

Tier1

BloombergNEF



ISO 9001
ISO 45001

ISO 14001
OHSAS 18001



M10 TOPCON BIFACIAL

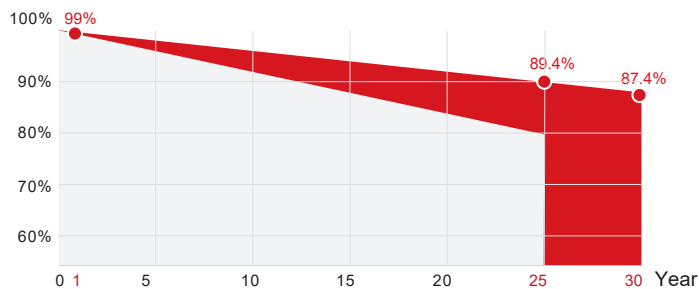
SPDGxxx-N144M10

550~590W

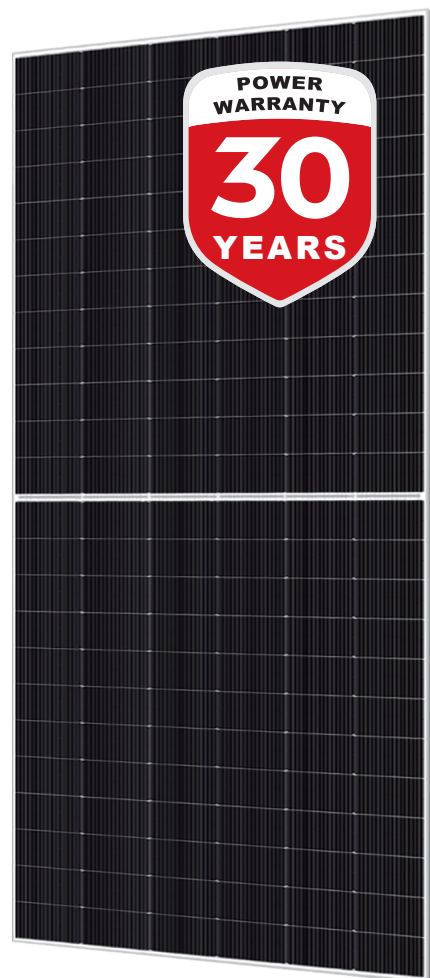
- Double glass
- Silver frame
- Bifacial transparent

25 Yr quality guarantee | 30 Yr power warranty

SUNPRO TOPCon module (Additional value from 30-year warranty)
Common module



*SUNPRO Standard tiered warranty



WARRANTY & GUARANTEE

Linear output power guarantee
25 years: 89.4% power output
30 years: 87.4% power output



WITHSTAND STRONG

Snow load 5400Pa
Wind load 2400Pa



PID RESISTANCE

Power positive tolerance :
0~+5W.
The attenuation probability of
PID phenomenon is
minimized through battery
production technology
optimization and material control



R&D AND PRODUCTION

Advanced production line.
Bifaciality>80%,effectively
improves backside power
generation.The leading
solar cell cutting process
and multi busbar design
with SUNPRO Technology.



HIGH EFFICIENCY

N-type , Components have
better reliability and
lower LID/LETID attenuation.
Efficiency can reach
22.83%. Excellent low light
performance. Higher power
output under the conditions
of haze, overcast, etc.

Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type

	550W	555W	560W	565W	570W	575W	580W	585W	590W
Max power(Pmax)	550	555	560	565	570	575	580	585	590
Max power voltage(Vmp)	41.73	41.86	41.99	42.13	42.26	42.41	42.56	42.72	42.87
Max power current(Imp)	13.18	13.26	13.34	13.41	13.49	13.56	13.63	13.7	13.77
Open circuit voltage(Voc)	50.56	50.7	50.84	50.98	51.13	51.28	51.43	51.58	51.7
Short circuit current(Isc)	13.95	14.01	14.07	14.13	14.2	14.27	14.34	14.41	14.48
Module Efficiency(%)	21.28	21.48	21.67	21.86	22.06	22.25	22.44	22.64	22.83
Max system voltage	DC 1500V (TÜV,UL)								
Maximum Series Fuse Rating	30A								

