

LESSO

SOLAR PV MODULES

Lesso New Energy Global Trading Private Limited

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LESSO Group (2128) is listed in the Stock Exchange of Hong Kong.

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**SOLAR SOLUTIONS
MANUFACTURER**



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A Bright and Exciting Journey

LESSO Group is a Hong Kong-listed (2128.HK) manufacturer of building materials with an annual revenue of over USD4.38 billion from its global operations.

LESSO Solar, a flagship division of LESSO Group, specialises in manufacturing solar panels, inverters, and energy storage systems, and providing solar-energy solutions.

Founded in 2022, LESSO Solar has been growing with spectacular pace, with global production capacity of over 15.3GW for solar panels and 6GW for solar cells.

¥

USD4.38 bil

Annual Sales Revenue

Factory

5 major

Production Bases

Building

39 years

Production Experience

Panel

15.3 GW

Solar Modules Manufacturing Capacity



Leading the Future with Intelligent Manufacturing

Our 5 production bases aim to grow into a large-scale global manufacturer of solar solutions, introduce advanced equipment, and create intelligent and automated production lines for intelligent building photovoltaic integrated BIPV, solar PV modules, and solar cells.

Our Production Bases



Wusha Factory
Foshan, China

6.4GW in Solar Modules



Heshan Factory
Jiangmen, China

6GW in Solar Modules **6GW** in Solar Cells



Indonesia Factory
Demak, Indonesia

2.4GW in Solar Modules



Jiulong Factory
Foshan, China

5GW (Planned) in Solar Modules **10GW** (Planned) in Solar Cells



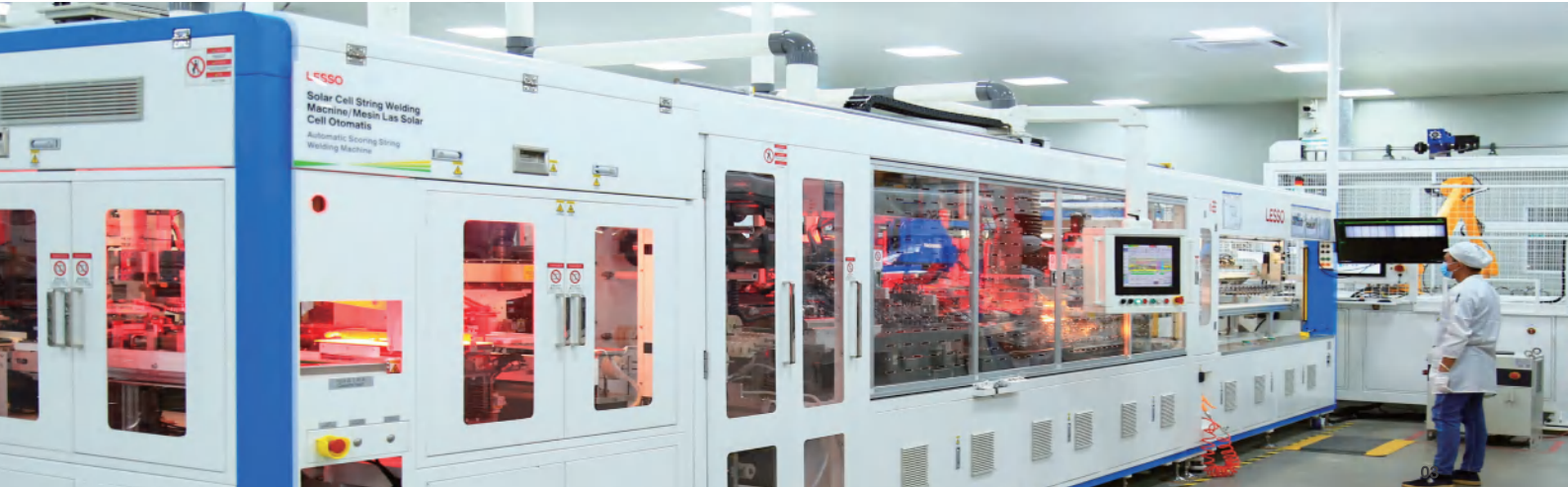
Chongkou Factory
Foshan, China

500MW in Solar Modules



Daba Factory
Foshan, China

3GWh+ in Solar Energy Storages **100,000pcs** in EV Charger



By utilizing only the finest raw materials and cutting-edge technology, we meticulously oversee every stage of the production process to provide our customers with the highest-quality products.



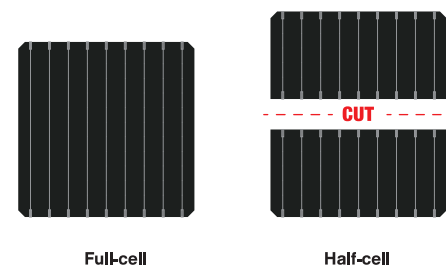
Our Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015 Quality Management System
- ISO 14001:2015 Environment Management System
- ISO 45001:2018 Occupational Health and Safety Management System



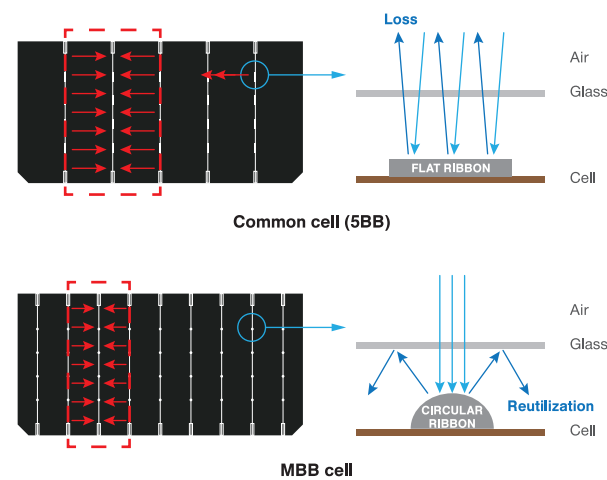
HALF-CELL TECHNOLOGY

By adopting half-cell technology, electrical current density is reduced by 50%, resulting in a 25% decrease in internal power loss and an increase in rated output power.



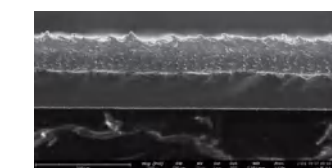
MBB TECHNOLOGY

MBB technology shortens the current collection path by over 50%, minimizes lateral resistance losses, and enhances component poweroutput. LESSO PV modules utilize circular ribbons to reduce shading areasand optimize light reflection for improved energy generation.



NON-DESTRUCTIVE CUTTING TECHNOLOGY

Featuring non-destructive cutting technology, this process ensures smooth cross-sections, reduces micro-crack risks, enhances cell strength. and delivers superior mechanical performance.



Cross-section from conventional cutting



Cross-section from non-destructive cutting

HIGH-DENSITY PACKAGING TECHNOLOGY

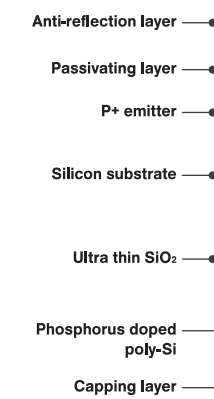
Through high-density packaging technology, the effective power-generating area of modules is maximized under the same footprint, improving efficiency without compromising reliability.



TOPCON TECHNOLOGY

TOPCon cells employ advanced surface passivation technology to significantly reduce surface and metal contact recombination.

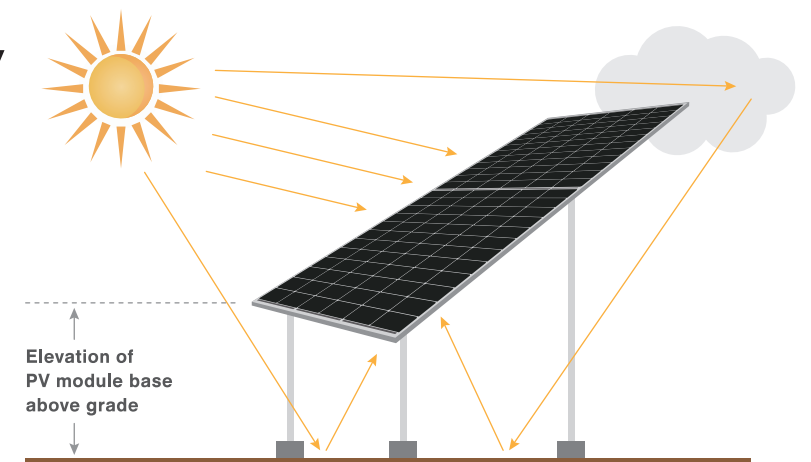
N-type modules exhibit superior degradation characteristics with only 1% first-year and 0.4% lower annual degradation rates compared to conventional counterparts, delivering 2.1% greater lifetime energy yield that directly enhances project profitability.



Micro-nano tunneling through the oxide layer and carrier-selective lamination with microcrystalline silicon thin films on the rear side enhance performance.

BIFACIAL TECHNOLOGY

Bifacial modules leverage reflected and scattered light, excelling in high-reflectivity environments with proven long-term reliability and superior quality.



LESSO BIFACIAL MODULE DELIVERS UP TO **25%** POWER GAIN

Power generation gain in different scenarios (%)



Water
3~5%



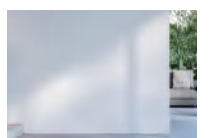
Grass
5~10%



Cement
5~10%



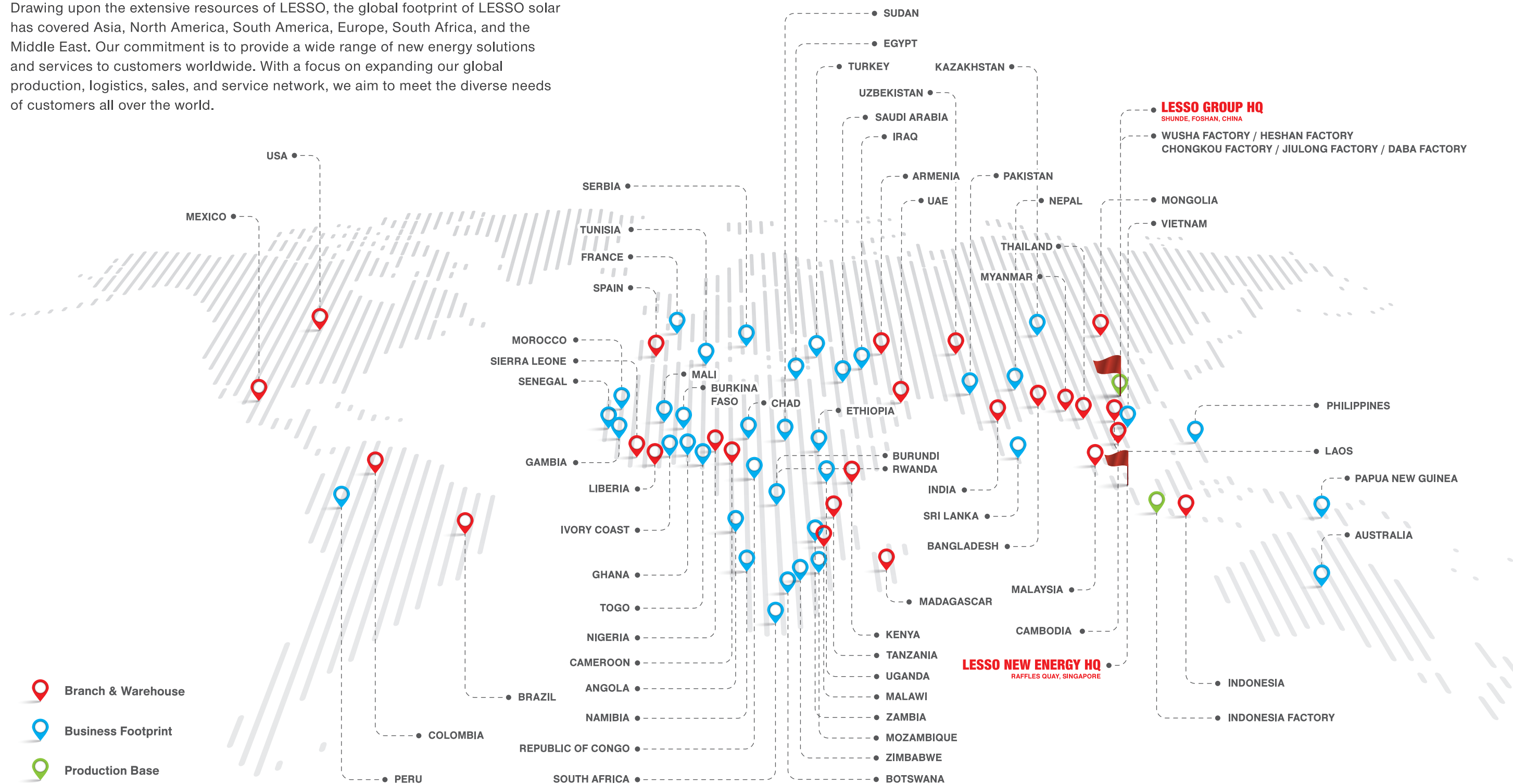
Sand
5~10%



White paint
15~25%

LESSO Solar Global Footprint

Drawing upon the extensive resources of LESSO, the global footprint of LESSO solar has covered Asia, North America, South America, Europe, South Africa, and the Middle East. Our commitment is to provide a wide range of new energy solutions and services to customers worldwide. With a focus on expanding our global production, logistics, sales, and service network, we aim to meet the diverse needs of customers all over the world.



N series

Unleash Unlimited Power, Pioneering Innovation

The LESSO Solar N Series leverages advanced TOPCon technology to achieve a maximum module efficiency of 23.18%. Featuring N-type cells with zero light-induced degradation (LID), this series ensures superior energy yield. With an annual degradation rate of just 1% in the first year and 0.4% thereafter, the N Series delivers exceptional long-term power generation performance, maximizing revenue potential for customers.



TOPCon Technology
Higher Power Generation



MBB Technology
Reducing String &
Busbar Loss



High Density Packaging
Improving Energy Density



Even Cloudy or Foggy Days
Better Weak Illumination
Response



Zero LID
Increase Power Generation



**Better Temperature
Coefficient**
More Power Generation



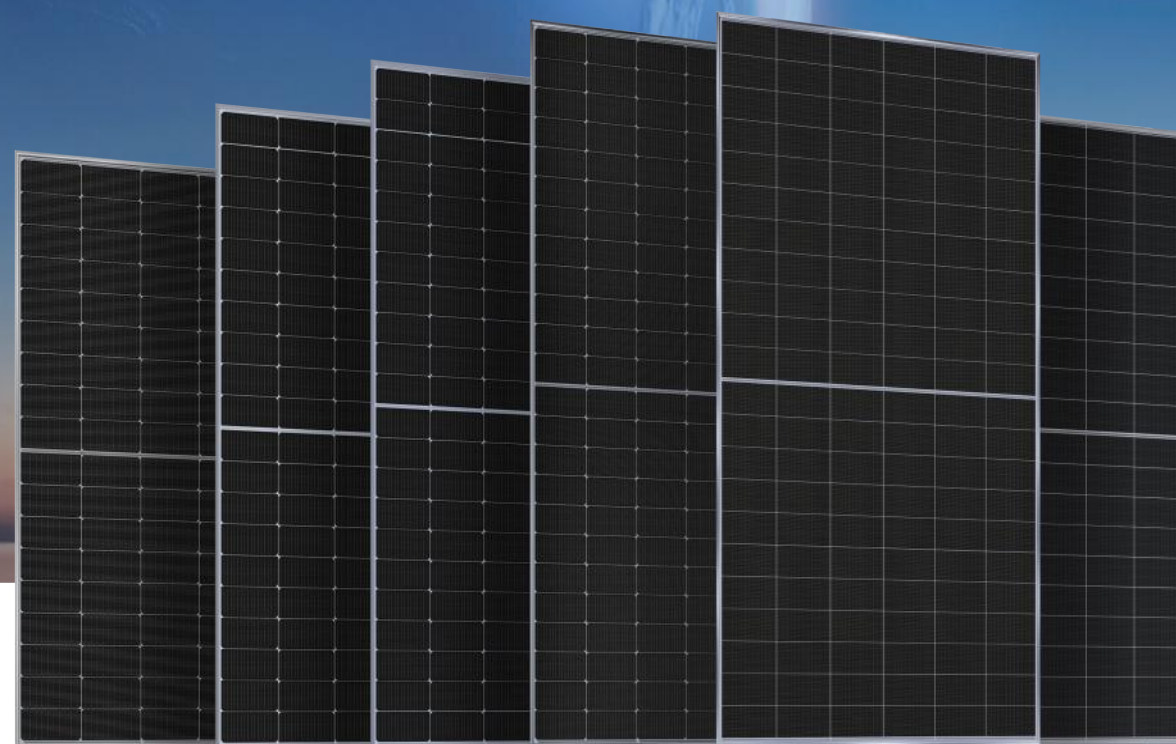
Higher Power Output
Lower BOS Cost



**Multiple Weather
Resistance Tests**
Wider Applicability



Double-sided Generation
Powerfully Energy Boost



Power Range
425W ~ 720W

Maximum Efficiency
23.18%

12 years product
workmanship warranty

25/30 years linear power
output warranty

1% 1st-year degradation
0.40% annual degradation

N Series Mainstream Products

Product	Power (W)	Maximum Efficiency	Size (mm)
182 N-type (54) single glass	425 - 445	22.79%	1722x1134x30
182 N-type (54) double glass			
182 N-type (60) single glass	475 - 495	22.87%	1909x1134x30
182 N-type (60) double glass			
182 N-type (66) single glass	525 - 545	22.95%	2094x1134x30
182 N-type (66) double glass			
182 N-type (72) single glass	575 - 595	23.03%	2278x1134x30
182 N-type (72) double glass			
182 N-type (78) double glass	625 - 640	22.90%	2465x1134x30
210 N-type (54) double glass	560 - 580	22.71%	1960x1303x30
210 N-type (60) double glass	620 - 640	22.61%	2172x1303x30
210 N-type (66) double glass	700 - 720	23.18%	2384x1303x33
210R N-type (54) single glass	490 - 510	22.95%	1960x1134x35
210R N-type (54) double glass			1960x1134x30
210R N-type (60) single glass	545 - 565	22.94%	2172x1134x35
210R N-type (60) double glass			2172x1134x30
210R N-type (66) single glass	595 - 615	22.77%	2382x1134x35
210R N-type (66) double glass			2382x1134x30

Note: see datasheet for details

182 N-type Monofacial Module (54)

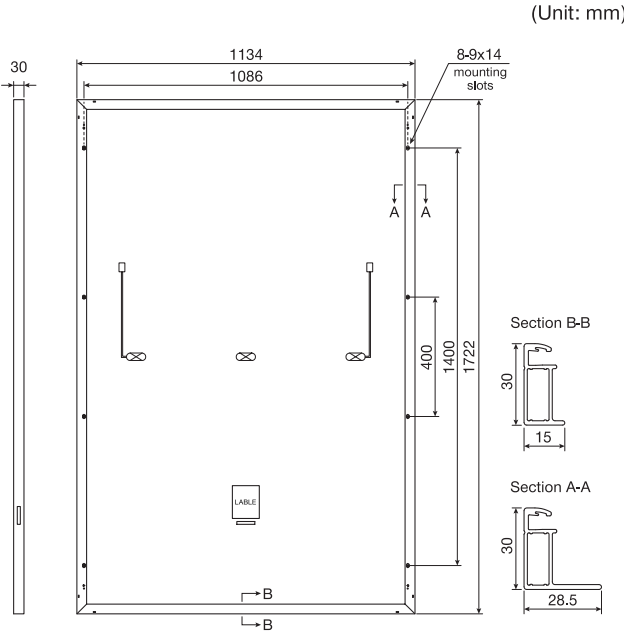
Power Range
425W ~ 445W

Power Output Tolerance
0W ~ +5W

Maximum Efficiency
22.79%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	20.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-) , landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

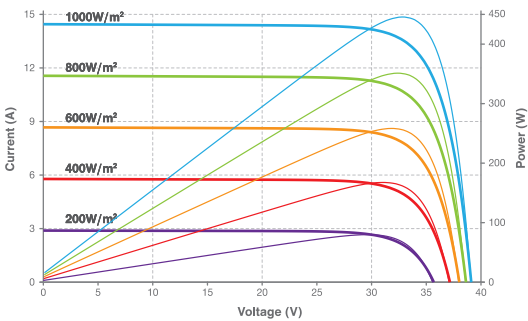


Electrical Performance Parameters

Model Type		425C(HPM)54(182)		430C(HPM)54(182)		435C(HPM)54(182)		440C(HPM)54(182)		445C(HPM)54(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	425	320	430	323	435	327	440	331	445	335
Max. Power Voltage	V _{MP} (V)	31.82	29.69	32.00	29.75	32.18	29.97	32.35	30.11	32.54	30.26
Max. Power Current	I _{MP} (A)	13.36	10.78	13.44	10.86	13.52	10.93	13.60	11.00	13.68	11.08
Open Circuit Voltage	V _{OC} (V)	38.35	36.43	38.54	36.61	38.73	36.79	38.92	36.97	39.11	37.15
Short Circuit Current	I _{SC} (A)	14.13	11.42	14.21	11.49	14.29	11.56	14.37	11.63	14.45	11.70
Module Efficiency	(%)	21.76		22.02		22.28		22.53		22.79	

