



CALS Renewable Energy India Private Limited.

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Products

PV Modules

Our solar modules are engineered with precision using advanced European technology, ensuring efficiency, reliability, and compliance with top international standards. Featuring advanced half-cut, multi-busbar technology, and bifacial capabilities, our modules deliver excellence.

BIPV Modules

We transform urban energy solutions with vibrant, custom-colored solar panels that seamlessly blend into architecture or stand out as bold design elements. By fusing beauty and efficiency, we create power-generating masterpieces that inspire broader adoption of solar technology for a greener future.

BESS

We specialize in advanced lithium-ion and sodium-ion battery packs and scalable Battery Energy Storage System (BESS) solutions, efficiently storing and managing energy from renewable sources such as solar and wind. From residential, commercial, and industrial storage to large-scale utility applications, our innovative, safe, and cost-effective solutions optimize grid performance and promote sustainable energy generation.

Advanced Manufacturing Capabilities

Navgrun's state-of-the-art manufacturing facility features a 100% automated European production line, ensuring precision, efficiency, and consistency in producing high-quality solar PV modules and energy storage solutions. Our SAP-integrated operations and AI-driven production analytics optimize manufacturing workflows, while advanced digital quality tools uphold the highest standards of reliability and performance. With cutting-edge technology and a strong focus on sustainability, we invest in innovation in renewable energy.

Current Production

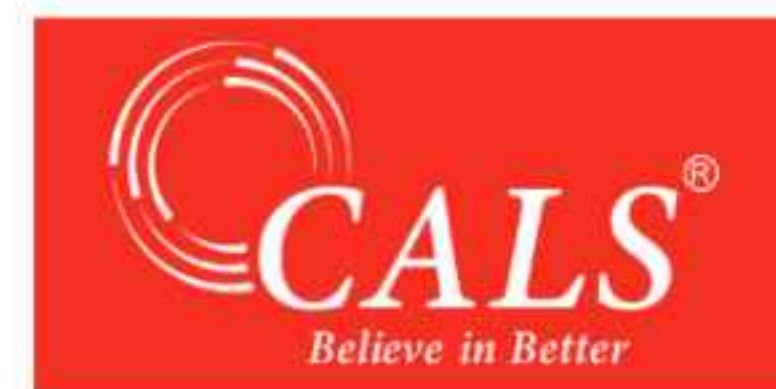
- Solar PV Module Plant: 700 MW
- PERC/ TOPCON
- Customised BIPV

