

132

Cells

N-Type TOPCon Half-Cut PV Module

610Wp - 630Wp

Bifacial (Glass to Glass)

G12R Cells

**Max. 23.32%**

Module Efficiency

0 to +4.99Wp

Positive Power Tolerance Only

80 ± 10%

Bifaciality Factor

IP68 split

Junction Box

2400 Pa & 5400 Pa

Wind & Snow Load Capacity

**Bi-Facial Power Gain**

Upto 30% power gain depending on the installation & albedo of the reflecting surface.

**MBB Cell Technology**

Lower conversion loss, better partial shade performance, improved light absorption and reduced cell stress.

**Round Ribbons**

Cylindrical tabbing wires to reduce shadow on active area of the cell and increase light absorption.

**Reduced Degradation**

Lower Light-Induced Degradation (LID) & Light and Elevated Temperature-Induced Degradation (LeTID) degradation.

**Lower Thermal Co-efficients**

Better Temperature Co-efficients resulting in higher power generation in high ambient temperatures.

**0% Microcracks & Hotspots**

PRE & POST Electroluminescence checks to ensure defect free modules.

**High Profitability**

Reduced BOS cost resulting in more savings, lower LCOE & shorter payback period.

**ARC Glass**

Highly Reliable AR Coated, Anti-Reflective Module surface for more light absorption.



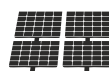
Linear Output Performance



Product & Workmanship

Certifications

IEC 61215/IS14286, IEC 61730-1, IEC 61730-2, IEC 62804 (PID),
IEC 61701 (Salt Mist), IEC 62716 (Ammonia Corrossion), IEC
61853 (Performance, PAN & IAM), IEC 60068-2 (Sand Dust),
IEC 62782 (DMLT), LID, LeTID, BIS Approved, ALMM Enlisted

ApplicationsUtility
ProjectsC & I
ProjectsHome &
ResidentialWater
Pumps**Scan me**

Module Name BBS132CHHHB (HHH = 610 - 630)

Module Type	610Wp	615Wp	620Wp	625Wp	630Wp
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Electrical Characteristics at STC

Maximum Power Pmax (Wp)	610	615	620	625	630
Maximum Voltage Vmpp (V)	40.23	40.37	40.51	40.65	40.79
Maximum Current Impp (A)	15.17	15.24	15.31	15.38	15.45
Open Circuit Voltage Voc (V)	47.34	47.54	47.74	47.94	48.14
Short Circuit Current Isc (A)	15.86	15.92	15.98	16.04	16.10
Module Efficiency (%)	22.58	22.77	22.95	23.14	23.32
Fill Factor %	81.25	81.26	81.27	81.28	81.28

STC:1000W/m² irradiance, 25°C cell temperature, AM1.5G spectrum according to EN 60904-3
Average relative efficiency reduction of -5% for every 200W/m reduction in irradiance, according to EN 60904-1

Electrical Characteristics at NOCT

Maximum Power Pmax (Wp)	458.72	462.48	466.24	470.00	473.76
Maximum Voltage Vmpp (V)	37.82	37.95	38.08	38.21	38.34
Maximum Current Impp (A)	12.13	12.19	12.24	12.30	12.36
Open Circuit Voltage Voc (V)	44.97	45.16	45.35	45.54	45.73
Short Circuit Current Isc (A)	12.80	12.85	12.90	12.95	13.00

NOCT:800W/m² irradiance, 20°C ambient temperature, Wind Speed 1m/sec

Backside Bi-faciality Power Gain

10% Power Output (Wp)	671	677	682	688	693
Module Efficiency (%)	24.84	25.04	25.25	25.45	25.66
15% Power Output (Wp)	702	707	713	719	725
Module Efficiency (%)	25.97	26.18	26.40	26.61	26.82
20% Power Output (Wp)	732	738	744	750	756
Module Efficiency (%)	27.10	27.32	27.54	27.77	27.99
25% Power Output (Wp)	763	769	775	781	788
Module Efficiency (%)	28.23	28.46	28.69	28.92	29.15
30% Power Output (Wp)	793	800	806	813	819
Module Efficiency (%)	29.36	29.60	29.84	30.08	30.32

Bifacial gains depends on the power plant design and albedo of installation site
BNPI: 1000W/M2±0.135, BIFACILITY COEFF. (g) AT BNPI: PMAx, ISC IS 70±10% & FOR VOC IS 99±10%, AM 1.5, 25°C
TOLERANCE OF RATING AT BNPI (PMPP/ ISC/ VOC) (%): 0-3/±5/±5

