

# Solar Panel Catalog



# 450W~465W

## Electrical parameters

Module model	GPS-01		GPS-02		GPS-03		GPS-04	
	Module efficiency (%)		Module efficiency (%)		Module efficiency (%)		Module efficiency (%)	
Module efficiency (%)	20.79		21.02		21.25		21.48	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	450	331	455	335	460	339	465	343
Open circuit voltage (Voc/V)	41.40	38.68	41.60	38.88	41.80	39.08	42.00	39.28
Short circuit current (Isc/A)	13.68	10.78	13.73	10.83	13.78	10.88	13.83	10.99
Max. operating voltage (V <sub>m</sub> /V)	34.60	32.34	34.80	32.54	35.00	32.74	35.20	32.94
Max. operating current (I <sub>m</sub> /A)	13.01	10.24	13.07	10.30	13.15	10.35	13.22	10.39
Cell type (mm)	MBB-182x91mm Mono Perc							
Number of cells (PCS)	120(6x20)							
Max. system voltage (V)	1500V DC	Max. temperature coefficient (%/°C)		-0.348	Nominal fuse current (A)		25	
Temperature coefficient of open circuit voltage (%/°C)	-0.282	Operating temperature (°C)		40 to 85	Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	-0.05	Nominal cell operating temperature (°C)		45±2	Back static load (Pa)		2400	

STC (standard test condition): irradiance: 1000 W/m<sup>2</sup>, cell temperature: 25°C, spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>, ambient temperature: 20°C; wind speed: 1 m/s

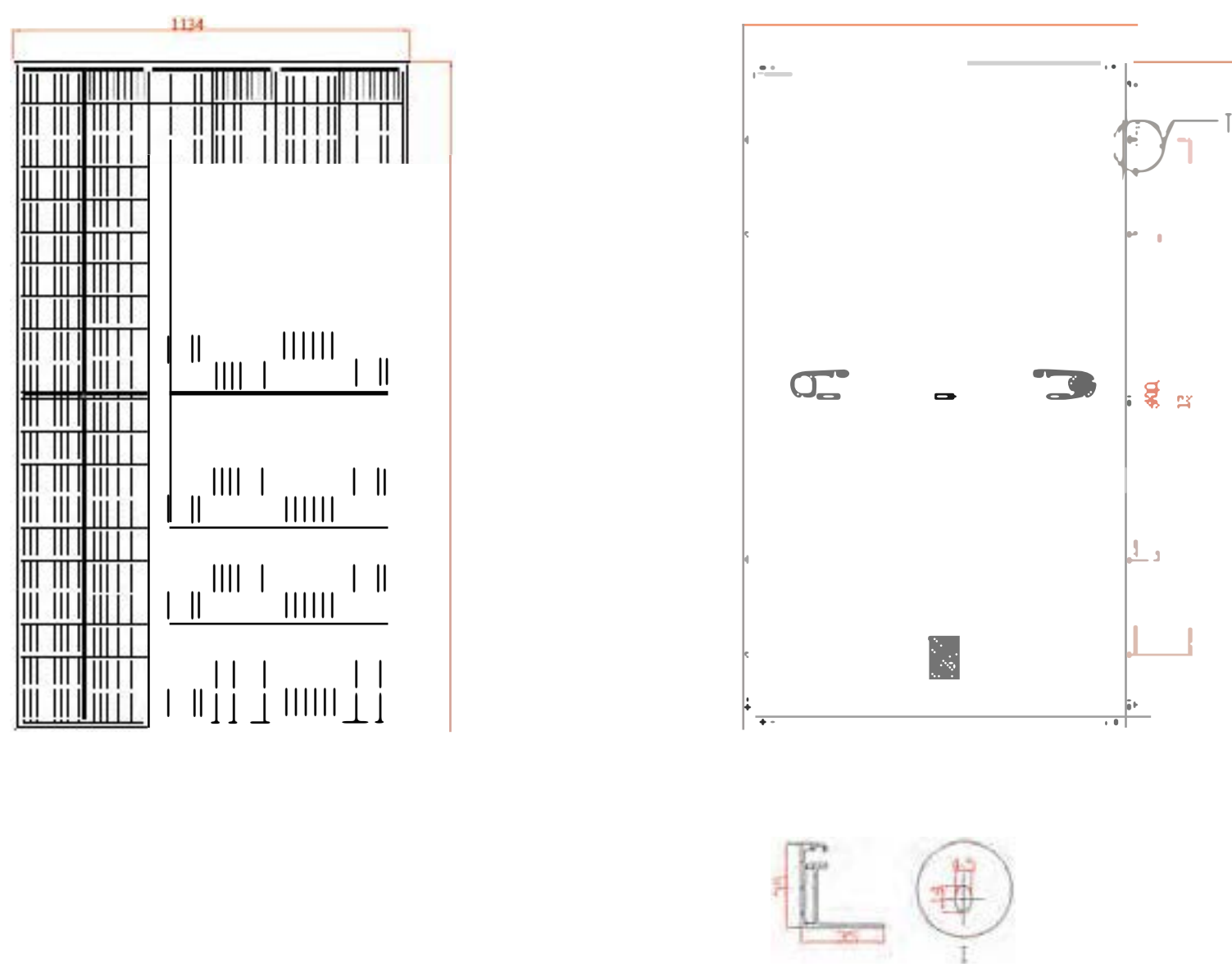
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy (optional for black and white)
Cell	6x20 monocrystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra-white tempered rolled glass
Junction box	IP≥68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