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

Current-Voltage & Power-Voltage Curve (445W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 N-type Monofacial Module (60)



Power Range
475W ~ 495W



Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.87%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	22.1kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs

(Unit: mm)

Electrical Performance Parameters

Model Type	475C(HPM)60(182)		480C(HPM)60(182)		485C(HPM)60(182)		490C(HPM)60(182)		495C(HPM)60(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{max} (W)	475	358	480	362	485	366	490	370	495	374
Max. Power Voltage	V _{MP} (V)	35.35	33.34	35.51	33.52	35.66	33.71	35.82	33.90	35.99	34.09
Max. Power Current	I _{MP} (A)	13.44	10.74	13.52	10.80	13.60	10.86	13.68	10.92	13.76	10.98
Open Circuit Voltage	V _{OC} (V)	42.50	40.45	42.67	40.61	42.83	40.77	42.99	40.93	43.15	41.09
Short Circuit Current	I _{SC} (A)	14.19	11.49	14.27	11.56	14.35	11.63	14.43	11.70	14.51	11.77
Module Efficiency	(%)	21.94		22.17		22.40		22.63		22.87	

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

Current-Voltage & Power-Voltage Curve (495W)

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

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182 N-type Monofacial Module (66)



Power Range
525W ~ 545W



Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.95%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2094×1134×30mm
Weight	23.8kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs

(Unit: mm)

Electrical Performance Parameters

Model Type	525C(HPM)66(182)		530C(HPM)66(182)		535C(HPM)66(182)		540C(HPM)66(182)		545C(HPM)66(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{max} (W)	525	395	530	399	535	403	540	407	545	411
Max. Power Voltage	V _{MP} (V)	38.83	36.75	38.97	36.92	39.11	37.08	39.24	37.25	39.39	37.42
Max. Power Current	I _{MP} (A)	13.52	10.75	13.60	10.81	13.68	10.87	13.76	10.93	13.84	10.99
Open Circuit Voltage	V _{OC} (V)	46.31	44.15	46.36	44.29	46.41	44.43	46.46	44.57	46.51	44.71
Short Circuit Current	I _{SC} (A)	14.25	11.56	14.33	11.63	14.41	11.70	14.49	11.77	14.57	11.84
Module Efficiency	(%)	22.11		22.32		22.53		22.74		22.95	

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

Current-Voltage & Power-Voltage Curve (545W)

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 N-type Monofacial Module (72)



Power Range
575W ~ 595W



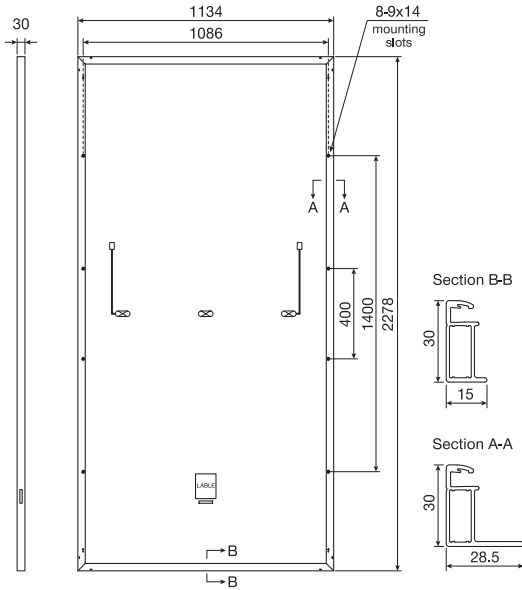
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
23.03%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	26.9kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs



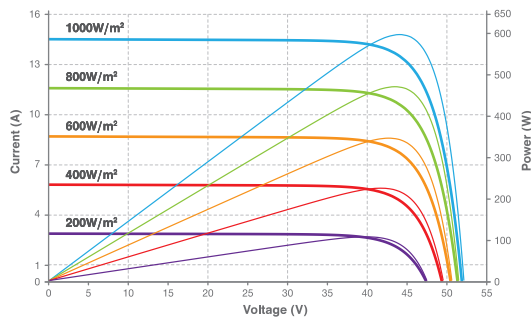
(Unit: mm)

Electrical Performance Parameters

Model Type		575C(HPM)72(182)		580C(HPM)72(182)		585C(HPM)72(182)		590C(HPM)72(182)		595C(HPM)72(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{max} (W)	575	433	580	437	585	441	590	445	595	449
Max. Power Voltage	V _{MP} (V)	42.38	39.84	42.53	39.95	42.67	40.10	42.82	40.24	42.97	40.37
Max. Power Current	I _{MP} (A)	13.57	10.87	13.64	10.94	13.71	11.00	13.78	11.06	13.85	11.13
Open Circuit Voltage	V _{OC} (V)	52.23	48.29	52.43	48.42	52.63	48.56	52.83	48.70	53.03	48.83
Short Circuit Current	I _{SC} (A)	14.35	11.58	14.43	11.64	14.51	11.71	14.59	11.77	14.67	11.84
Module Efficiency	(%)	22.26		22.45		22.65		22.84		23.03	

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

Current-Voltage & Power-Voltage Curve (595W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 N-type Bifacial Module (54)



Power Range
425W ~ 445W



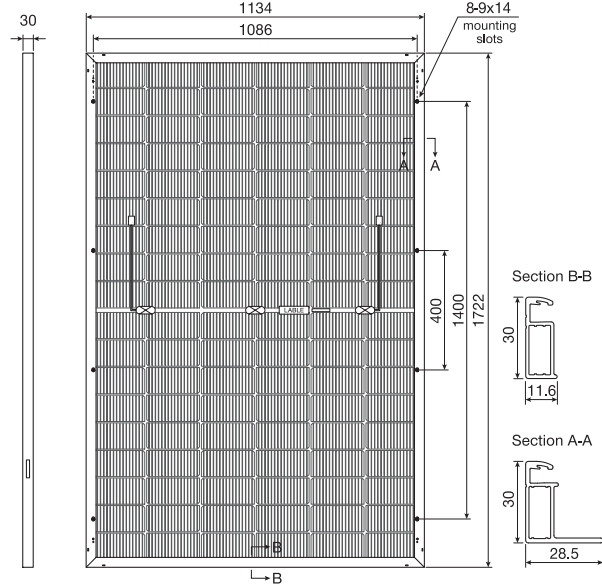
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.79%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	23.1kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy / Polyurethane Composite Frame
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs



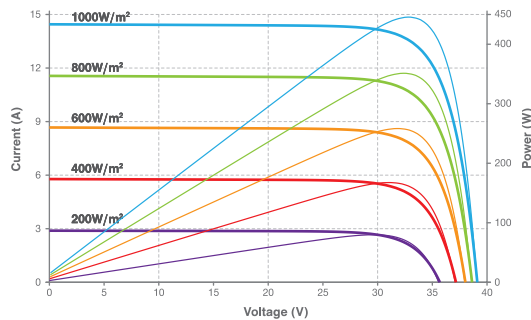
(Unit: mm)

Electrical Performance Parameters

Model Type		425C(HBD)54(182)		430C(HBD)54(182)		435C(HBD)54(182)		440C(HBD)54(182)		445C(HBD)54(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{max} (W)	425	319	430	323	435	327	440	331	445	335
Max. Power Voltage	V _{MP} (V)	31.65	29.82	31.88	30.02	32.11	30.23	32.34	30.43	32.57	30.64
Max. Power Current	I _{MP} (A)	13.43	10.70	13.49	10.76	13.55	10.82	13.61	10.88	13.67	10.94
Open Circuit Voltage	V _{OC} (V)	37.17	34.68	37.37	34.87	37.57	35.06	37.77	35.25	37.97	35.44
Short Circuit Current	I _{SC} (A)	14.67	11.90	14.73	11.95	14.79	12.00	14.85	12.05	14.91	12.10
Module Efficiency	(%)	21.76		22.02		22.28		22.53		22.79	

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

Current-Voltage & Power-Voltage Curve (445W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{max} (W)	446	452	457	462	467
	Module Efficiency	(%)	22.85	23.12	23.39	23.66	23.93
10%	Maximum Power	P _{max} (W)	468	473	479	484	490
	Module Efficiency	(%)	23.94	24.22	24.50	24.79	25.07
25%	Maximum Power	P _{max} (W)	531	538	544	550	556
	Module Efficiency	(%)	27.21	27.53	27.85	28.17	28.49

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (I _{sc})	+0.043%	Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 N-type Bifacial Module (60)



Power Range
475W ~ 495W

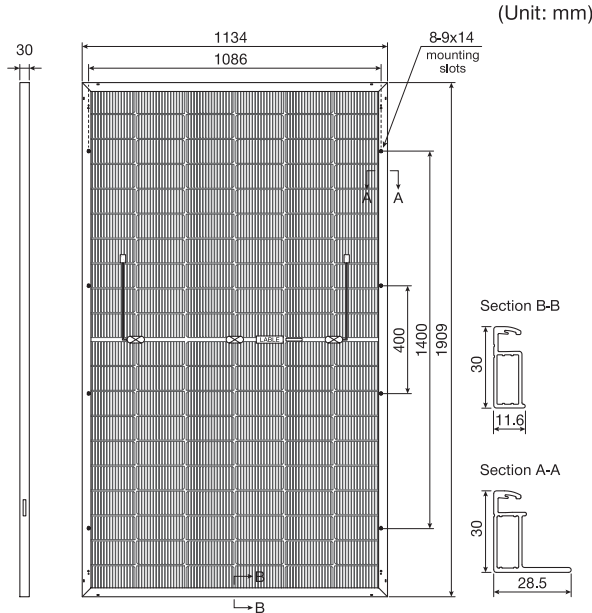


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.87%

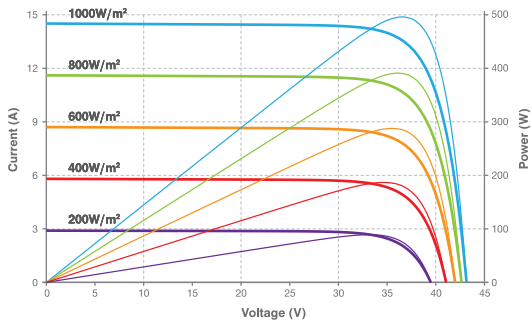
Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	25.7kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy / Polyurethane Composite Frame
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs



Electrical Performance Parameters										
Model Type	475C(HBD)60(182)		480C(HBD)60(182)		485C(HBD)60(182)		490C(HBD)60(182)		495C(HBD)60(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	475	357	480	361	485	365	490	369	373
Max. Power Voltage	V _{MPP} (V)	35.27	33.25	35.48	33.43	35.69	33.61	35.90	33.80	33.98
Max. Power Current	I _{MPP} (A)	13.47	10.74	13.53	10.80	13.59	10.86	13.65	10.92	10.98
Open Circuit Voltage	V _{OC} (V)	41.87	39.34	42.07	39.53	42.27	39.72	42.47	39.91	40.10
Short Circuit Current	I _{SC} (A)	14.55	11.84	14.61	11.89	14.67	11.94	14.73	11.99	12.04
Module Efficiency	(%)	21.94		22.17		22.40		22.63		22.87

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

Current-Voltage & Power-Voltage Curve (495W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	499	504	509	515	520
	Module Efficiency	(%)	23.04	23.28	23.52	23.77	24.01
10%	Maximum Power	P _{MAX} (W)	523	528	534	539	545
	Module Efficiency	(%)	24.14	24.39	24.64	24.90	25.15
25%	Maximum Power	P _{MAX} (W)	594	600	606	613	619
	Module Efficiency	(%)	27.43	27.72	28.00	28.29	28.58

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 N-type Bifacial Module (66)



Power Range
525W ~ 545W

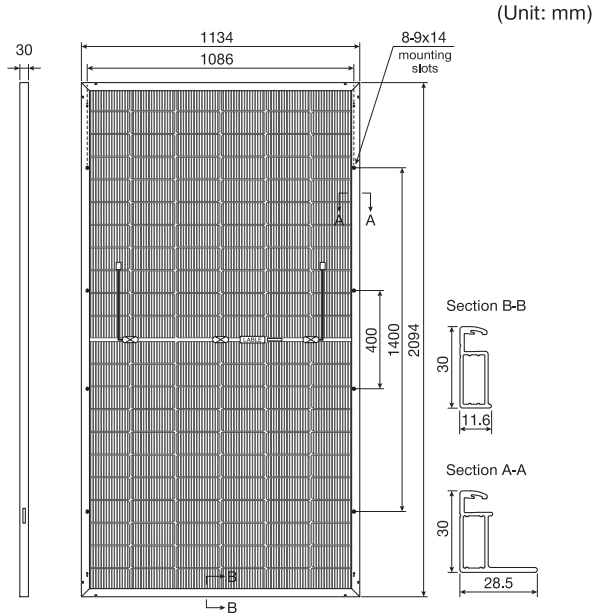


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.95%

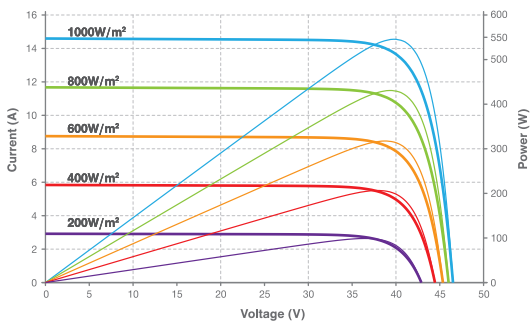
Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2094×1134×30mm
Weight	28.4kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy / Polyurethane Composite Frame
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs



Electrical Performance Parameters										
Model Type	525C(HBD)66(182)		530C(HBD)66(182)		535C(HBD)66(182)		540C(HBD)66(182)		545C(HBD)66(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	525	394	530	398	535	402	540	406	410
Max. Power Voltage	V _{MPP} (V)	38.89	36.55	39.09	36.72	39.29	36.89	39.49	37.06	37.22
Max. Power Current	I _{MPP} (A)	13.50	10.78	13.56	10.84	13.62	10.90	13.68	10.96	11.02
Open Circuit Voltage	V _{OC} (V)	46.57	44.00	46.77	44.19	46.97	44.38	47.17	44.57	44.76
Short Circuit Current	I _{SC} (A)	14.43	11.68	14.49	11.73	14.55	11.78	14.61	11.83	11.88
Module Efficiency	(%)	22.11		22.32		22.53		22.74		22.95

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

Current-Voltage & Power-Voltage Curve (545W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	551	557	562	567	572
	Module Efficiency	(%)	23.21	23.44	23.66	23.88	24.10
10%	Maximum Power	P _{MAX} (W)	578	583	589	594	600
	Module Efficiency	(%)	24.32	24.55	24.78	25.01	25.25
25%	Maximum Power	P _{MAX} (W)	656	663	669	675	681
	Module Efficiency	(%)	27.64	27.90	28.16	28.43	28.69

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 N-type Bifacial Module (72)



Power Range
575W ~ 595W

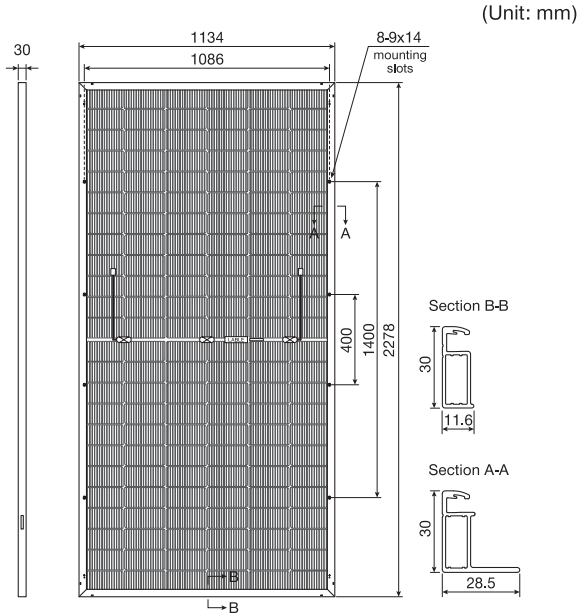


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
23.03%

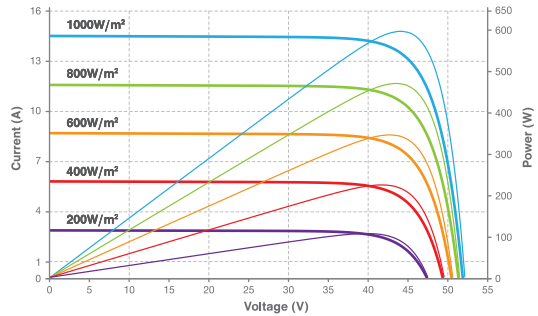
Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	31.2kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy / Polyurethane Composite Frame
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs



Electrical Performance Parameters										
Model Type	575C(HBD)72(182)		580C(HBD)72(182)		585C(HBD)72(182)		590C(HBD)72(182)		595C(HBD)72(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	575	433	580	437	585	441	590	445	595
Max. Power Voltage	V _{MPP} (V)	42.60	40.02	42.75	40.17	42.89	40.32	43.04	40.47	43.18
Max. Power Current	I _{MPP} (A)	13.50	10.82	13.57	10.88	13.64	10.94	13.71	11.00	13.78
Open Circuit Voltage	V _{OC} (V)	51.23	48.66	51.43	48.85	51.63	49.04	51.83	49.23	52.03
Short Circuit Current	I _{SC} (A)	14.27	11.51	14.33	11.56	14.39	11.61	14.45	11.66	14.51
Module Efficiency	(%)	22.26		22.45		22.65		22.84		23.03

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

Current-Voltage & Power-Voltage Curve (595W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	604	609	614	620	625
	Module Efficiency	(%)	23.37	23.57	23.78	23.98	24.18
10%	Maximum Power	P _{MAX} (W)	633	638	644	649	655
	Module Efficiency	(%)	24.48	24.70	24.91	25.12	25.34
25%	Maximum Power	P _{MAX} (W)	719	725	731	738	744
	Module Efficiency	(%)	27.82	28.07	28.31	28.55	28.79

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 N-type Bifacial Module (78)



Power Range
625W ~ 640W

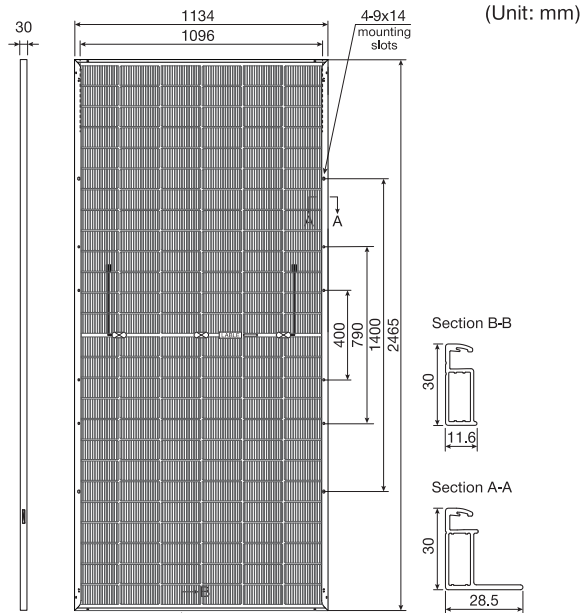


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.90%

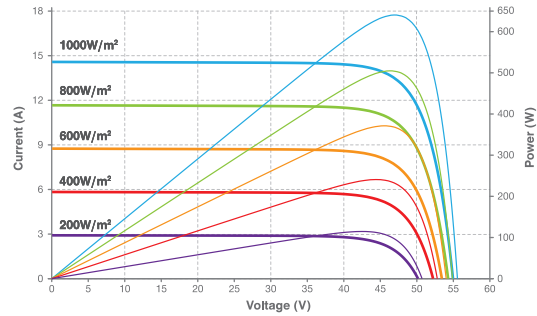
Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	156pcs(6x26)
Module Dimension	2465×1134×30mm
Weight	33.5kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy / Polyurethane Composite Frame
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	576pcs



