

Three Phase Hybrid Inverter

SUN-60/70/75/80K-SG02HP3-EU-EM6



- 100** 100% unbalanced output
-  AC couple to retrofit existing solar system
- 10** Max. 10 pcs parallel for on-grid and off-grid operation; Support multiple batteries parallel
- 160** Max. charging/discharging current of 160A
- H** High voltage battery, higher efficiency
- 6** 6 time periods for battery charging/discharging
-  Support storing energy from diesel generator

Deye

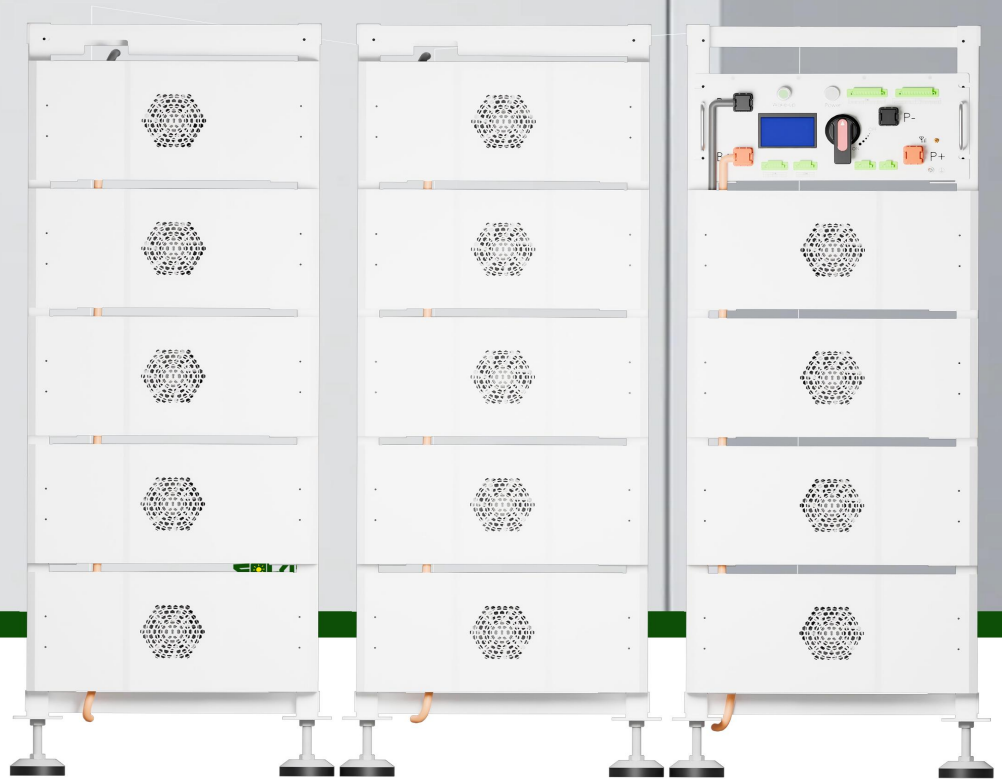
Stock Code: 605117.SH

Model	SUN-60K-SG02HP3 -EU-EM6	SUN-70K-SG02HP3 -EU-EM6	SUN-75K-SG02HP3 -EU-EM6	SUN-80K-SG02HP3 -EU-EM6
Battery Input Data				
Battery Type	Lithium-ion			
Battery Voltage Range (V)	160-1000			
Max. Charging Current (A)	80+80			
Max. Discharging Current (A)	80+80			
Charging Strategy for Li-ion Battery	Self-adaption to BMS			
Number of Battery Input	2			
PV String Input Data				
Max. PV Access Power (W)	120000	140000	150000	160000
Max. PV Input Power (W)	96000	112000	120000	128000
Max. PV Input Voltage (V)	1000			
Start-up Voltage (V)	180			
MPPT Voltage Range (V)	150-850			
Rated PV Input Voltage (V)	650			
Max. Operating PV Input Current (A)	36+36+36+36+36+36			
Max. Input Short-Circuit Current (A)	54+54+54+54+54+54			
No. of MPP Trackers/ No. of Strings MPP Tracker	6/2+2+2+2+2+2			
AC Input/Output Data				
Rated AC Input/Output Active Power (W)	60000	70000	75000	80000
Max. AC Input/Output Apparent Power (VA)	66000	77000	82500	88000
Rated AC Input/Output Current (A)	91/87	106.1/101.5	113.7/108.7	121.3/115.9
Max. AC Input/Output Current (A)	100/95.7	116.7/111.6	125/119.6	133.4/127.6
Max. Continuous AC Passthrough (grid to load) (A)	200			
Peak Power (off-grid) (W)	1.5 times of rated power, 10s			
Power Factor Adjustment Range	0.8 leading to 0.8 lagging			
Rated Input/Output Voltage/Range (V)	220/380V, 230/400V 0.85Un-1.1Un			
Rated Input/Output Grid Frequency/Range(Hz)	50/45-55, 60/55-65			
Grid Connection Form	3L+N+PE			
Total Current Harmonic Distortion THDi	<3% (of nominal power)			
DC Injection Current	<0.5% In			
Efficiency				
Max. Efficiency	98.70%			
