








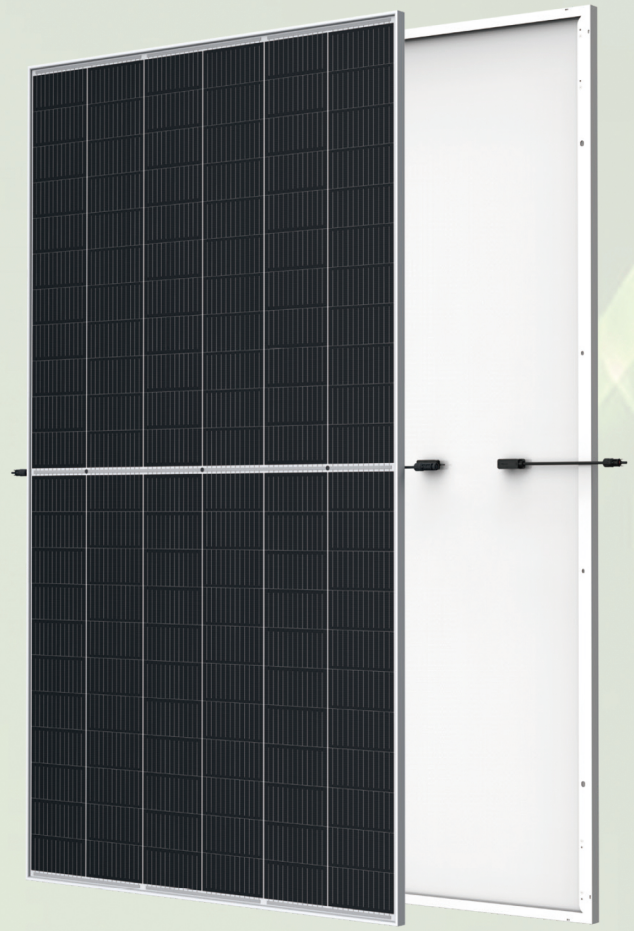




## ■ P-Type Solar Module

### KEY FEATURES

-  Excellent performance in low-light environments
-  High quality junction box and connector systems
-  100% inspection, to guarantee the reliability of solar systems
-  Lower temperature
-  Anti PID
-  Enhanced safety by excellent fire resistance
-  Perfect for sandy, snowy and high latitude regions
-  Lower operating temperature, more reliable
-  Cutcell, Less internal power loss, Less mismatch loss



