



■ 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



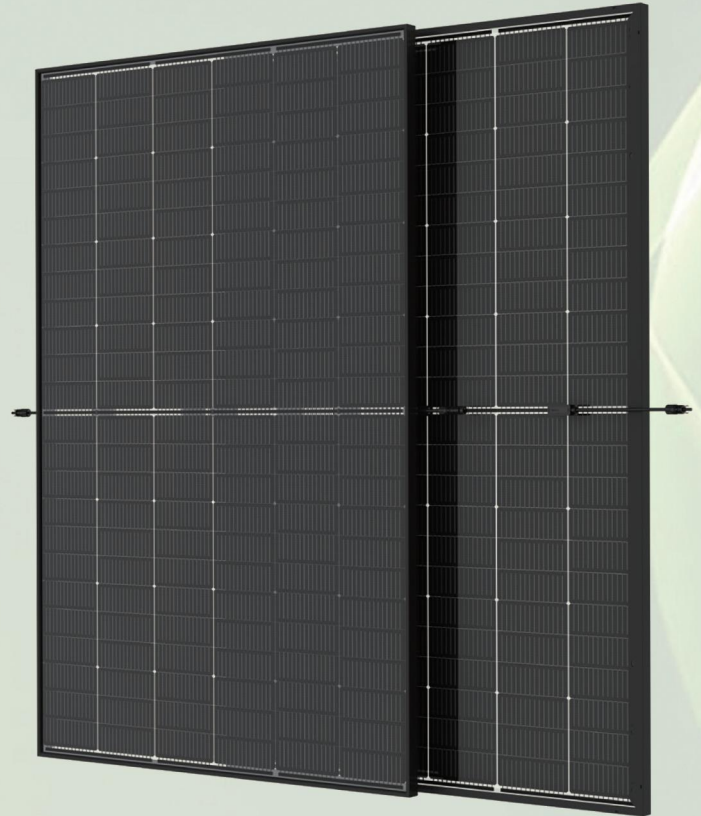
Perfect for sandy, snowy and high latitude regions



Lower operating temperature, more reliable



Cutcell, Less internal power loss, Less mismatch loss



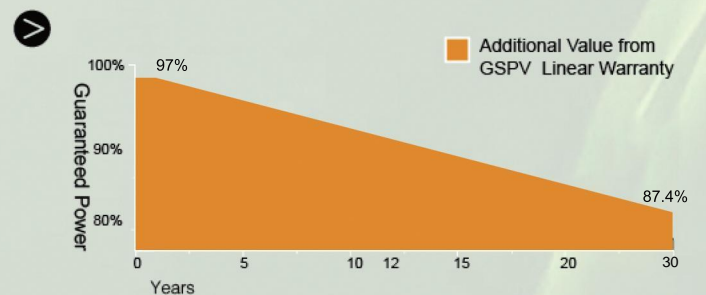
GSPV-M12/144H-415W-445W 415~445Watt

➤ 210mm 144 Cells Bifacial Double Glass PV Solar Module

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

➤

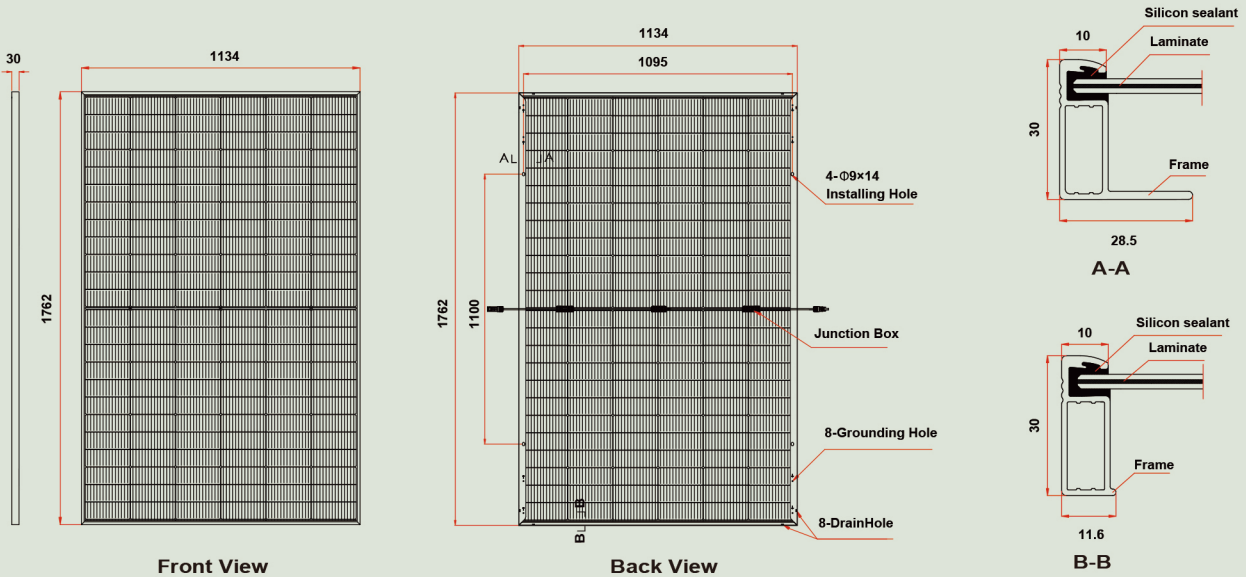
15 Years Product Workmanship Warranty	30 Years Power Warranty	0.40 % Annual Power Attenuation	CPIC Standard
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IEC61215
IEC61730
UL61215
UL61730