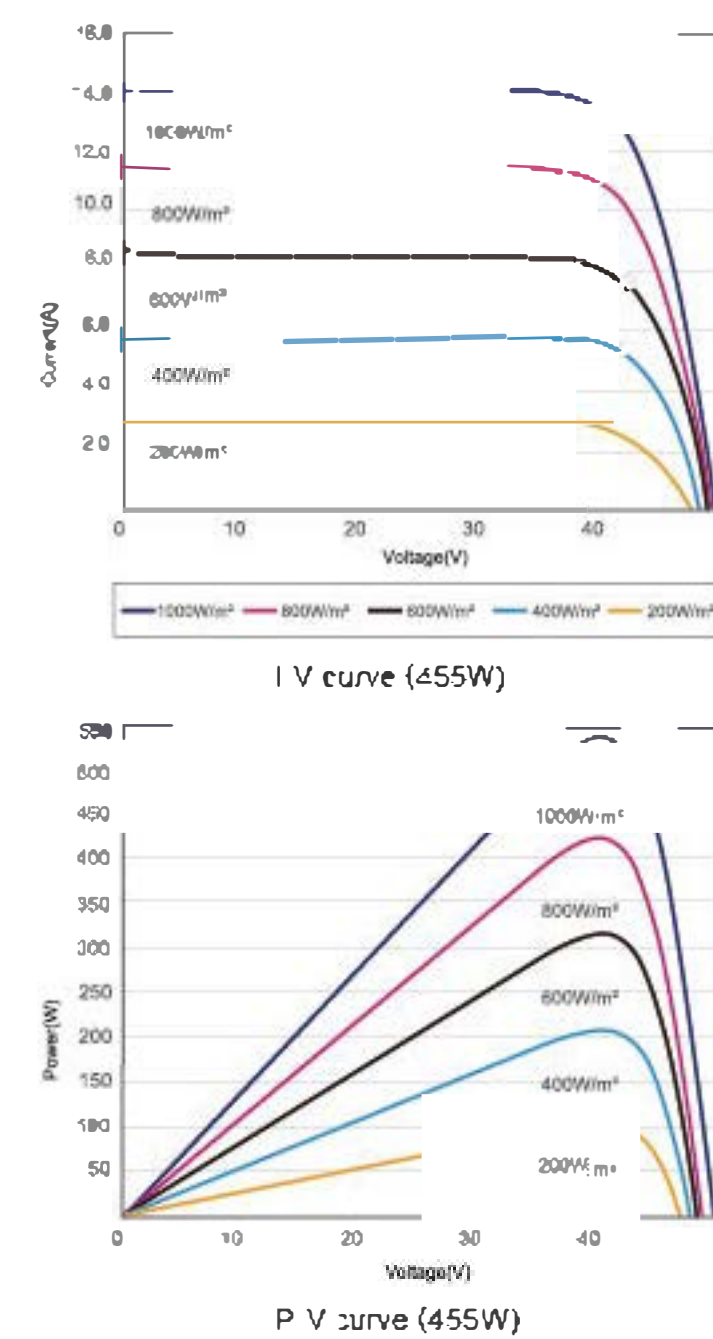
## Packaging parameters

Module dimensions	1909x1134x35mm
Cargo capacity	744PCS/40HQ 1054PCS/17.5M flatbed truck
Weight	24kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 500W~510W