Electrical Characteristics with 15% Rear Side Power Gain

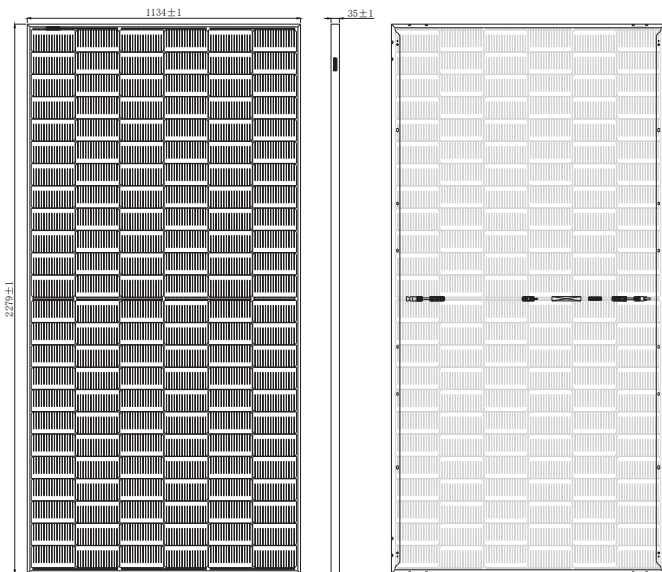
Front power Pmax/W	550W	555W	560W	565W	570W	575W	580W	585W	590W
Total power Pmax/W	632.5	638.25	644	649.75	655.5	661.25	667	672.75	678.5
Vmp/V(Total)	41.73	41.86	41.99	42.13	42.26	42.41	42.56	42.72	42.87
Imp/A(Total)	15.16	15.25	15.34	15.42	15.51	15.59	15.67	15.75	15.83
Voc/V(Total)	50.56	50.7	50.84	50.98	51.13	51.28	51.43	51.58	51.7
Isc/A(Total)	16.04	16.11	16.18	16.25	16.33	16.41	16.49	16.57	16.65

Electrical parameters at NMOT test conditions

(Irradiance 800W/m², Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

Typical type	550W	555W	560W	565W	570W	575W	580W	585W	590W
Max power(Pmax)	411	417	421	425	429	433	436.7	437.3	441
Max power voltage(Vmp)	38.9	39.3	39.5	39.7	39.7	39.9	40.1	39.9	40.00
Max power current(Imp)	10.56	10.62	10.67	10.72	10.79	10.85	10.90	10.96	11.02
Open circuit voltage(Voc)	47.4	47.7	47.9	48.1	48.2	48.4	48.5	48.3	48.40
Short circuit current(Isc)	11.24	11.29	11.34	11.39	11.44	11.50	11.56	11.61	11.67

DIMENSIONS AND STRUCTURE



Mechanical Data

Dimensions	2279x1134x35mm
Weight	31 kg
Glass	(F)2.0mm ultra clear embossed double layer colorless glass (B)2.0mm semi-tempered glass
Output cables	4mm ² , symmetrical lengths 1300mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline, N type Bifacial, 182x91mm
Number of cells	144cells (Half-Cell)

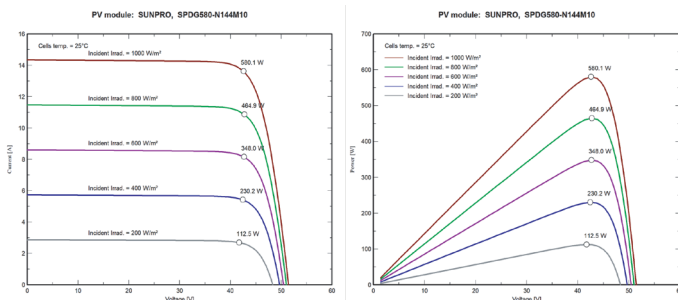
Temperature Characteristics

Temp.Coeff.of Isc(TK Isc)	0.046%/°C
Temp.Coeff.of Voc(TK Voc)	-0.25%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.30%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	45±2°C

Packing Configuration

Container	40'HQ
Pieces per pallet	31
Pallets per container	20
Pieces per container	620

I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TÜV, CE, CEC, UL, WEEE
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+5W
Junction box	IP 68
Warranties	25 years product warranty and 30 years 87.4% of power