Electrical Performance Parameters										
Model Type	625C(HBD)78(182)		630C(HBD)78(182)		635C(HBD)78(182)		640C(HBD)78(182)			
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	625	470	630	474	635	478	640	482	
Max. Power Voltage	V _{MPP} (V)	46.24	43.43	46.37	43.57	46.50	43.71	46.63	43.85	
Max. Power Current	I _{MPP} (A)	13.52	10.83	13.59	10.88	13.66	10.94	13.73	11.00	
Open Circuit Voltage	V _{OC} (V)	56.31	52.35	56.46	52.49	56.61	52.63	56.76	52.77	
Short Circuit Current	I _{SC} (A)	14.34	11.57	14.42	11.63	14.50	11.70	14.58	11.76	
Module Efficiency	(%)	22.36		22.54		22.72		22.90		

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

Current-Voltage & Power-Voltage Curve (640W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	656	662	667	672
	Module Efficiency	(%)	23.48	23.66	23.85	24.04
10%	Maximum Power	P _{MAX} (W)	688	693	699	704
	Module Efficiency	(%)	24.59	24.79	24.99	25.19
25%	Maximum Power	P _{MAX} (W)	781	788	794	800
	Module Efficiency	(%)	27.95	28.17	28.40	28.62

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

210 N-type Bifacial Module (54)



Power Range
560W ~ 580W



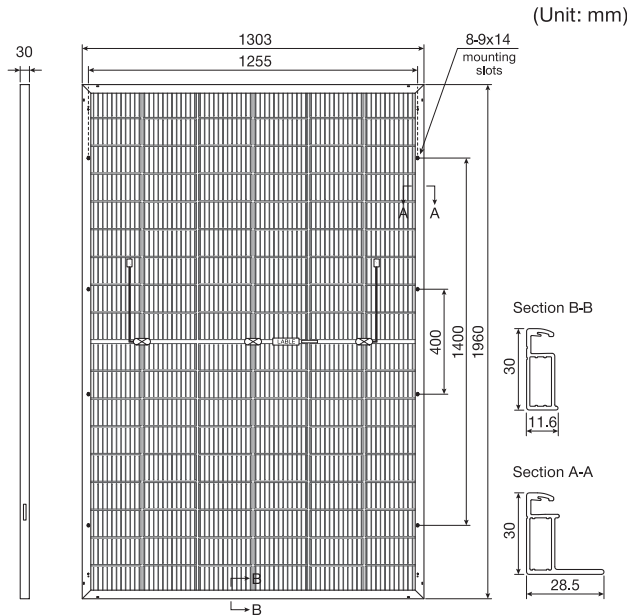
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.71%

Structure Performance

Solar Cell Type	210mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1960×1303×30mm
Weight	31.7kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	648pcs

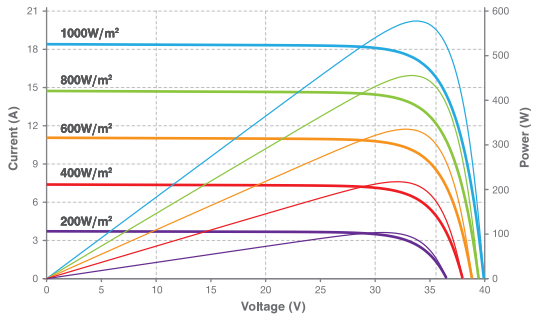


Electrical Performance Parameters

Model Type	560C(HBD)54(210)		565C(HBD)54(210)		570C(HBD)54(210)		575C(HBD)54(210)		580C(HBD)54(210)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	560	430	565	434	570	438	575	442	580
Max. Power Voltage	V _{MPP} (V)	32.36	30.55	32.55	30.74	32.75	30.94	32.94	31.13	33.14
Max. Power Current	I _{MPP} (A)	17.31	14.08	17.36	14.12	17.41	14.16	17.46	14.20	17.51
Open Circuit Voltage	V _{OC} (V)	41.02	35.38	41.22	35.56	41.41	35.75	41.61	35.93	41.81
Short Circuit Current	I _{SC} (A)	18.11	11.78	18.15	11.81	18.19	11.84	18.23	11.87	18.27
Module Efficiency	(%)	21.93		22.12		22.32		22.51		22.71

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

Current-Voltage & Power-Voltage Curve (580W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	588	593	599	604	609
	Module Efficiency	(%)	23.02	23.23	23.43	23.64	23.85
10%	Maximum Power	P _{MAX} (W)	616	622	627	633	638
	Module Efficiency	(%)	24.12	24.34	24.55	24.77	24.98
25%	Maximum Power	P _{MAX} (W)	700	706	713	719	725
	Module Efficiency	(%)	27.41	27.65	27.90	28.14	28.39

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210 N-type Bifacial Module (60)



Power Range
620W ~ 640W



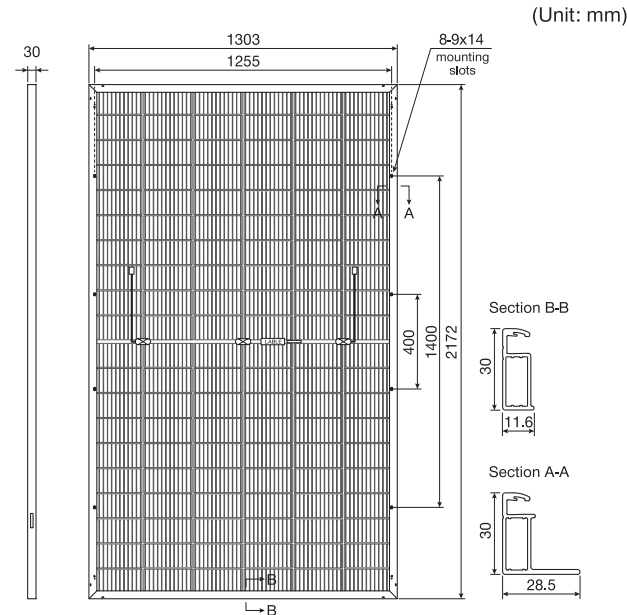
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.61%

Structure Performance

Solar Cell Type	210mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	2172×1303×30mm
Weight	34.5kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	648pcs

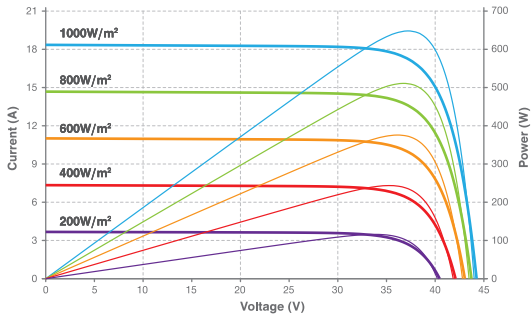


Electrical Performance Parameters

Model Type	620C(HBD)60(210)		625C(HBD)60(210)		630C(HBD)60(210)		635C(HBD)60(210)		640C(HBD)60(210)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	620	474	625	486	630	482	635	486	640
Max. Power Voltage	V _{MPP} (V)	35.70	33.62	35.91	33.83	36.11	34.04	36.33	34.25	36.54
Max. Power Current	I _{MPP} (A)	17.37	14.10	17.41	14.13	17.45	14.16	17.48	14.19	17.52
Open Circuit Voltage	V _{OC} (V)	45.15	41.15	45.36	41.36	45.58	41.58	45.80	41.79	46.02
Short Circuit Current	I _{SC} (A)	18.18	14.65	18.22	14.69	18.26	14.73	18.30	14.77	18.34
Module Efficiency	(%)	21.91		22.08		22.26		22.44		22.61

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

Current-Voltage & Power-Voltage Curve (640W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	651	656	662	667	672
	Module Efficiency	(%)	23.00	23.19	23.37	23.56	23.74
10%	Maximum Power	P _{MAX} (W)	682	688	693	699	704
	Module Efficiency	(%)	24.10	24.29	24.49	24.68	24.88
25%	Maximum Power	P _{MAX} (W)	775	781	788	794	800
	Module Efficiency	(%)	27.38	27.60	27.83	28.05	28.27

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210 N-type Bifacial Module (66)



Power Range
700W ~ 720W

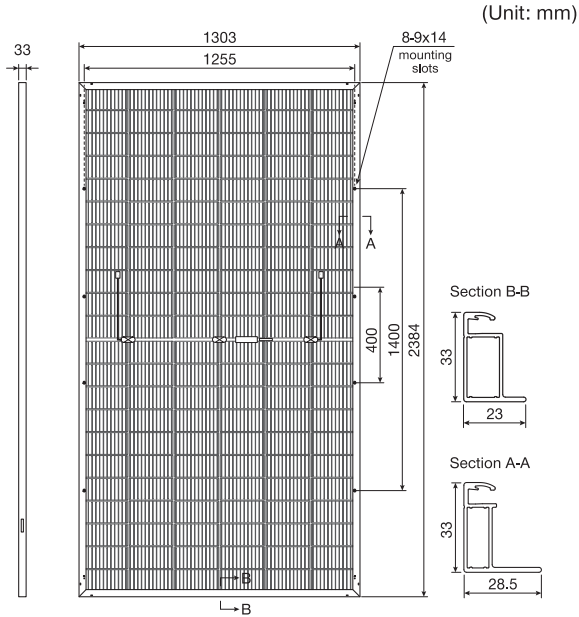


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
23.18%

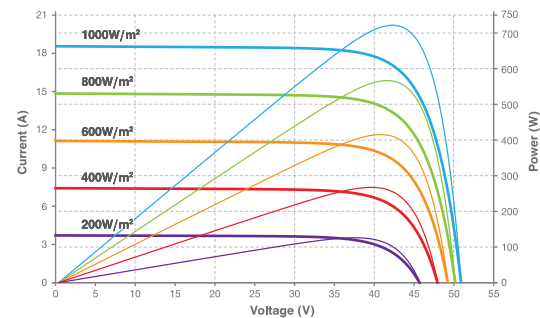
Structure Performance	
Solar Cell Type	210mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2384×1303×33mm
Weight	37.8kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-) , landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	33pcs
Per Container(40'HQ)	594pcs



Electrical Performance Parameters										
Model Type	700C(HBD)66(210)		705C(HBD)66(210)		710C(HBD)66(210)		715C(HBD)66(210)		720C(HBD)66(210)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	700	535	705	539	710	543	715	547	551
Max. Power Voltage	V _{MPP} (V)	40.07	37.66	40.29	37.86	40.51	38.06	40.72	38.26	40.94
Max. Power Current	I _{MPP} (A)	17.47	14.21	17.50	14.24	17.53	14.27	17.56	14.30	14.33
Open Circuit Voltage	V _{OC} (V)	50.34	46.07	50.55	46.28	50.76	46.50	50.97	46.71	51.18
Short Circuit Current	I _{SC} (A)	18.37	14.81	18.41	14.85	18.45	14.89	18.49	14.93	18.53
Module Efficiency	(%)	22.53		22.70		22.86		23.02		23.18

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

Current-Voltage & Power-Voltage Curve (720W)



Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

Bifacial Output-rearside Power Gain						
5%	Maximum Power	P _{MAX} (W)	735	740	746	751
	Module Efficiency	(%)	23.66	23.83	24.00	24.17
10%	Maximum Power	P _{MAX} (W)	770	776	781	787
	Module Efficiency	(%)	24.79	24.96	25.14	25.32
25%	Maximum Power	P _{MAX} (W)	875	881	888	894
	Module Efficiency	(%)	28.17	28.37	28.57	28.77

210R N-type Monofacial Module (54)



Power Range
490W ~ 510W

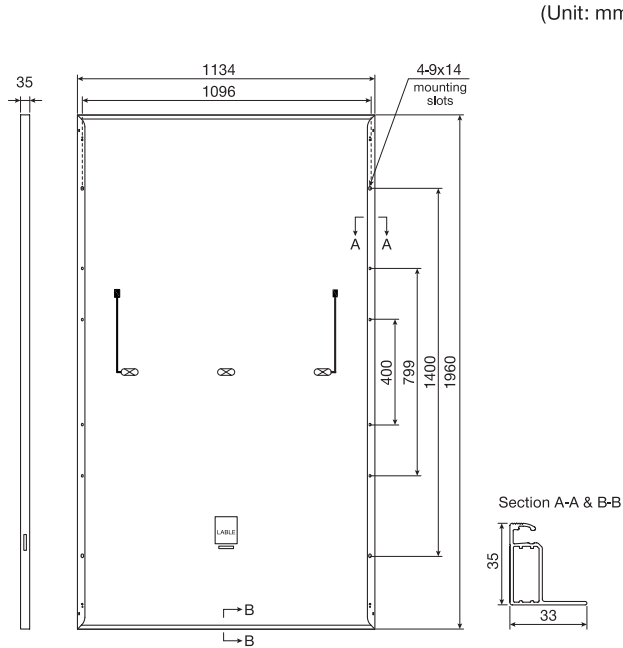


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.95%

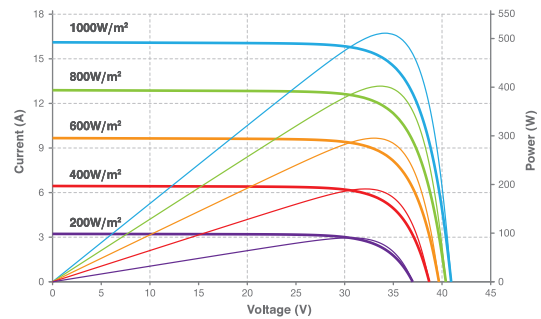
Structure Performance	
Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6x18)
Module Dimension	1960×1134×35mm
Weight	27.1kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-) , landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	744pcs



Electrical Performance Parameters										
Model Type	490C(HPM)54(210R)		495C(HPM)54(210R)		500C(HPM)54(210R)		505C(HPM)54(210R)		510C(HPM)54(210R)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	490	370	495	374	500	378	505	382	386
Max. Power Voltage	V _{MPP} (V)	32.95	30.91	33.08	31.03	33.21	31.15	33.34	31.27	31.39
Max. Power Current	I _{MPP} (A)	14.88	11.98	14.97	12.06	15.06	12.14	15.15	12.22	12.30
Open Circuit Voltage	V _{OC} (V)	40.29	38.23	40.40	38.34	40.51	38.44	40.62	38.55	38.65
Short Circuit Current	I _{SC} (A)	15.84	12.78	15.93	12.85	16.02	12.92	16.10	12.99	13.06
Module Efficiency	(%)	22.05		22.27		22.50		22.72		22.95

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

Current-Voltage & Power-Voltage Curve (510W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{SC})	+0.043%
Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210R N-type Monofacial Module (60)



Power Range
545W ~ 565W

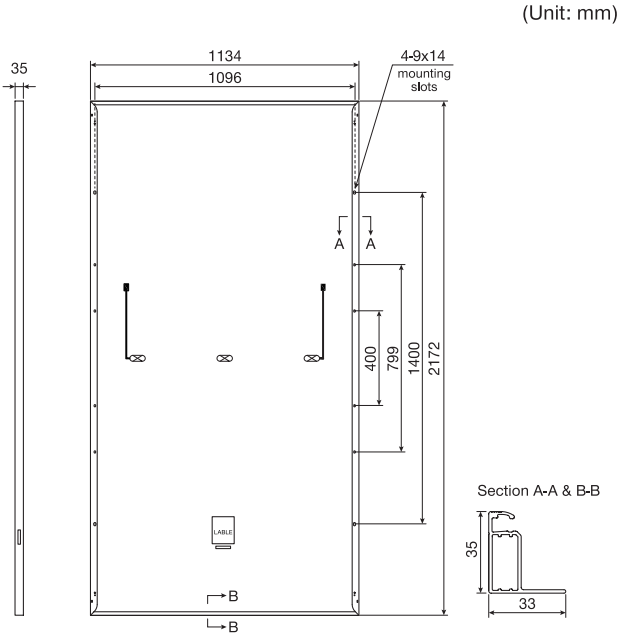


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.94%

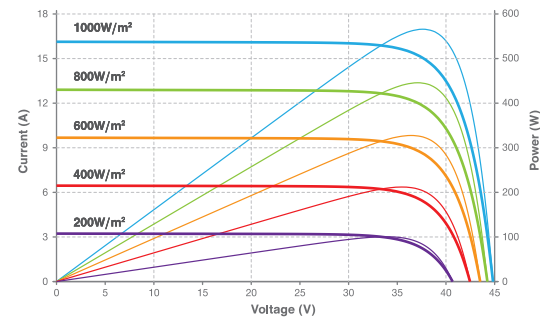
Structure Performance	
Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	2172×1134×35mm
Weight	29.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	620pcs



Electrical Performance Parameters										
Model Type	545C(HPM)60(210R)		550C(HPM)60(210R)		555C(HPM)60(210R)		560C(HPM)60(210R)		565C(HPM)60(210R)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	545	411	550	415	555	419	560	423	565
Max. Power Voltage	V _{MPP} (V)	36.44	34.17	36.58	34.30	36.72	34.43	36.86	34.56	37.00
Max. Power Current	I _{MPP} (A)	14.96	12.03	15.04	12.10	15.12	12.17	15.20	12.24	15.28
Open Circuit Voltage	V _{OC} (V)	44.11	41.86	44.24	41.98	44.36	42.10	44.48	42.22	44.60
Short Circuit Current	I _{SC} (A)	15.86	12.79	15.95	12.86	16.04	12.93	16.12	13.00	16.21
Module Efficiency	(%)	22.13		22.33		22.53		22.74		22.94

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

Current-Voltage & Power-Voltage Curve (565W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210R N-type Monofacial Module (66)



Power Range
595W ~ 615W

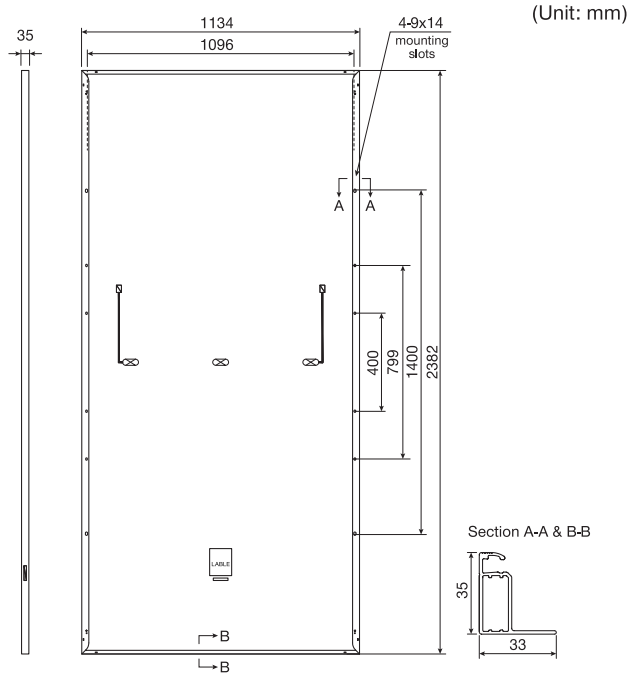


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.77%

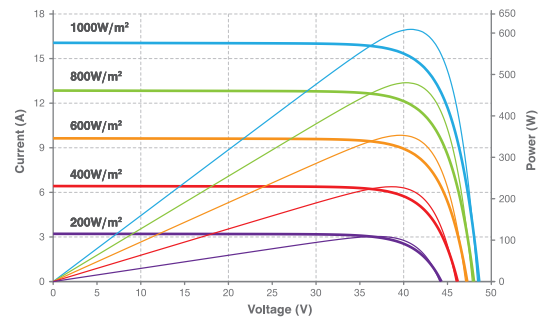
Structure Performance	
Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2382×1134×35mm
Weight	32.8kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	496pcs (horizontal packing) / 620pcs (vertical packing)



Electrical Performance Parameters										
Model Type	595C(HPM)66(210R)		600C(HPM)66(210R)		605C(HPM)66(210R)		610C(HPM)66(210R)		615C(HPM)66(210R)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	595	448	600	452	605	456	610	460	615
Max. Power Voltage	V _{MPP} (V)	40.05	37.43	40.17	37.58	40.30	37.75	40.43	37.90	40.55
Max. Power Current	I _{MPP} (A)	14.86	11.97	14.94	12.03	15.02	12.08	15.09	12.14	15.17
Open Circuit Voltage	V _{OC} (V)	48.04	45.58	48.17	45.71	48.30	45.83	48.44	45.96	48.57
Short Circuit Current	I _{SC} (A)	15.71	12.67	15.79	12.75	15.88	12.82	15.97	12.89	16.06
Module Efficiency	(%)	22.03		22.21		22.40		22.58		22.77

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

Current-Voltage & Power-Voltage Curve (615W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210R N-type Bifacial Module (54)