## Electrical parameters

Module model	GPS-05		GPS-06		GPS-07		
	Module efficiency (%)		Module efficiency (%)		Module efficiency (%)		
Module efficiency (%)	21.06		21.31		21.51		
Power tolerance (W)	0~+5		0~+5		0~+5		
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	
Max. power Pmax (W)	500	368	505	372	510	375	
Open circuit voltage (Voc/V)	45.40	42.30	45.55	42.50	45.70	42.70	
Short circuit current (Isc/A)	13.83	11.17	13.88	11.22	13.94	11.27	
Max. operating voltage (V <sub>m</sub> /V)	37.83	35.20	38.04	35.40	38.21	35.60	
Max. operating current (I <sub>m</sub> /A)	13.22	10.45	13.28	10.51	13.35	10.53	
Cell type (mm)	MBB-182 X 91 mm Mono Perc						
Number of cells (PCS)	132(6x22)						
Max. system voltage (V)	1500V DC	Max. temperature coefficient (%/°C)		0.348	Nominal fuse current (A)		25
Temperature coefficient of open circuit voltage (%/°C)	-0.282	Operating temperature (°C)		-40 to 85	Front static load (Pa)		5400
Temperature coefficient of short circuit current (%/°C)	-0.05	Nominal cell operating temperature (°C)		45±2	Back static load (Pa)		2400

STC (standard test condition): irradiance: 1000 W/m<sup>2</sup>; cell temperature: 25°C; spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>, ambient temperature: 20°C; wind speed: 1 m/s

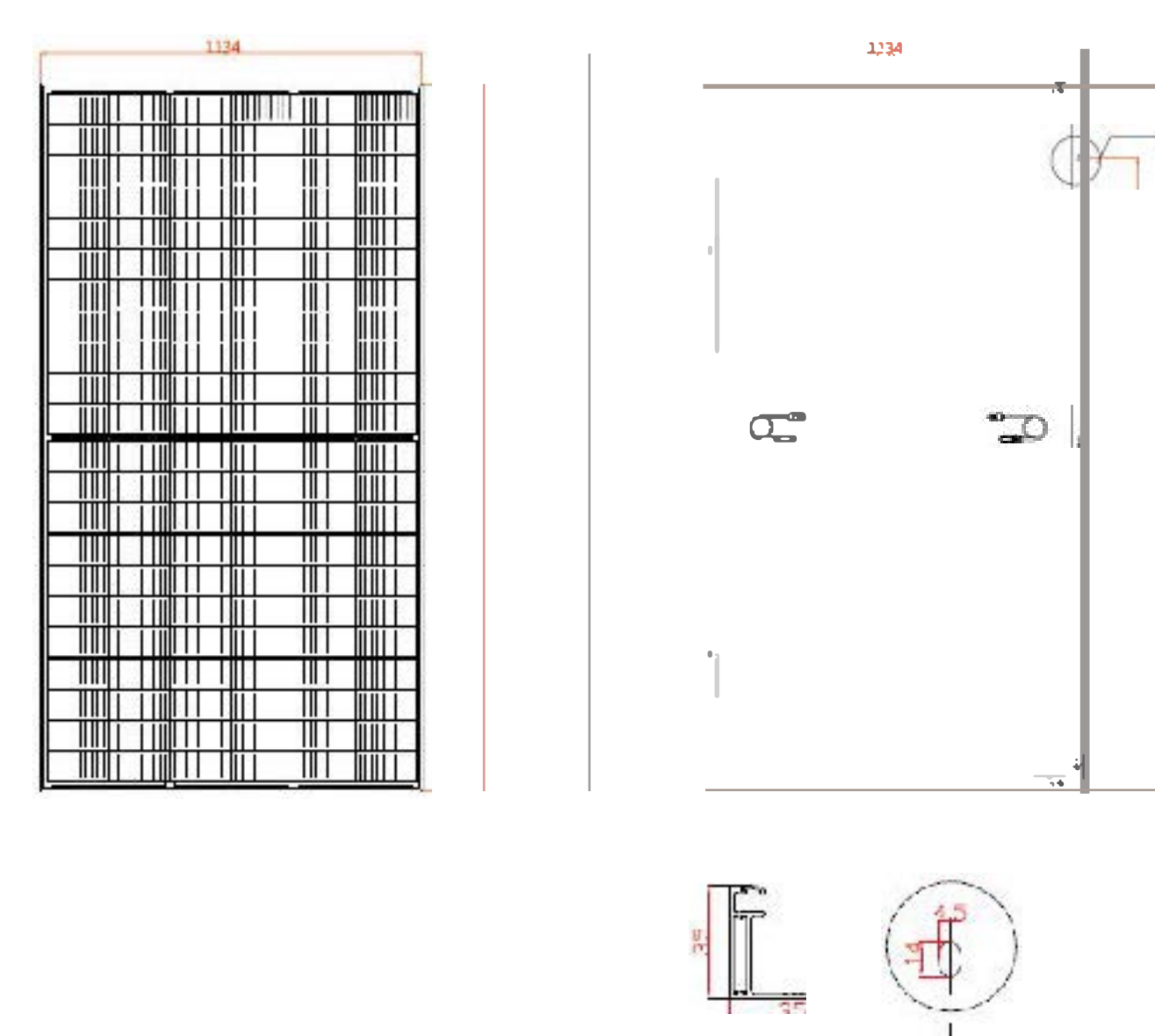
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy (optional for black and white)
Cell	6x22 monocrystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra-white tempered rolled glass
Junction box	IP≥68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