Tier1

BloombergNEF



ISO 9001
ISO 45001

ISO 14001
OHSAS 18001

SA 8000



199R TOPCON BIFACIAL

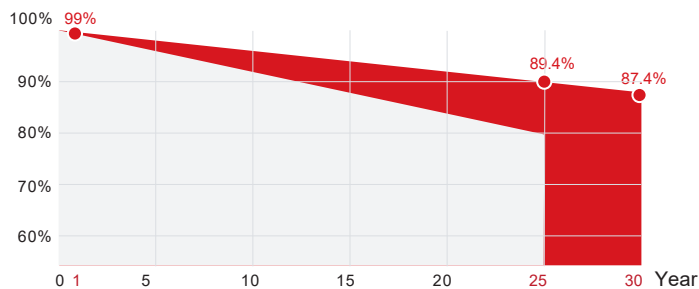
SPDGxxx-N144RX10

615~640W

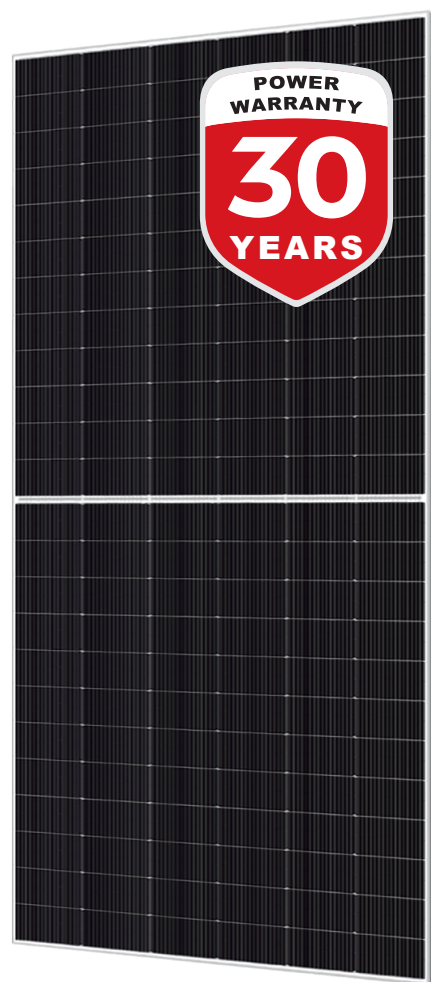
- Double glass
- Silver frame
- White mesh

25 Yr quality guarantee | 30 Yr power warranty

■ SUNPRO TOPCon module (Additional value from 30-year warranty)
■ Common module



*SUNPRO Standard tiered warranty



WARRANTY & GUARANTEE

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WITHSTAND STRONG

Snow load 5400Pa
Wind load 2400Pa



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HIGH EFFICIENCY

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better reliability and
lower LID/LETID attenuation.
Efficiency can reach
22.90%. Excellent low light
performance. Higher power
output under the conditions
of haze, overcast, etc.

Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type

	615W	620W	625W	630W	635W	640W
Max power(Pmax)	615	620	625	630	635	640
Max power voltage(Vmp)	43.28	43.48	43.68	43.88	44.07	44.26
Max power current(Imp)	14.21	14.26	14.31	14.36	14.41	14.46
Open circuit voltage(Voc)	51.85	52.05	52.25	52.45	52.65	52.85
Short circuit current(Isc)	15.03	15.08	15.13	15.18	15.23	15.28
Module Efficiency(%)	22	22.18	22.36	22.54	22.72	22.9
Max system voltage	DC 1500V (TÜV)					
Maximum Series Fuse Rating	30A					

Electrical Characteristics with 15% Rear Side Power Gain

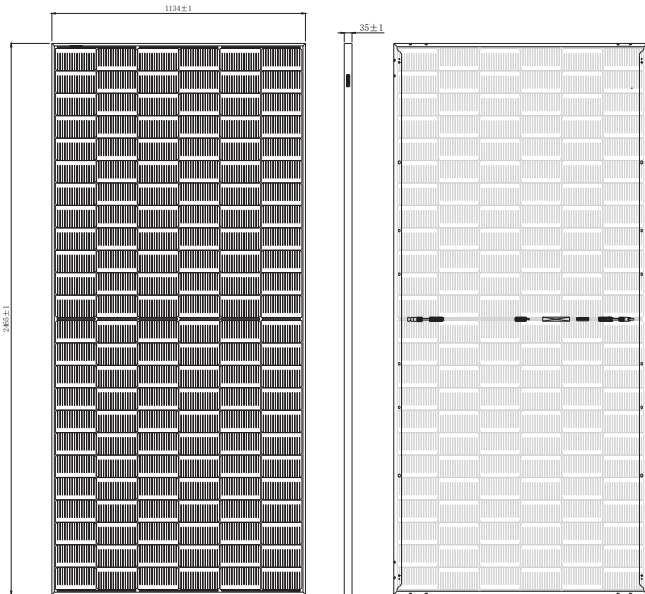
Front power Pmax/W	615W	620W	625W	630W	635W	640W
Total power Pmax/W	707.25	713	718.75	724.5	730.25	736
Vmp/V(Total)	43.28	43.48	43.68	43.88	44.07	44.26
Imp/A(Total)	16.34	16.40	16.45	16.51	16.57	16.63
Voc/V(Total)	51.85	52.05	52.25	52.45	52.65	52.85
Isc/A(Total)	17.28	17.34	17.4	17.46	17.51	17.57

