

Mars Series

435W/440W/445W/450W

SUN 78MD-HFS

HALF-CELL BIFACIAL MBB MONO PERC DOUBLE GLASS 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;

KEY SALIENT FEATURES

- High output power**
- Better power generation under shadows**
- Strong anti-hot spot ability**
- Enhanced safety**
- Easy to install**
- High tolerance for harsh environment and extreme weather conditions**

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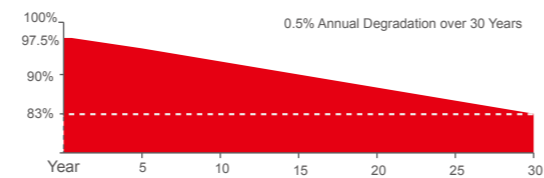
Founded in 2008, Sunergy is a manufacturer of high-performance photovoltaic products. With 12 manufacturing bases and more than 20 branches around the world, the company's business covers modules, photovoltaic power stations and EPC. Sunergy products are available in over 120 countries and regions and 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% Power Output
- 30 Years 83% Power Output

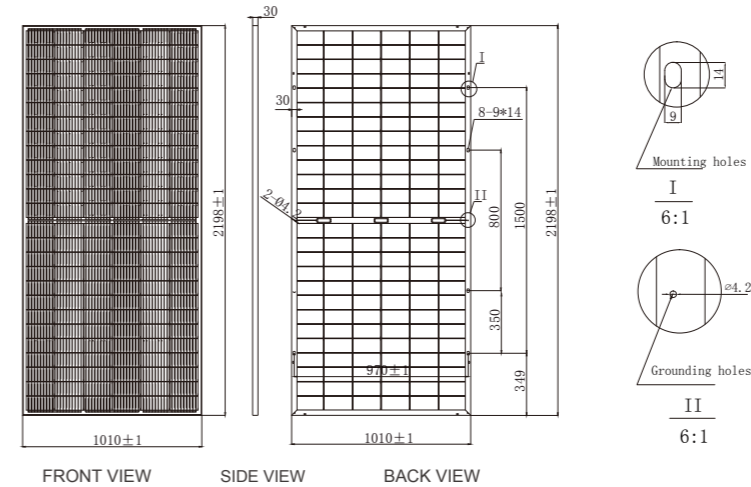


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Mars Series SUN 78MD-HFS

MECHANICAL DRAWINGS



MECHANICAL SPECIFICATION

Cell Type	Mono Crystalline 158.75X79.375mm
Number Of Cells	156 (6x26)
Dimensions(AxBxC)	2198x1010x30mm
Weights	29.0kg
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	4.0mm ² ,+300mm,-300mm Customized Length

ELECTRICAL CHARACTERISTICS

Module Type	435W		440W		445W		450W	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power At STC(Pmax)	435W	327.0W	440W	330.7W	445W	334.5W	450W	338.3W
Short Circuit Current(Isc)	10.43A	8.48A	10.57A	8.56A	10.64A	8.61A	10.71A	8.67A
Open Circuit Voltage(Voc)	53.5V	49.9V	53.8V	50.2V	54.1V	50.5V	54.4V	50.7V
Maximum Power Current(Imp)	9.93A	8.04A	10.02A	8.11A	10.09A	8.17A	10.16A	8.22A
Maximum Power Voltage(Vmpp)	40.8V	40.7V	43.9V	40.8V	44.1V	41.0V	44.3V	41.2V
Module Efficiency	19.60%		19.82%		20.05%		20.27%	
Power Tolerance	0~+5W		0~+5W		0~+5W		0~+5W	
Maximum System Voltage	VDC 1500V							
Maximum Series Fuse	15A							
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							

ELECTRICAL CHARACTERISTICS WITH DIFFERENT REAR SIDE POWER GAIN

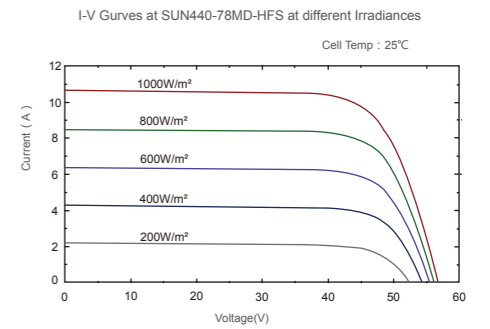
(Reference to 440W Front)

Backside Power Gain	5%	10%	15%	20%	25%
Maximum Power At STC(Pmax)	462	484	506	528	550
Short Circuit Current(Isc)	11.08	11.60	12.08	12.60	13.13
Open Circuit Voltage(Voc)	53.4	53.4	53.6	53.6	53.8
Maximum Power Current(Imp)	10.55	11.05	11.50	12.00	12.50
Maximum Power Voltage(Vmpp)	43.8	43.8	44.0	44.0	44.0

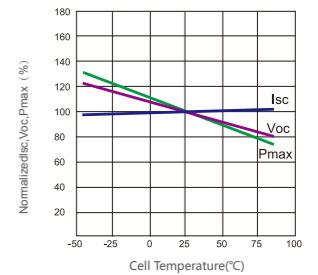
STC: 1000W/m² irradiance, 25°C cell temperature, AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, wind speed 1m/s.



I-V CURVES



Power voltage current curve at different temperature



PACKING CONFIGURATION

Container	40' HQ
Pieces Per Pallet	35
Pallets Per Container	20
Pieces Per Container	700

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