

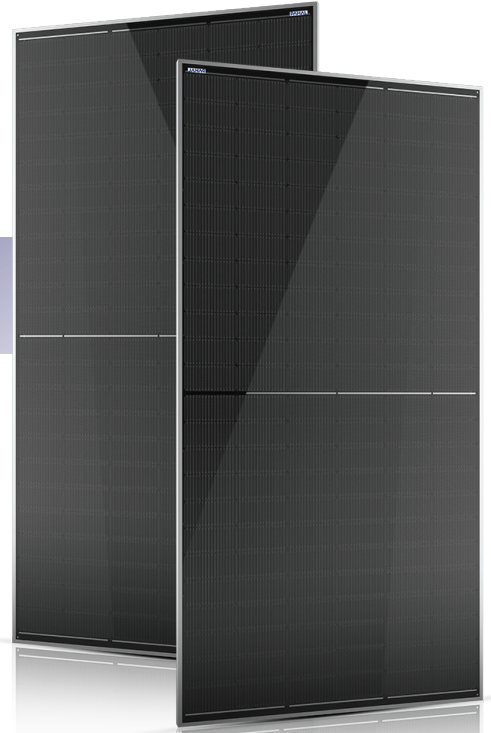
N-TYPE TOPCon

G12R GLASS TO GLASS

605Wp - 650Wp

12 12-year Warranty for Materials and Processing

30 30-year Warranty for Extra Linear Power Output



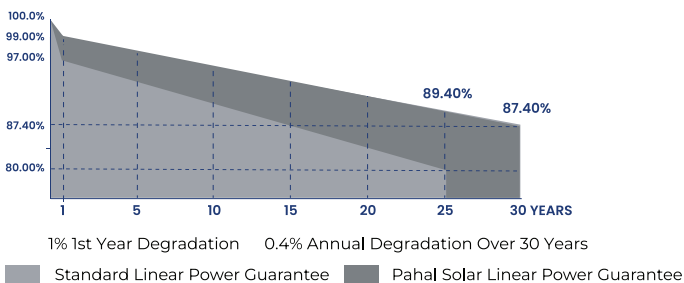
Management System Certificates

- ISO 9001:2015/Quality Management System
- ISO 14001:2015/ Standards for environmental management
- ISO 45001:2018/International standards for occupational health & safety

Product Certificates

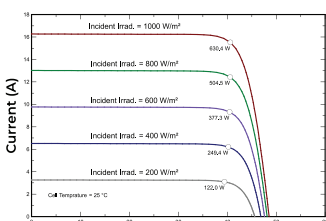
- IS 14286/IEC 61215 - Design Qualifications & Type Approval
- IS/IEC 61730/1 - Requirement for Construction
- IS/IEC 61730/2 - Requirement for Testing

LINEAR PERFORMANCE WARRANTY*

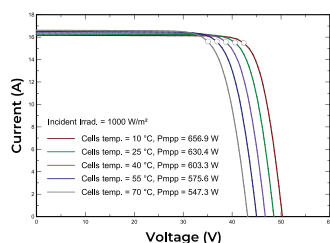


I-V CURVE

IV Curve Variation with Irradiance(630W)



IV Curve Variation with Temperature(630W)



The Graphs Are For Reference Purposes Only



SMBB Technology



IP68 High Quality Junction Box



Better Low Light Performance



Higher Module Efficiency



1500v System Support



PID Resistance



High Salt Mist & Ammonia Resistance.



Pre & Post EI Checking To Ensure Defect Free Modules.