Euro Efficiency	98.10%			
MPPT Efficiency	>99%			
Equipment Protection				
Integrated	DC Reverse Polarity Protection, AC Output Overcurrent Protection, Thermal Protection, AC Output Overvoltage Protection, AC Output Short Circuit Protection, DC Component Monitoring, Arc Fault Circuit Interrupter (optional), Anti-islanding Protection, DC Switch, Insulation Impedance Detection, Residual Current Detection			
Surge Protection Level	TYPE II(DC), TYPE II(AC)			
Interface				
Communication Interface	RS485/RS232/CAN			
Monitor Mode	GPRS/WIFI/Bluetooth/4G/LAN(optional)			
General Data				
Operating Temperature Range (°C)	-40 to +60°C, >45°C Derating			
Permissible Ambient Humidity	0-100%			
Permissible Altitude	3000m			
Noise (dB)	≤65			
Ingress Protection(IP) Rating	IP 65			
Inverter Topology	Non-Isolated			
Over Voltage Category	OVC II(DC), OVC III(AC)			
Cabinet Size (WxHxD mm)	606×927×314 (Excluding Connectors and Brackets)			
Weight (kg)	105			
Type of Cooling	Intelligent Air Cooling			
Warranty	5 Years/10 Years the Warranty Period Depends the Final Installation Site of Inverter, More Info Please Refer to Warranty Policy			
Grid Regulation	IEC 61727, IEC 62116, CEI 0-21, EN 50549, NRS 097, RD 140, UNE 217002, OVE-Richtlinie R25, G99, VDE-AR-N 4105			
Safety / EMC Standard	IEC/EN 61000-6-1/2/3/4, IEC/EN 62109-1, IEC/EN 62109-2			

WS Rack High Voltage Lithium Battery

204.8V-768V 280AH/314AH

Wattsolar 57KWH~241KWH
BESS , Maximum can be
expanded to 3.85MWH. Designed
specifically for commercial
and industrial (C& I) field.



Product Advantages



Self-Consumption



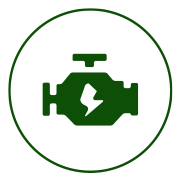
Demand Charge



Micro-grid



Off grid



DG+BEES



V2G



Back Up

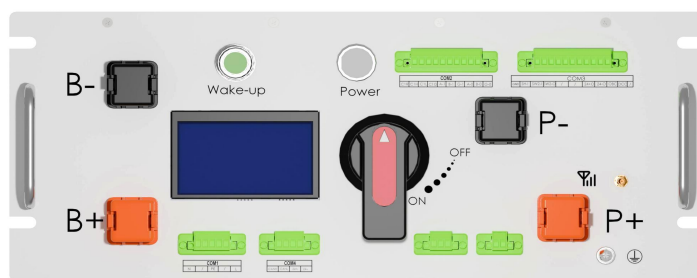


Peak Shifting

Battery Pack



High Voltage Control Box



Product parameters

Parameter model	GHR-280Ah/GHR-314Ah
Nominal power consumption	51.2v
Nominal Capacity	280Ah/314Ah
Cell Type	Lithium Iron Phosphate (LifePO4)
Maximum number of serial connections supported	15 strings
Battery pack size	801*532*233
Weight of battery pack	112KG/114KG