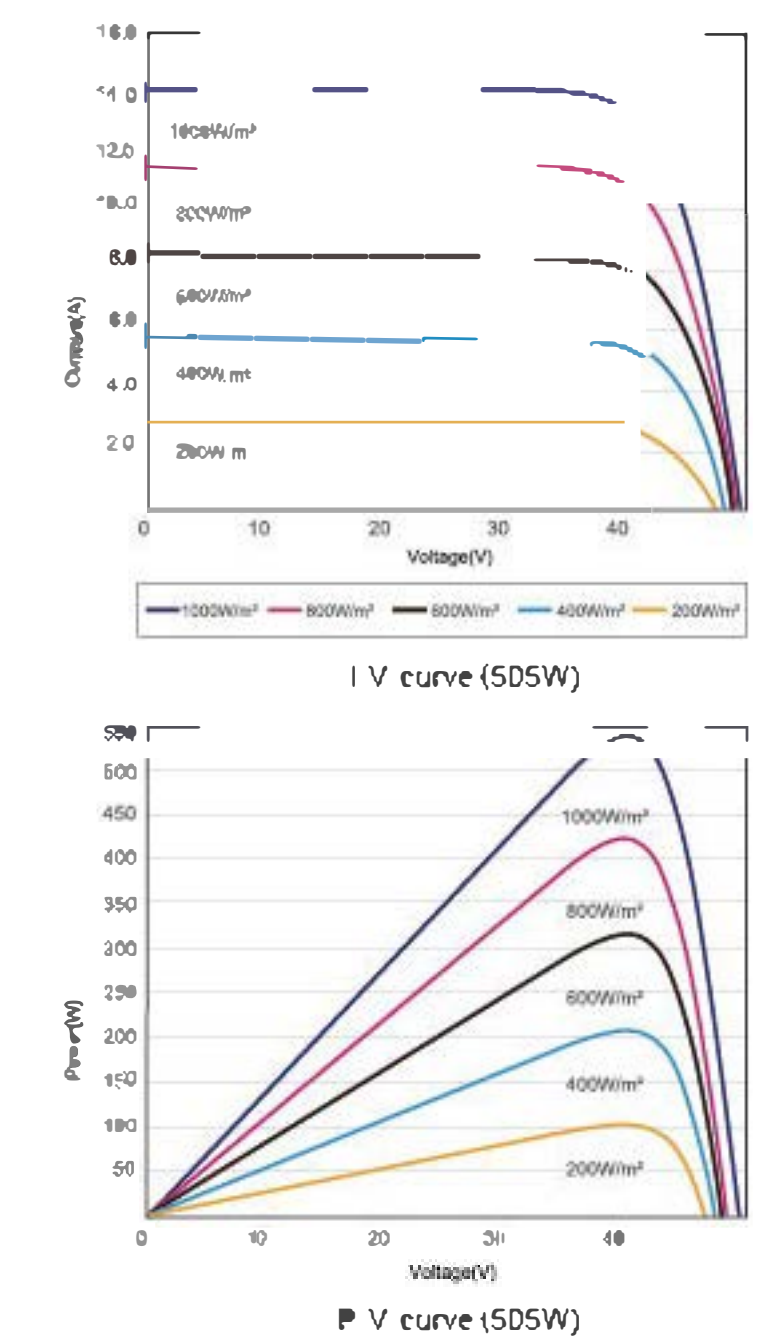
## Packaging parameters

Module dimensions	2094x1134x35mm
Cargo capacity	682PCS/40HQ
Weight	26.5kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 540W~555W

## Electrical parameters

Module model	GPS-08		GPS-09		GPS-10		GPS-11		
Module efficiency (%)	20.93		21.12		21.31		21.48		
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
Max. power Pmax (W)	540	401.88	545	405.61	550	409.33	555	413.05	
Open circuit voltage (Voc/V)	49.60	46.58	49.75	46.73	49.90	46.87	49.91	47.02	
Short circuit current (Isc/A)	13.93	11.27	14.0	11.34	14.07	11.41	14.09	11.47	
Max. operating voltage (V <sub>m</sub> /V)	41.64	37.89	41.80	38.02	41.96	38.14	41.98	38.26	
Max. operating current (I <sub>m</sub> /A)	12.97	10.60	13.04	10.67	13.11	10.73	13.22	10.80	
Cell type (mm)	MBB182x91 mm Monocrystalline Silicon								
Number of cells (PCS)	144(6x24)								
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		-0.348		Nominal fuse current (A)		25
Temperature coefficient of open circuit voltage (%/°C)	-0.282		Operating temperature (°C)		40 to 85		Front static load (Pa)		5400
Temperature coefficient of short circuit current (%/°C)	-0.05		Nominal cell operating temperature (°C)		45±2		Backstatic load (Pa)		2400