Power Range
490W ~ 510W



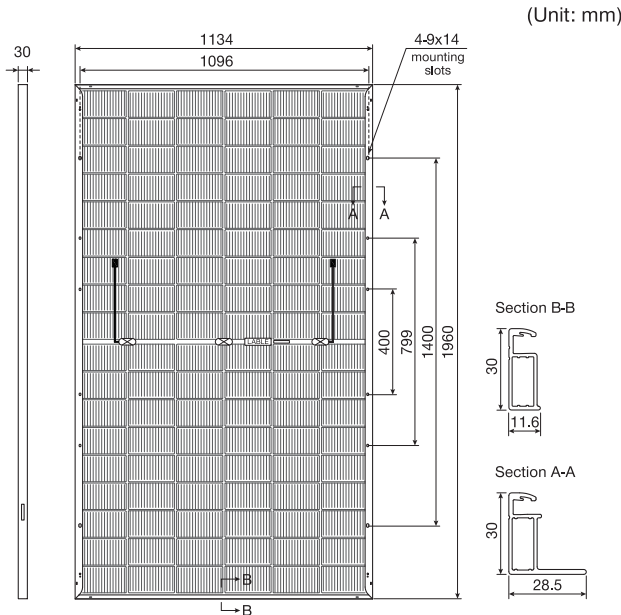
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.95%

Structure Performance

Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1960×1134×30mm
Weight	27.4kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs

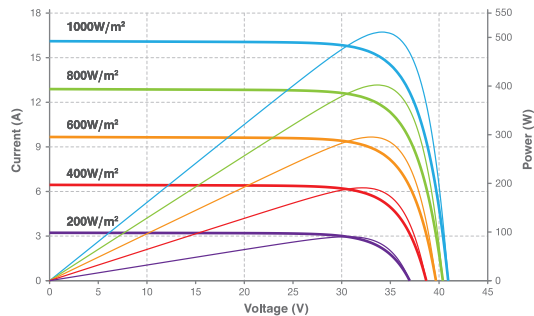


Electrical Performance Parameters

Model Type		490C(HBD)54(210R)		495C(HBD)54(210R)		500C(HBD)54(210R)		505C(HBD)54(210R)		510C(HBD)54(210R)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	490	370	495	374	500	378	505	382	510	386
Max. Power Voltage	V _{MP} (V)	33.14	31.02	33.27	31.17	33.41	31.32	33.55	31.47	33.68	31.62
Max. Power Current	I _{MP} (A)	14.79	11.93	14.88	12.00	14.97	12.07	15.06	12.14	15.15	12.21
Open Circuit Voltage	V _{OC} (V)	40.50	38.43	40.61	38.54	40.72	38.64	40.83	38.75	40.94	38.85
Short Circuit Current	I _{SC} (A)	15.76	12.71	15.85	12.79	15.94	12.86	16.02	12.93	16.11	13.00
Module Efficiency	(%)	22.05		22.27		22.50		22.72		22.95	

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

Current-Voltage & Power-Voltage Curve (510W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	515	520	525	530	536
	Module Efficiency	(%)	23.15	23.38	23.62	23.86	24.09
10%	Maximum Power	P _{MAX} (W)	539	545	550	556	561
	Module Efficiency	(%)	24.25	24.50	24.75	24.99	25.24
25%	Maximum Power	P _{MAX} (W)	613	619	625	631	638
	Module Efficiency	(%)	27.56	27.84	28.12	28.40	28.68

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210R N-type Bifacial Module (60)



Power Range
545W ~ 565W



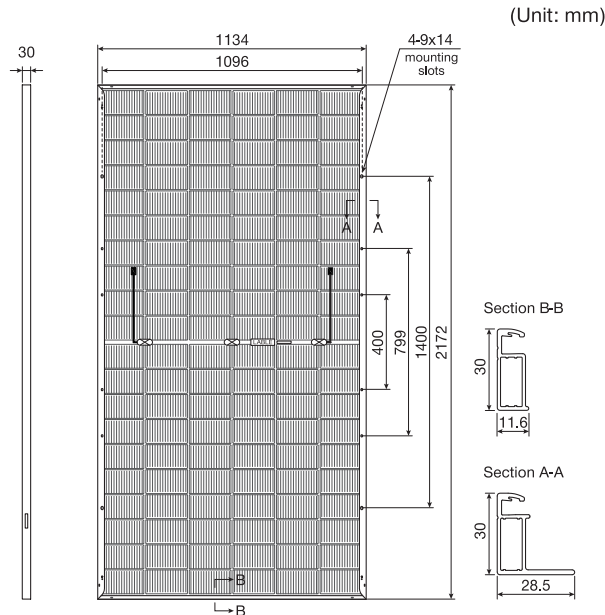
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.94%

Structure Performance

Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	2172×1134×30mm
Weight	30.0kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs

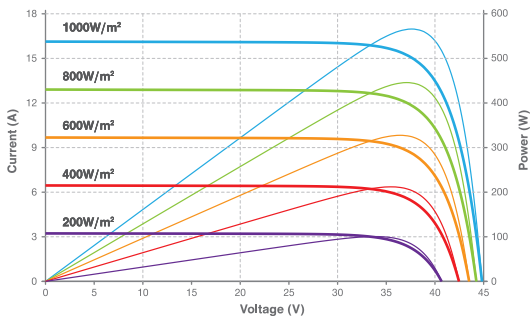


Electrical Performance Parameters

Model Type		545C(HBD)60(210R)		550C(HBD)60(210R)		555C(HBD)60(210R)		560C(HBD)60(210R)		565C(HBD)60(210R)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	545	411	550	415	555	419	560	423	565	427
Max. Power Voltage	V _{MP} (V)	36.63	34.36	36.77	34.49	36.91	34.62	37.05	34.75	37.19	34.88
Max. Power Current	I _{MP} (A)	14.88	11.97	14.96	12.04	15.04	12.11	15.12	12.18	15.20	12.25
Open Circuit Voltage	V _{OC} (V)	44.34	42.08	44.47	42.20	44.59	42.31	44.71	42.43	44.83	42.54
Short Circuit Current	I _{SC} (A)	15.78	12.73	15.87	12.80	15.96	12.87	16.04	12.94	16.13	13.01
Module Efficiency	(%)	22.13		22.33		22.53		22.74		22.94	

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

Current-Voltage & Power-Voltage Curve (565W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	572	578	583	588	593
	Module Efficiency	(%)	23.23	23.45	23.66	23.87	24.09
10%	Maximum Power	P _{MAX} (W)	600	605	611	616	622
	Module Efficiency	(%)	24.34	24.56	24.79	25.01	25.23
25%	Maximum Power	P _{MAX} (W)	681	688	694	700	706
	Module Efficiency	(%)	27.66	27.91	28.17	28.42	28.67

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A

210R N-type Bifacial Module (66)



Power Range
595W ~ 615W



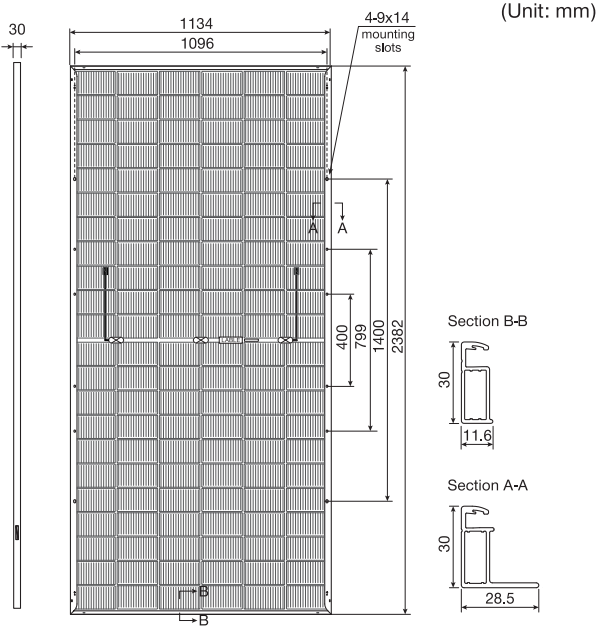
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.77%

Structure Performance

Solar Cell Type	210R N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2382×1134×30mm
Weight	32.5kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-) , landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	576pcs (horizontal packing) / 720pcs (vertical packing)

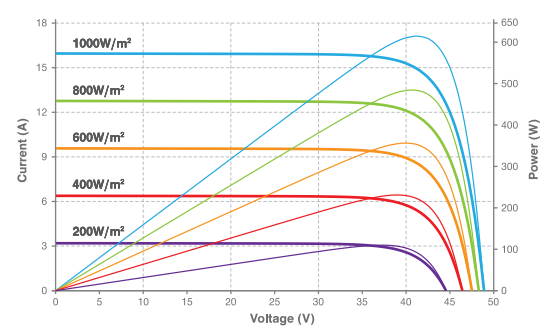


Electrical Performance Parameters

Model Type		595C(HBD)66(210R)		600C(HBD)66(210R)		605C(HBD)66(210R)		610C(HBD)66(210R)		615C(HBD)66(210R)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P_{MAX} (W)	595	448	600	452	605	456	610	460	615	464
Max. Power Voltage	V_{MP} (V)	40.26	37.62	40.38	37.77	40.51	37.94	40.64	38.10	40.76	38.26
Max. Power Current	I_{MP} (A)	14.78	11.91	14.86	11.97	14.94	12.02	15.01	12.08	15.09	12.13
Open Circuit Voltage	V_{OC} (V)	48.29	45.82	48.42	45.95	48.55	46.07	48.69	46.20	48.82	46.33
Short Circuit Current	I_{SC} (A)	15.63	12.60	15.71	12.68	15.80	12.75	15.89	12.82	15.98	12.89
Module Efficiency	(%)	22.03		22.21		22.40		22.58		22.77	

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

Current-Voltage & Power-Voltage Curve (615W)



Bifacial Output-rearside Power Gain

	Maximum Power	P_{MAX} (W)	625	630	635	641	646
	Module Efficiency	(%)	23.13	23.32	23.52	23.71	23.91
5%	Maximum Power	P_{MAX} (W)	655	660	666	671	677
	Module Efficiency	(%)	24.23	24.43	24.64	24.84	25.04
10%	Maximum Power	P_{MAX} (W)	744	750	756	763	769
	Module Efficiency	(%)	27.53	27.77	28.00	28.23	28.46

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V_{OC})	-0.25%
Temperature Coefficient (I_{SC})	+0.043%	Temperature Coefficient (P_{MAX})	-0.30%

Maximum Parameters

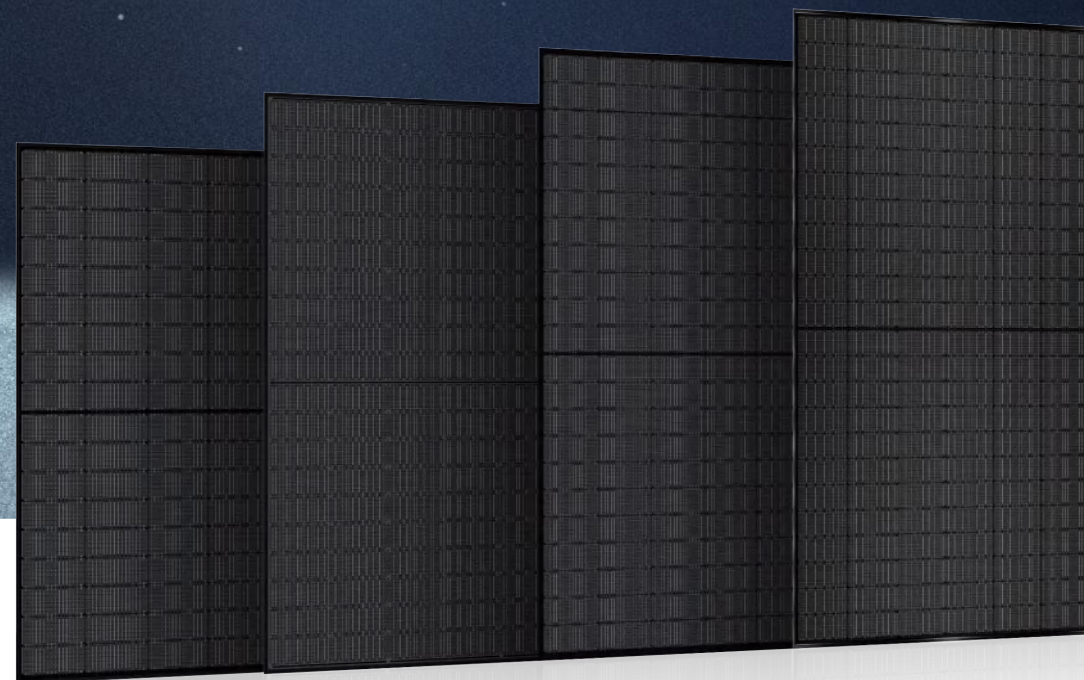
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	35A



Pure Black series

Elegant Aesthetics, Sleek Integration

The LESSO Solar Pure Black Series combines cutting-edge technology with minimalist design to seamlessly blend into modern architectural environments. Crafted for premium visual appeal, this series adopts 182mm wafers and TOPCon technology, ensuring high efficiency while maintaining a uniform, deep-black appearance. Its refined aesthetics and seamless integration empower buildings with both sophistication and sustainable energy performance.



TOPCon Technology
Higher Power Generation



MBB Technology
Reducing String &
Busbar Loss



**Highly-resistant Black
Crystal Material**
Modernity to Buildings



Even Cloudy or Foggy Days
Better Weak Illumination
Response



Zero LID
Increase Power Generation



**Better Temperature
Coefficient**
More Power Generation



Higher Power Output
Lower BOS Cost



**Multiple Weather
Resistance Tests**
Wider Applicability



Double-sided Generation
Powerfully Energy Boost

Power Range
400W ~ 635W

Maximum Efficiency
22.72%

12 years product
workmanship warranty

25/30 years linear power
output warranty

1% 1st-year degradation
0.40% annual degradation

Pure Black Series Mainstream Products

Product	Power (W)	Maximum Efficiency	Size (mm)
182 N-type (54) Pure Black single glass	415 - 435	22.28%	1722x1134x30
182 N-type (54) Pure Black double glass	420 - 435		
182 N-type (60) Pure Black single glass	465 - 485	22.40%	1909x1134x30
182 N-type (60) Pure Black double glass	470 - 485		
182 N-type (66) Pure Black single glass	515 - 535	22.53%	2094x1134x30
182 N-type (66) Pure Black double glass	520 - 535		
182 N-type (72) Pure Black single glass	565 - 585	22.65%	2278x1134x30
182 N-type (72) Pure Black double glass	570 - 585		
182 N-type (78) Pure Black double glass	620 - 635	22.72%	2465x1134x30
182 N-type (54) Pure Black bifacial single glass	415 - 435	22.28%	1722x1134x30
182 P-type (54) Pure Black single glass	400 - 410	21.00%	1722x1134x30
182 P-type (60) Pure Black single glass	445 - 455	21.02%	1909×1134×30
182 P-type (66) Pure Black single glass	490 - 500	21.06%	2094×1134×30
182 P-type (72) Pure Black single glass	535 - 545	21.10%	2278×1134×30

Note: see datasheet for details

182 Pure Black N-type Monofacial Module (54)

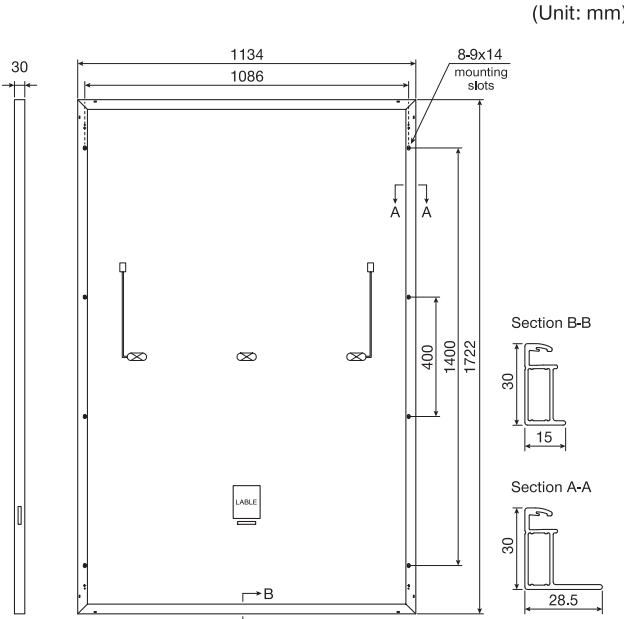
Power Range
415W ~ 435W

Power Output Tolerance
0W ~ +5W

Maximum Efficiency
22.28%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	20.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

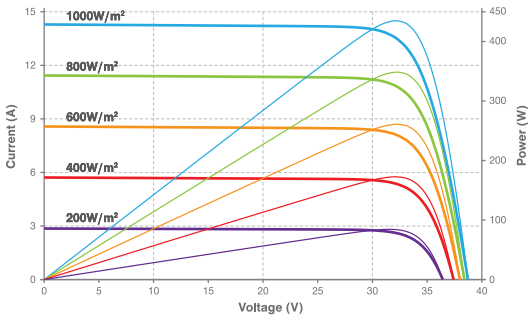


Electrical Performance Parameters

Model Type		415C(BPM)54(182)		420C(BPM)54(182)		425C(BPM)54(182)		430C(BPM)54(182)		435C(BPM)54(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	415	312	420	316	425	320	430	323	435	327
Max. Power Voltage	V _{MP} (V)	31.64	29.52	31.82	29.68	32.01	29.86	32.20	29.91	32.38	30.09
Max. Power Current	I _{MP} (A)	13.12	10.57	13.20	10.65	13.28	10.72	13.36	10.80	13.44	10.87
Open Circuit Voltage	V _{OC} (V)	38.20	36.29	38.39	36.47	38.58	36.68	38.77	36.79	38.96	37.01
Short Circuit Current	I _{SC} (A)	13.89	11.21	13.97	11.28	14.05	11.35	14.13	11.42	14.21	11.49
Module Efficiency	(%)	21.25		21.51		21.76		22.02		22.28	

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

Current-Voltage & Power-Voltage Curve (435W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 Pure Black N-type Monofacial Module (60)



Power Range
465W ~ 485W

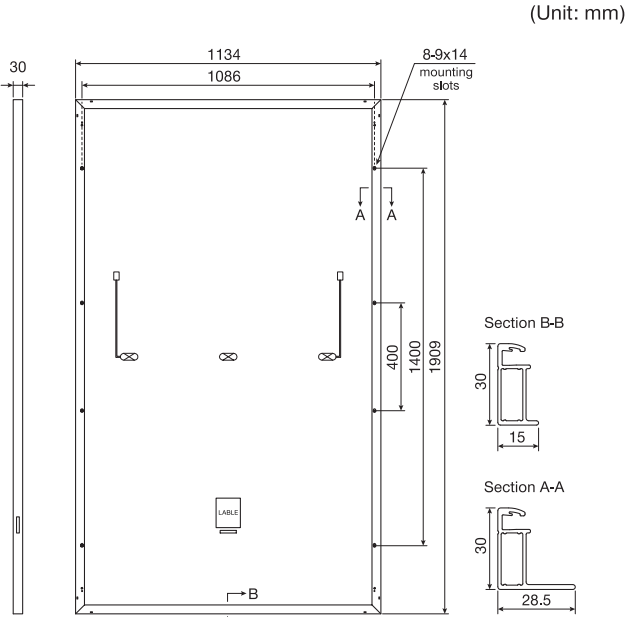


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.40%

Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	22.1kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+), 200mm (-), landscape 1400mm (+), 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs



182 Pure Black N-type Monofacial Module (66)



Power Range
515W ~ 535W

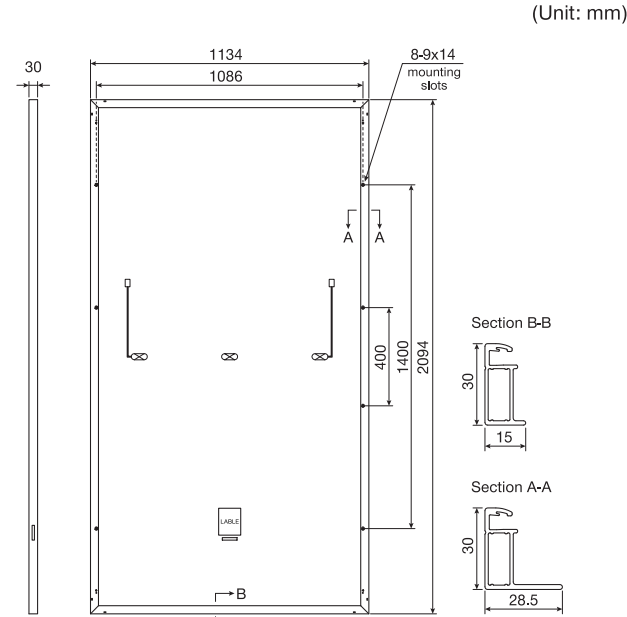


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.53%

Structure Performance	
Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2094×1134×30mm
Weight	24.0kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+), 200mm (-), landscape 1400mm (+), 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs



