    | 8.65A  | 10.87A | 8.70A  | 10.94A | 8.75A  | 11.01A | 8.71A  |
| Maximum Power Voltage(Vmpp)               | 41.2V     | 38.7V  | 41.4V  | 38.9V  | 41.6V  | 39.1V  | 41.8V  | 39.3V  |
| Module Efficiency                         | 20.14%    |        | 20.37% |        | 20.60% |        | 20.82% |        |
| Power Tolerance                           | 0~+5W     |        | 0~+5W  |        | 0~+5W  |        | 0~+5W  |        |
| Maximum System Voltage                    | VDC 1500V |        |        |        |        |        |        |        |
| Maximum Series Fuse                       | 20A       |        |        |        |        |        |        |        |
| 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           | -0.36%/°C |        |        |        |        |        |        |        |
| Temperature Coefficient Of Voc            | -0.29%/°C |        |        |        |        |        |        |        |
| Temperature Coefficient Of Isc            | 0.05%/°C  |        |        |        |        |        |        |        |

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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