Expansion Plans

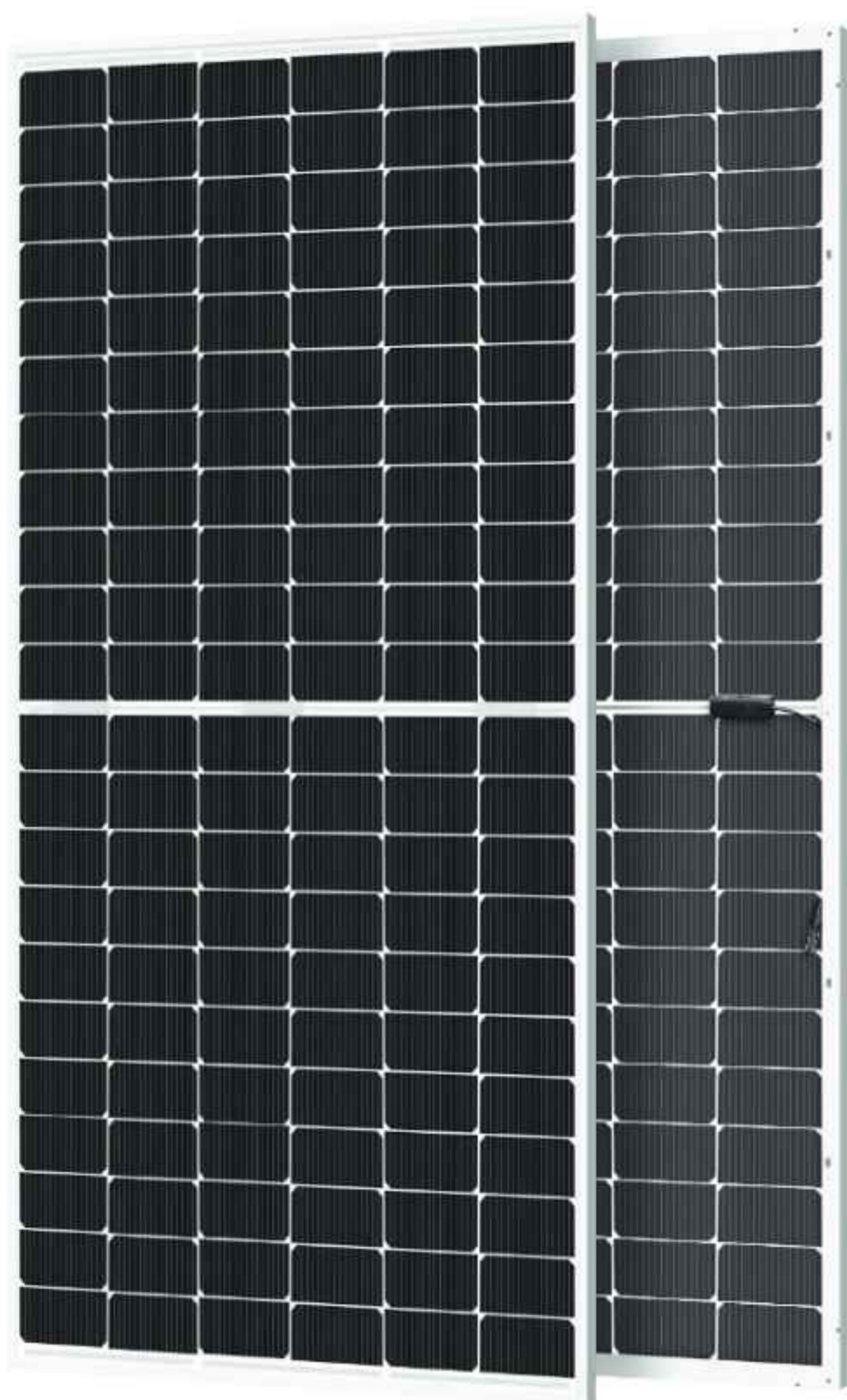
- 4 GWH BESS (Lithium/ Sodium Ion)
- Solar PV Modules: 1.3 GW



MBB TOPCON N-Type G12R Half Cut Cell



CAL600B, 620 - 635/1500 V Series
Bi-Facial Glass-Glass



POWER

- Module power from **620 W to 635 W**
- Comprehensive LID/Le TID mitigation technology, up to 50% lower degradation
- Cost effective product for utility power plant
- Less shading effect

RELIABILITY

- Heavy snow load up to 5400 Pa
Heavy load up to 2400 Pa
- Low temperature coefficient



LINEAR PERFORMANCE WARRANTY



PRODUCT WARRANTY

ALMM & BIS Approved

Advanced Technology Features

	Cylindrical Tabbing Wire Tabbing Wire reduces the shadow on active cells and increases the PV module's generation efficiency.		Higher Power Output Enhanced module output 5-25% generally, bringing significantly lower LCOE and higher IRR.		Field Reliability Improved due to multi-contacts in the cell, reducing cell stress.
	Minimal Power Loss Optimized through low Internal Resistance.		Industry Leading 25 years linear performance warranty.		PID Resistance Excellent Anti-PID performance guarantee via optimised mass-production process and materials control.
	Bypass Diodes Within split JB enable PV module to perform in partial shadow conditions.		Strong Quality Check and Quality Assurance with Pre and Post EL tests.		