STC (standard test condition): irradiance: 1,000 W/m<sup>2</sup>, cell temperature: 25°C, spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>, ambient temperature: 20°C; wind speed: 1 m/s

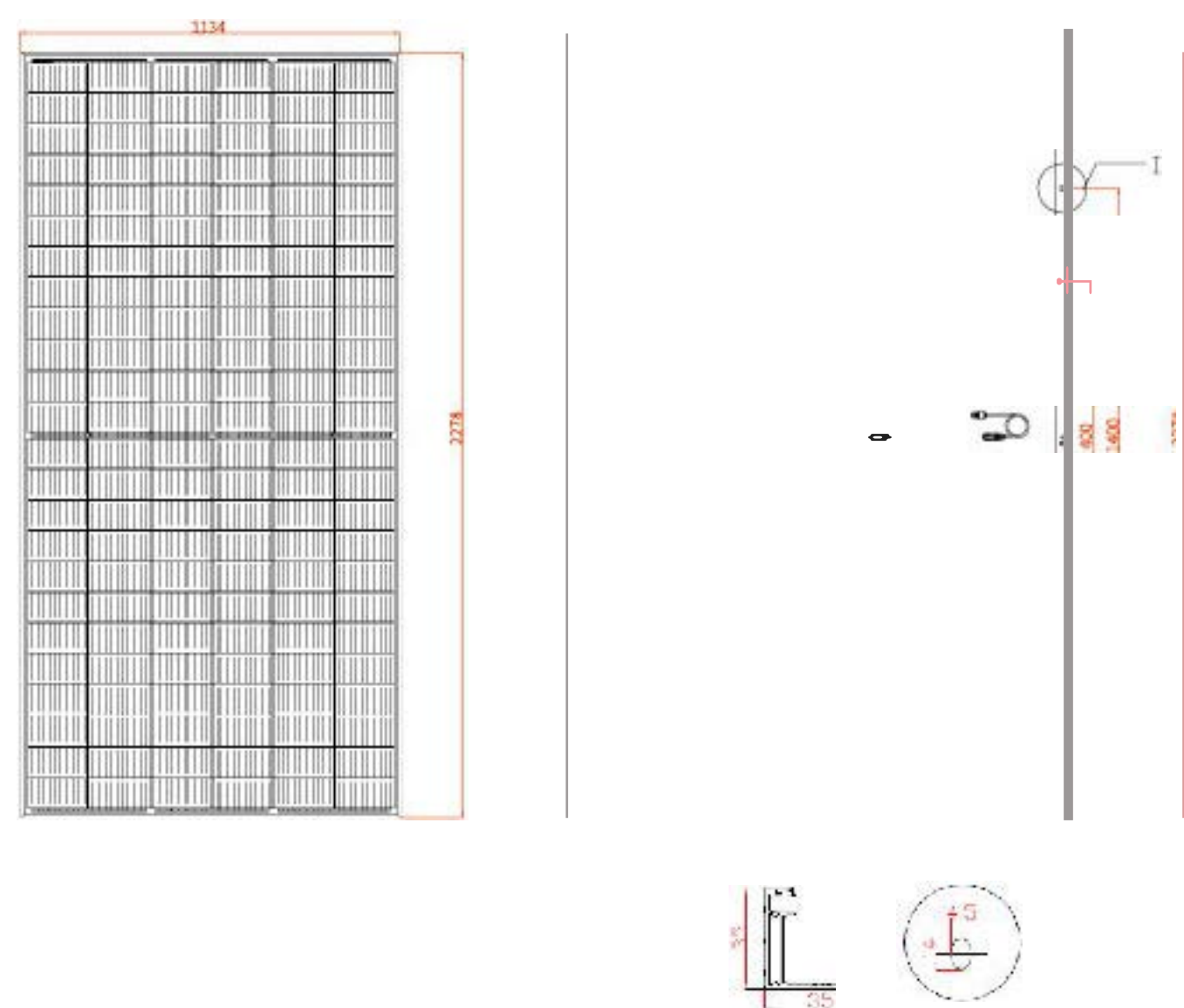
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy (optional for black and white)
Cell	6x24 monocrystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra-white tempered rolled glass
Junction box	IP68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

