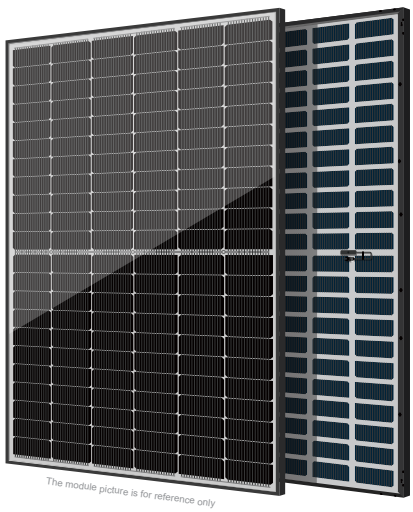
ZNSHINESOLAR



ZXNR-BD132 Series

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

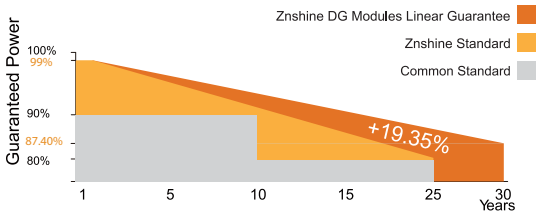
620-650W
POWER RANGE

24.06%
MAXIMUM EFFICIENCY

0.40%
YEARLY DEGRADATION

12 **12 YEARS PRODUCT WARRANTY**

30 **30 YEARS OUTPUT GUARANTEE**



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

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

Ultra Low Carbon
CO_2 emissions only 10% of the AL frame.

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

High Anti PID
PU composite frame, Super Anti-PID performance.

High Anti-Glare
PU composite frame, Super Anti-Glare performance.

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

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

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

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

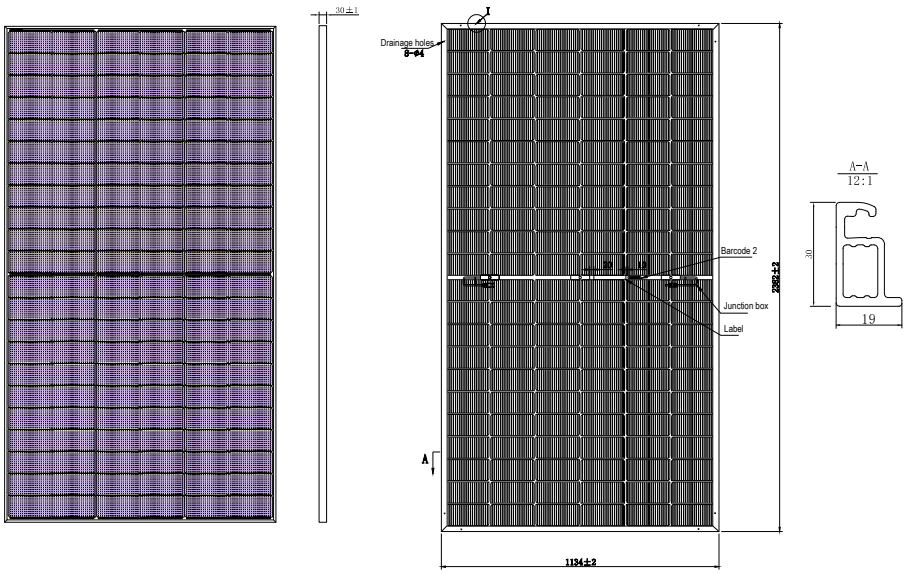
Founded in 2006, ZNShine solar is a world's leading high-tech PV module manufacturer.With the advanced production lines, the company boasts module capacity of 10GW. Bloomberg has listed ZNShine as a global Tier 1 PV module maker. Today Znshine has distributed its sales to more than 60 countries around the globe.

ZXNR-BD132 Series

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

ZNSHINESOLAR

DIMENSIONS OF PV MODULE(mm)

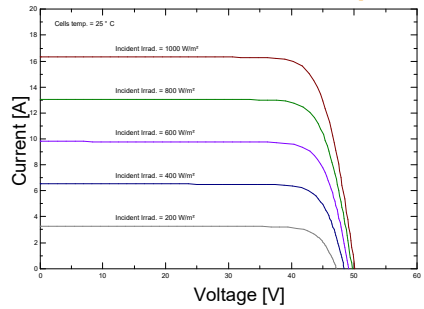


Front View

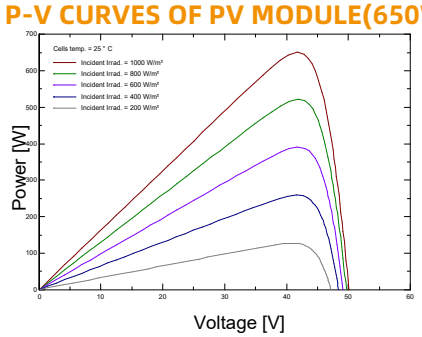
Back View

*Remark: customized frame color and cable length available upon request
only the classic 20BB assembly diagram is displayed here, other busbar can be customized according to requirements

I-V CURVES OF PV MODULE(650W)



P-V CURVES OF PV MODULE(650W)



ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	620	625	630	635	640	645	650
Maximum Power Voltage Vmp(V)	41.00	41.20	41.40	41.60	41.80	42.00	42.20
Maximum Power Current Imp(A)	15.13	15.17	15.22	15.27	15.32	15.36	15.41
Open Circuit Voltage Voc(V)	48.90	49.10	49.30	49.50	49.70	49.90	50.10
Short Circuit Current Isc(A)	16.05	16.09	16.14	16.19	16.24	16.29	16.34
Module Efficiency (%)	22.95	23.14	23.32	23.51	23.69	23.88	24.06

*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, Isc, Voc and FF are within ±5% tolerance.

MECHANICAL DATA

Solar cells	N-type Monocrystalline, Rectangular cells
Cells orientation	132 (6×22)
Module dimension	2382×1134×30 mm (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 mm² ,350 mm (With Connectors)
Connectors*	MC4-EVO2 compatible

*Please refer to regional datasheet for specified connector

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	471.30	475.20	478.90	482.70	486.50	490.20	494.00
Maximum Power Voltage Vmpp(V)	38.04	38.50	38.70	38.90	39.10	39.30	39.50
Maximum Power Current Impp(A)	12.29	12.33	12.37	12.41	12.44	12.48	12.52
Open Circuit Voltage Voc(V)	46.30	46.50	46.70	46.90	47.10	47.30	47.40
Short Circuit Current Isc(A)	12.95	12.98	13.02	13.06	13.10	13.14	13.18

*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	651	656	662	667	672	677	683
Total power Pmax/W	24.08	24.27	24.47	24.66	24.86	25.07	25.26
Vmp/V(Total)	713	719	725	730	736	742	748
Imp/A(Total)	26.37	26.59	26.80	27.01	27.22	27.46	27.67
Voc/V(Total)	775	781	788	794	800	806	813
Isc/A(Total)	28.67	28.90	29.13	29.36	29.59	29.85	30.08

*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.

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