GSE-S132/M12N-BG

660-690W

210 mm Half Cell, 132 cells

TOPCon Bifacial Solar Module

Status: 02/2025

22.2%	690W	15 YEARS	30 YEARS
Module Efficiency	Highest Power Output	Product Warranty	Linear Power Warranty

1.00% First year power degradation **0.40%** Annual degradation

PRODUCT ADVANTAGES

High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance Of System) cost, shorter payback time
- Designed for compatibility with existing mainstream system components
- Lower guaranteed first year and annual degradation
- Higher return on Investment

High power up to 690W

- Large area cells based on 210 mm silicon wafers and half-cut cell technology
- Up to 22.2% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection

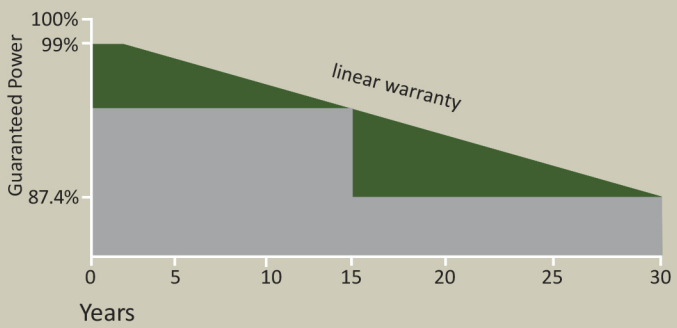
High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load

High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions

PERFORMANCE WARRANTY



Certifications of Product and Manufacturer

GSE-S132/M12N-BG

ELECTRICAL DATA (STC)

Peak Power Watts-PMAX (Wp)*	660	665	670	675	680	685	690
Maximum Power Voltage-VMP (V)	38.6	38.8	39.0	39.2	39.4	39.6	39.8
Maximum Power Current-IMP (A)	17.10	17.14	17.18	17.22	17.26	17.30	17.34
Open Circuit Voltage-VOC (V)	46.3	46.5	46.7	46.9	47.1	47.3	47.5
Short Circuit Current-ISC (A)	18.04	18.10	18.16	18.22	18.28	18.33	18.39
Module Efficiency ηm (%)	21.2	21.4	21.6	21.7	21.9	22.1	22.2
Power Tolerance-PMAX (W)	0~+5						

STC: Irradiance 1000W/m², moudule temperature 25°C, AM=1.5; *Measuring tolerance: ±3%

ELECTRICAL DATA (BNPI)

Peak Power-PMAX (Wp)*	705	710	715	720	725	730	735
Maximum Power Voltage-VMP (V)	38.6	38.8	39.0	39.2	39.4	39.6	39.8
Maximum Power Current-IMP (A)	18.26	18.30	18.33	18.37	18.40	18.43	18.47
Open Circuit Voltage-VOC (V)	46.3	46.5	46.7	46.9	47.1	47.3	47.5
Short Circuit Current-ISC (A)	19.27	19.33	19.38	19.43	19.48	19.54	19.59

BNPI: Irradiance 1000W/m², module temperature 25°C

ELECTRICAL DATA (NMOT)

Maximum Power-PMAX (Wp)*	500	504	508	512	516	520	524
Maximum Power Voltage-VMP (V)	36.0	36.2	36.4	36.6	36.8	37.0	37.2
Maximum Power Current-IMP (A)	13.89	13.93	13.96	13.99	14.03	14.06	14.09
Open Circuit Voltage-VOC (V)	43.6	43.8	44.0	44.2	44.4	44.6	44.8
Short Circuit Current-ISC (A)	14.52	14.56	14.61	14.66	14.71	14.76	14.81

NMOT: Irradiance 800W/m², module temperature 20°C, AM=1.5, wind speed 1m/s

MECHANICAL DATA

Solar Cells	N-Type TOPCon Monocrystalline Silicon
Cell Orientation	132pcs
Module Dimensions	2384x1303x30 mm
Weight	38.7 kg
Front Glass	2.0 mm, High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA
Back Glass	2.0 mm, Heat Strengthened Glass (White Grid Glass)
Frame	30mm Anodized Aluminium Alloy
Junction Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm² Cable length 350 mm or customized length

*Please refer to regional datasheet for specied connector.

TEMPERATURE RATINGS

NMOT (Nominal Module Operating Temperature)	42°C (±2°C)
Temperature Coefficient of PMAX	-0.29%/°C
Temperature Coefficient of VOC	-0.25%/°C
Temperature Coefficient of ISC	+0.046%/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

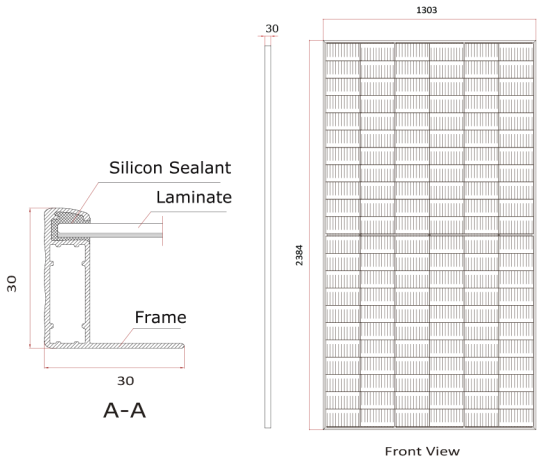
MAXIMUM RATINGS

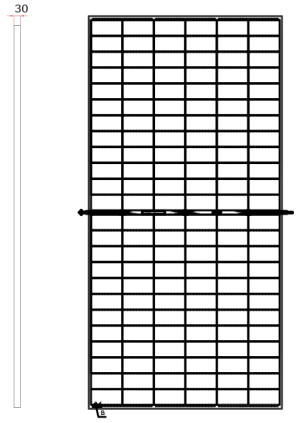
Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	35A

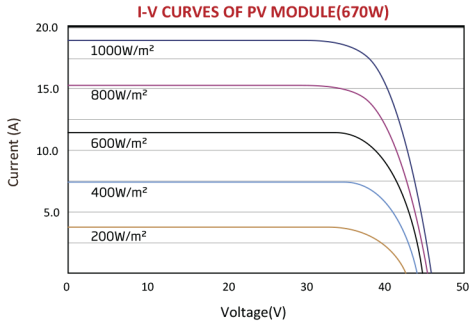
PACKAGING CONFIGURATION

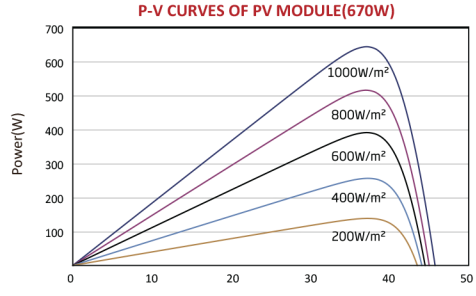
Modules per box	36 pieces
Modules per 40'container	648 pieces

DIMENSIONS OF PV MODULE (mm)









COMPANY PROFILE

Changzhou Greensun energy Co.,Ltd. is a high-tech manufacturing enterprise located in China, specializing in production of 200-800w photovoltaic modules with 1 GW production capacity in 2025. With over 15 years of development, we have built two factory bases and one Europe warehouse. Moreover, we work closely with top brands, including Trina, Longi, Aiko,JA etc domestically and internationally. Changzhou Greensun is endeavored to offer one-stop solar solution to meet the different demand of our customers.