Certifications

IEC 61215 2021, 61730 1-2 2016, 61701 (Sev 6 ed. 3), 62716	CE Certified
IEC 60068	LeTID
IEC TS 62804-1	UL 61730 2022
IEC 61853-1 & 2	
BIS IS 14286:2023, IS 61730-1:2016, IS 61730-2:2016	

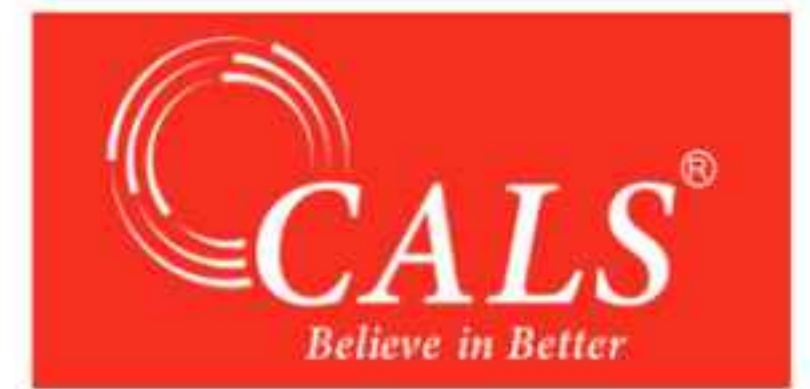


*Certification in process

TECHNICAL DATA

MBB TOPCON N-Type G12R Halfcut-cell

CAL600B, 620 - 635/1500 V Series | Bi-Facial Glass-Glass



Electrical Parameters at STC

Model	Series CAL-N16-132HG 620-635				
Module Type	UoM	CAL-N16-132HG 620	CAL-N16-132HG 625	CAL-N16-132HG 630	CAL-N16-132HG 635
Maximum Power (Pmax)	Wp	620	625	630	635
Maximum Voltage (Vmpp)	V	40.82	40.95	41.05	41.18
Maximum Current (Impp)	A	15.19	15.27	15.35	15.42
Open Circuit Voltage (Voc)	V	49.14	49.30	49.43	49.56
Short Circuit Current (Isc)	A	16.04	16.11	16.19	16.26
Module Efficiency	%	22.95	23.14	23.32	23.51

STC: Irradiance 1000 W/m², module temperature 25°C, air mass 1.5 g, spectrum according to EN 60904-3. Power measurement tolerance is -0 to ±5Wp. Voc and Isc tolerance ±3%. Maximum system voltage 1500 V, Maximum Fuse Rating 25A.

Electrical Parameters at NOCT

Model	Series CAL-N16-132HG 620-635				
Module Type	UoM	CAL-N16-132HG 620	CAL-N16-132HG 625	CAL-N16-132HG 630	CAL-N16-132HG 635
Maximum Power (Pmax)	Wp	470.15	474	477.80	481.50
Maximum Voltage (Vmpp)	V	38.69	38.81	38.91	39.03
Maximum Current (Impp)	A	12.15	12.21	12.28	12.34
Open Circuit Voltage (Voc)	V	46.93	47.08	47.21	47.33
Short Circuit Current (Isc)	A	12.93	12.99	13.05	13.11
Module Efficiency	%	17.41	17.55	17.69	17.83

NOCT: Irradiance 800 W/m², ambient temperature 20°C, wind speed 1m/s, tolerance ±3%.

Gain	Series CAL-N16-132HG 620-635			
	CAL-N16-132HG 620	CAL-N16-132HG 625	CAL-N16-132HG 630	CAL-N16-132HG 635
10%	682	687.5	693	698.5
20%	744	750	756	762
30%	806	812.5	819	825.5

Bifacial gains depend on the power plant design and albedo of the installation site. Power Bifaciality + Pmax(Rear)/Pmax(Front) are tested under STC.

Mechanical Data

Length x Width x Height	2382 x 1134 x 30/35 mm
Weight	32.5 kgs
Junction Box	IP68, 3 Split Junction Box with Individual Bypass Diodes
Output Cable	Length: 500 mm / As Per Customer Requirement, Dia: 4 mm ²
Connector	MC4 Compatible
Application Class	Class A (Safety Class II)
Glass Front/Rear	Semi-tempered - High Transmittance Glass 2 mm / High Transmittance Glass 2 mm
Solar PV Cells	132 Cells G12R N-Type TOPCon Bifacial
Cell Encapsulant	EVA/ EPE/ POE, UV Resistant & PID-free
Frame	Anodised (>15 μ) Aluminium Frame, Silver
Mechanical Load Test	5400 Pa (Snow Load), 2400 Pa (Wind Load)
Fire Performance	Type 4 (UL 61730) or Class C (IEC 61730)
Country of Origin	India