Electrical parameters at NMOT test conditions

(Irradiance 800W/m², Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

Typical type	615W	620W	625W	630W	635W	640W
Max power(Pmax)	463.5	467.5	471.6	475.4	479.5	483.4
Max power voltage(Vmp)	40.6	40.7	41	41.1	41.3	41.5
Max power current(Imp)	11.41	11.48	11.52	11.56	11.6	11.64
Open circuit voltage(Voc)	49	49.2	49.4	49.6	49.8	50
Short circuit current(Isc)	12.11	12.15	12.19	12.23	12.27	12.31

DIMENSIONS AND STRUCTURE



Mechanical Data

Dimensions	2465x1134x35mm
Weight	35kg
Glass	(F) 2.0mm ultra clear embossed double layer colorless glass (B) 2.0mm white mesh semi-tempered glass
Output cables	4mm ² , symmetrical lengths 1400mm
Connectors	MC4 compatible IP68
Cell type	N type Mono-Crystalline , 182.2mmx99.5mm
Number of cells	144cells (Half-Cell)

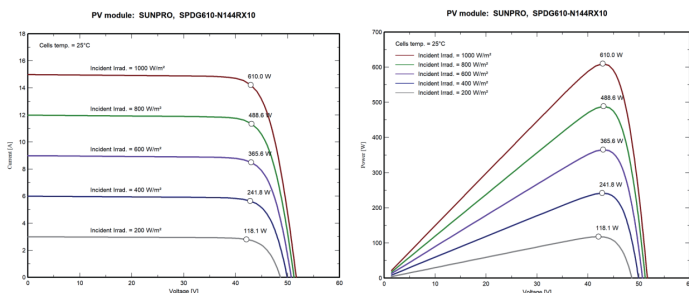
Temperature Characteristics

Temp.Coeff.of Isc(TK Isc)	0.046%/ °C
Temp.Coeff.of Voc(TK Voc)	-0.25%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.30%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	45±2°C

Packing Configuration

Container	40'HQ
Pieces per pallet	31
Pallets per container	16
Pieces per container	496

I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TÜV, CE, WEEE
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+5W
Junction box	IP 68
Warranties	25 years product warranty and 30 years 87.4% of power