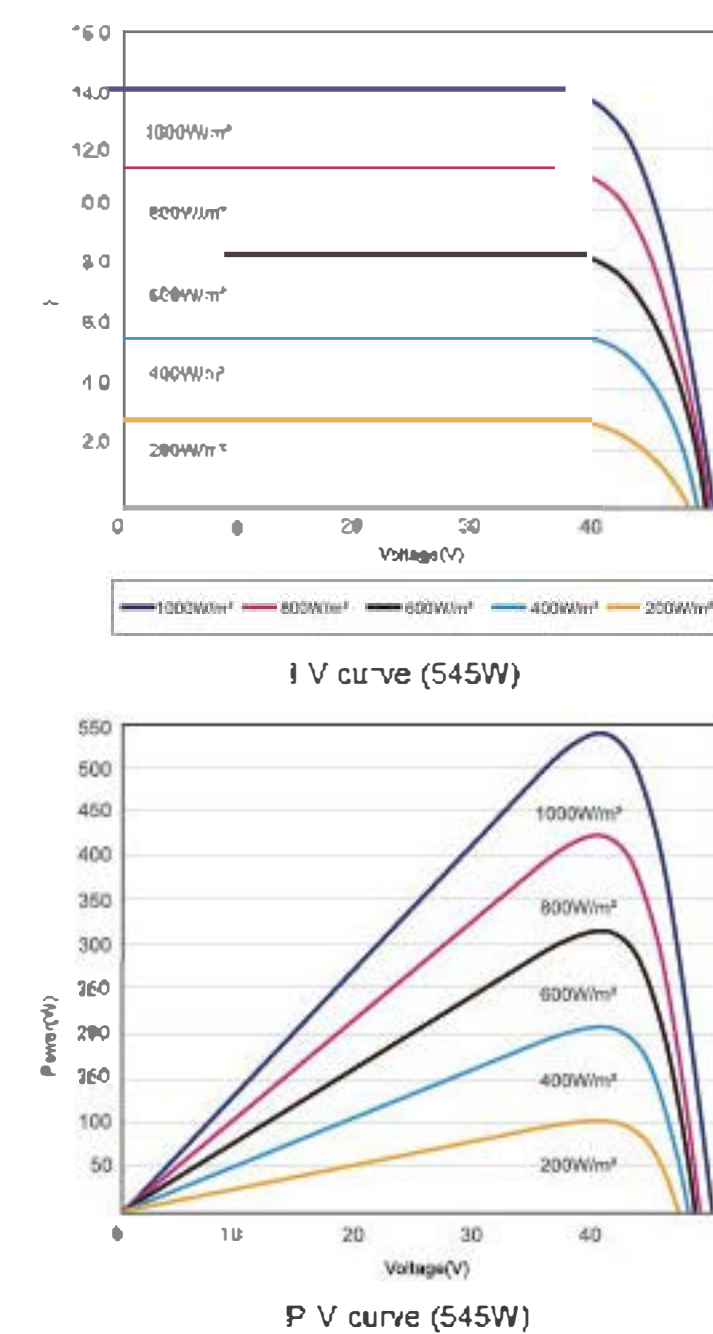
## Packaging parameters

Module dimensions	2278x1134x35mm
Cargo capacity	620PCS/40HQ; 20 pallets; 930PCS/17.5M flatbed truck (30 pallets)
Weight	28.6kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 540W~555W

## Electrical parameters

Module model	GPS-12		GPS-13		GPS-14		GPS-15		
Module efficiency (%)	20.67		20.86		21.05		21.24		
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
Max. power Pmax (W)	540	409	545	413	550	417	555	420	
Open circuit voltage (Voc/V)	37.50	35.13	37.70	35.32	37.90	35.51	38.10	35.69	
Short circuit current (Isc/A)	18.41	14.86	18.47	14.90	18.52	14.94	18.57	14.98	
Max. operating voltage (V <sub>m</sub> /V)	31.20	29.26	31.40	29.44	31.60	29.63	31.80	29.81	
Max. operating current (I <sub>m</sub> /A)	17.31	13.98	17.36	14.03	17.41	14.08	17.45	14.12	
Cell type (mm)	MBB210x105mm Monocrystalline Silicon								
Number of cells (PCS)	110 (5x22)								
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		0.362		Nominal fuse current (A)		30
Temperature coefficient of open circuit voltage (%/°C)	-0.262		Operating temperature (°C)		-40 to 85		Front static load (Pa)		5400
Temperature coefficient of short circuit current (%/°C)	-0.042		Nominal cell operating temperature (°C)		43±2		Back static load (Pa)		2400