Operating Conditions

Temperature Coefficient Voc, β	-0.27%/°C
Temperature Coefficient Isc, α	0.04%/°C
Temperature Coefficient Pmax, γ	-0.30%/°C
NOCT	42°C±3°C
Temperature range	-40°C to 85°C

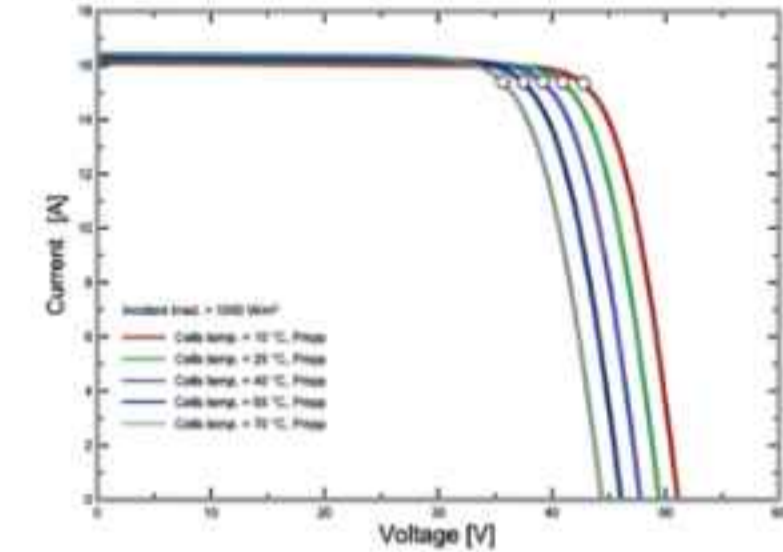
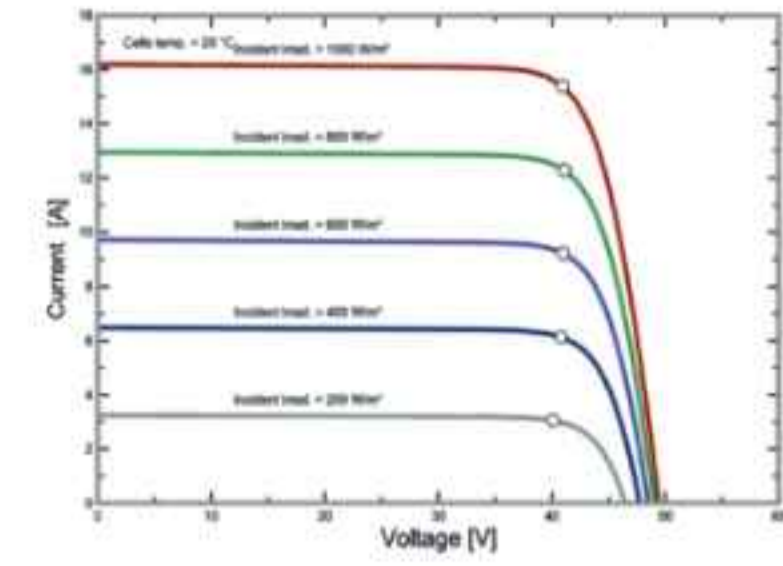
- 30-Year Linear Performance Warranty
- 12-Year Product Warranty

- <1.0% degradation for 1st year
- 0.40% from 2nd year onward to 30th year

Note: The specifications in this data sheet may deviate slightly from our actual products due to the ongoing innovation and product enhancement. We reserve the right to make necessary adjustments to the information described herein at any time without further notice.