N-TYPE

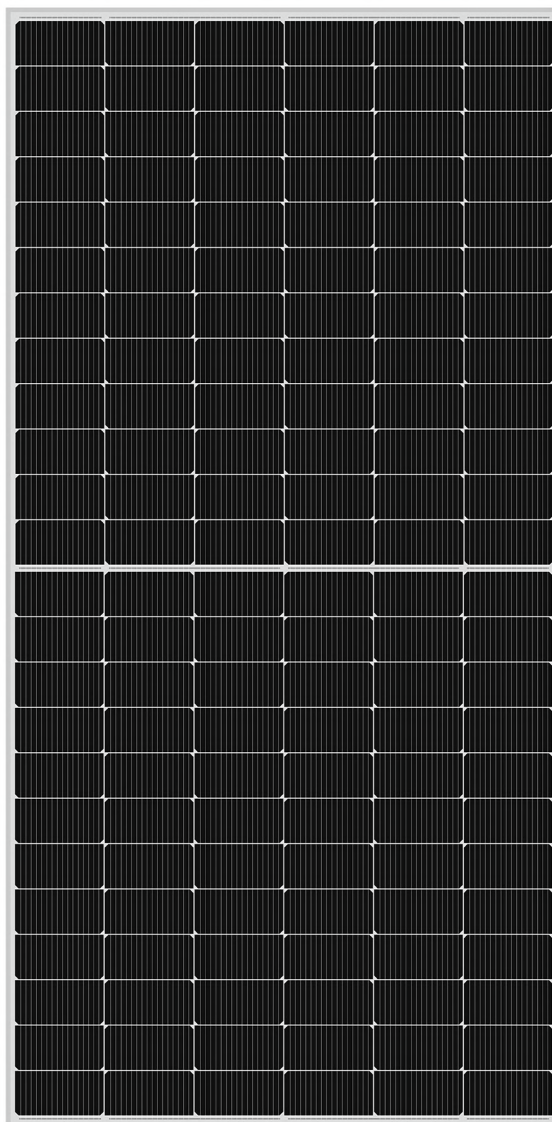
580-600W

Bifacial Dual Glass

144 CELL Mono N-Type

23.23% Max Efficiency

0~5W Positive Power Tolerance



SMBB Technology, higher output of power



Optimize the temperature coefficient



Reduce the shadow loss on the power output



Stronger mechanical Load



Double side power generation

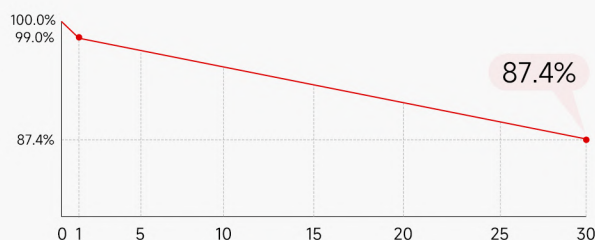
15 Year

Product Warranty

30 Year

Linear Power Warranty

LINEAR PERFORMANCE WARRANTY



1% First-year Degradation

0.4% Annual Degradation Within 30 Years

ELECTRICAL PARAMETERS

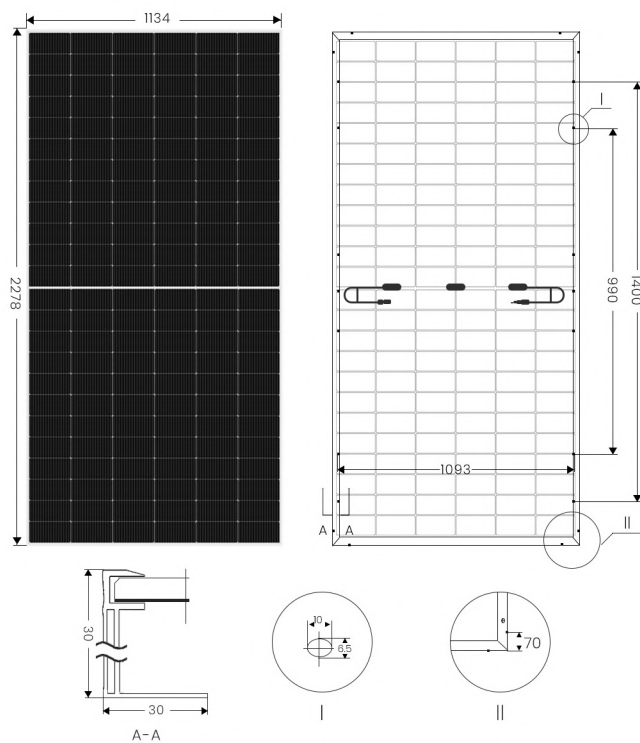
Module Type		INS-580M10-DG		INS-585M10-DG		INS-590M10-DG		INS-590M10-DG		INS-600M10-DG	
Test Environment		STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power	P _{max} (W)	580	438.9	585	442.6	590	446.3	595	450	600	453.7
Maximum Power Voltage	V _{mp} (V)	45.04	43.34	45.25	43.53	45.46	43.72	45.67	43.91	45.88	44.1
Maximum Power Current	I _{mp} (A)	12.88	10.12	12.93	10.16	12.98	10.2	13.03	10.24	13.08	10.28
Open Circuit Voltage	V _{oc} (V)	52.8	50.22	53	50.41	53.2	50.6	53.4	50.79	53.6	50.98
Short Circuit Current	I _{sc} (A)	13.5	10.63	13.54	10.67	13.58	10.71	13.62	10.75	13.66	10.79
Tolerance	(W)	0 - +5		0 - +5		0 - +5		0 - +5		0 - +5	
Module Efficiency	(%)	22.45		22.65		22.84		23.03		23.23	

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3. Average efficiency reduction of 4.5% at 200W/m² according to EN 60904-1
NOCT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