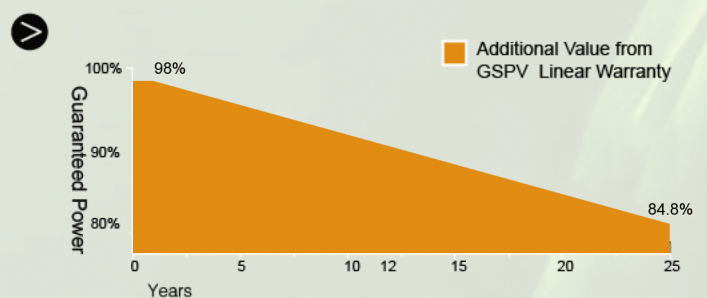
## GSPV-M12/132H-650W~670W 650~670Watt

➤ 210mm 132 Cells PV Solar Module

**BLACK** \*BLACK FRAME/BLACK BACK-SHEET PRODUCTS ARE AVAILABLE UPON REQUEST

➤

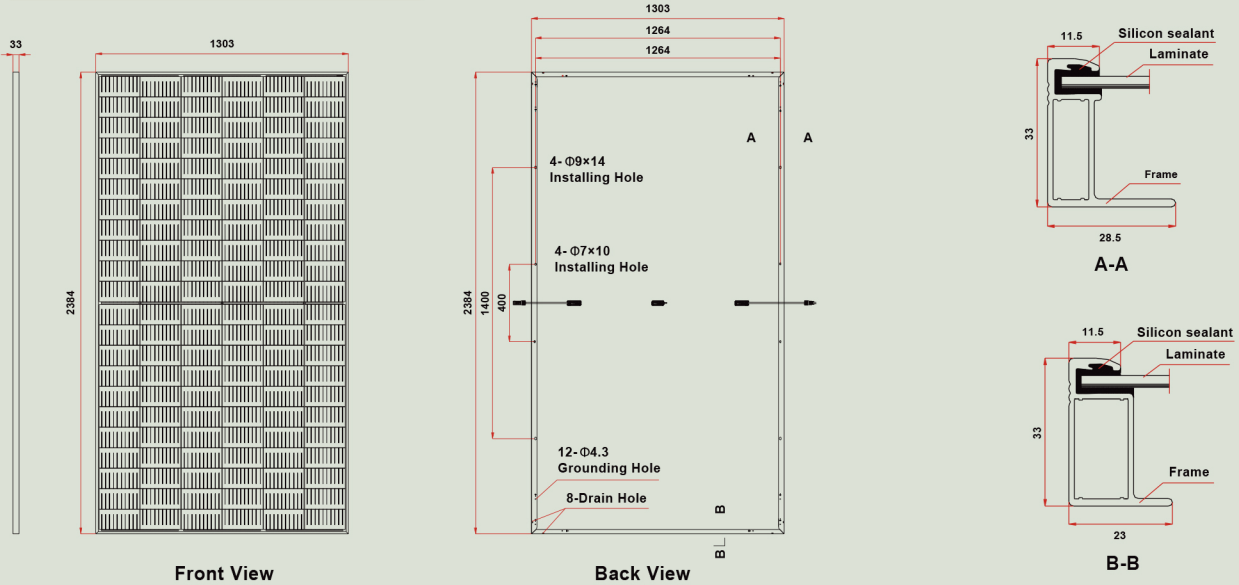
<b>12</b> years	<b>25</b> years	<b>0.55%</b>	
Product Warranty	Linear Power Warranty	Annual Degradation over 25 years	



IEC61215  
IEC61730  
UL61215  
UL61730



## DIMENSIONS OF PV MODULE(mm)



## ELECTRICAL DATA (STC)

Peak Power Watts-P <sub>MAX</sub> (Wp)*	650	655	660	665	670
Power Tolerance-P <sub>MAX</sub> (W)	0 ~ +5				
Maximum Power Voltage-V <sub>MPP</sub> (V)	37.4	37.6	37.8	38.0	38.2
Maximum Power Current-I <sub>MPP</sub> (A)	17.39	17.43	17.47	17.51	17.55
Open Circuit Voltage-V <sub>OC</sub> (V)	45.3	45.5	45.7	45.9	46.1
Short Circuit Current-I <sub>SC</sub> (A)	18.44	18.48	18.53	18.57	18.62
Module Efficiency η <sub>m</sub> (%)	20.9	21.1	21.2	21.4	21.6

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. \*Measuring tolerance: ±3%

## MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 inches)
Weight	33.3 kg (73.4 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA
Backsheet	White
Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4*

\*Please refer to regional datasheet for specified connector.

## ELECTRICAL DATA (NOCT)

Maximum Power-P <sub>MAX</sub> (Wp)	492	496	500	504	508
Maximum Power Voltage-V <sub>MPP</sub> (V)	34.9	35.1	35.3	35.4	35.6
Maximum Power Current-I <sub>MPP</sub> (A)	14.09	14.13	14.17	14.22	14.26
Open Circuit Voltage-V <sub>OC</sub> (V)	42.7	42.9	43.0	43.2	43.4
Short Circuit Current-I <sub>SC</sub> (A)	14.86	14.89	14.93	14.96	15.01

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

## TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P <sub>MAX</sub>	-0.34%/°C
Temperature Coefficient of V <sub>OC</sub>	-0.25%/°C
Temperature Coefficient of I <sub>SC</sub>	0.04%/°C

## MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
	1500V DC (UL)
Max Series Fuse Rating	30A

## WARRANTY

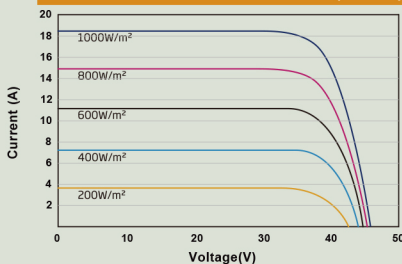
12 year Product Workmanship Warranty
25 year Power Warranty
2% first year degradation
0.55% Annual Power Attenuation

(Please refer to product warranty for details)

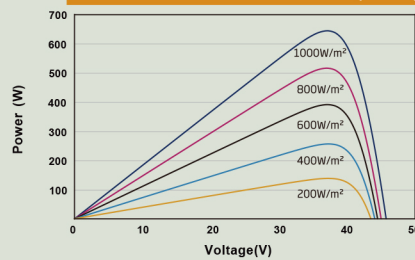
## PACKAGING

Modules per box: 33 pieces
Modules per 40' container: 594 pieces

## I-V CURVES OF PV MODULE(655 W)



## P-V CURVES OF PV MODULE(655W)



## I-V CURVES OF PV MODULE(655 W)

