

650-670Watt 132cells 210 P- Type Mono-facial Module

Positive power tolerance of 0~+3%

IEC61215(2016), IEC61730(2016)

ISO9001:2015: Quality Management System

ISO14001:2015: Environment Management System

ISO45001:2018
Occupational Health and Safety Management Systems



Key Features



MBB Technology

Better light trapping and current collection to improve module power output and reliability.



Hot 2.0 Technology

The P-type module with Hot 2.0 technology has better reliability and lower LID/LETID.



PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.



Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

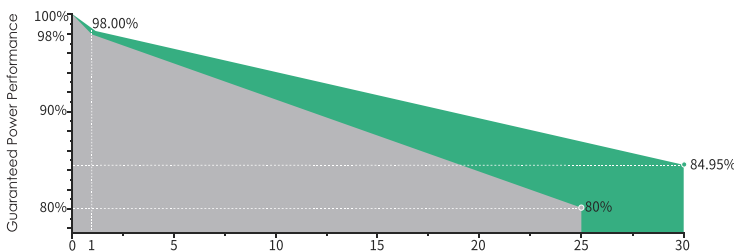


Durability Against Extreme Environmental Conditions

High salt mist and ammonia resistance.



LINEAR PERFORMANCE WARRANTY



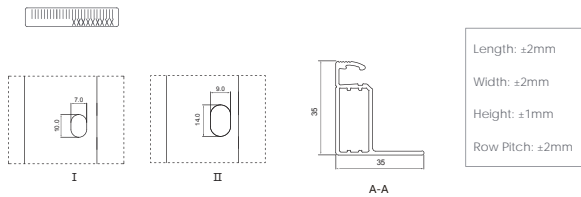
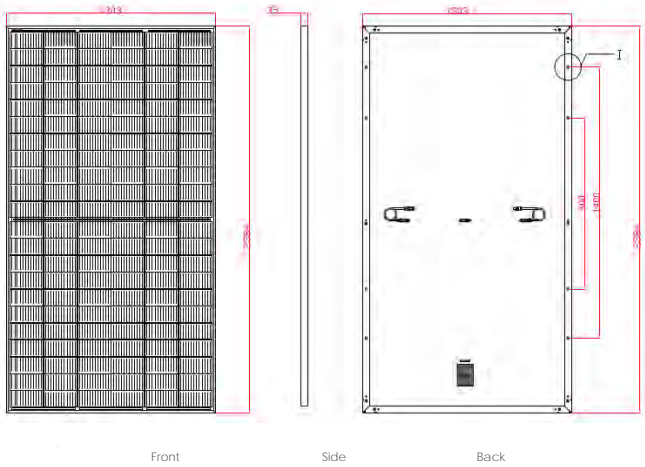
12 Year Product Warranty

30 Year Linear Power Warranty

0.45% Annual Degradation Over 30 years



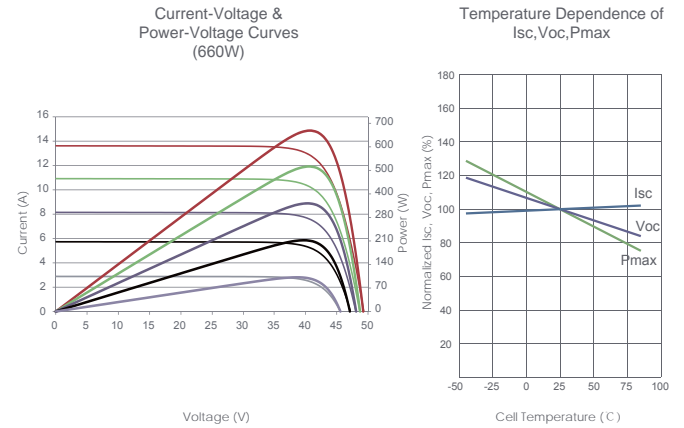
Engineering Drawings



Packaging Configuration

31 pcs/pallets, 62 pcs/stack, 558 pcs/ 40'HQ Container

Electrical Performance & Temperature Dependence



Mechanical Characteristics

Cell Type	210 p type Mono-crystalline
No. of cells	132(6*22)
Dimensions	2384 x 1303x 35 mm
Weight	33.5kg
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm ² (+): 300mm, (-): 300mm or Customized Length

SPECIFICATIONS

Module Type	GPM12-650W(132)		GPM12-655W(132)		GPM12-660W(132)		GPM12-665W(132)		GPM12-670W(132)	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	650Wp	492.07Wp	655Wp	495.85Wp	660Wp	499.64Wp	665Wp	503.42Wp	670Wp	507.21Wp
Maximum Power Voltage (Vmp)	45.50V	41.79V	45.70V	42.03V	45.90V	42.26V	46.10V	42.50V	46.32V	42.74V
Maximum Power Current (Imp)	18.45A	15.11A	18.50A	15.15A	18.55A	15.17A	18.60A	15.21A	18.65A	15.23A
Open-circuit Voltage (Voc)	37.88V	34.24V	38.06V	34.43V	38.24V	34.63V	38.42V	34.82V	38.59V	25.02V
Short-circuit Current (Isc)	17.16A	14.37A	17.21A	14.40A	17.26A	14.42A	17.31A	14.46A	17.36A	14.48A
Module Efficiency STC (%)	20.90%		21.10%		21.29%		21.48%		21.69%	
Operating Temperature(°C)	-40°C~+85°C									
Maximum system voltage	1000/1500VDC (IEC)									
Maximum series fuse rating	25A									
Power tolerance	0~+3%									
Temperature coefficients of Pmax	-0.35%/°C									
Temperature coefficients of Voc	-0.28%/°C									
Temperature coefficients of Isc	0.048%/°C									
Nominal operating cell temperature (NOCT)	45±2°C									

*STC: Irradiance 1000W/m² Cell Temperature 25°C AM=1.5
 NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s

Note: Due to continuous technical innovation and R&D, the above mentioned technical parameters may subject to modification accordingly. **G&P SUN ENERGY** reserves the right to make such modification at any time without further notice.