DIMENSIONS OF PV MODULE(mm)



ELECTRICAL DATA (STC)

Peak Power Watts-P _{MAX} (Wp)*	415	420	425	430	435	440	445
Power Tolerance-P _{MAX} (W)	0 ~ +5						
Maximum Power Voltage-V _{MPP} (V)	42.1	42.5	42.9	43.2	43.6	44.0	44.3
Maximum Power Current-I _{MPP} (A)	9.86	9.89	9.92	9.96	9.99	10.01	10.05
Open Circuit Voltage-V _{OC} (V)	50.1	50.5	50.9	51.4	51.8	52.2	52.6
Short Circuit Current-I _{SC} (A)	10.50	10.53	10.56	10.59	10.64	10.67	10.71
Module Efficiency η _m (%)	20.8	21.0	21.3	21.5	21.8	22.0	22.3

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%.

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	144 cells
Module Dimensions	1762×1134×30 mm (69.06×43.15×1.18 inches)
Weight	21.0 kg (46.30 lb)
Front Glass	1.6 mm (0.06 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Back Glass	1.6 mm (0.06 inches), Heat Strengthened Glass (White Grid Glass)
Frame	30mm(1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 Plus/ TS4*

*Please refer to regional datasheet for specified connector.

Electrical characteristics with different power bin(reference to 10% Irradiance ratio)

Total Equivalent power-P _{MAX} (Wp)	457	462	468	473	479	484	490
Maximum Power Voltage-V _{MPP} (V)	42.1	42.5	42.9	43.2	43.6	44.0	44.3
Maximum Power Current-I _{MPP} (A)	10.85	10.88	10.91	10.96	10.99	11.01	11.06
Open Circuit Voltage-V _{OC} (V)	50.1	50.5	50.9	51.4	51.8	52.2	52.6
Short Circuit Current-I _{SC} (A)	11.55	11.58	11.62	11.65	11.70	11.74	11.78
Irradiance ratio (rear/front)	10%						

Power Bifaciality:70±5%.

ELECTRICAL DATA (NOCT)

Maximum Power-P _{MAX} (Wp)	317	321	325	328	332	336	338
Maximum Power Voltage-V _{MPP} (V)	39.3	39.7	40.0	40.4	40.7	41.0	41.3
Maximum Power Current-I _{MPP} (A)	8.03	8.07	8.09	8.11	8.15	8.17	8.02
Open Circuit Voltage-V _{OC} (V)	47.6	47.9	48.3	48.8	49.2	49.5	49.9
Short Circuit Current-I _{SC} (A)	8.46	8.49	8.51	8.53	8.57	8.60	8.63

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P _{MAX}	- 0.30%/°C
Temperature Coefficient of V _{OC}	- 0.24%/°C
Temperature Coefficient of I _{SC}	0.04%/°C

MAXIMUM RATINGS

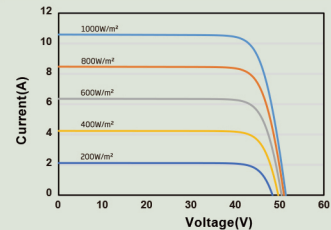
Operational Temperature	-40→+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	25A

WARRANTY

15 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.4% Annual Power Attenuation

(Please refer to product warranty for details)

I-V CURVES OF PV MODULE(430W)



P-V CURVES OF PV MODULE(430W)