Temperature coefficient (Tc) and permissible operating conditions

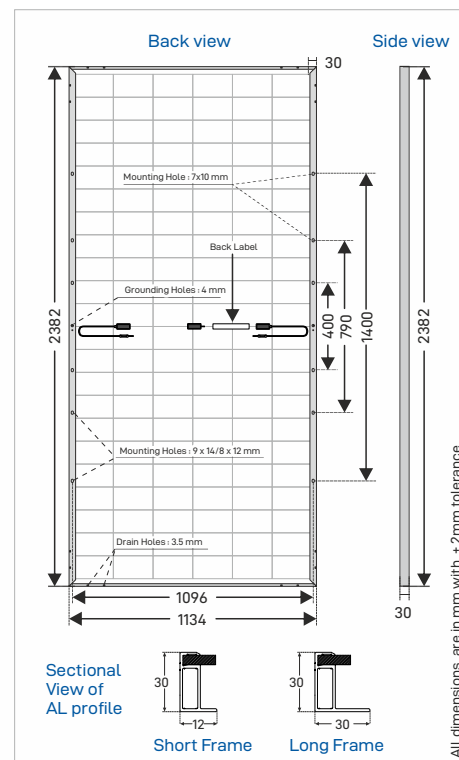
Tc of Open Circuit Voltage	-0.25%/°C
Tc of Short Circuit Current	0.045%/°C
Tc of Power	-0.30%/°C
NOCT	45 ± 2°C
Maximum series fuse ratings	30A
Temperature Range	-40°C to +85°C
Bi-faciality Factor	80 ± 10%
Maximum System Voltage	1500V DC

Mechanical Data

Dimension (LxWxH)	2382mm x 1134mm x 30mm
Weight	33.5 Kg ± 2%
Solar Cells (PID Free)	132 (11 x 6 x 2) N-TOPCon G12R Solar Cells, 16BB, (182 x 105mm)
Superstrate	2mm AR Coated, high transmission low iron tempered glass
EVA / Encapsulant	EVA / POE / EPE - PID Free & UV Resistant
Substrate	2mm high transmission low iron tempered glass
Frame	Silver Anodized Aluminum frame with twin wall profile
Junction Box	IP68, Split Junction Box with 3 individual bypass diodes
Cables & Connectors	4 sq.mm cables, 300/400/600/1200 mm (+Ve) and 300/400/600/1200 mm (-Ve) cables length, MC4 Compatible or MC4 Connectors
Application Class	Class A (Safety class II)
Mechanical Load Test	Sustain heavy static load (2400 Pa & 5400 Pa)
Packaging	Standard 35 modules per pallet

**Refer to Bluebird Solar's warranty documents for terms and conditions.

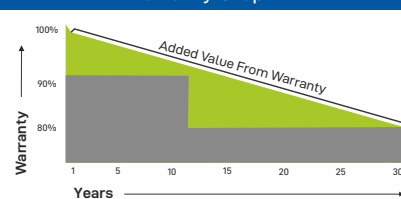
Specification and electrical data included in this datasheet are subject to change without notice. Please confirm your requirements with the company representative while placing your order
Note: It is mandatory to make negative grounding of modules in all installation to avoid PID issue.



I-V Curve (for Different Irradiance)



Warranty Graph



Product Warranty : 12 Years

Performance Warranty : Linear Power Warranty for 30 years with <1% degradation for 1st year and 0.4% from 2 to 30 year.

Approvals and Certifications

Products:*	IEC 61215/IS14286, IEC 61730-1, IEC 61730-2, IEC 62804 (PID), IEC 61701 (Salt Mist), IEC 62716 (Ammonia Corrosion), IEC 61853 (Performance, PAN & IAM), IEC 60068-2 (Sand Dust), IEC 62782 (DMLT), LID, LeTID, BIS Approved, ALMM Enlisted
Manufacturing:	ISO 9001:2015, ISO 14001: 2015, ISO 45001:2018

*some certifications are under process

Packaging Information

Truck Type	Pallet/Truck	Modules/Truck	KW/Truck(Approx)
19 ft.	10	350	222
22 ft.	12	420	266
32 ft.	18	630	400
40 ft.	22	770	489
Container Type	Pallet/Truck	Module/Truck	KW/Truck(Approx)
40 HQ	22	770	489

Above quantities are subject to variation depending on miscellaneous Factors
Trucks under consideration are all open body trucks. | Customized packaging available.

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