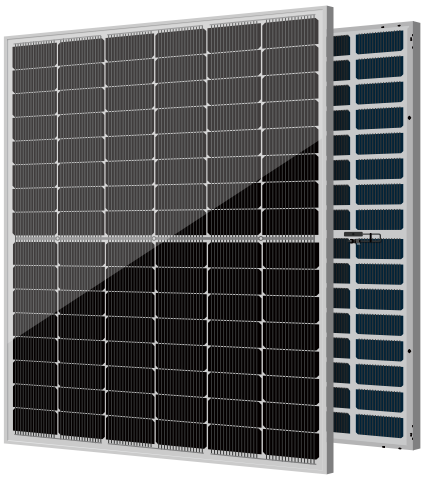
ZNSHINESOLAR



ZXMR-UHLDD96 Series

16BB HALF-CELL N-Type TOPCon Bifacial Double Glass Monocrystalline PV Module

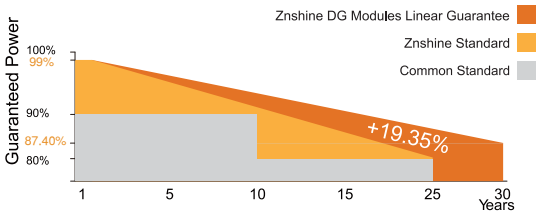
430-455W
POWER RANGE

22.77%
MAXIMUM EFFICIENCY

0.40%
YEARLY DEGRADATION

12 YEARS PRODUCT WARRANTY

30 YEARS OUTPUT GUARANTEE



*Please check the valid version of Limited Product Warranty which is officially released by ZNSHINE PV-TECH Co.,Ltd.

IEC 61215/IEC 61730

ISO 14001: Environmental Managerment System

ISO 9001: Quality Managerment System

ISO45001: Occupational Health and Safety Managerment System

*As there are different certification requirements in different markets.please contact your local znshine sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

KEY FEATURES

Excellent Cells Efficiency

MBB technology reduce the distance between busbars and finger grid line which is benefit to power increase.

Anti PID

Ensured PID resistance through the quality control of cell manufacturing process and raw materials.

TIER 1

Global,Tier 1 bankable brand,with independently certified advanced automated manufacturing.

Bifacial Technology

Up to 25% additional power gain from back side depending on albedo.

Better Weak Illumination Response

More power output in weak light condition, such as haze, cloudy, and early morning.

Adapt To Harsh Outdoor Environment

Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.

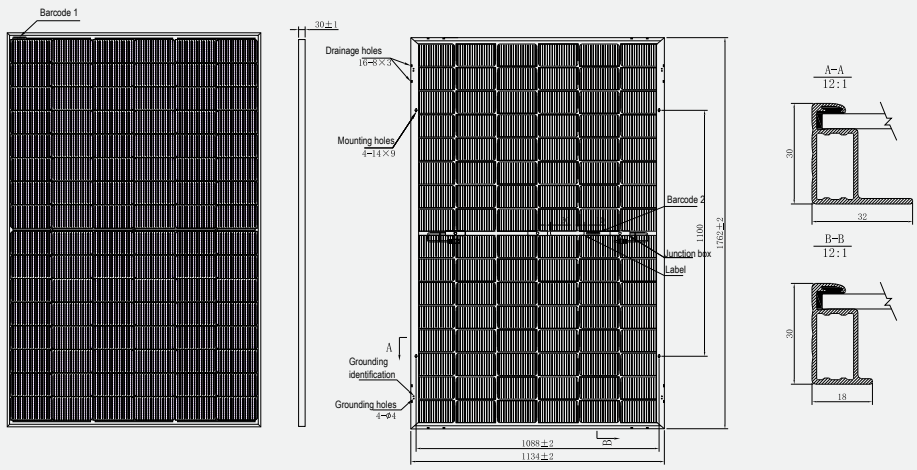
Excellent Quality Managerment System

Warranted reliability and stringent quality assurances well beyond certified requirements.