Typical I-V Curves

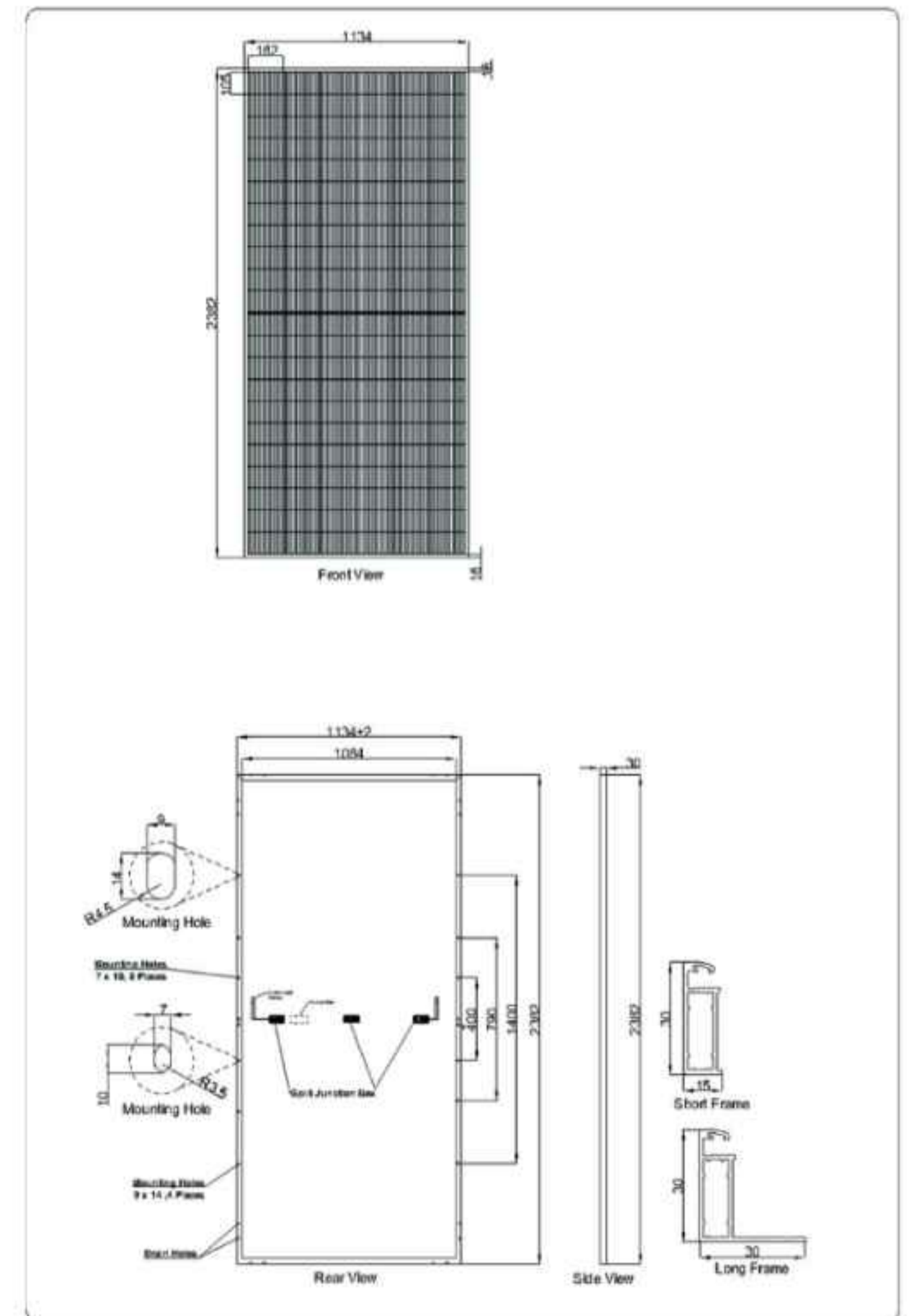
Cell Temperature 25°C



Packaging Information

Container	20'GP	32'HQ	40'HQ
Quantity per Pallet	36	36	36
Pallet/Container	8	16	20
Quantity/Container	288	576	720

Mechanical Diagrams



Remark: Customized frame colour and length available upon request

***WARRANTY: Please refer the Warranty Card.**

***CAUTION: Please read safety and installation instructions before using the product.**

Contact Us

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