

Pioneer 2.0 605-650W

132-TOPCon BIFACIAL MODULE
WITH DUAL GLASS



12 Years Product
Warranty



30 Years Linear
Power Warranty



SMBB Technology

Better light trapping and current collection, less optical and resistance losses, effectively improving module power output and reliability.



>85% Bifaciality

Greater backside generation gain with significantly LCOE reduced.

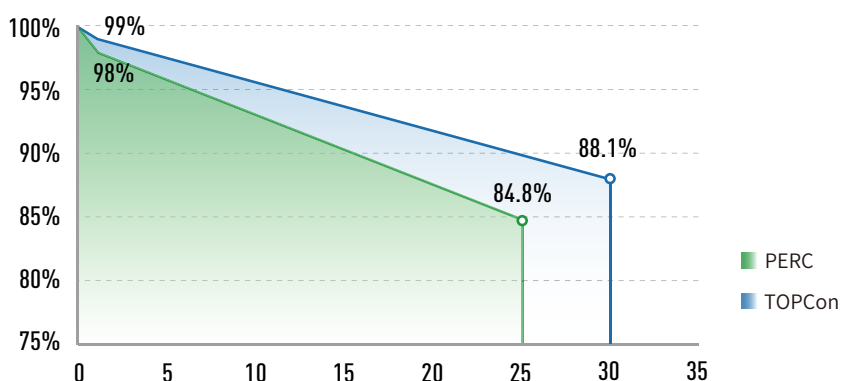


Low Temperature Coefficients

Excellent temperature coefficients, and more stable power generation performance.



IEC61215:2021 / IEC61730:2023

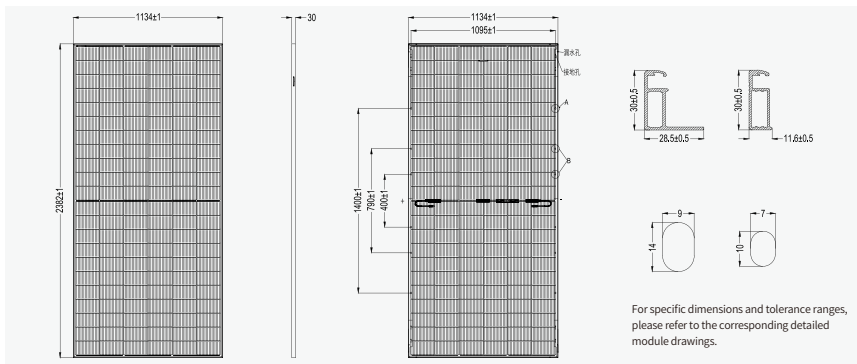


Less than **1%** degradation in the 1st year

30 years power warranty

0.375% linear degradation

*This linear power warranty is solely valid for the front side of the modules under Standard Test Conditions



Connectors	Z4S-abcde(Zerun Co., Ltd.)	PV-ZH202B(Zhejiang Zhonghuan Sunter PV Technology Co.,Ltd.)
	QC4.10-cds (QC Solar)	PV-CY03L(Zhejiang Chuangyuan Photovoltaic Technology Co.,Ltd.)
	PV-JM601(Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co.,Ltd.)	

Mechanical Characteristics

Cell Type	TOPCon Mono-crystalline
No. of Cells	132 (6×22)
Dimensions	2382×1134×30mm
Weight	31.8kg
Front Glass	2.0mm Anti-reflection Coating
Back Glass	2.0mm Heat Strengthened Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68 Rated
Output Cables	4mm ² , 300mm in Length, or Customized Length
Test Load (front side)	5400 Pa
Test Load (rear side)	2400 Pa

Electrical Characteristics (STC)