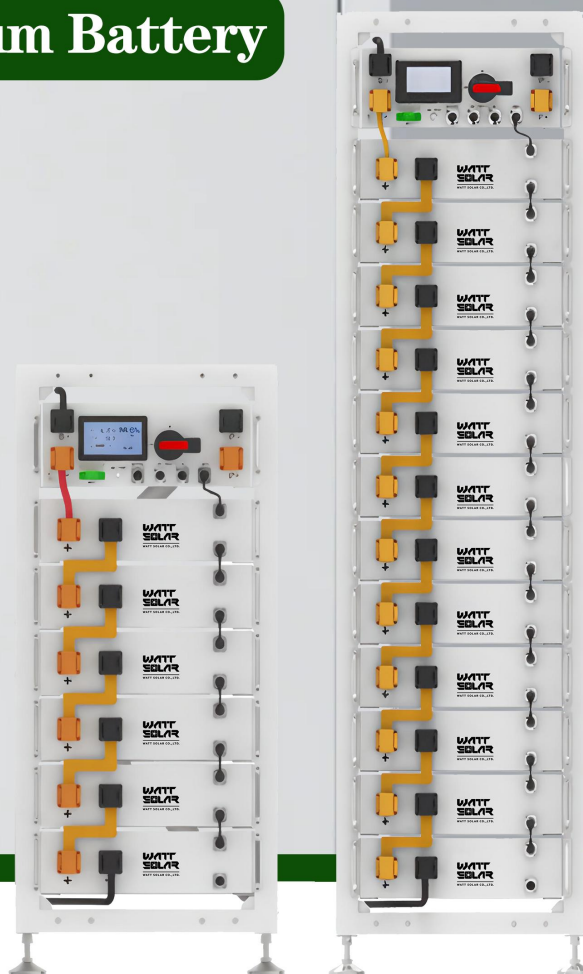
Battery system data

Module quantity configuration	4 pieces in series		9 pieces in series		15 pieces in series	
Rated energy	57.344kwh	64.31kwh	129.024kwh	144.69kwh	215.04kwh	241.152kwh
Nominal energy	280AH	314AH	280AH	314AH	280AH	314AH
Nominal voltage	204.8V		460.8V		768V	
Charging cutoff voltage	233.6V		525.6V		876V	
Discharge Cut-off Voltage	172.8V		388.8V		648V	
Maximum continuous charging and discharging current	≤140A	≤157A	≤140A	≤157A	≤140A	≤157A
Suitable temperature for charging	0℃~60℃		0℃~60℃		0℃~60℃	
Suitable discharge temperature	-20℃~60℃		-20℃~60℃		-20℃~60℃	
Warranty period	5Years					
Number of cycles	≥8000 90%DOD 25℃					
Reference size	838*582*1480(tall)		838*582*1480(tall)		838*582*1480(tall)	
Reference weight	526kg	534kg	1130kg	1148kg	1868kg	1898kg
Protection grade	IP20					
Communication interface	CAH/RS485					
Cooling method	Forced air cooling					

WS Rack High Voltage Lithium Battery

204.8V-614.4V 100AH

Wattsolar 20KWH-61.44KWH BESS , Maximum can be expanded to 983KWH. Designed specifically for home energy storage system and commercial field.



Product Advantages



≥8000 Cycles, Long Life

Long cycle life with tier 1 brand A grade cells and superior performance



Safety & Reliable

Very Safe and High Quality with LiFePO4 technology & Smart BMS



High Compatibility BMS

Seamless communication with most brands inverters



Expand Capacity Flexibly

Parallel to expand capacity easily up to 983kwh

Control Module information



Item	Basic Parameters	
	Related Product	1000V 120A
1	AC supply	--
2	System Operation Voltage (Vdc)	0-1000V
3	Nominal Current(A)	120
4	Self-consumption Power(W)	8
5	Dimension (W* D* H, mm)	450*460*177
6	Communication	RS485/CAN
7	Protection Class	IP20
8	Weight(KGS)	20
9	Operation Life	10+
10	Operation Temperature	-20~65
12	Storage Temperature	-40~80

Battery Module Information



No.	Product Type	WS51/100AH
1	Cell Technology	Li-ion(LFP)
2	Battery Module Capacity (KWH)	5.42
3	Battery Module Voltage (Vdc)	51.2
5	Battery Cell Voltage (Vdc)	3.2
6	Battery Cell Capacity (AH)	/100
7	Battery Module Cell Quantity in Series(pcs)	16
8	Battery Module Charge Voltage(Vdc)	57.6
9	Battery System Charge Current(Standard)	30
10	Battery Module Charge Current(Normal)	50
11	Battery Module Charge Current(Max)	
12	Battery Module Discharge Lower-Voltage(Vdc)	44.8
13	Battery System Discharge Current (Standard)	30
14	Battery Module Charge Current (Normal)	50
15	Battery Module Charge Current (Max)	/100
16	Efficiency	98%
17	Depth of Discharge	90%
18	Dimension(W*D*H, mm)	450*460*133(3U)
19	Communication	RS485
20	Protection Class	IP22
21	Weight	48
22	Operation Life	>10 years
23	Operation Cycle Life	>8000
24	Operation Temperature	0℃~50℃ Charge -10℃ ~50℃ Discharge
25	Storage Temperature	-20℃~60℃
26	Product Certificate	CE/IEC/UL
27	Transfer Certificate	UN38.3/MSDS