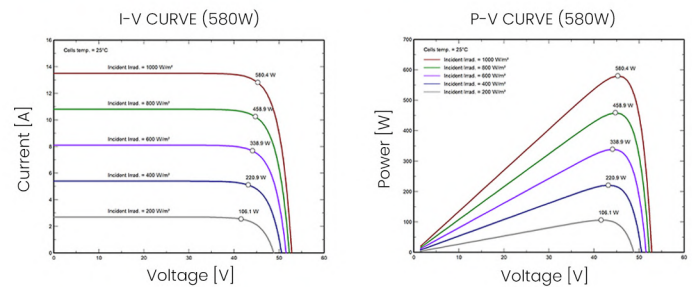
BIFACIAL OUTPUT-REAR SIDE POWER GAIN 10% FOR REFERENCE

Module Type	INS-580M10-DG	INS-585M10-DG	INS-590M10-DG	INS-590M10-DG	INS-600M10-DG
P _{max} (W)	638	643.5	649	654.5	660
V _{oc} (V)	52.8	53	53.2	53.4	53.6
I _{sc} (A)	14.9	15.02	15.08	15.14	15.20
V _{mp} (V)	45.04	45.25	45.46	45.67	45.88
I _{mp} (A)	14.17	14.22	14.28	14.33	14.39

DIMENSIONS OF PV MODULE



ELECTRICAL PERFORMANCE



MECHANICAL DATA

Cell Type	Mono N-TYPE
No. of Cells	144 (6 x 24)
Module Dimensions	2278 x 1134 x 30mm
Weight	31kg
Front Glass	2.0mm
Back Glass	2.0mm
Frame	Anodized Aluminium Alloy
Junction Box	IP 68 Rated
Cables	4.0mm ² , 350mm or Customized Length
Connector	MC4 Compatible
PACKAGING CONFIGURATION	37 pcs/Pallet , 740 pcs/40'HQ

MAXIMUM RATINGS

Operational Temperature	-40°C to +85°C
Maximum System Voltage	1500V DC
Max Series Fuse Rating	30A
Mechanical Load	5400pa
Wind Load	2400pa

TEMPERATURE RATINGS

Nominal Operating Cell Temperature(NOCT)	45±2°C
Temperature Coefficient of P _{MAX}	-0.30%/°C
Temperature Coefficient of V _{OC}	-0.25%/°C
Temperature Coefficient of I _{SC}	+0.046%/°C





SOLAR N PLUS

SP-N16/144HG

TOPcon Bifacial 570-600W



**HIGHER
EFFICIENCY**



**LOWER TEMPERATURE
COEFFICIENT**



**LOW ATTENUATION,
LONG WARRANTY**



**HIGHER
BIFACIALITY**

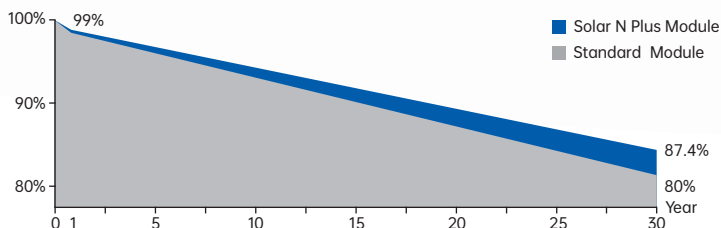
WARRANTY



Guarantee on product material
and workmanship



Linear power
output warranty



INSURANCE



中国平安
PINGAN

CERTIFICATION



- ISO 9001: 2015/quality management system
- ISO 14001: 2015/environment management system
- ISO 45001: 2018/occupation health safety management system

570-600W

SP-N16/144HG

ELECTRICAL CHARACTERISTICS (STC)

Maximum Power (Pm)	W	570	575	580	585	590	595	600
Power Tolerance	W	0 ~ +5						
Maximum Power Voltage (Vm)	V	44.75	44.95	45.15	45.35	45.55	45.75	45.95
Maximum Power Current (Im)	A	12.74	12.79	12.85	12.90	12.96	13.01	13.06
Open Circuit Voltage (Voc)	V	52.2	52.4	52.6	52.8	53.0	53.2	53.4
Short Circuit Current (Isc)	A	13.47	13.52	13.57	13.62	13.67	13.72	13.77
Module Efficiency (ηm)	%	22.1	22.3	22.5	22.7	22.8	23.0	23.2

