

Bifacial Double Glass Module (Black Frame)

435W~460W



Key Features



High Efficiency

Leading module efficiency in industry, up to 23.0%



Excellent Appearance and Performance

Bifacial solar cell, symmetrical design, low risk of micro-crack



High Reliability

Passed 3*IEC standard test, 25 years materials warranty, 30 years power warranty



Excellent Rear Side Power Generation

Bifaciality is up to 80%, up to 30% more energy yield than conventional modules



Better low irradiance performance

Higher power output even under low irradiance environments like on cloudy or foggy days



Extensive Application Scenes

More extensive application scenes, such as BIPV, snow field, vertical installation, high humidity, strong wind and desert region

Maximum
Power Output

460W

Maximum
Module Efficiency

23.0%

Power Output
Tolerance

0~+5W

Product and Quality Certifications

IEC 61215, IEC 61730

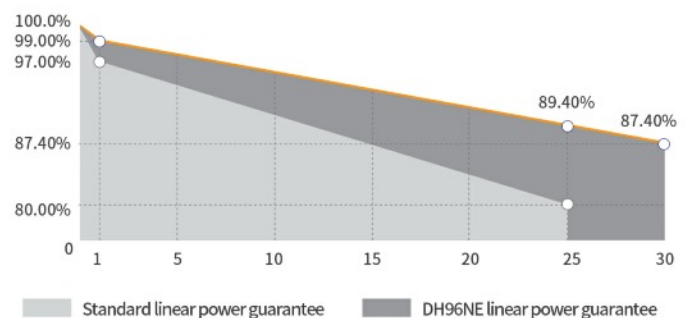
ISO 9001: Quality Management System

ISO 14001: Environment Management System

ISO 45001: Occupational Health and Safety Management System

IEC 62716, IEC 61701: Ammonia, Salt mist corrosion test

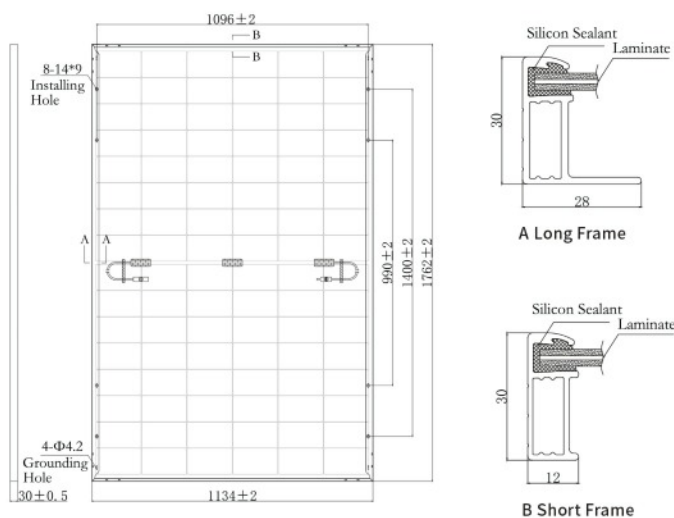
IEC TS 62804-1, IEC 60068-2-68: PID test, Dust and Sand test



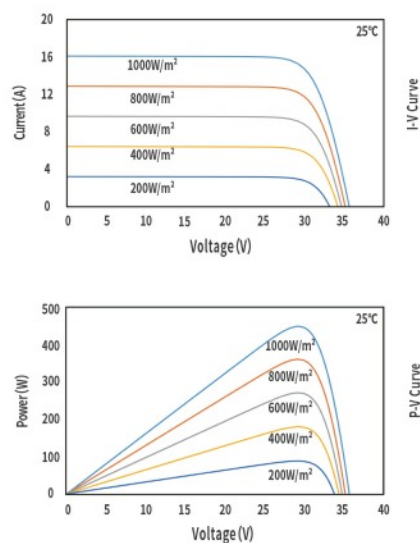
Leading product and power warranty

-1.00% 1st-year Degradation **-0.40%** Annual Degradation **25** Materials and workmanship warranty **30** Linear power warranty

Engineering Drawing (mm)



Characteristic Curves(450W)



Electrical Parameters (STC *)

Nominal Max. Power(Pmax/W)	435	440	445	450	455	460
Open Circuit Voltage(Voc/V)	34.72	34.92	35.11	35.30	35.50	35.68
Short Circuit Current(Isc/A)	15.86	15.94	16.01	16.08	16.16	16.22
Operating Voltage(Vmp/V)	29.48	29.65	29.83	30.02	30.22	30.41
Operating Current(Imp/A)	14.76	14.84	14.92	14.99	15.06	15.13
Efficiency(%)	21.8	22.0	22.3	22.5	22.8	23.0

STC * : Irradiance = 1000 W/m², Cell Temperature = 25°C, AM = 1.5
Test condition is based on the front side

Mechanical Parameters

Cell Type	N Type
Module Size	1762×1134×30mm
Glass Thickness	1.6mm + 1.6mm
Module Weight	21.6Kg
Output Cable	4mm², cable length 1200mm (can be customized)
Connector	Original MC4 Series
Junction Box	IP68, 3 bypass diodes
Frame	Anodized aluminium alloy (Black)

Electrical Parameters (NMOT *)

Nominal Max. Power(Pmax/W)	331	335	339	343	347	350
Open Circuit Voltage(Voc/V)	33.24	33.44	33.62	33.80	33.99	34.16
Short Circuit Current(Isc/A)	12.79	12.85	12.91	12.96	13.03	13.08
Operating Voltage(Vmp/V)	27.86	28.02	28.19	28.37	28.56	28.74
Operating Current(Imp/A)	11.90	11.96	12.03	12.08	12.14	12.20

NMOT *: Irradiance = 800 W/m², Ambient Temperature = 20°C, AM = 1.5,
Wind Speed = 1 m/s
Test condition is based on the front side

Temperature Coefficients

Short Circuit Current(Isc)	+0.045%/°C
Open Circuit Voltage(Voc)	-0.250%/°C
Nominal Max. Power(Pmax)	-0.280%/°C
NMOT	42±2°C

Backside Power Gain (For 450W)

Power Gain	10%	15%	20%	25%	30%
Nominal Max. Power(Pmax/W)	495.0	517.5	540.0	562.5	585.0
Open Circuit Voltage(Voc/V)	35.30	35.30	35.40	35.40	35.40
Short Circuit Current(Isc/A)	17.69	18.49	19.30	20.10	20.90
Operating Voltage(Vmp/V)	30.02	30.02	30.12	30.12	30.12
Operating Current(Imp/A)	16.49	17.24	17.93	18.67	19.42

Operating Parameters

Max. System Voltage	DC1500V
Power Tolerance	0 ~ +5 W
Operating Temperature	-40°C ~ +85°C
Max. Fuse Rated Current	30A
Bifaciality	80%±5%
Static Load	Front 5400Pa, Back 2400Pa
Packing Data	36 pcs/Pallet; 216(20GP); 936(40HQ)