STC (standard test condition): irradiance: 1,000 W/m<sup>2</sup>; cell temperature: 25°C; spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>; ambient temperature: 20°C; wind speed: 1 m/s

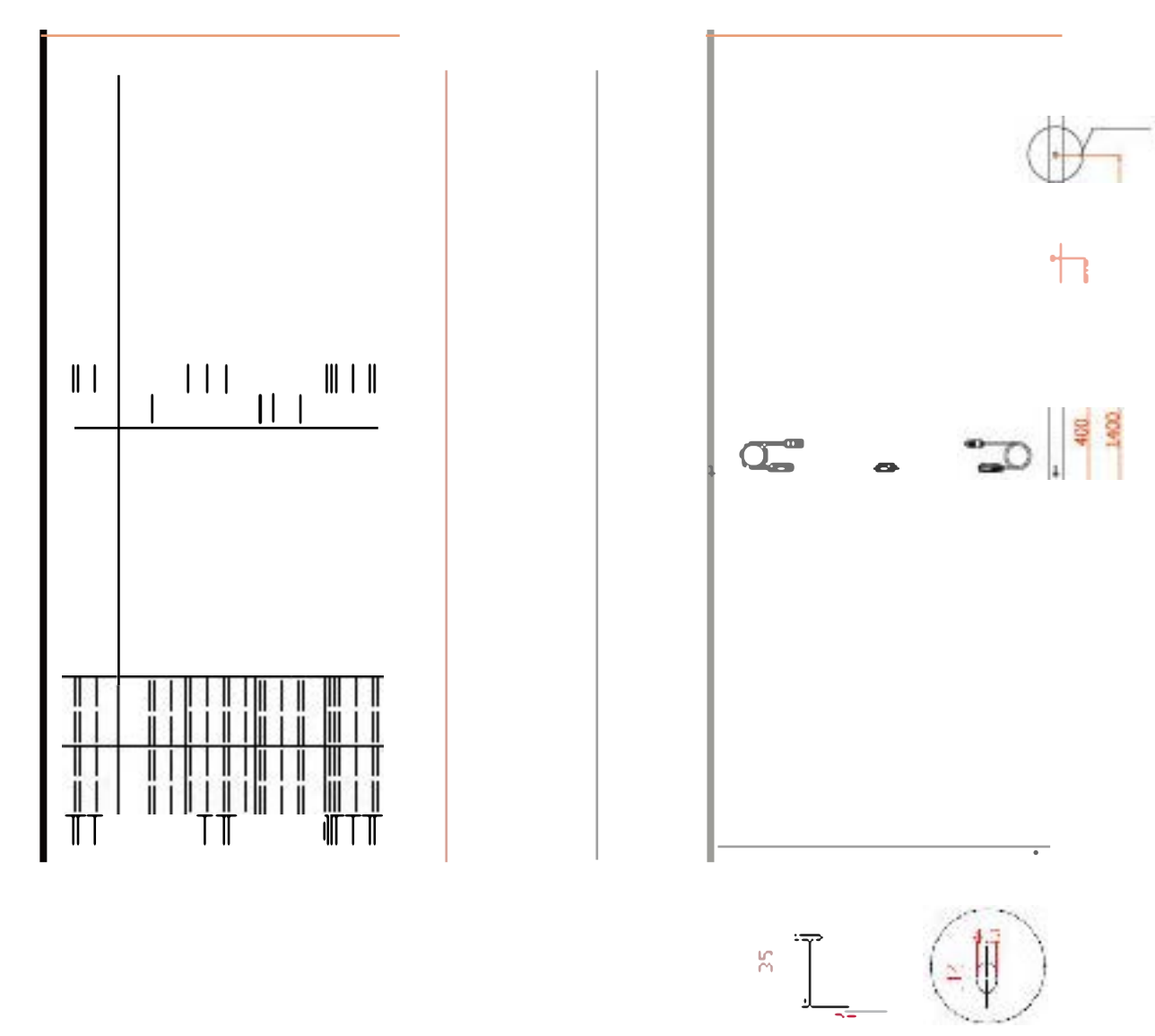
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy
Cell	5x22 monocrystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra-white tempered rolled glass
Junction box	IP68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