Enhanced Mechanical Load Snow & Wind Loads (5400pa & 2400pa)

N-TYPE TOPCon G12R GLASS TO GLASS

605Wp - 650Wp

ELECTRICAL PARAMETERS*

PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)

(Standard Test Environment: irradiance 1000w/m², Cell Temperature 25°C, Spectrum AM 1.5 Test Condition is Based On The Front Side)
Rating Tolerance at STC (Voc/Isc): ±5%

MODEL NUMBER	PSN_GRC605	PSN_GRC610	PSN_GRC615	PSN_GRC620	PSN_GRC625	PSN_GRC630	PSN_GRC635	PSN_GRC640	PSN_GRC645	PSN_GRC650
Max. Power - Pmax (Wp)	605	610	615	620	625	630	635	640	645	650
+ve Power Tolerance(w)	0~+5	0~+5	0~+5	0~+5	0~+5	0~+5	0~+5	0~+5	0~+5	0~+5
Max Power Voltage-Vmp (V)	40.10	40.24	40.38	40.52	40.66	40.80	40.94	41.08	41.22	41.36
Max. Power Current-Imp (A)	15.10	15.17	15.24	15.31	15.38	15.45	15.52	15.59	15.66	15.73
Open-circuit Voltage-Voc (V)	47.54	47.74	47.94	48.14	48.34	48.54	48.74	48.94	49.14	49.34
Short-circuit Current-Isc (A)	15.98	16.04	16.10	16.16	16.22	16.28	16.34	16.40	16.43	16.52
Module Efficiency STC (%)	22.40	22.58	22.77	22.95	23.14	23.32	23.51	23.69	23.88	24.06
Fill Factor (FF)	79.69	79.70	79.72	79.73	79.74	79.76	79.77	79.78	79.79	79.80

*Power Output Tolerance 0~+3%

PERFORMANCE UNDER NOMINAL OPERATING CELL TEMPERATURE (NOCT)

(Standard Test Environment: Irradiance 800w/m², Ambient Temperature 20°C, Spectrum AM 1.5, Wind Speed 1 m/s Test Condition is Based On The Front Side)
Average power reduction of 4.5% at 200w/m² as per IEC 60904-1. Measuring Uncertainty±3%

MODEL NUMBER	PSN_GRC605	PSN_GRC610	PSN_GRC615	PSN_GRC620	PSN_GRC625	PSN_GRC630	PSN_GRC635	PSN_GRC640	PSN_GRC645	PSN_GRC650
Max. Power - Pmax (Wp)	459	462	4466	470	474	4477	481	485	489	493
Max Power Voltage-Vmp (V)	38.15	38.29	38.42	38.55	38.69	38.82	38.91	39.09	39.22	39.35
Max. Power Current-Imp (A)	12.02	12.07	12.13	12.19	12.24	12.30	12.35	12.41	12.46	12.52
Open-circuit Voltage-Voc (V)	45.23	45.42	45.61	45.80	45.99	46.18	46.37	46.56	46.75	46.94
Short-circuit Current-Isc (A)	12.72	12.77	12.82	12.87	12.91	12.96	13.01	13.06	13.11	13.15
Module Efficiency (%)	16.98	17.12	17.25	17.39	17.53	17.67	17.81	17.96	18.10	18.24
Fill Factor (FF)	79.69	79.70	79.72	79.73	79.74	79.76	79.77	79.78	79.79	79.80

BI-FACIAL: Pmax WITH REAR SIDE POWER GAIN*

Additional power gain from rear side compared to power of front side at STC depend on mounting structure (height, tilt angle, etc) and reflectivity of ground.
The Bifacial Gains Are Dependent On The Power Plant Design And Location

	MODEL NUMBER	PSN_GRC605	PSN_GRC610	PSN_GRC615	PSN_GRC620	PSN_GRC625	PSN_GRC630	PSN_GRC635	PSN_GRC640	PSN_GRC645	PSN_GRC650
5%	Power Output (W)	635	641	646	651	656	662	667	672	677	683
	Module Efficiency (%)	23.52	23.71	23.91	24.10	24.29	24.49	24.68	24.88	25.07	25.27
10%	Power Output (W)	666	671	677	682	688	693	699	704	710	715
	Module Efficiency (%)	24.64	24.84	25.04	25.25	25.45	25.66	25.86	26.06	26.27	26.47
15%	Power Output (W)	696	702	707	713	719	725	730	736	742	748
	Module Efficiency (%)	25.76	25.97	26.18	26.40	26.61	26.82	27.03	27.25	27.46	27.67
20%	Power Output (W)	726	732	738	744	750	756	762	768	774	780
	Module Efficiency (%)	26.88	27.10	27.32	27.54	27.77	27.99	28.21	28.43	28.65	28.88
25%	Power Output (W)	756	763	769	775	781	788	794	800	806	813
	Module Efficiency (%)	28.00	28.23	28.46	28.69	28.92	29.15	29.39	29.62	29.85	30.08
30%	Power Output (W)	787	793	800	806	813	819	826	832	839	845
	Module Efficiency (%)	29.12	29.36	29.60	29.84	30.08	30.32	30.56	30.80	31.04	31.28