Module Types	SETS210R-13 2D-605CS	SETS210R-13 2D-610CS	SETS210R-13 2D-615CS	SETS210R-13 2D-620CS	SETS210R-13 2D-625CS	SETS210R-13 2D-630CS	SETS210R-13 2D-635CS	SETS210R-13 2D-640CS	SETS210R-13 2D-645CS	SETS210R-13 2D-650CS
Max Power(Pmax)[W]/±3%	605	610	615	620	625	630	635	640	645	650
Open Circuit Voltage(Voc)[V]/±3%	48.50	48.65	48.80	48.95	49.10	49.25	49.40	49.55	49.70	49.85
Short Circuit Current(Isc)[A]/±4%	15.53	15.59	15.65	15.71	15.77	15.83	15.89	15.95	16.01	16.07
Max.Power Voltage(Vmp)[V]	41.15	41.30	41.45	41.6	41.75	41.90	42.05	42.19	42.34	42.48
Max.Power Current(Imp)[A]	14.78	14.84	14.90	14.96	15.02	15.08	15.14	15.19	15.25	15.30
Module Efficiency(%)	22.40	22.58	22.77	22.95	23.14	23.32	23.51	23.69	23.88	24.06
Power Selection	0 ~ +5W									
Bifaciality Coefficients	φPmax=85%±10% φVoc=99%±10% φIsc=85%±10%									

STC (Standard Test Conditions) : Irradiance 1000W/m², Cell temperature 25°C, AM 1.5, Tolerance of Pmax is within +/-3%

Electrical Characteristics (BNPI)

Max Power(Pmax)[W]/±3%	675	680	685	690	695	700	705	710	715	720
Open Circuit Voltage(Voc)[V]/±3%	48.50	48.65	48.80	48.95	49.10	49.25	49.40	49.55	49.70	49.85
Short Circuit Current(Isc)[A]/±4%	17.31	17.38	17.45	17.51	17.58	17.65	17.71	17.78	17.85	17.91
Max.Power Voltage(Vmp)[V]	41.15	41.30	41.45	41.6	41.75	41.90	42.05	42.19	42.34	42.48
Max.Power Current(Imp)[A]	16.48	16.55	16.62	16.68	16.75	16.82	16.88	16.94	17.01	17.06

BNPI (Bifacial Nameplate Irradiance): Irradiance: front 1000W/m², rear 135W/m², Cell Temperature 25°C, AM=1.5, Tolerance of Pmax is within +/-3%

Electrical Characteristics (aBSI) Irradiance: front 1000W/m², rear 300W/m², Cell Temperature 25°C, AM=1.5

Short Circuit Current(Isc)[A]/±4%	19.49	19.57	19.64	19.72	19.79	19.87	19.94	20.02	20.09	20.17
-----------------------------------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

Packaging Configuration

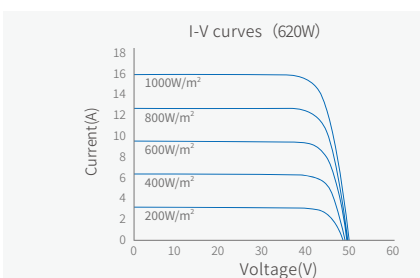
	Flat car	Flat car	Container
Size	13m	17.5m	40HC
Pallets Per	20	24	20
Modules Per Pallet (pcs)	36	36	36
Total Modules (pcs)	720	864	720

Temperature Coefficients

Nominal Operating Cell Temp. (NOCT)	45±2°C
Temperature Coefficient of Pmax δ (%/°C)	-0.28
Temperature Coefficient of Voc β (%/°C)	-0.25
Temperature Coefficient of Isc α (%/°C)	0.046

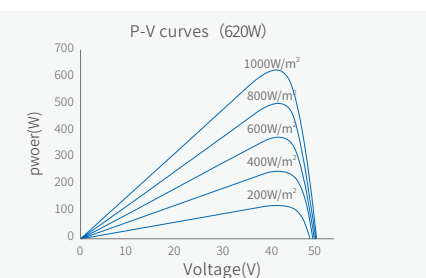
Application Conditions

Level T ₉₈ ≤	90	-40°C~90°C
Maximum System Voltage	1500V	
Maximum Series Fuse Rating	30A	



Safety & Warranty

Safety Class :	Class II	Fire Class: Class C
Product Warranty	12 yrs Workmanship	
Power Warranty	30 yrs Linear Warranty	



上海恒羲光伏科技有限公司
 Shanghai Electric Hency Solar Technology Co., Ltd.

上海市闵行区剑川路 951 号 5 幢 1 层
 1st Floor, Building 5, No. 951 Jianchuan Road, Minhang District, Shanghai
 TEL: 021-34059888
 www.shanghai-electric.com
 Made in China