Performance Parameter

Basic Parameters	WS-51.2*N/100AH
Nominal Voltage (V)	51.2*N
Nominal Capacity (KWH)	5.42*N
Usable Capacity (KWH)	5.42*N*90%
Battery Controller Name	BSM/120A
Battery Module Name	WS
Battery Module Quantity	N
Battery Module Capacity(KWH)	5.12
Battery Module Voltage(V dc)	51.2
Battery Module Capacity (Ah)	/100
Battery System Charge Voltage(V dc)	56*N
Battery System Charge Current(Normal)	50
Battery System Charge Current (Max)	
Battery System Discharge lower-Voltage(Vdc)	48*N
Battery System Discharge Current (Standard)	50
Battery System Discharge Current(Normal)	100
Efficiency	96%
Depth of Discharge	RS485/RS232/CAN
Working Temperature	0℃~50℃ Charge -10℃ ~50℃ Discharge
Shelf Temperature	-20℃~60℃
Communicaiton	RS485/CAN
Certification	CE/IEC/UL/UN38.3/MSDS
Design Life	10 years+
Cycle Life	>8000
Other: 1) Battery Controller Dimensions (W*D*H) 2) Battery Module Dimensions(W*D*H)	450*460*177 450*460*133

Vertex N

N-type i-TOPCon bifacial dual glass
Monocrystalline module

PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W

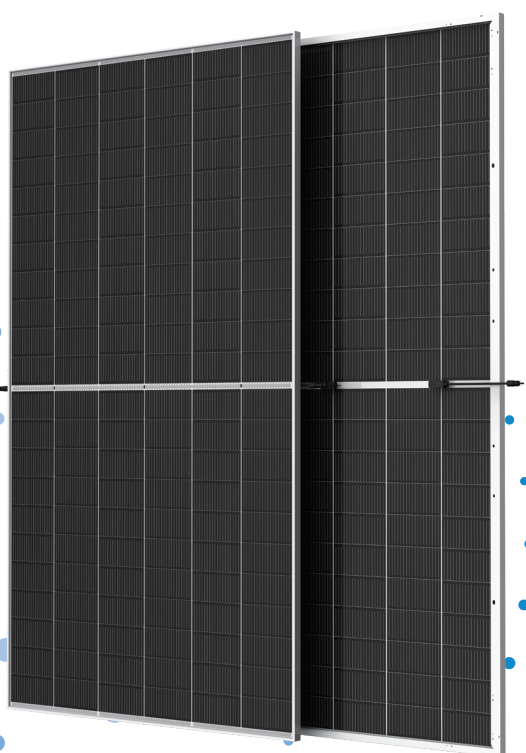
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

23.2%

MAXIMUM EFFICIENCY



High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE



High power up to 720W

- Up to 23.2% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

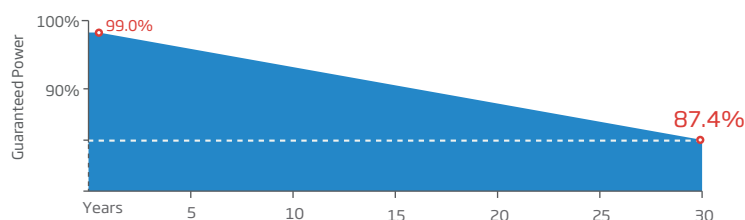
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