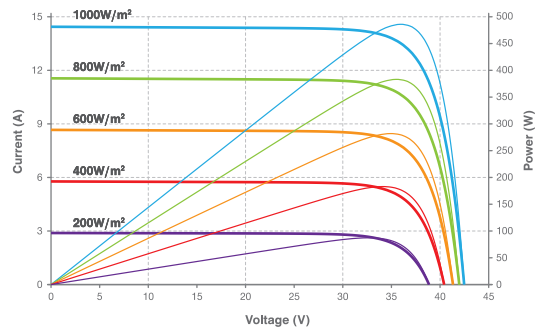
Electrical Performance Parameters											
Model Type		465C(BPM)60(182)		470C(BPM)60(182)		475C(BPM)60(182)		480C(BPM)60(182)		485C(BPM)60(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	465	350	470	354	475	358	480	362	485	366
Max. Power Voltage	V _{MPP} (V)	34.81	32.78	34.98	32.97	35.14	33.15	35.30	33.34	35.46	33.51
Max. Power Current	I _{MPP} (A)	13.36	10.68	13.44	10.74	13.52	10.80	13.60	10.86	13.68	10.93
Open Circuit Voltage	V _{OC} (V)	41.93	39.89	42.09	40.05	42.25	40.21	42.42	40.37	42.48	40.53
Short Circuit Current	I _{SC} (A)	14.11	11.42	14.19	11.49	14.28	11.56	14.36	11.63	14.44	11.70
Module Efficiency	(%)	21.48		21.71		21.94		22.17		22.40	

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

Electrical Performance Parameters											
Model Type		515C(BPM)66(182)		520C(BPM)66(182)		525C(BPM)66(182)		530C(BPM)66(182)		535C(BPM)66(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	515	387	520	391	525	395	530	399	535	403
Max. Power Voltage	V _{MPP} (V)	38.32	36.21	38.47	36.38	38.61	36.55	38.75	36.71	38.89	36.88
Max. Power Current	I _{MPP} (A)	13.44	10.69	13.52	10.75	13.60	10.81	13.68	10.87	13.76	10.93
Open Circuit Voltage	V _{OC} (V)	45.93	43.61	45.98	43.75	46.03	43.89	46.08	44.03	46.13	44.17
Short Circuit Current	I _{SC} (A)	14.17	11.49	14.26	11.56	14.34	11.63	14.42	11.70	14.50	11.77
Module Efficiency	(%)	21.69		21.90		22.11		22.32		22.53	

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

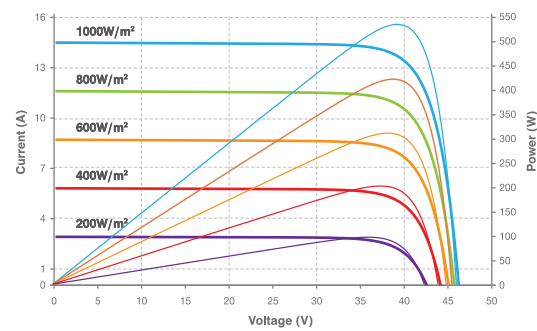
Current-Voltage & Power-Voltage Curve (485W)



Temperature Characteristics		
Nominal Module Operating Temperature	44±2°C	
Temperature Coefficient (I _{sc})	+0.043%	
Temperature Coefficient (V _{oc})	-0.25%	
Temperature Coefficient (P _{MAX})	-0.30%	

Maximum Parameters		
Working Temperature	-40~+85°C	
Maximum System Voltage	1500V DC	
Nominal Maximum Fuse Current	25A	

Current-Voltage & Power-Voltage Curve (535W)



Temperature Characteristics		
Nominal Module Operating Temperature	44±2°C	
Temperature Coefficient (I _{sc})	+0.043%	
Temperature Coefficient (V _{oc})	-0.25%	
Temperature Coefficient (P _{MAX})	-0.30%	

Maximum Parameters		
Working Temperature	-40~+85°C	
Maximum System Voltage	1500V DC	
Nominal Maximum Fuse Current	25A	

182 Pure Black N-type Monofacial Module (72)



Power Range
565W ~ 585W



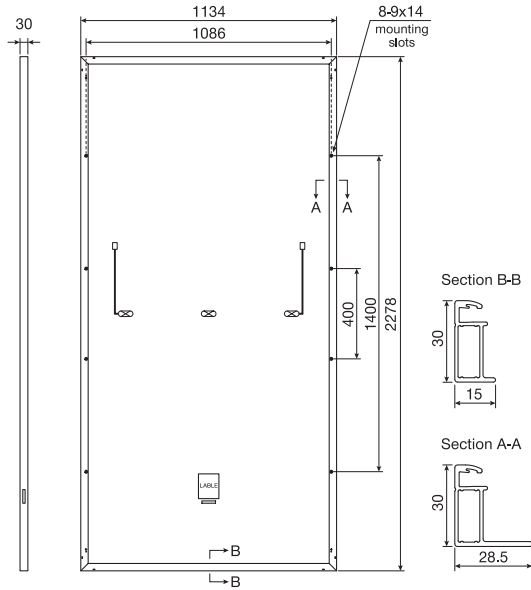
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.65%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	26.9kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs

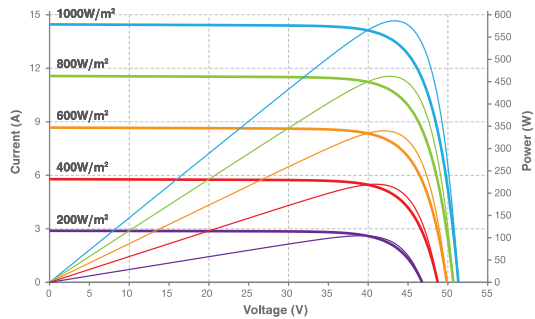


Electrical Performance Parameters

Model Type	565C(BPM)72(182)		570C(BPM)72(182)		575C(BPM)72(182)		580C(BPM)72(182)		585C(BPM)72(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	565	425	570	429	575	433	580	437	585
Max. Power Voltage	V _{MP} (V)	42.33	39.80	42.48	39.95	42.63	40.10	42.78	40.24	42.94
Max. Power Current	I _{MP} (A)	13.35	10.68	13.42	10.74	13.49	10.80	13.56	10.86	13.63
Open Circuit Voltage	V _{OC} (V)	50.86	48.31	51.00	48.45	51.15	48.58	51.29	48.71	51.40
Short Circuit Current	I _{SC} (A)	14.11	11.38	14.18	11.44	14.26	11.51	14.34	11.57	14.42
Module Efficiency	(%)	21.87		22.07		22.26		22.45		22.65

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

Current-Voltage & Power-Voltage Curve (585W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.043%
Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 Pure Black N-type Bifacial Module (54)



Power Range
420W ~ 435W



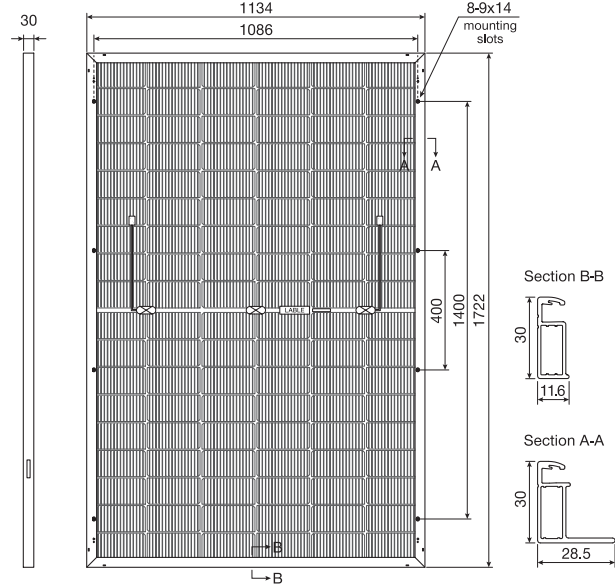
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.28%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	23.1kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

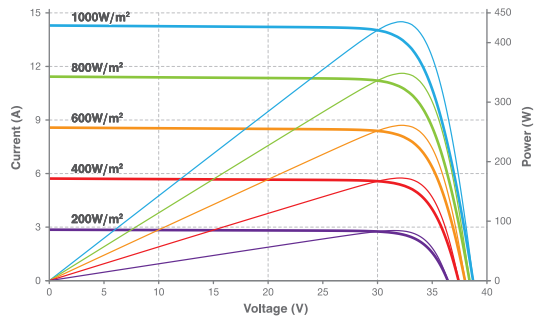


Electrical Performance Parameters

Model Type	420C(BBD)54(182)		425C(BBD)54(182)		430C(BBD)54(182)		435C(BBD)54(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	420	315	425	319	430	323	435
Max. Power Voltage	V _{MP} (V)	31.23	29.44	31.46	29.65	31.69	29.86	31.92
Max. Power Current	I _{MP} (A)	13.45	10.70	13.51	10.76	13.57	10.82	13.63
Open Circuit Voltage	V _{OC} (V)	36.75	34.28	36.95	34.47	37.15	34.66	37.35
Short Circuit Current	I _{SC} (A)	14.70	11.92	14.76	11.97	14.82	12.02	14.88
Module Efficiency	(%)	21.51		21.76		22.02		22.28

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

Current-Voltage & Power-Voltage Curve (435W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	441	446	452	457
	Module Efficiency	(%)	22.58	22.85	23.12	23.39
10%	Maximum Power	P _{MAX} (W)	462	468	473	479
	Module Efficiency	(%)	23.66	23.94	24.22	24.50
25%	Maximum Power	P _{MAX} (W)	525	531	538	544
	Module Efficiency	(%)	26.89	27.21	27.53	27.85

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{oc})	-0.25%
Temperature Coefficient (I _{sc})	+0.043%	Temperature Coefficient (P _{max})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black N-type Bifacial Module (60)



Power Range
470W ~ 485W



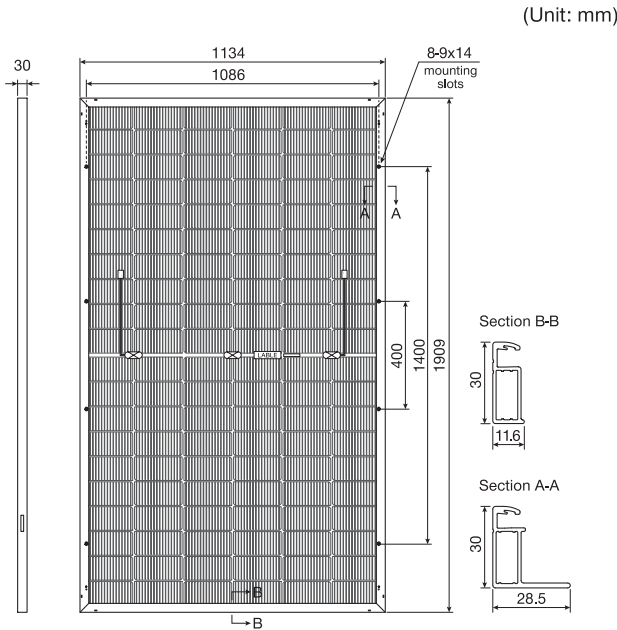
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.40%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	25.7kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs

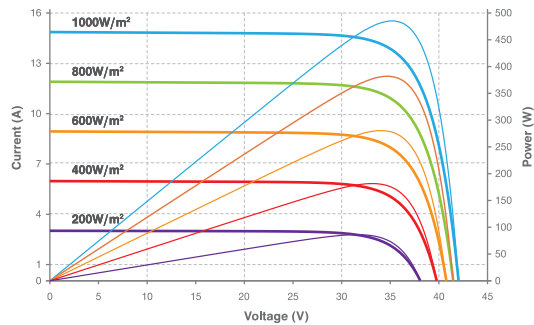


Electrical Performance Parameters

Model Type		470C(BBD)60(182)		475C(BBD)60(182)		480C(BBD)60(182)		485C(BBD)60(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	470	353	475	357	480	361	485	365
Max. Power Voltage	V _{MP} (V)	34.85	32.87	35.06	33.06	35.27	33.25	35.49	33.44
Max. Power Current	I _{MP} (A)	13.49	10.74	13.55	10.80	13.61	10.86	13.67	10.92
Open Circuit Voltage	V _{OC} (V)	41.42	38.92	41.62	39.11	41.82	39.29	42.02	39.48
Short Circuit Current	I _{SC} (A)	14.58	11.86	14.64	11.91	14.70	11.96	14.76	12.01
Module Efficiency	(%)	21.71		21.94		22.17		22.40	

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

Current-Voltage & Power-Voltage Curve (485W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	494	499	504	509
	Module Efficiency	(%)	22.80	23.04	23.28	23.52
10%	Maximum Power	P _{MAX} (W)	517	523	528	534
	Module Efficiency	(%)	23.88	24.14	24.39	24.64
25%	Maximum Power	P _{MAX} (W)	588	594	600	606
	Module Efficiency	(%)	27.14	27.43	27.72	28.00

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black N-type Bifacial Module (66)



Power Range
520W ~ 535W



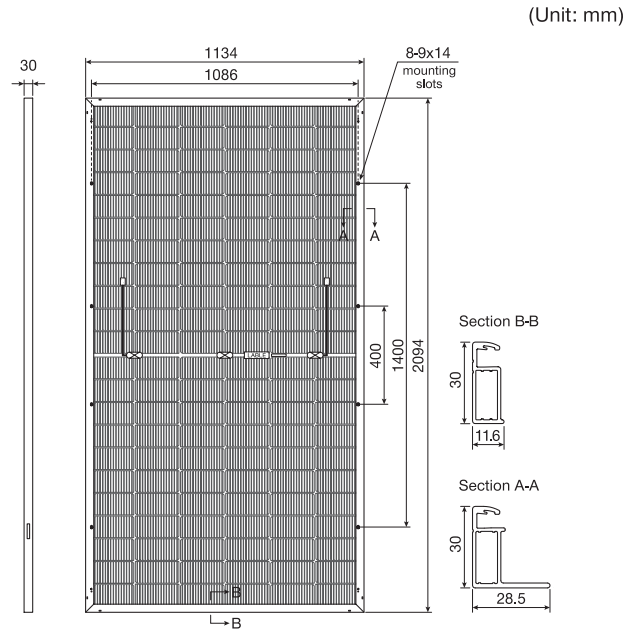
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.53%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2094×1134×30mm
Weight	28.4kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs

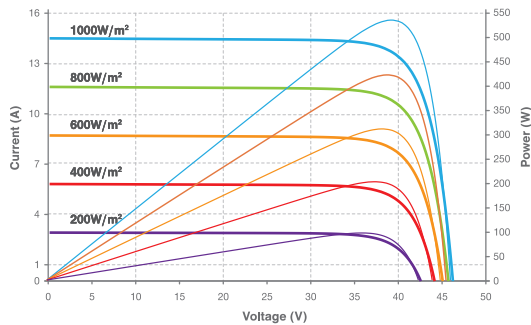


Electrical Performance Parameters

Model Type		520C(BBD)66(182)		525C(BBD)66(182)		530C(BBD)66(182)		535C(BBD)66(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	520	390	525	394	530	398	535	402
Max. Power Voltage	V _{MP} (V)	38.46	36.18	38.66	36.35	38.86	36.52	39.05	36.69
Max. Power Current	I _{MP} (A)	13.53	10.78	13.59	10.84	13.65	10.90	13.71	10.96
Open Circuit Voltage	V _{OC} (V)	46.09	43.55	46.29	43.74	46.49	43.93	46.69	44.12
Short Circuit Current	I _{SC} (A)	14.46	11.70	14.52	11.75	14.58	11.80	14.64	11.85
Module Efficiency	(%)	21.90		22.11		22.32		22.53	

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

Current-Voltage & Power-Voltage Curve (535W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	546	551	557	562
	Module Efficiency	(%)	22.99	23.21	23.44	23.66
10%	Maximum Power	P _{MAX} (W)	572	578	583	589
	Module Efficiency	(%)	24.09	24.32	24.55	24.78
25%	Maximum Power	P _{MAX} (W)	650	656	663	669
	Module Efficiency	(%)	27.37	27.64	27.90	28.16

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black N-type Bifacial Module (72)



Power Range
570W ~ 585W



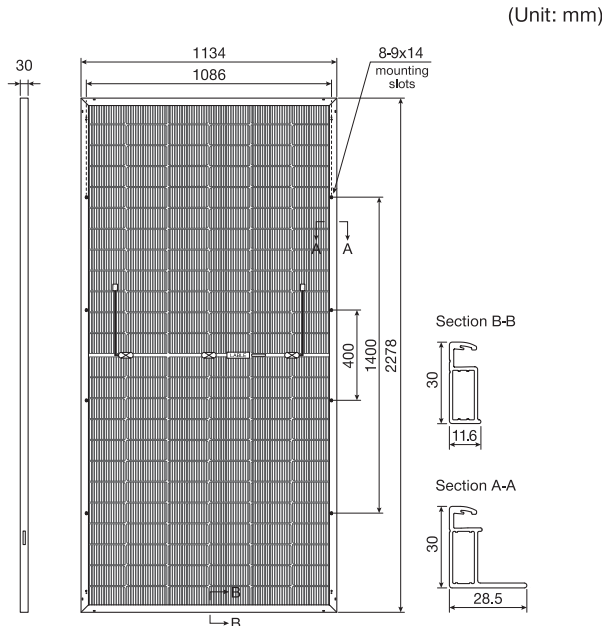
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.65%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	31.2kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs

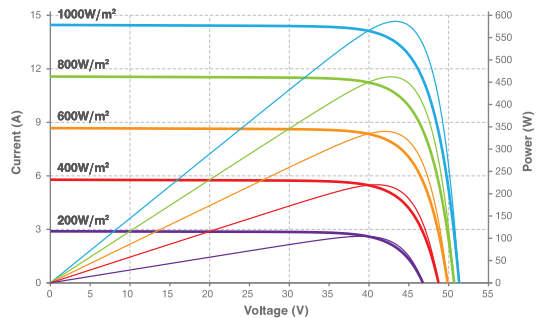


Electrical Performance Parameters

Model Type		570C(BBD)72(182)		575C(BBD)72(182)		580C(BBD)72(182)		585C(BBD)72(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	570	429	575	433	580	437	585	441
Max. Power Voltage	V _{MP} (V)	42.20	39.69	42.35	39.80	42.50	39.91	42.65	40.02
Max. Power Current	I _{MP} (A)	13.51	10.81	13.58	10.88	13.65	10.95	13.72	11.02
Open Circuit Voltage	V _{OC} (V)	50.73	48.18	50.92	48.37	51.12	48.56	51.32	48.75
Short Circuit Current	I _{SC} (A)	14.30	11.53	14.36	11.58	14.42	11.63	14.48	11.68
Module Efficiency	(%)	22.07		22.26		22.45		22.65	

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

Current-Voltage & Power-Voltage Curve (585W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	599	604	609	614
	Module Efficiency	(%)	23.17	23.37	23.57	23.78
10%	Maximum Power	P _{MAX} (W)	627	633	638	644
	Module Efficiency	(%)	24.27	24.48	24.70	24.91
25%	Maximum Power	P _{MAX} (W)	713	719	725	731
	Module Efficiency	(%)	27.58	27.82	28.07	28.31

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black N-type Bifacial Module (78)



Power Range
620W ~ 635W



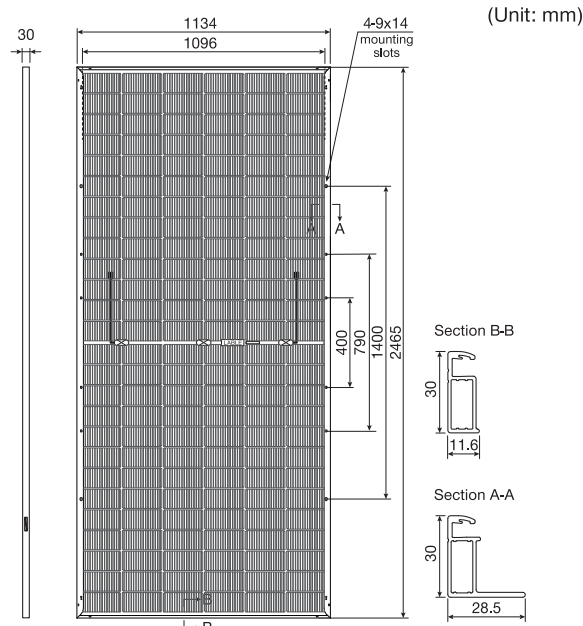
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.72%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	156pcs(6×26)
Module Dimension	2465×1134×30mm
Weight	33.5kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	576pcs

