



HAVELLS

SOLAR PV MODULE

**GS12R-T132-GF
(600 W_P - 620 W_P)**



High Saving

Lower LCOE, reduced BOS cost, shorter payback time



High Efficiency

Excellent module conversion efficiency of up to 22.95%



Better Weak Illumination Response

Higher power output even under low-light environments like on cloudy or foggy days



ZERO LID (Light Induced Degradation)

N-Type Solar cell Technology offers No-LeTID & No-LID



PID Resistance

Excellent Anti-PID Performance guarantee limited power degradation for mass production



10-30 % Additional Power Generation

More than 10-30% additional power gain comparing with the regular modules.



Wider Applicability

More application scenes like BIPV, vertical installation, snowfield, high-humid, windy and dusty area



12 Years Warranty
for Materials and Processing



30 Years Warranty
for Linear Power Output

Technical Data

Electrical Parameter at STC	Bifacial Monocrystalline Module				
Module Type	GS12R-T132-GF				
Capacity Rating-Pmax (Wp)	600	605	610	615	620
Power Tolerance (%)	0~2 %				
Module Efficiency (%)	22.21 %	22.39 %	22.58 %	22.76 %	22.95
Rated Voltage - Vmp (V)	40.30	40.50	40.70	40.90	41.10
Rated Current - Imp (A)	14.89	14.94	14.99	15.04	15.09
Open Circuit Voltage - Voc (V)	48.40	48.70	49.00	49.30	49.60
Short Circuit Current - Isc (A)	15.80	15.83	15.86	15.89	15.92

Under Standard Test Conditions (STC) of irradiance 1000 W/m², spectrum AM 1.5 and Module temperature of 25 °C. Expect Pmax, all other parameters have a tolerance of ±3%.

Electrical Characteristics with 10% rear side power gain

Capacity Rating - Pmax (Wp)	660	665	671	676	682
Rated Voltage - Vmp (V)	40.30	40.50	40.70	40.90	41.10
Rated Current - Imp (A)	16.37	16.43	16.48	16.54	16.60
Open Circuit Voltage - Voc (V)	48.40	48.70	49.00	49.30	49.60
Short Circuit Current - Isc (A)	17.38	17.41	17.45	17.47	17.51

Additional power gain from rear side compared to power of front side at STC depends on mounting structure (height, tilt angle etc.) and reflectivity of ground. Bi-Faciality Factor: 80±5%

Mechanical Specifications

Solar Cells	132 pieces TOPCon Cell Technology, multi BB (210 mm x 182.2 mm)
Encapsulation	PID & UV Resistance
Frame	Silver Anodized Aluminium Alloy
Front Glass	2.0 mm, High Transmission, AR Coated Semi Tempered Glass
Back Glass	2.0 mm, Heat Strengthened Glass
Dimensions	(L x W x H) 2382 mm x 1134 mm x 30 mm
Weight	~33.7 kg
J-Box	IP 68 Certified, 3 Diodes, Split Junction Box
Series Fuse Rating	30 A
Cable	4 mm ² , Solar Cable 400 mm / 1400 mm Length or Customized Length
Connectors	MC4 Type
Application Class	Class A
Electrical Safety	Class II
Fire Safety	Class C (Type 1)
Surface Load	Snow Load 5400 Pa, Wind Load 2400 Pa

Permissible Operating Conditions

Temperature Range	-40 °C to + 85 °C
Maximum System Voltage	1500 VDC
NOCT	45±2 °C
Hail Resistance	Max. Diameter of 25 mm with velocity 23 m/s

Temperature Coefficients (TC)