[Bi-Faciality factor: 80% ± 10%]

MECHANICAL SPECIFICATIONS

Matrix/No. of Cells	2* (11*6)/132 Half-Cut Cells
Cell Type	N-type Topcon Bifacial Solar Cell
Module Size (LXWXH) mm	2382 X 1134 X 40
Module Weight (KG)	34.6Kg±3%
Frame	Anodized Aluminium Alloy (6005, Temper T6, Silver Colour)
Front Glass (Material / Thickness)	2 mm Low Iron HTAR/AR semi-tempered glass
Back Glass (Material / Thickness)	2 mm Low Iron Printed semi-tempered glass(white coating)
Encapsulant	EPE(PID free and UV Resistant)
Junction Box/Connector	Split JB - IP68 (3 bypass diodes) , MC4 Compatible
Cables	400mm length including connectors(4 mm ²)
Application Class Rating	Class A (Safety class II)
Fire safety class	Class C (IEC 61730)
Mechanical Load Test	5400 Pa (Front) / 2400 Pa (Back)
X-Pitch (mm)	1092mm
Y-Pitch (mm)	A) 400 (B)790 (C)1100 (D)1400

TEMPERATURE CO-EFFICIENTS

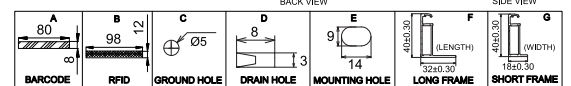
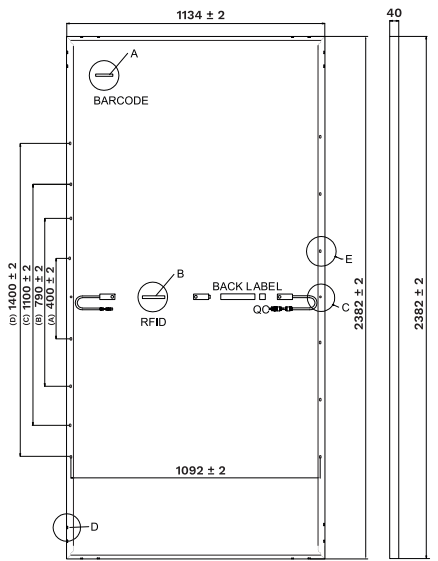
Temperature Coefficients of Pmax (γ _{Pmp})	-0.2925%/°C
Temperature Coefficients of Voc (β _{Voc})	-0.2492%/°C
Temperature Coefficients of Isc (α _{Isc})	0.0450%/°C

OPERATING CONDITIONS

Operating Temperature (°C)	-40 °C to +85 °C
Max. System Voltage (V)	1500 VDC
Max. Series Fuse Rating (A)	30/35 A
NOCT Temperature (°C)	45 ± 2 °C

PACKING STANDARD

FRAME SIZE	40mm
Vehicle	22ft 40ft
No. of Modules	250 550
No. of Pallets	10 22
Module per Pallet / Weight	25/920



*All Dimensions Are In mm

Caution: Please read safety and installation instructions before using the product. The electrical data given here is for reference purpose only. *Warranty: Linear performance warranty for 30 years, with degradation up to 1% in 1st year and 0.4 %/year from year 2 to year 30. Please read Pahal Solar warranty documents thoroughly. Disclaimer: Specifications included in the datasheet are subject to change without prior notice owing to continuous innovation in the Product Development and R&D Activities. PAHAL SOLAR PVT. LTD. reserves the right to make any adjustments to the information described here. Datasheet contained in this specification do not form a representative of a single module data. @T&C Apply.