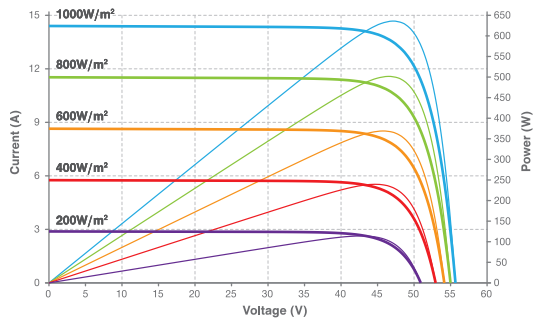


Electrical Performance Parameters

Model Type		620C(BBD)78(182)		625C(BBD)78(182)		630C(BBD)78(182)		635C(BBD)78(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{max} (W)	620	466	625	470	630	474	635	478
Max. Power Voltage	V _{MP} (V)	45.86	43.11	45.99	43.23	46.12	43.35	46.25	43.48
Max. Power Current	I _{MP} (A)	13.52	10.81	13.59	10.87	13.66	10.93	13.73	10.99
Open Circuit Voltage	V _{OC} (V)	55.12	52.36	55.27	52.50	55.42	52.64	55.56	52.77
Short Circuit Current	I _{SC} (A)	14.35	11.57	14.43	11.64	14.51	11.70	14.59	11.76
Module Efficiency	(%)	22.18		22.36		22.54		22.72	

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

Current-Voltage & Power-Voltage Curve (635W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	651	656	662	667
	Module Efficiency	(%)	23.29	23.48	23.66	23.85
10%	Maximum Power	P _{MAX} (W)	682	688	693	699
	Module Efficiency	(%)	24.40	24.59	24.79	24.99
25%	Maximum Power	P _{MAX} (W)	775	781	788	794
	Module Efficiency	(%)	27.73	27.95	28.17	28.40

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black N-type Bifacial Single Glass Module (54)



Power Range
415W ~ 435W



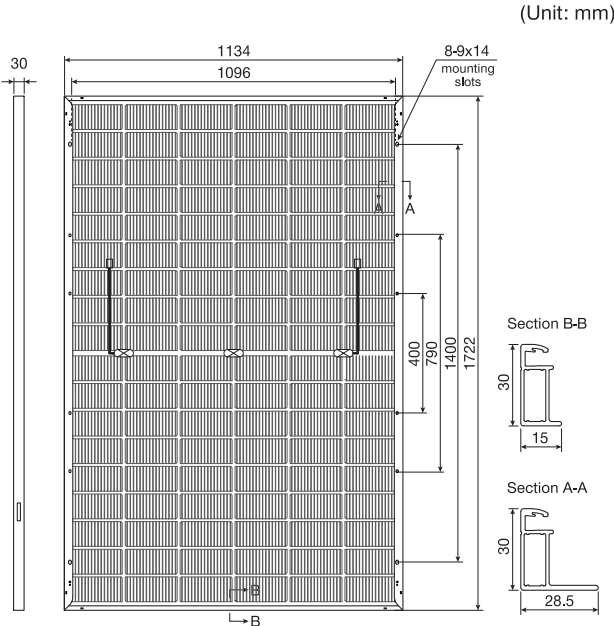
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
22.28%

Structure Performance

Solar Cell Type	182mm N-TOPCon Mono Cell (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	20.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

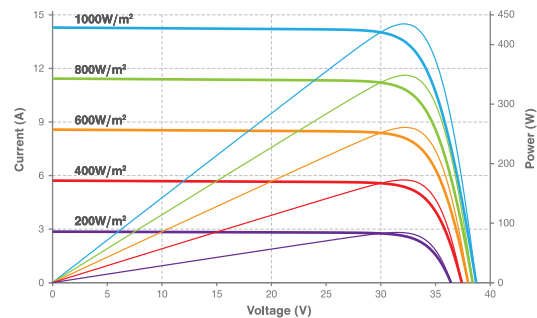


Electrical Performance Parameters

Model Type	415C(HBB)54(182)		420C(HBB)54(182)		425C(HBB)54(182)		430C(HBB)54(182)		435C(HBB)54(182)	
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	415	311	420	315	425	319	430	435	327
Max. Power Voltage	V _{MPP} (V)	31.00	29.23	31.23	29.44	31.46	29.65	31.69	31.92	30.07
Max. Power Current	I _{MPP} (A)	13.39	10.64	13.45	10.70	13.51	10.76	13.57	13.63	10.88
Open Circuit Voltage	V _{OC} (V)	39.68	34.10	39.83	34.28	39.98	34.47	40.13	40.28	34.85
Short Circuit Current	I _{SC} (A)	14.64	11.87	14.70	11.92	14.76	11.97	14.82	14.88	12.07
Module Efficiency	(%)	21.25		21.51		21.76		22.02		22.28

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

Current-Voltage & Power-Voltage Curve (435W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	436	441	446	452	457
	Module Efficiency	(%)	22.31	22.58	22.85	23.12	23.39
10%	Maximum Power	P _{MAX} (W)	457	462	468	473	479
	Module Efficiency	(%)	23.38	23.66	23.94	24.22	24.50
25%	Maximum Power	P _{MAX} (W)	519	525	531	538	544
	Module Efficiency	(%)	26.57	26.89	27.21	27.53	27.85

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.25%
Temperature Coefficient (I _{SC})	+0.043%	Temperature Coefficient (P _{MAX})	-0.30%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

182 Pure Black P-type Monofacial Module (54)



Power Range
400W ~ 410W



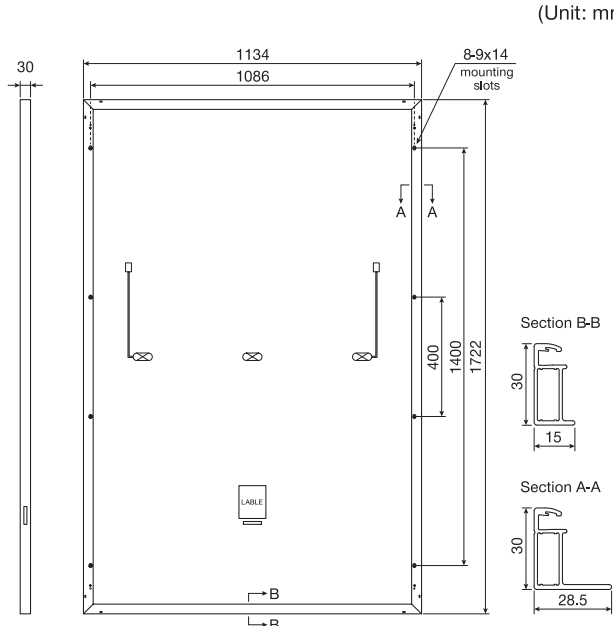
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.00%

Structure Performance

Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	20.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

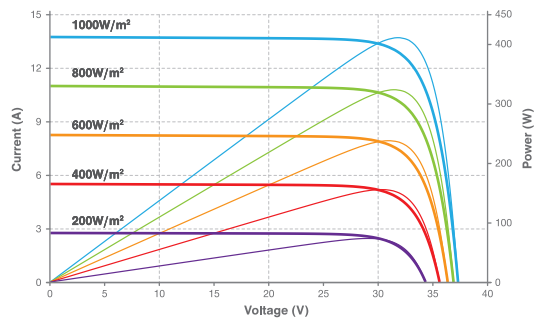


Electrical Performance Parameters

Model Type		400D(BPM)54(182)		405D(BPM)54(182)		410D(BPM)54(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{max} (W)	400	280	405	285	410	290
Max. Power Voltage	V _{MPP} (V)	31.02	27.30	31.22	27.62	31.42	27.90
Max. Power Current	I _{MPP} (A)	12.90	10.26	12.98	10.32	13.05	10.40
Open Circuit Voltage	V _{OC} (V)	36.90	34.40	37.10	34.60	37.30	34.80
Short Circuit Current	I _{SC} (A)	13.65	11.39	13.70	11.59	13.75	11.79
Module Efficiency	(%)	20.48		20.74		21.00	

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

Current-Voltage & Power-Voltage Curve (410W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{SC})	+0.048%
Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 Pure Black P-type Monofacial Module (60)



Power Range
445W ~ 455W

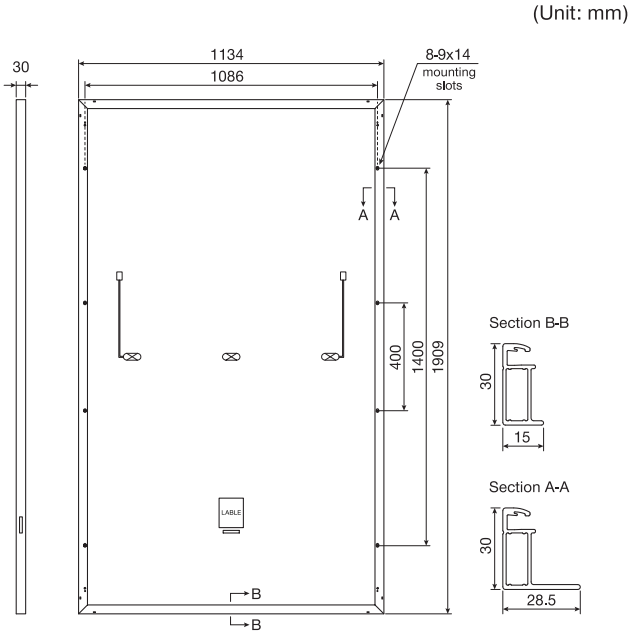


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.02%

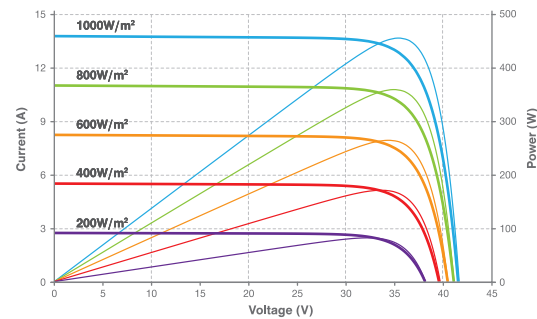
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	22.1kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm², portrait $\frac{400\text{mm}(+)}{200\text{mm}(-)}$, landscape $\frac{1400\text{mm}(+)}{1400\text{mm}(-)}$ Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs



Electrical Performance Parameters							
Model Type	445D(BPM)60(182)		450D(BPM)60(182)		455D(BPM)60(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P_{MAX} (W)	445	325	450	330	455	335
Max. Power Voltage	V_{MP} (V)	34.42	31.44	34.62	31.64	34.82	31.84
Max. Power Current	I_{MP} (A)	12.93	10.34	13.00	10.43	13.07	10.53
Open Circuit Voltage	V_{OC} (V)	41.18	38.68	41.38	38.88	41.58	39.08
Short Circuit Current	I_{SC} (A)	13.66	10.97	13.72	11.17	13.78	11.37
Module Efficiency	(%)	20.56		20.79		21.02	

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

Current-Voltage & Power-Voltage Curve (455W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I_{SC})	+0.048%
Temperature Coefficient (V_{OC})	-0.26%
Temperature Coefficient (P_{MAX})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 Pure Black P-type Monofacial Module (66)



Power Range
490W ~ 500W

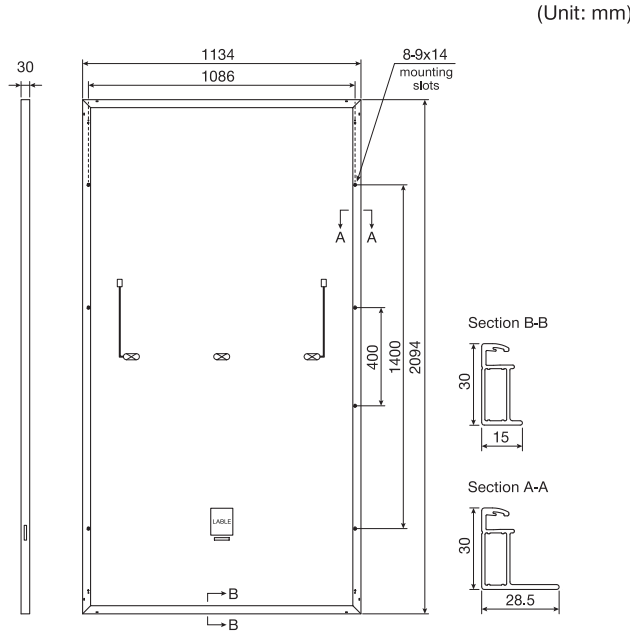


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.06%

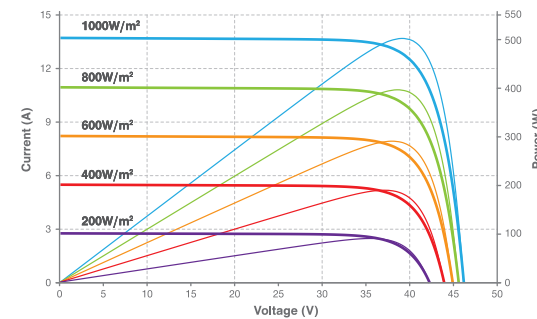
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2094×1134×30mm
Weight	24kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm², portrait $\frac{400\text{mm}(+)}{200\text{mm}(-)}$, landscape $\frac{1400\text{mm}(+)}{1400\text{mm}(-)}$ Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs



Electrical Performance Parameters							
Model Type	490D(BPM)66(182)		495D(BPM)66(182)		500D(BPM)66(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P_{MAX} (W)	490	370	495	375	500	380
Max. Power Voltage	V_{MP} (V)	37.82	34.84	38.02	35.04	38.22	35.24
Max. Power Current	I_{MP} (A)	12.96	10.62	13.02	10.71	13.09	10.79
Open Circuit Voltage	V_{OC} (V)	45.78	42.98	45.98	43.03	46.18	43.08
Short Circuit Current	I_{SC} (A)	13.62	10.92	13.67	11.12	13.72	11.32
Module Efficiency	(%)	20.64		20.85		21.06	

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

Current-Voltage & Power-Voltage Curve (500W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I_{SC})	+0.048%
Temperature Coefficient (V_{OC})	-0.26%
Temperature Coefficient (P_{MAX})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 Pure Black P-type Monofacial Module (72)



Power Range
535W ~ 545W



Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.10%

Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	26.9kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	Black
Frame	Anodized Aluminum Alloy (Black)
Junction Box	IP68 rated
Cable	4mm ² , portrait $\begin{smallmatrix} 400\text{mm}(+) \\ 200\text{mm}(-) \end{smallmatrix}$, landscape $\begin{smallmatrix} 1400\text{mm}(+) \\ 1400\text{mm}(-) \end{smallmatrix}$ Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs

(Unit: mm)

Electrical Performance Parameters							
Model Type		535D(BPM)72(182)		540D(BPM)72(182)		545D(BPM)72(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{max} (W)	535	400	540	405	545	410
Max. Power Voltage	V _{MPP} (V)	41.24	38.24	41.44	38.44	41.64	38.64
Max. Power Current	I _{MPP} (A)	12.98	10.47	13.04	10.54	13.09	10.62
Open Circuit Voltage	V _{OC} (V)	50.38	47.88	50.58	48.08	50.78	48.28
Short Circuit Current	I _{SC} (A)	13.64	11.02	13.69	11.07	13.74	11.12
Module Efficiency	(%)	20.71		20.90		21.10	

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

Current-Voltage & Power-Voltage Curve (545W)

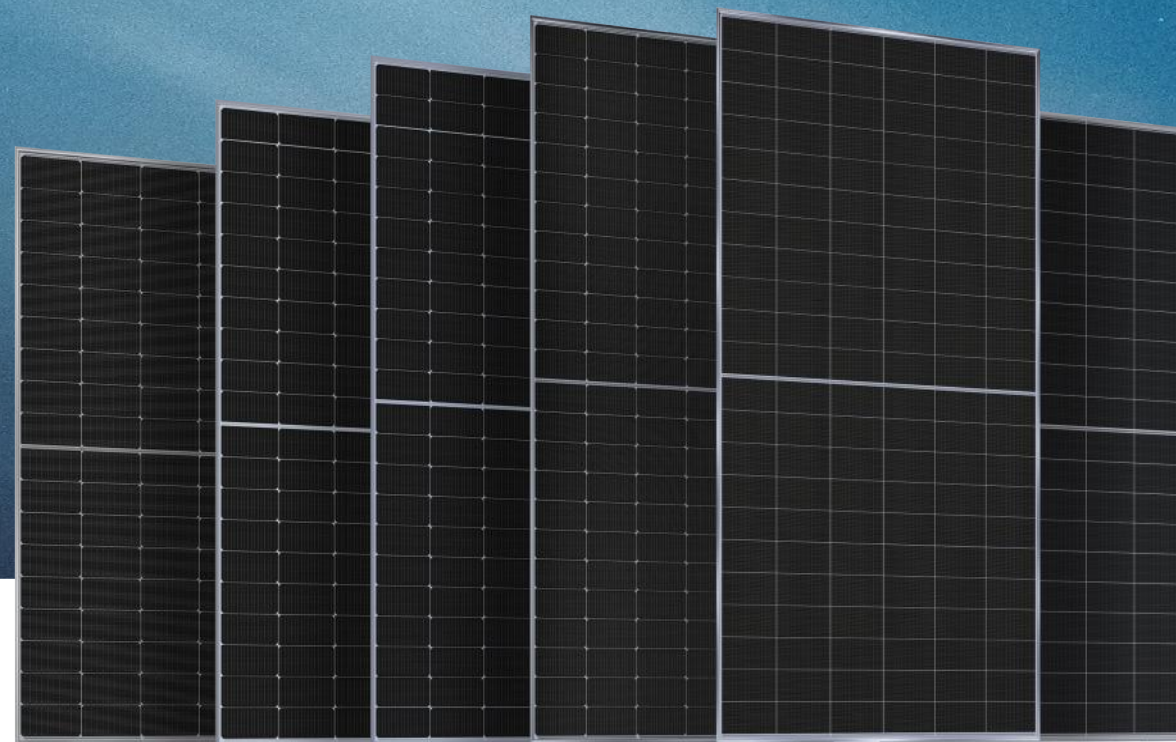
Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

P series

Robust Performance, Proven Reliability

The LESSO Solar P Series utilizes MBB (multi-busbar) and half-cell technology to achieve a maximum efficiency of 21.48%. Engineered for resilience, it offers enhanced shade resistance and minimized hot spot risks. Its optimized series-parallel circuit design reduces internal resistance (R_s), enabling higher power output and lower balance of system (BOS) costs—ideal for projects demanding reliability and cost-efficiency.