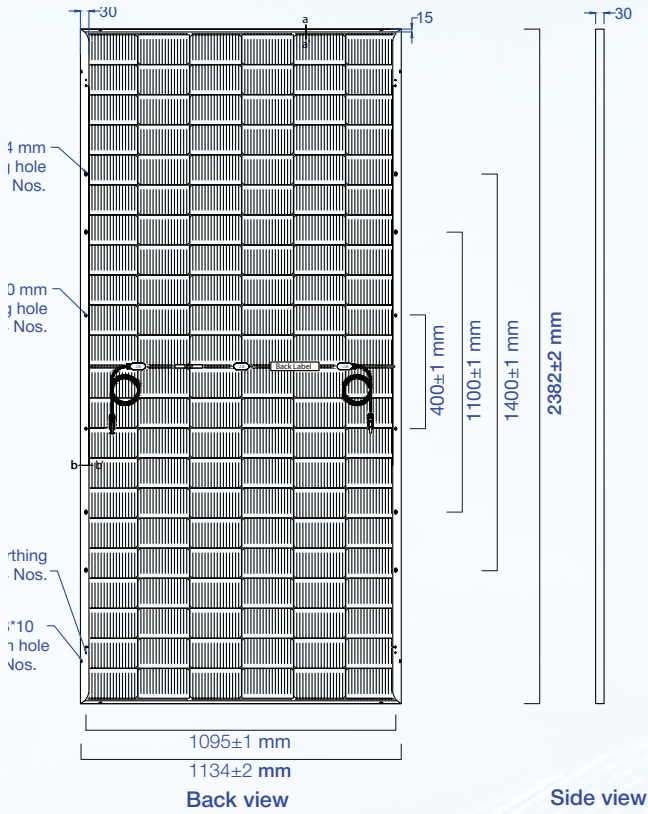
Temperature Coefficient (Voc)	-0.25% / °C
Temperature Coefficient (Isc)	0.045% / °C
Temperature Coefficient (Pmax)	-0.30% / °C

Packing Configuration

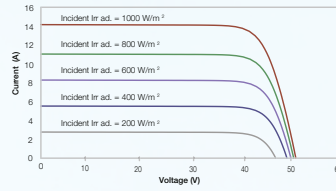
Number of Modules per Pallet	36 N
Number of Pallet	20 N
Number of Module, 40 m HC Container	720 N

##Quantity of modules/container may get changed without prior notice. Confirm with our sales representative before placing order.

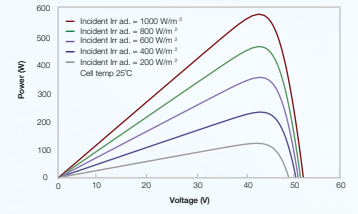
MODULE DRAWING



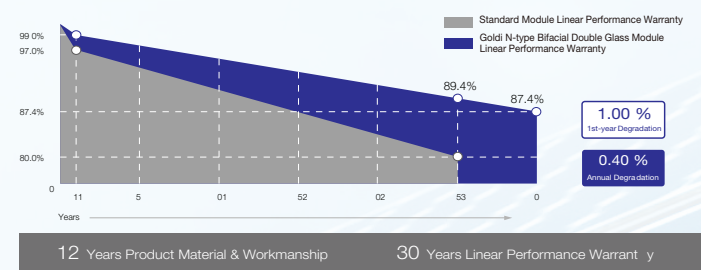
IV CURVE



PV CURVE



LINEAR GRAPH



PRODUCT CERTIFICATIONS

*we have applied for below certification:
 IEC 61215: 2021, IEC 61730: 2021, IS 14286:2010/IEC 61215:2005, IS/IEC 61730-1 & 2: 2004, IEC 61701, IEC 62716, IEC 60068-2-62, IEC CD 61215-2:2018, UL 61730-1 & 2, IEC 62804, CEC



MANAGEMENT SYSTEM CERTIFICATIONS



"Unspecified dimensions tolerance are according to ISO 27 68-1, class m."

UTILITY | INDUSTRIAL | AGRICULTURE | RESIDENTIAL | INSTITUTIONAL

- ##Quantity of modules/container may get changed without prior notice. Confirm with our sales representative before placing order.
- Before placing an order, confirm your requirements with our sales representative
- The electrical data provided here is for reference purposes only
- Dispose of a product as e-waste after the end of its working life
- Due to constant product modifications, Havells reserves the right to amend the above specifications without prior notice
- Images in the datasheet are for representation purpose only
- Manufactured by Goldi Solar Pvt Ltd.
- All BIS & IEC, ALMM are under the name of Goldi Solar.



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