STC:AM=1.5, irradiance=1000W/m², module temperature=25°C

ELECTRICAL CHARACTERISTICS (NMOT)

Maximum Power (Pm)	W	430	433	437	441	445	449	453
Maximum Power Voltage (Vm)	V	41.18	41.36	41.54	41.72	41.90	42.08	42.26
Maximum Power Current (Im)	A	10.42	10.47	10.52	10.57	10.62	10.67	10.72
Open Circuit Voltage (Voc)	V	49.33	49.53	49.73	49.93	50.13	50.33	50.52
Short Circuit Current (Isc)	A	10.81	10.86	10.91	10.96	11.01	11.06	11.11

NMOT: irradiance=800W/m², environment temperature=20°C, wind speed=1m/s

REAR SIDE POWER GAIN

5%	Max Power	599W	604W	609W	614W	620W	625W	630W
	Efficiency	23.17%	23.37%	23.57%	23.78%	23.98%	24.18%	24.39%
15%	Max Power	656W	661W	667W	673W	679W	684W	690W
	Efficiency	25.37%	25.60%	25.82%	26.04%	26.27%	26.49%	26.71%
25%	Max Power	713W	719W	725W	731W	738W	744W	750W
	Efficiency	27.58%	27.82%	28.07%	28.31%	28.55%	28.79%	29.03%

MECHANICAL SPECIFICATIONS

External Dimension (L×W×H)	2278×1134×30mm
Weight	31.5kg
Number of Cells	144 (6x24)
Front Glass	2.0mm AR-coating heat-strengthened glass
Rear Glass	2.0mm heat-strengthened glass
Frame	Anodized aluminum alloy, silver color
Junction Box	IP68
Output Cables	4mm², 300mm or customized length
Connector	MC4 Compatible

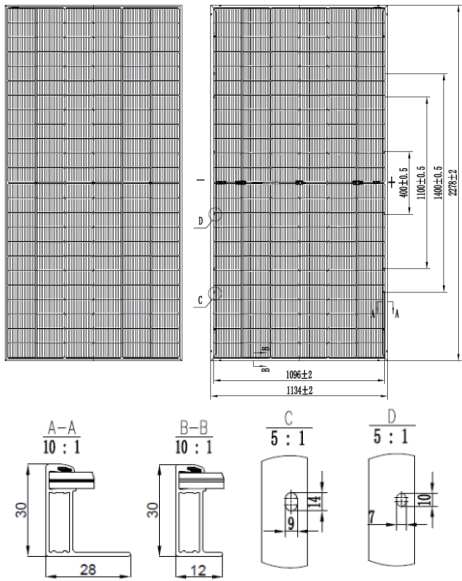
APPLICATION CONDITIONS

Maximum System Voltage	DC1500V (IEC)
Maximum Series Fuse Rating	25A
Operating Temperature	-40°C ~ +85°C
Mechanical Load	5400Pa/2400Pa
Hail Test	25mm diameter hail at 23m/s
Bifaciality	80±5%
Application Rating	Class A

TEMP CHARACTERISTICS

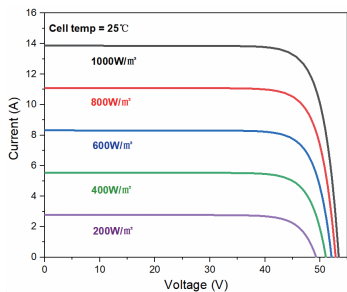
Nominal Module Operating Temperature	42±2°C
Temperature Coefficient of Pmax	-0.29%/°C
Temperature Coefficient of Voc	-0.25%/°C
Temperature Coefficient of ISC	0.045%/°C

TECHNICAL DRAWING

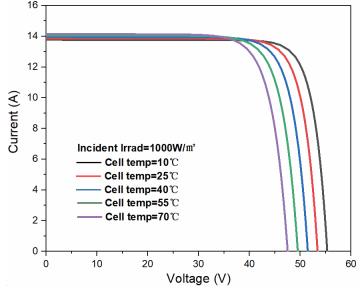


I-V CURVE

I-V characteristics at different irradiance (SP-N16/144HG600W)



I-V characteristics at different temperatures (SP-N16/144HG600W)



PACKING CONFIGURATION

Container	40'HC
Pieces per Pallet	36 pcs
Packaging box Size	2335×1145×1260mm
Pieces per Container	720 pcs



SOLAR N PLUS NEW ENERGY TECHNOLOGY CO., LTD

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