



ZXMR-UPLDD144 Series

SMBB HALF-CELL N-Type Bifacial Double Glass
Monocrystalline PU Composite Framed PV Module

590-615W

POWER RANGE

22.7%

MAXIMUM EFFICIENCY

0.40%

YEARLY DEGRADATION



12 YEARS PRODUCT WARRANTY



30 YEARS OUTPUT GUARANTEE

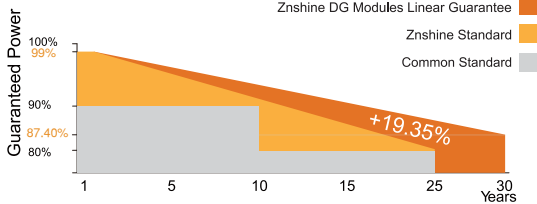


IEC 61215/IEC 61730/IEC 61701/IEC 62716

ISO 14001: Environmental Management System

ISO 9001: Quality Management System

ISO45001: Occupational Health and Safety Management System



*Please check Limited Warranty for Standard PV Modules which is officially released by ZNSHINE PV-TECH Co.,Ltd.

*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



Ultra Low Carbon

CO₂ emissions only 10% of the AL frame.



Better Weak Illumination Response

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



High Insulation

PU composite frame: no grounding, reduce PID risk, improve safety, maintenance free.



Corrosion Resistant

Excellent humidity and heat resistance, anti-salt spray corrosion, suitable for offshore PV stations and other highly corrosive fields.



High Anti PID

PU composite frame, Super Anti-PID performance.



TIER 1

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



High Anti-Glare

PU composite frame, Super Anti-Glare performance.



Natural Black Vision

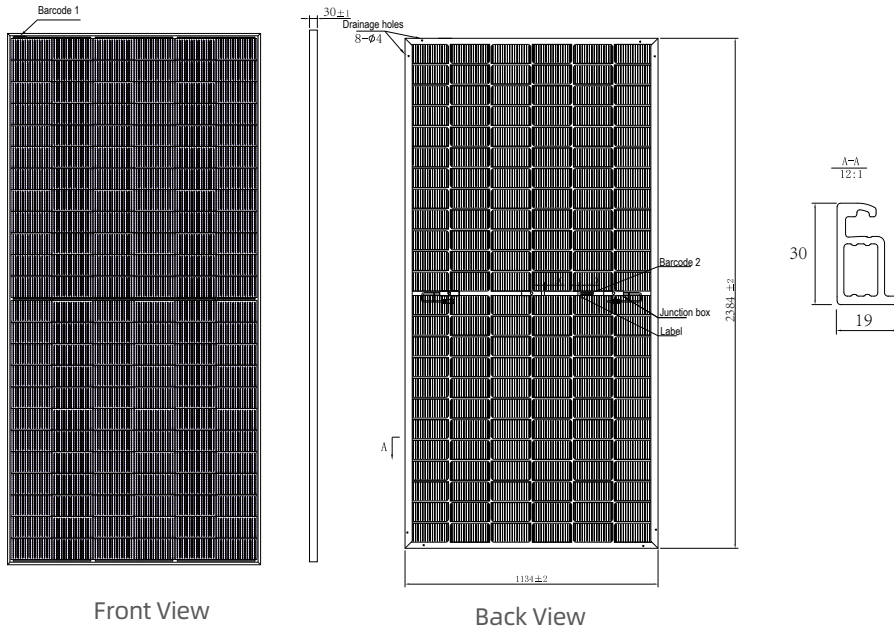
Solar modules with a PU composite frame have a more uniform appearance and superior aesthetics.



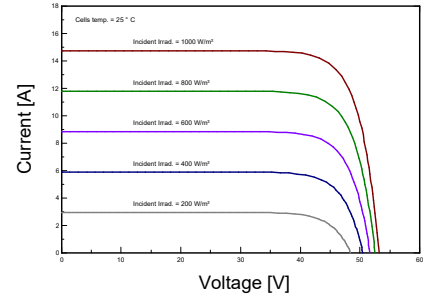
Graphene Coating

Graphene coating modules can increase power generation and self-cleaning, also can save maintenance cost

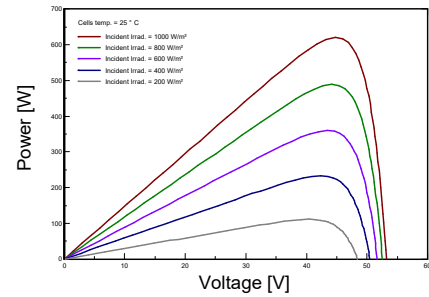
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(620W)



P-V CURVES OF PV MODULE(620W)



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

ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	590	595	600	605	610	615
Maximum Power Voltage Vmp(V)	43.50	43.70	43.90	44.10	44.30	44.50
Maximum Power Current Imp(A)	13.57	13.62	13.67	13.72	13.77	13.83
Open Circuit Voltage Voc(V)	52.00	52.20	52.40	52.60	52.80	53.00
Short Circuit Current Isc(A)	14.47	14.52	14.57	14.62	14.67	14.72
Module Efficiency (%)	21.8	22.0	22.2	22.4	22.6	22.7

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

MECHANICAL DATA

Solar cells	N-type Monocrystalline, Rectangular cells
Cells orientation	144 (6×24)
Module dimension	2384 × 1134 × 30mm (With Frame)
Weight	33.5±1.0 kg
Glass	2.0 mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction box	IP 68, 3 diodes
Cables	4 mm ² , 350 mm (With Connectors)
Connectors*	MC4-EVO2 compatible

*Please refer to regional datasheet for specified connector

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	439.60	443.30	447.00	450.80	454.50	458.60
Maximum Power Voltage Vmpp(V)	40.60	40.80	40.90	41.10	41.30	41.50
Maximum Power Current Imp(A)	10.83	10.88	10.92	10.96	11.00	11.05
Open Circuit Voltage Voc(V)	49.20	49.30	49.50	49.70	49.90	50.10
Short Circuit Current Isc(A)	11.67	11.72	11.76	11.80	11.84	11.88

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

TEMPERATURE RATINGS

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

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40°C~+85°C
Maximum series fuse	35 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 (REAR POWER GAIN)*

5%	Maximum Power: Pmax(W)	620	625	630	635	641	646
	Module Efficiency(%)	22.92	23.11	23.30	23.50	23.69	23.89
15%	Maximum Power: Pmax(W)	679	684	690	696	702	707
	Module Efficiency(%)	25.10	25.31	25.52	25.74	25.95	26.16
25%	Maximum Power: Pmax(W)	738	744	750	756	763	769
	Module Efficiency(%)	27.28	27.51	27.74	27.97	28.20	28.44

*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)	720

*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.