MBB Technology
Reducing String &
Busbar Loss



High Efficiency PERC
Better Resistance
Against PID



Even Cloudy or Foggy Days
Better Weak Illumination
Response



Zero LID
Increase Power Generation



Better Temperature Coefficient
More Power Generation



Higher Power Output
Lower BOS Cost



Multiple Weather Resistance Tests
Wider Applicability



Double-sided Generation
Powerfully Energy Boost

Power Range
405W ~ 665W

Maximum Efficiency
21.48%

12 years product
workmanship warranty

25/30 years linear power
output warranty

2% 1st-year degradation
0.55% annual degradation (monofacial module)
0.45% annual degradation (bifacial module)

P Series Mainstream Products

Product	Power (W)	Maximum Efficiency	Size (mm)
182 P-type (54) single glass	405 - 415	21.25%	1722x1134x30
182 P-type (54) double glass			
182 P-type (60) single glass	450 - 460	21.25%	1909x1134x30
182 P-type (60) double glass			
182 P-type (66) single glass	495 - 505	21.27%	2094x1134x30
182 P-type (66) double glass			
182 P-type (72) single glass	545 - 555	21.48%	2278x1134x30
182 P-type (72) double glass			
210 P-type (54) single glass	535 - 545	21.34%	1960x1303x35
210 P-type (54) double glass			
210 P-type (60) single glass	595 - 605	21.38%	2172x1303x35
210 P-type (60) double glass			
210 P-type (66) single glass	655 - 665	21.41%	2384x1303x35
210 P-type (66) double glass			

Note: see datasheet for details

182 P-type Monofacial Module (54)

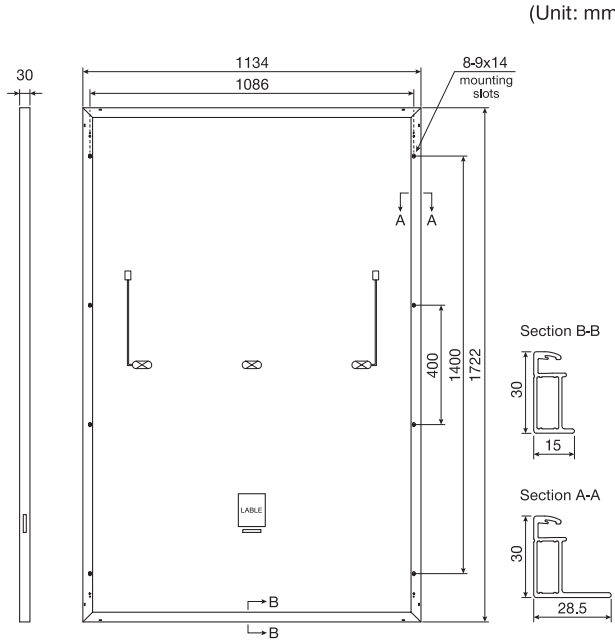
Power Range
405W ~ 415W

Power Output Tolerance
0W ~ +5W

Maximum Efficiency
21.25%

Structure Performance

Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	20.7kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs

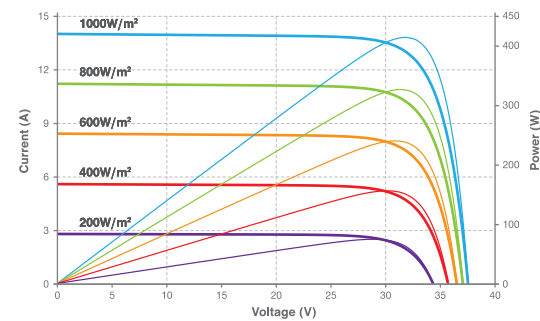


Electrical Performance Parameters

Model Type		405D(HPM)54(182)		410D(HPM)54(182)		415D(HPM)54(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	405	300	410	305	415	310
Max. Power Voltage	V _{MP} (V)	31.13	28.38	31.32	28.72	31.54	29.09
Max. Power Current	I _{MP} (A)	13.01	10.58	13.09	10.62	13.16	10.66
Open Circuit Voltage	V _{OC} (V)	37.70	34.98	37.95	35.13	38.10	35.28
Short Circuit Current	I _{SC} (A)	13.87	11.19	13.95	11.24	14.03	11.32
Module Efficiency	(%)	20.74		21.00		21.25	

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

Current-Voltage & Power-Voltage Curve (415W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Monofacial Module (60)



Power Range
450W ~ 460W



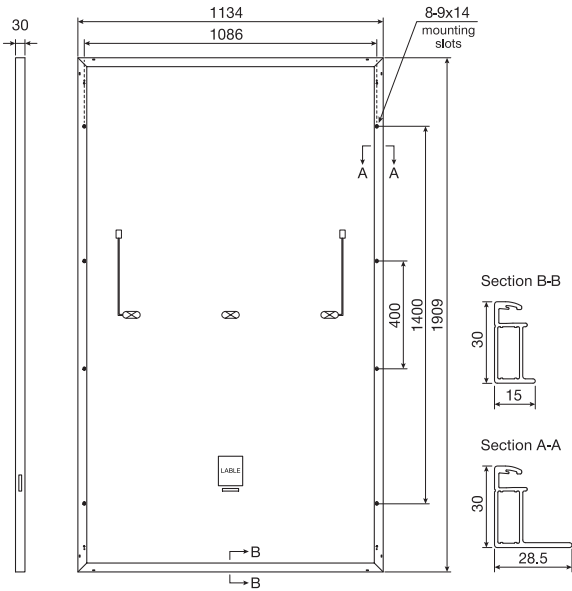
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.25%

(Unit: mm)

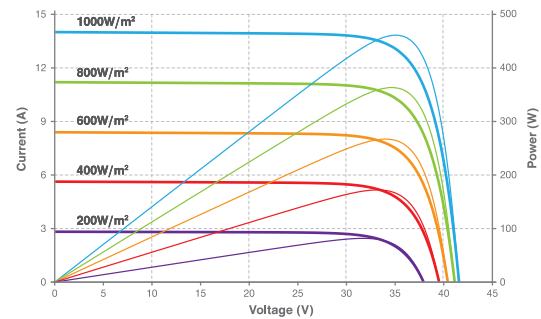
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	22.1kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs



Electrical Performance Parameters							
Model Type		450D(HPM)60(182)		455D(HPM)60(182)		460D(HPM)60(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	450	330	455	335	460	340
Max. Power Voltage	V _{MP} (V)	34.51	31.37	34.73	31.67	34.93	31.96
Max. Power Current	I _{MP} (A)	13.04	10.52	13.11	10.58	13.18	10.64
Open Circuit Voltage	V _{OC} (V)	41.85	38.87	42.05	39.01	42.25	39.15
Short Circuit Current	I _{SC} (A)	13.90	10.74	13.97	10.79	14.04	10.84
Module Efficiency	(%)	20.79		21.02		21.25	

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

Current-Voltage & Power-Voltage Curve (460W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Monofacial Module (66)



Power Range
495W ~ 505W



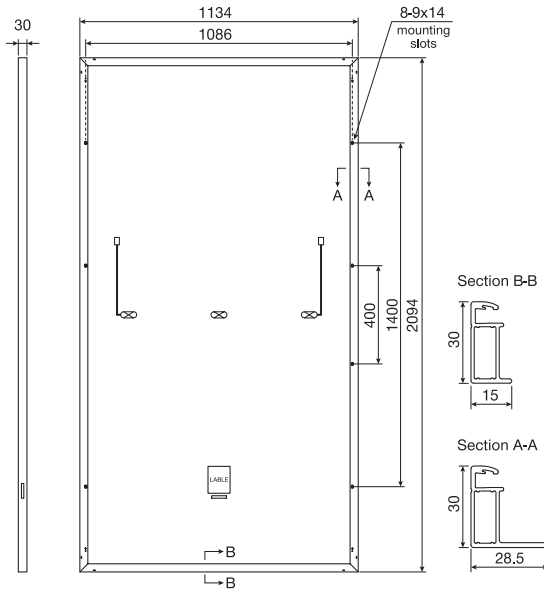
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.27%

(Unit: mm)

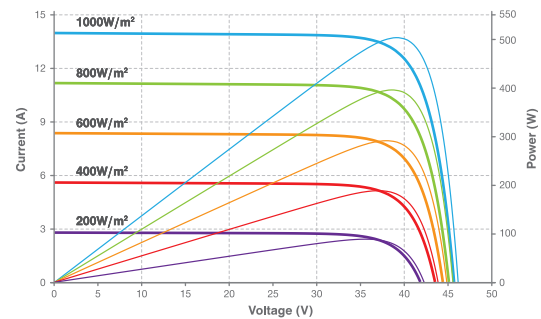
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2094×1134×30mm
Weight	24kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs



Electrical Performance Parameters							
Model Type		495D(HPM)66(182)		500D(HPM)66(182)		505D(HPM)66(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	495	375	500	380	505	385
Max. Power Voltage	V _{MPP} (V)	38.20	35.34	38.37	35.51	38.58	35.64
Max. Power Current	I _{MPP} (A)	12.96	10.62	13.03	10.71	13.09	10.81
Open Circuit Voltage	V _{OC} (V)	45.80	42.70	46.00	42.87	46.20	43.03
Short Circuit Current	I _{SC} (A)	13.83	11.23	13.89	11.30	13.95	11.42
Module Efficiency	(%)	20.85		21.06		21.27	

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

Current-Voltage & Power-Voltage Curve (505W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Monofacial Module (72)



Power Range
545W ~ 555W



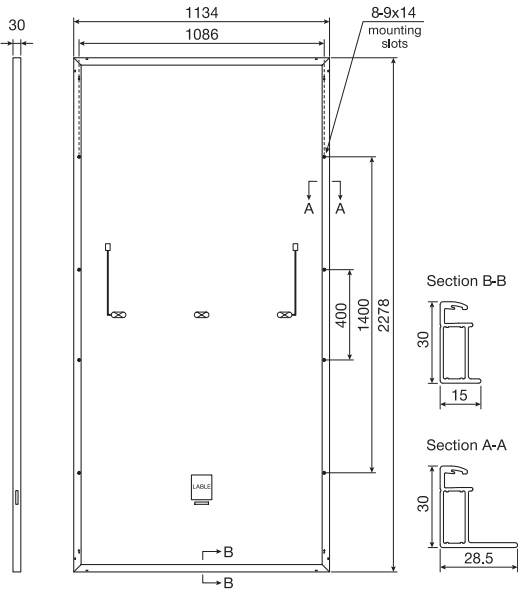
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.48%

(Unit: mm)

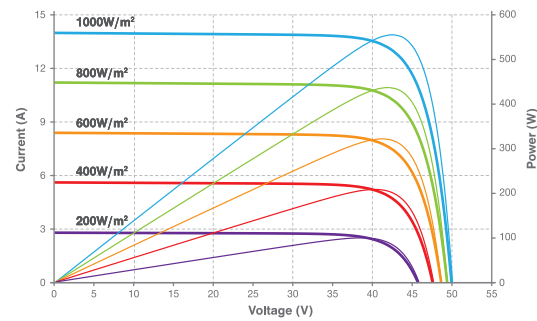
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	26.9kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs



Electrical Performance Parameters							
Model Type		545D(HPM)72(182)		550D(HPM)72(182)		555D(HPM)72(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	545	405	550	409	555	413
Max. Power Voltage	V _{MP} (V)	41.80	38.25	42.00	38.42	42.17	38.60
Max. Power Current	I _{MP} (A)	13.04	10.60	13.10	10.65	13.16	10.70
Open Circuit Voltage	V _{OC} (V)	50.15	46.72	50.35	46.84	50.55	46.96
Short Circuit Current	I _{SC} (A)	13.91	11.26	13.97	11.33	14.03	11.40
Module Efficiency	(%)	21.10		21.29		21.48	

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

Current-Voltage & Power-Voltage Curve (555W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Bifacial Module (54)



Power Range
405W ~ 415W



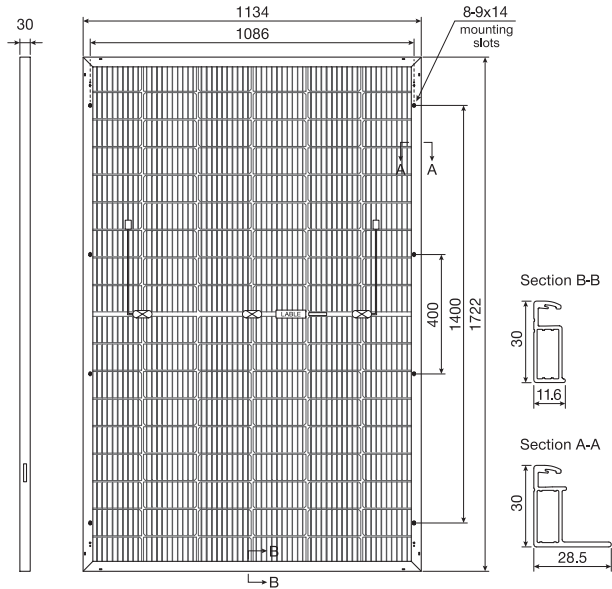
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.25%

(Unit: mm)

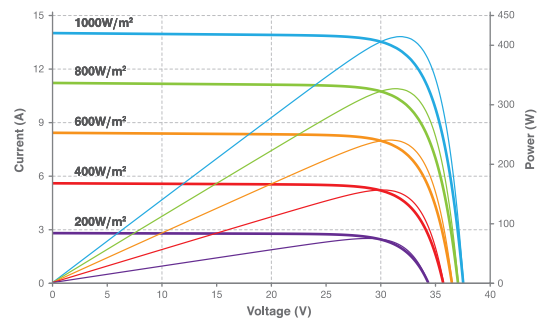
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1722×1134×30mm
Weight	23.1kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	936pcs



Electrical Performance Parameters							
Model Type	405D(HBD)54(182)		410D(HBD)54(182)		415D(HBD)54(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{max} (W)	405	282	410	287	415	292
Max. Power Voltage	V _{MP} (V)	31.35	27.12	31.56	27.50	31.78	27.87
Max. Power Current	I _{MP} (A)	12.92	10.40	12.99	10.44	13.06	10.48
Open Circuit Voltage	V _{OC} (V)	37.08	34.74	37.20	34.86	37.34	35.00
Short Circuit Current	I _{SC} (A)	13.81	11.15	13.88	11.20	13.95	11.26
Module Efficiency	(%)	20.74		21.00		21.25	

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

Current-Voltage & Power-Voltage Curve (415W)



Bifacial Output-rearside Power Gain					
5%	Maximum Power	P _{MAX} (W)	425	431	436
	Module Efficiency	(%)	21.78	22.05	22.31
10%	Maximum Power	P _{MAX} (W)	446	451	457
	Module Efficiency	(%)	22.81	23.10	23.38
25%	Maximum Power	P _{MAX} (W)	506	513	519
	Module Efficiency	(%)	25.93	26.25	26.57

Temperature Characteristics				Maximum Parameters	
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{oc})	-0.26%	Working Temperature	-40~+85°C
Temperature Coefficient (I _{sc})	+0.048%	Temperature Coefficient (P _{max})	-0.34%	Maximum System Voltage	1500V DC
				Nominal Maximum Fuse Current	25A

182 P-type Bifacial Module (60)



Power Range
450W ~ 460W

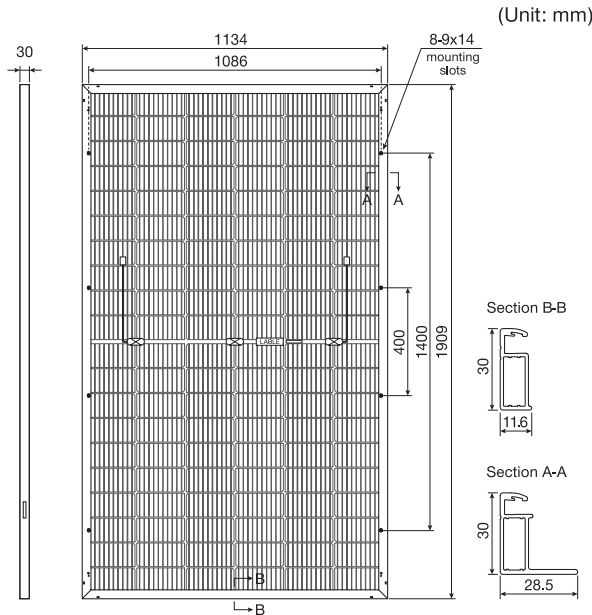


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.25%

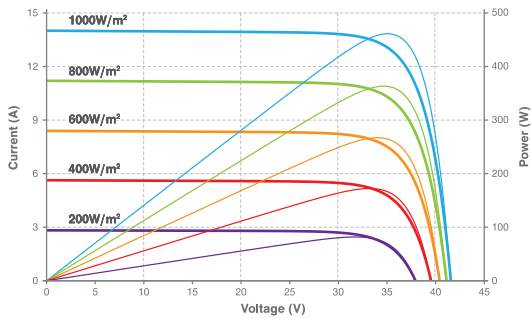
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	1909×1134×30mm
Weight	25.7kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	864pcs



Electrical Performance Parameters							
Model Type	450D(HBD)60(182)		455D(HBD)60(182)		460D(HBD)60(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{MAX} (W)	450	322	455	327	460	332
Max. Power Voltage	V _{MPP} (V)	34.78	30.91	34.97	31.27	35.17	31.62
Max. Power Current	I _{MPP} (A)	12.94	10.42	13.01	10.46	13.08	10.50
Open Circuit Voltage	V _{OC} (V)	41.20	38.90	41.32	39.02	41.46	39.14
Short Circuit Current	I _{SC} (A)	13.83	11.17	13.90	11.22	13.97	11.28
Module Efficiency	(%)	20.79		21.02		21.25	

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

Current-Voltage & Power-Voltage Curve (460W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	473	478	483
	Module Efficiency	(%)	21.83	22.07	22.31
10%	Maximum Power	P _{MAX} (W)	495	501	506
	Module Efficiency	(%)	22.87	23.12	23.37
25%	Maximum Power	P _{MAX} (W)	563	569	575
	Module Efficiency	(%)	25.98	26.27	26.56

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (I _{SC})	+0.048%	Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Bifacial Module (66)



Power Range
495W ~ 505W

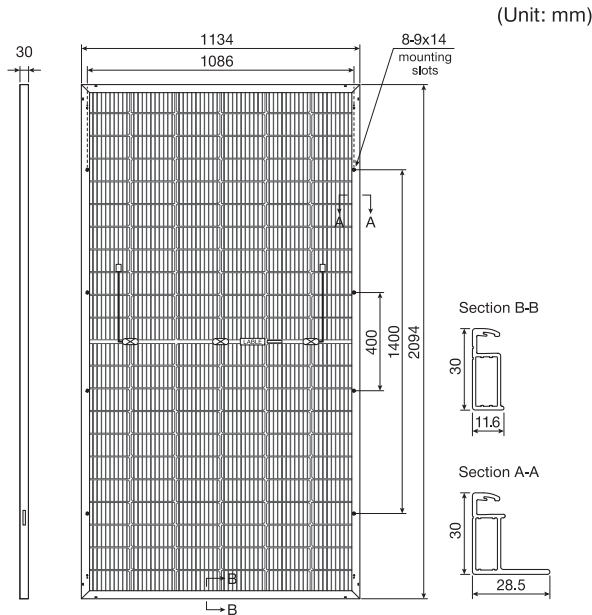


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.27%

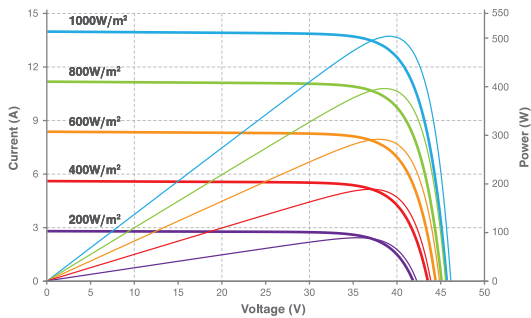
Structure Performance	
Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2094×1134×30mm
Weight	28.4kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	792pcs



Electrical Performance Parameters							
Model Type	495D(HBD)66(182)		500D(HBD)66(182)		505D(HBD)66(182)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{MAX} (W)	495	367	500	372	505	377
Max. Power Voltage	V _{MPP} (V)	38.20	35.16	38.37	35.50	38.55	35.84
Max. Power Current	I _{MPP} (A)	12.96	10.44	13.03	10.48	13.10	10.52
Open Circuit Voltage	V _{OC} (V)	45.36	43.06	45.48	43.18	45.62	43.32
Short Circuit Current	I _{SC} (A)	13.85	11.19	13.92	11.24	13.99	11.30
Module Efficiency	(%)	20.85		21.06		21.27	

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

Current-Voltage & Power-Voltage Curve (505W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	520	525	530
	Module Efficiency	(%)	21.89	22.11	22.33
10%	Maximum Power	P _{MAX} (W)	545	550	556
	Module Efficiency	(%)	22.93	23.16	23.39
25%	Maximum Power	P _{MAX} (W)	619	625	631
	Module Efficiency	(%)	26.06	26.32	26.58

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (I _{SC})	+0.048%	Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

182 P-type Bifacial Module (72)



Power Range
545W ~ 555W



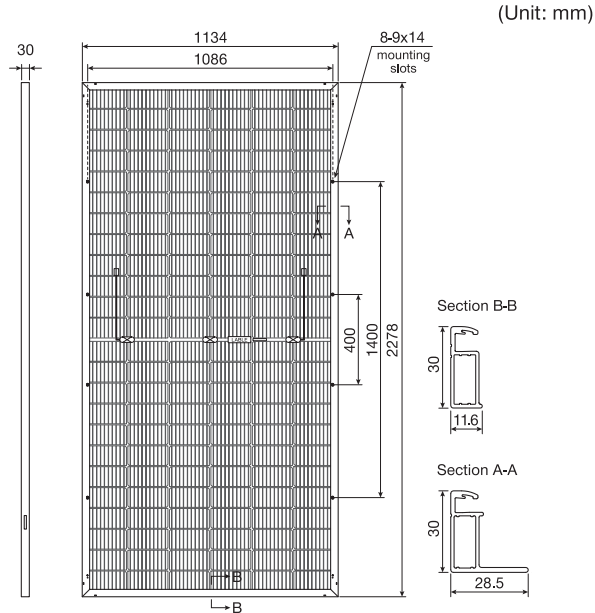
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.48%

Structure Performance

Solar Cell Type	182mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	144pcs(6×24)
Module Dimension	2278×1134×30mm
Weight	31.2kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	36pcs
Per Container(40'HQ)	720pcs

