



# M6HIEFF TWIN MONO by SUNPRO

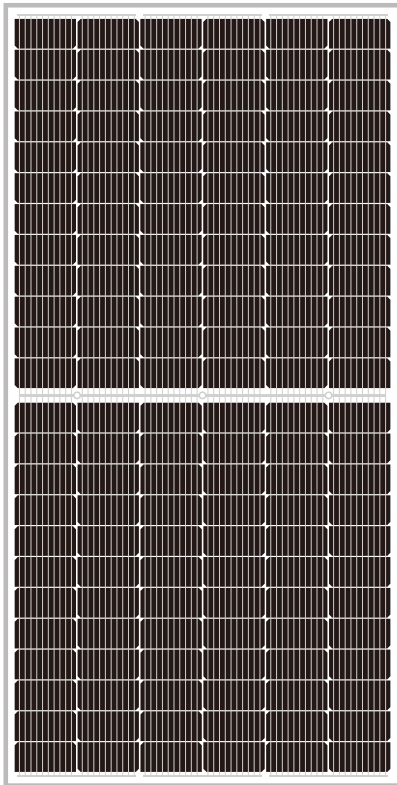
SP-DG(430-455)W-144M6  
HIGH EFFICIENCY



ISO 14001

ISO 9001

ISO 45001



### POWER TOLERANCE

0~+3%



**WITHSTAND STRONG SNOW LOAD**  
5400 Pa/ WIND LOAD 2400 Pa



### NEW TECHNOLOGY: HIEFF UP TO 20,93%

Higher yield per surface area,  
lower BOS costs, higher power classes,  
and an efficiency rate of up to 20.93%.

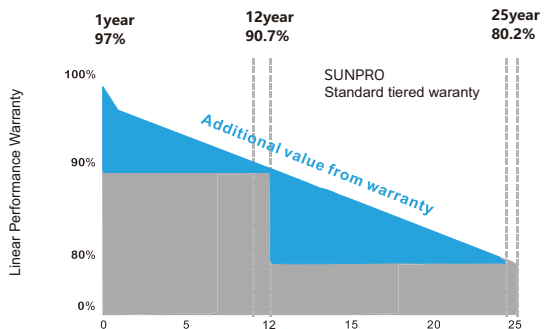


### PRODUCT WITH HIEFF BY SUNPRO TECHNOLOGY

SUNPRO DUO combines cutting edge cell separation and innovative 9-busbar design with SUNPRO Technology.

## Reliability & Certification

Product Guarantee: **12-year**  
Linear Performance Warranty  
**12-year:90.7%** power output  
**30-year:80.2%** power output



## Product Specification

Electrical parameters at standard test conditions  
(STC:AM=1.5, 1000W/m<sup>2</sup>, Cells Temperature 25°C)

Typical type	430W	435W	440W	445W	450W	455W
Max power(Pmax)	430	435	440	445	450	455
Max power voltage(Vmp)	41.30	41.50	41.70	41.90	42.10	42.30
Max power current(Imp)	10.42	10.49	10.56	10.63	10.69	10.76
Open circuit voltage (Voc)	49.70	49.90	50.10	50.30	50.50	50.70
Short circuit current (Isc)	11.30	11.37	11.44	11.51	11.58	11.65
Module Efficiency(%)	19.78	20.01	20.24	20.47	20.70	20.93
Max system voltage	DC 1500V(TUV) / DC 1000V(TUV)					
Maximum Series Fuse Rating	25A					

## Electrical parameters at NMOT test conditions

(NMOT:Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

Item						
Max power(Pmax)	322.60	326.30	329.90	333.60	337.10	340.80
Max power voltage(Vmp)	37.90	38.00	38.20	38.40	38.60	38.70
Max power current(Imp)	8.52	8.58	8.63	8.69	8.74	8.80
Open circuit voltage (Voc)	46.40	46.60	46.80	46.90	47.10	47.30
Short circuit current (Isc)	9.13	9.18	9.24	9.30	9.35	9.41

## Electrical Characteristics with 25% Rear Side Power Gain

Item						
Front power Pmax/W	430	435	440	445	450	455
Total power Pmax/W	538	544	550	556	563	569
Vmp/V(Total)	41.40	41.60	41.80	42.00	42.20	42.40
Imp/A(Total)	13.00	13.08	13.16	13.24	13.33	13.41
Voc/V(Total)	49.80	50.00	50.20	50.40	50.60	50.80
Isc/A(Total)	13.65	13.73	13.81	13.89	14.44	14.52

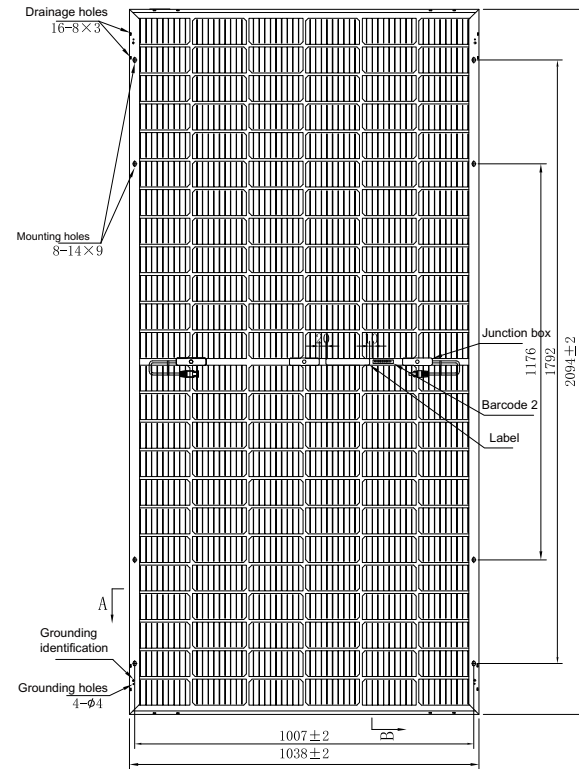
## Mechanical Data

Item	Specification
Dimensions	2094x1038x30mm
Weight	28kgs
Glass	2.0mm+2.0mm High Transmission, AR Coated Heat Strengthened Glass
Output cables	4mm <sup>2</sup> symmetrical lengths 350mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline PERC Half-Cell 9BB
Number of cells	144 cells in series

## Test, Certifications and Warranties

Item	Specification
Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042B
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TUV, AMMONIA AND SALT MIST CORROSION, ANTI-PID, CE, WEEE, INMERTRO
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+3%
Junction box	IP68
Warranties	12 years product warranty and 25 years 80% of power

## Dimensions and Structure



## Temperature Characteristics

Item	Specification
Temp.Coeff.of Isc(TK Isc)	0.05%/°C
Temp.Coeff.of Voc(TK Voc)	-0.29%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.36%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	44±2°C

## Packing Configuration

Item	Specification
Container	40'HQ
Pieces per pallet	36
Pallets per container	/
Pieces per container	792

## I-V Curve

I-V characteristics at different temperature