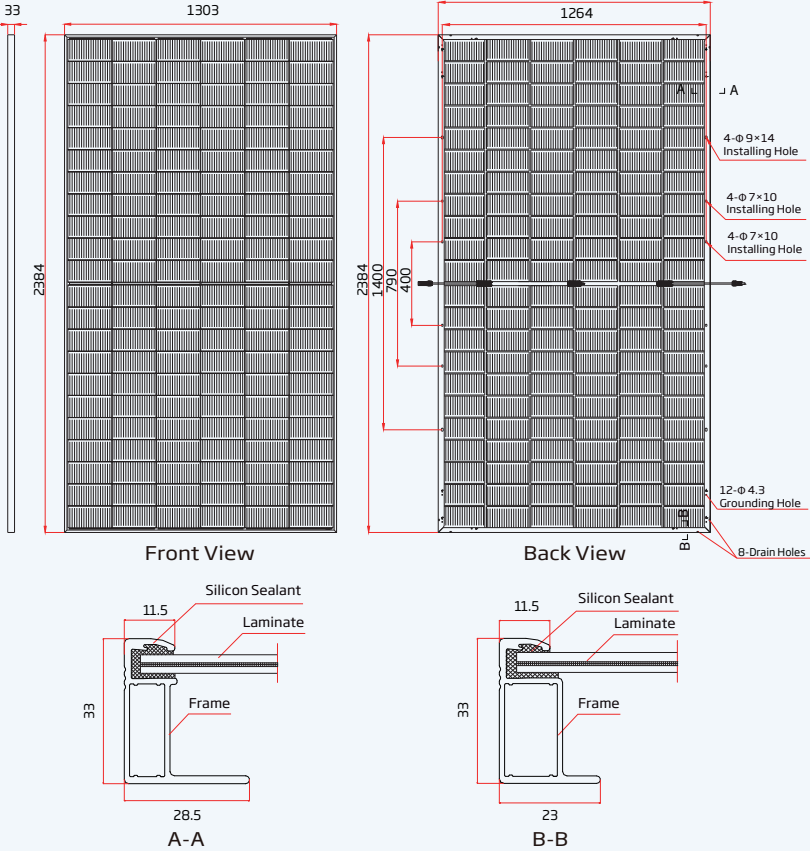
Comprehensive Products and System Certificates



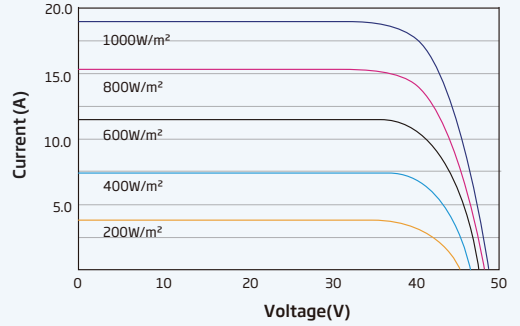
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
ISO14067: Product Carbon Footprint Limited Assurance

Trinasolar

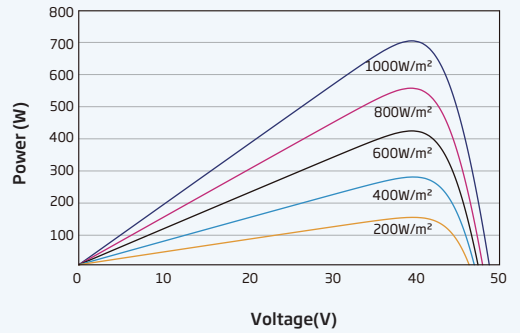
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(705 W)



P-V CURVES OF PV MODULE(705 W)



MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 inches)
Weight	38.3 kg (84.4 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)

Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) 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 DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts -P _{MAX} (Wp)*	695	531	700	534	705	540	710	543	715	547	720	551
Power Tolerance-P _{MAX} (W)	0 ~ +5											
Maximum Power Voltage-V _{MPP} (V)	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5	41.1	38.7	41.3	38.8
Maximum Power Current-I _{MPP} (A)	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12	17.40	14.14	17.44	14.19
Open Circuit Voltage-V _{OC} (V)	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5	49.2	46.7	49.4	46.9
Short Circuit Current-I _{SC} (A)	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83	18.44	14.86	18.49	14.90
Module Efficiency η _m (%)	22.4		22.5		22.7		22.9		23.0		23.2	

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Total Equivalent power -P _{MAX} (Wp)	730	765	735	770	740	776	746	781	751	787	756	792
Maximum Power Voltage-V _{MPP} (V)	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9	41.1	41.1	41.3	41.3
Maximum Power Current-I _{MPP} (A)	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10	18.27	19.14	18.31	19.18
Open Circuit Voltage-V _{OC} (V)	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0	49.2	49.2	49.4	49.4
Short Circuit Current-I _{SC} (A)	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24	19.36	20.28	19.41	20.34

Power Bifaciality: 80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P _{MAX}	-0.29%/°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) 1500V DC (UL)
Max Series Fuse Rating	35A

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.40% Annual Power Attenuation
(Please refer to product warranty for details)

PACKAGING CONFIGURATION

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