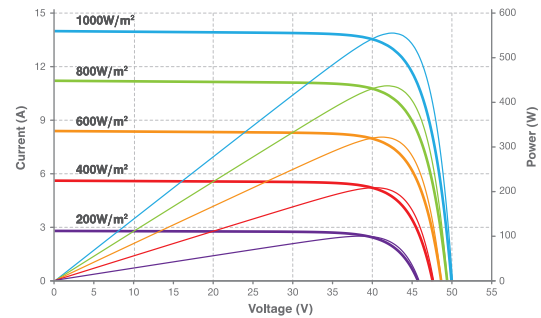


Electrical Performance Parameters

Model Type		545D(HBD)72(182)		550D(HBD)72(182)		555D(HBD)72(182)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	545	411	550	414	555	417
Max. Power Voltage	V _{MP} (V)	41.76	39.00	41.92	39.13	42.08	39.26
Max. Power Current	I _{MP} (A)	13.05	10.54	13.12	10.58	13.19	10.62
Open Circuit Voltage	V _{OC} (V)	49.89	47.56	49.99	47.75	50.09	47.94
Short Circuit Current	I _{SC} (A)	13.94	11.26	14.01	11.31	14.07	11.36
Module Efficiency	(%)	21.10		21.29		21.48	

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

Current-Voltage & Power-Voltage Curve (555W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P_{MAX} (W)	572	578	583
	Module Efficiency	(%)	22.15	22.36	22.56
10%	Maximum Power	P_{MAX} (W)	600	605	611
	Module Efficiency	(%)	23.21	23.42	23.63
25%	Maximum Power	P_{MAX} (W)	681	688	694
	Module Efficiency	(%)	26.37	26.61	26.86

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V_{OC})	-0.26%
Temperature Coefficient (I_{SC})	+0.048%	Temperature Coefficient (P_{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	25A

210 P-type Monofacial Module (54)



Power Range
535W ~ 545W



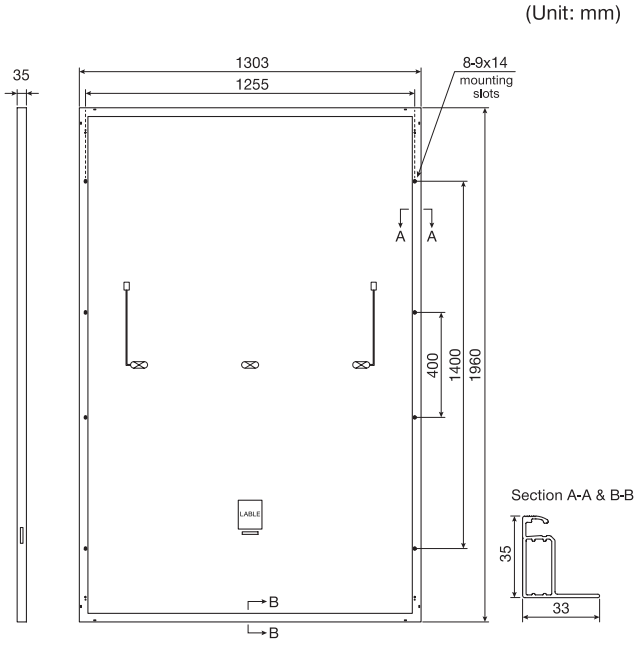
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.34%

Structure Performance

Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1960×1303×35mm
Weight	28.4kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs

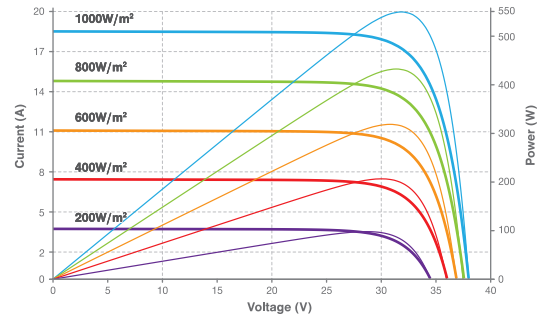


Electrical Performance Parameters

Model Type		535D(HPM)54(210)		540D(HPM)54(210)		545D(HPM)54(210)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	535	406	540	410	545	414
Max. Power Voltage	V _{MP} (V)	30.49	28.74	30.68	28.94	30.88	29.14
Max. Power Current	I _{MP} (A)	17.55	14.13	17.60	14.17	17.65	14.21
Open Circuit Voltage	V _{OC} (V)	37.54	34.80	37.74	35.00	37.94	35.20
Short Circuit Current	I _{SC} (A)	18.42	14.88	18.46	14.92	18.50	14.96
Module Efficiency	(%)	20.95		21.14		21.34	

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

Current-Voltage & Power-Voltage Curve (545W)



Temperature Characteristics

Nominal Module Operating Temperature	44±2°C
Temperature Coefficient (I_{SC})	+0.048%
Temperature Coefficient (V_{OC})	-0.26%
Temperature Coefficient (P_{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

210 P-type Monofacial Module (60)



Power Range
595W ~ 605W

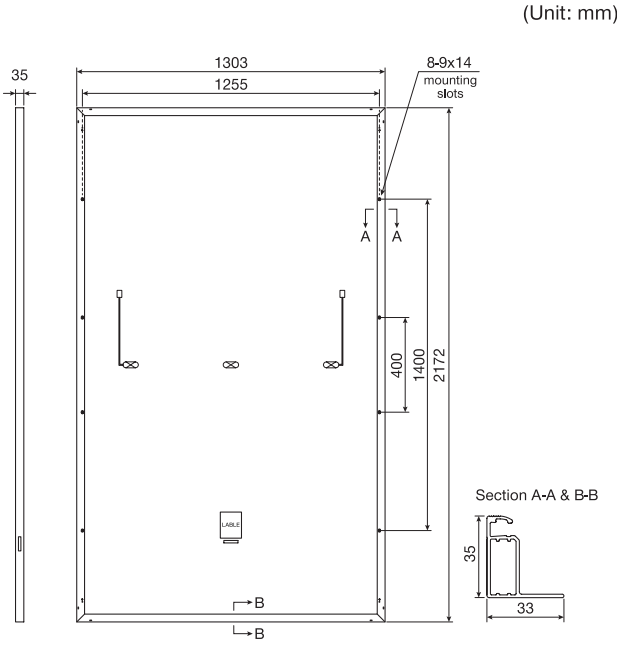


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.38%

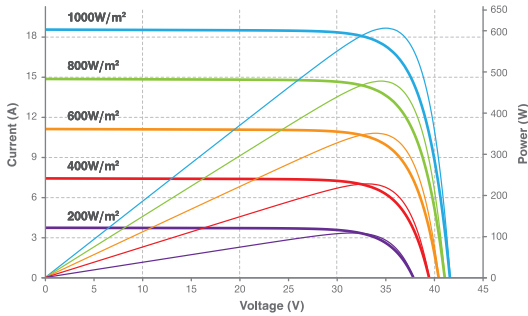
Structure Performance	
Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	2172×1303×35mm
Weight	31.2kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs



Electrical Performance Parameters							
Model Type	595D(HPM)60(210)		600D(HPM)60(210)		605D(HPM)60(210)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{max} (W)	595	451	600	454	605	458
Max. Power Voltage	V _{MP} (V)	34.10	31.92	34.29	32.02	34.49	32.21
Max. Power Current	I _{MP} (A)	17.45	14.13	17.50	14.18	17.54	14.22
Open Circuit Voltage	V _{OC} (V)	41.14	38.90	41.34	39.10	41.54	39.30
Short Circuit Current	I _{SC} (A)	18.44	14.89	18.48	14.93	18.56	14.97
Module Efficiency	(%)	21.02		21.20		21.38	

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

Current-Voltage & Power-Voltage Curve (605W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2℃
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{MAX})	-0.34%
Maximum Parameters	
Working Temperature	-40~+85℃
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

210 P-type Monofacial Module (66)



Power Range
655W ~ 665W

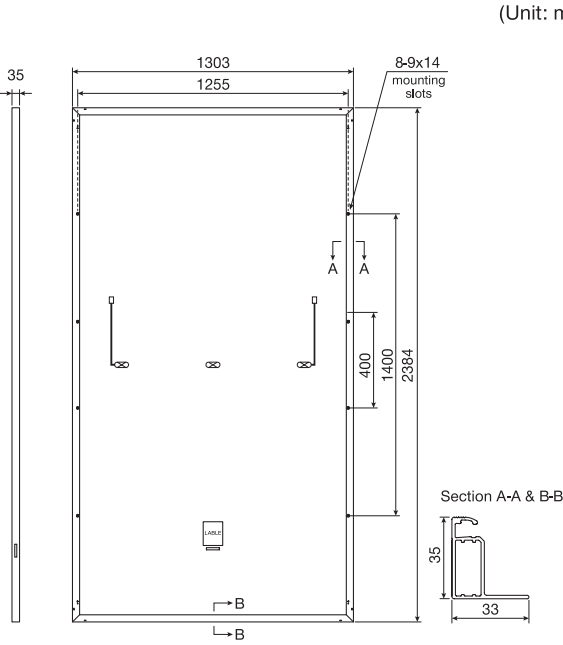


Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.41%

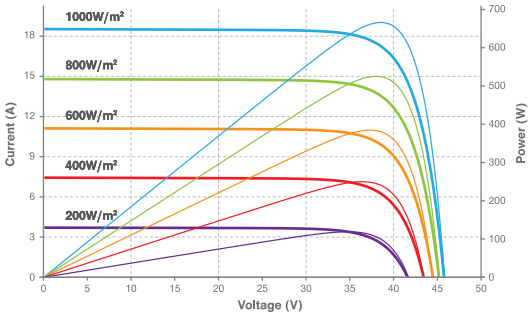
Structure Performance	
Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	132pcs(6×22)
Module Dimension	2384×1303×35mm
Weight	33.8kg
Front Glass	3.2mm, highly transparent tempered glass with anti-reflective coating
Back Sheet	White
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm ² , portrait 400mm (+) 200mm (-), landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs



Electrical Performance Parameters							
Model Type	655D(HPM)66(210)		660D(HPM)66(210)		665D(HPM)66(210)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{max} (W)	655	496	660	500	665	504
Max. Power Voltage	V _{MP} (V)	37.69	35.04	37.89	35.28	38.09	35.48
Max. Power Current	I _{MP} (A)	17.38	14.13	17.42	14.18	17.46	14.21
Open Circuit Voltage	V _{OC} (V)	45.74	42.90	45.94	43.10	46.14	43.20
Short Circuit Current	I _{SC} (A)	18.46	14.90	18.50	14.94	18.54	14.98
Module Efficiency	(%)	21.09		21.25		21.41	

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

Current-Voltage & Power-Voltage Curve (665W)



Temperature Characteristics	
Nominal Module Operating Temperature	44±2℃
Temperature Coefficient (I _{sc})	+0.048%
Temperature Coefficient (V _{oc})	-0.26%
Temperature Coefficient (P _{max})	-0.34%
Maximum Parameters	
Working Temperature	-40~+85℃
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

210 P-type Bifacial Module (54)



Power Range
535W ~ 545W



Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.34%

Structure Performance	
Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	108pcs(6×18)
Module Dimension	1960×1303×35mm
Weight	32.8kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs

(Unit: mm)

Technical drawing of the 210 P-type Bifacial Module (54) showing dimensions and a cross-section A-A & B-B. The module is 1960mm high and 1303mm wide. The cell area is 1255mm wide and 1400mm high. The frame is 35mm thick. The cross-section A-A & B-B shows the module's profile with a 33mm base and 35mm height.

Electrical Performance Parameters							
Model Type	535D(HBD)54(210)		540D(HBD)54(210)		545D(HBD)54(210)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{MAX} (W)	535	406	540	410	545	414
Max. Power Voltage	V _{MPP} (V)	30.83	28.84	31.03	29.04	31.23	29.24
Max. Power Current	I _{MPP} (A)	17.36	14.08	17.41	14.12	17.46	14.16
Open Circuit Voltage	V _{OC} (V)	37.40	35.00	37.60	35.20	37.80	35.40
Short Circuit Current	I _{SC} (A)	18.28	14.76	18.32	14.80	18.34	14.84
Module Efficiency	(%)	20.95		21.14		21.34	

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

Current-Voltage & Power-Voltage Curve (545W)

Current-Voltage & Power-Voltage Curve (545W) graph showing I-V and P-V curves for different irradiance levels (1000W/m², 800W/m², 600W/m², 400W/m², 200W/m²). The x-axis represents Voltage (V) from 0 to 40, and the y-axis represents Current (A) from 0 to 21 and Power (W) from 0 to 600.

Bifacial Output-rearside Power Gain					
5%	Maximum Power	P _{MAX} (W)	562	567	572
	Module Efficiency	(%)	22.00	22.20	22.41
10%	Maximum Power	P _{MAX} (W)	589	594	600
	Module Efficiency	(%)	23.04	23.26	23.47
25%	Maximum Power	P _{MAX} (W)	669	675	681
	Module Efficiency	(%)	26.19	26.43	26.68

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (I _{SC})	+0.048%	Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

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210 P-type Bifacial Module (60)



Power Range
595W ~ 605W



Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.38%

Structure Performance	
Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	120pcs(6×20)
Module Dimension	2172×1303×35mm
Weight	35.6kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait ^{400mm (+)} / _{200mm (-)} , landscape ^{1400mm (+)} / _{1400mm (-)} Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs

(Unit: mm)

Technical drawing of the 210 P-type Bifacial Module (60) showing dimensions and a cross-section A-A & B-B. The module is 2172mm high and 1303mm wide. The cell area is 1255mm wide and 1400mm high. The frame is 35mm thick. The cross-section A-A & B-B shows the module's profile with a 33mm base and 35mm height.

Electrical Performance Parameters							
Model Type	595D(HBD)60(210)		600D(HBD)60(210)		605D(HBD)60(210)		
Testing Condition	STC	NMOT	STC	NMOT	STC	NMOT	
Nominal Max. Power	P _{MAX} (W)	595	451	600	455	605	459
Max. Power Voltage	V _{MPP} (V)	34.33	32.01	34.53	32.21	34.73	32.40
Max. Power Current	I _{MPP} (A)	17.34	14.09	17.38	14.13	17.43	14.17
Open Circuit Voltage	V _{OC} (V)	41.60	39.20	41.80	39.40	42.00	39.60
Short Circuit Current	I _{SC} (A)	18.33	14.79	18.37	14.83	18.41	14.87
Module Efficiency	(%)	21.02		21.20		21.38	

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

Current-Voltage & Power-Voltage Curve (605W)

Current-Voltage & Power-Voltage Curve (605W) graph showing I-V and P-V curves for different irradiance levels (1000W/m², 800W/m², 600W/m², 400W/m², 200W/m²). The x-axis represents Voltage (V) from 0 to 45, and the y-axis represents Current (A) from 0 to 21 and Power (W) from 0 to 650.

Bifacial Output-rearside Power Gain					
5%	Maximum Power	P _{MAX} (W)	625	630	635
	Module Efficiency	(%)	22.08	22.26	22.45
10%	Maximum Power	P _{MAX} (W)	655	660	666
	Module Efficiency	(%)	23.13	23.32	23.51
25%	Maximum Power	P _{MAX} (W)	744	750	756
	Module Efficiency	(%)	26.28	26.50	26.72

Temperature Characteristics			
Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (I _{SC})	+0.048%	Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters	
Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A

210 P-type Bifacial Module (66)



Power Range
655W ~ 665W



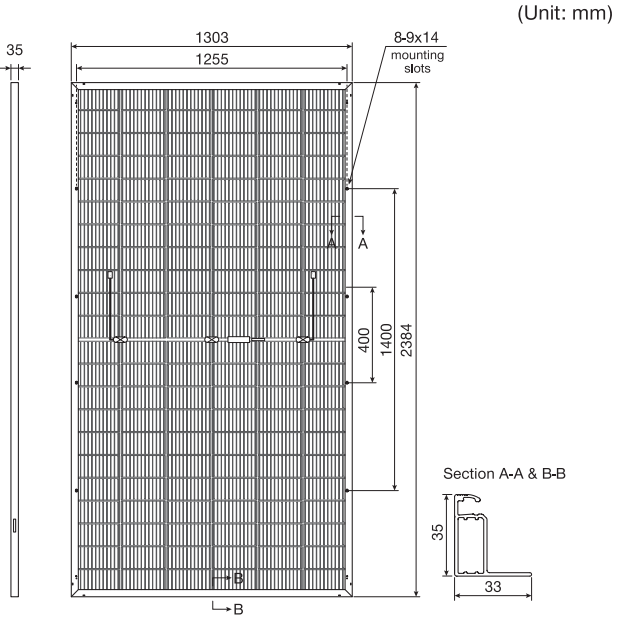
Power Output Tolerance
0W ~ +5W



Maximum Efficiency
21.41%

Structure Performance

Solar Cell Type	210mm Mono-crystalline (Half Cell)
Solar Cell Arrangement	132pcs(6x22)
Module Dimension	2384×1303×35mm
Weight	38.2kg
Front Glass	2.0mm, highly transparent tempered glass with anti-reflective coating
Frame	Anodized Aluminum Alloy
Junction Box	IP68 rated
Cable	4mm², portrait 400mm (+) 200mm (-) , landscape 1400mm (+) 1400mm (-) Length can be customized
Diode Quantity	3 pcs
Front side / Rear side	5400pa / 2400pa
Connector	MC4 Compatible
Per Pallet	31pcs
Per Container(40'HQ)	558pcs

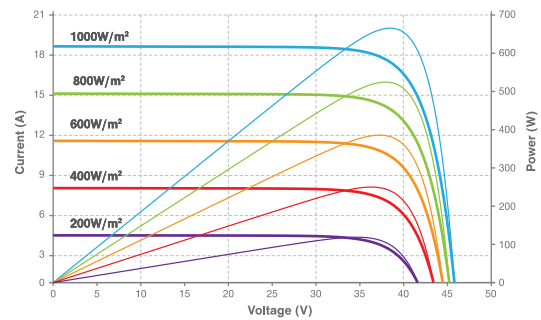


Electrical Performance Parameters

Model Type		655D(HBD)66(210)		660D(HBD)66(210)		665D(HBD)66(210)	
Testing Condition		STC	NMOT	STC	NMOT	STC	NMOT
Nominal Max. Power	P _{MAX} (W)	655	496	660	500	665	504
Max. Power Voltage	V _{MP} (V)	37.83	35.22	38.03	35.42	38.23	35.62
Max. Power Current	I _{MP} (A)	17.32	14.08	17.36	14.12	17.40	14.16
Open Circuit Voltage	V _{OC} (V)	45.80	43.20	46.00	43.40	46.20	43.60
Short Circuit Current	I _{SC} (A)	18.38	14.82	18.42	14.86	18.46	14.90
Module Efficiency	(%)	21.09		21.25		21.41	

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

Current-Voltage & Power-Voltage Curve (665W)



Bifacial Output-rearside Power Gain

5%	Maximum Power	P _{MAX} (W)	688	693	698
	Module Efficiency	(%)	22.14	22.31	22.48
10%	Maximum Power	P _{MAX} (W)	721	726	732
	Module Efficiency	(%)	23.19	23.37	23.55
25%	Maximum Power	P _{MAX} (W)	819	825	831
	Module Efficiency	(%)	26.36	26.56	26.76

Temperature Characteristics

Nominal Module Operating Temperature	44±2°C	Temperature Coefficient (V _{OC})	-0.26%
Temperature Coefficient (I _{SC})	+0.048%	Temperature Coefficient (P _{MAX})	-0.34%

Maximum Parameters

Working Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Nominal Maximum Fuse Current	30A



Project Highlights

Businesses can use the free electricity generated from Solar power stations directly, reducing consumption of electricity from the power grid, thereby enjoying immense savings on their electrical bill. If applicable, a Solar power station can even be connected to the power grid, allowing businesses to sell excess electricity to the grid to generate additional profit.



Karamay Desert Solar Power Station (Phase I)

Project Capacity
600MW

Location: Karamay, Xinjiang, China



KEDA Ceramics Solar Power Station

Project Capacity
8.57MW

Location: Kajiado, Kenya



Rooftop Power Station Built in Indonesia's New Capital

Project Capacity

1MW

Location: Kalimantan, Indonesia



New Community Concentrated Solar Power Generation System

Project Capacity

1MW

Location: Saraburi Province, Thailand





Project Capacity
9.75MW

Changsha Roof Solar Power Station

Location: Changsha, Hunan, China



Project Capacity
6.14MW

Haitian Roof Solar Power Station

Location: Foshan, Guangdong, China



Project Capacity
6.58MW

Maoming Logistics Roof Solar Power Station

Location: Maoming, Guangdong, China



Project Capacity
6MW

Dingan Roof Solar Power Station

Location: Dingan, Hainan, China

LESSO, BUILDING A SOLAR-POWERED WORLD