ZXMR-UHLDD96 Series | 16BB HALF-CELL N-Type TOPCon Bifacial Double Glass Monocrystalline PV Module

ZNSHINESOLAR

DIMENSIONS OF PV MODULE(mm)

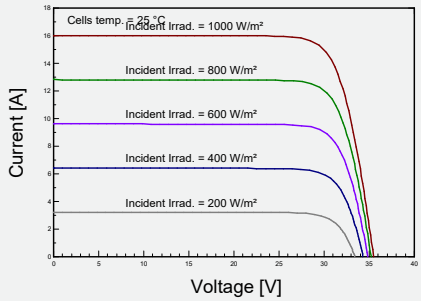


Front View

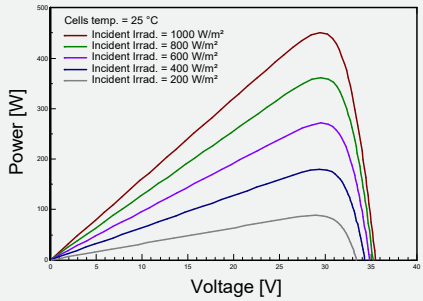
Back View

*Remark: customized frame color and cable length available upon request

I-V CURVES OF PV MODULE(450W)



P-V CURVES OF PV MODULE(450W)



ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	430	435	440	445	450	455
Maximum Power Voltage Vmp(V)	29.00	29.20	29.40	29.60	29.80	30.00
Maximum Power Current Imp(A)	14.83	14.90	14.97	15.04	15.11	15.17
Open Circuit Voltage Voc(V)	34.70	34.90	35.10	35.30	35.50	35.70
Short Circuit Current Isc(A)	15.75	15.82	15.89	15.96	16.03	16.10
Module Efficiency (%)	21.52	21.77	22.02	22.27	22.52	22.77

*The data above is for reference only and the actual data is in accordance with the pratical testing
*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25±2℃, AM 1.5
*Measuring uncertainity: ±3%, all the electrical characteristics such as Power, Im, Vm and FF are within +3-0% tolerance.

MECHANICAL DATA

Solar cells	N-type Monocrystalline, Rectangular cells
Cells orientation	96 (6×16)
Module dimension	1762×1134×30 mm (With Frame)
Weight	25.0±1.0 kg
Glass	2.0 mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction box	IP 68, 3 diodes
Cables	4 mm² ,1200 mm (With Connectors)
Connectors*	MC4-EVO2 compatible

*Please refer to regional datasheet for specified connector

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	327.50	331.20	335.00	338.70	342.50	345.30
Maximum Power Voltage Vmpp(V)	27.10	27.30	27.50	27.70	27.90	28.00
Maximum Power Current Impp(A)	12.07	12.13	12.18	12.24	12.29	12.31
Open Circuit Voltage Voc(V)	32.90	33.10	33.30	33.50	33.60	33.80
Short Circuit Current Isc(A)	12.71	12.76	12.82	12.87	12.93	12.99

*NMOT:Irradiance 800W/m²,Ambient Temperature 20℃,AM 1.5,Wind Speed 1m/s

TEMPERATURE RATINGS

NMOT	44℃ ±2℃
Temperature coefficient of Pmax	(-0.28±0.028)%/℃
Temperature coefficient of Voc	-0.23%/℃
Temperature coefficient of Isc	0.045%/℃
Refer.Bifacial Factor	(80±10)%

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40℃~+85℃
Maximum series fuse	30 A
Front Side Maximum Static Loading	Up to 5400Pa
Rear Side Maximum Static Loading	Up to 2400Pa

*Remark:Do not connect Fuse in Combiner Box with two or more strings in parallel connection

ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN*

Front power Pmax/W	430	435	440	445	450	455
Total power Pmax/W	538	544	550	556	563	569
Vmp/V(Total)	29.10	29.30	29.50	29.70	29.90	30.10
Imp/A(Total)	18.47	18.56	18.64	18.73	18.81	18.90
Voc/V(Total)	34.80	35.00	35.20	35.40	35.60	35.80
Isc/A(Total)	19.62	19.70	19.79	19.87	19.96	20.05

*Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

PACKAGING CONFIGURATION*

Piece/Box	36
Piece/Container(40'HQ)	936

*Customized packaging is available upon request.
*Remark:Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.
*Caution:Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

Add : 1#, Zhixi Industrial Zone, JintanJiangsu 213251, P.R. China Tel: +86 519 6822 0233 E-mail: info@znshinesolar.com

Note: Specifications included in this datasheet are subject to change without notice.ZNSHINE reserves the right of final interpretation © ZNSHINE SOLAR 2024 | Version: ZXMR-UHLDD96 2402.E

No special undertaking or warranty for the suitability of special purpose or being installed in extraordinary surroundings is granted unless as otherwise specifically committed by manufacturer in contract document