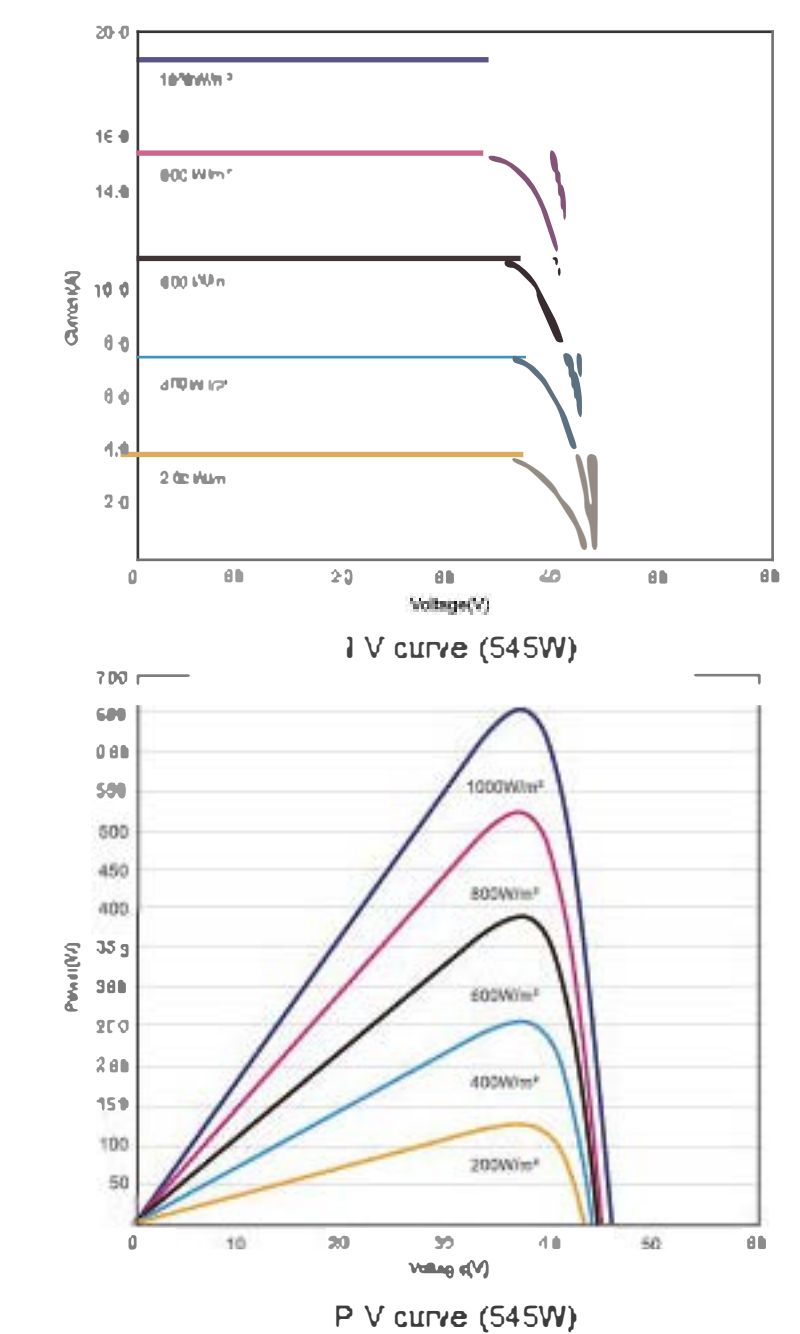
## Packaging parameters

Module dimensions	2384x1096x35mm
Cargo capacity	620PCS/40HQ
Weight	29.5kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 590W~610W

## Electrical parameters

Module model	GPS-16		GPS-17		GPS-18		GPS-19		GPS-20	
	21.08		21.0		21.2		21.57		21.60	
Module efficiency (%)	21.08		21.0		21.2		21.57		21.60	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	590	447	595	451	600	503.42	605	458	610	462.2
Open circuit voltage (Voc/V)	41.1	38.7	41.3	38.9	41.5	39.1	41.7	39.3	41.9	39.5
Short circuit current (Isc/A)	18.47	14.85	18.52	14.88	18.57	14.92	18.62	14.96	18.67	15.0
Max. operating voltage (V <sub>m</sub> /V)	34.0	31.7	34.2	31.9	34.4	32.0	34.6	32.2	34.6	32.2
Max. operating current (I <sub>m</sub> /A)	17.35	14.09	17.40	14.13	17.44	14.18	17.49	14.22	17.55	14.36
Cell type (mm)	MBB 210x105mm (Mono-Crystalline Silicon)									
Number of cells (PCS)	120 (6x20)									
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		-0.362		Nominal fuse current (A)		30	
Temperature coefficient of open circuit voltage (%/°C)	-0.262		Operating temperature (°C)		-40 to 85		Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	-0.042		Nominal cell operating temperature (°C)		43±2		Back static load (Pa)		2400	

STC (standard test condition): irradiance: 1000 W/m<sup>2</sup>, cell temperature: 25°C, spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>, ambient temperature: 20°C; wind speed: 1 m/s

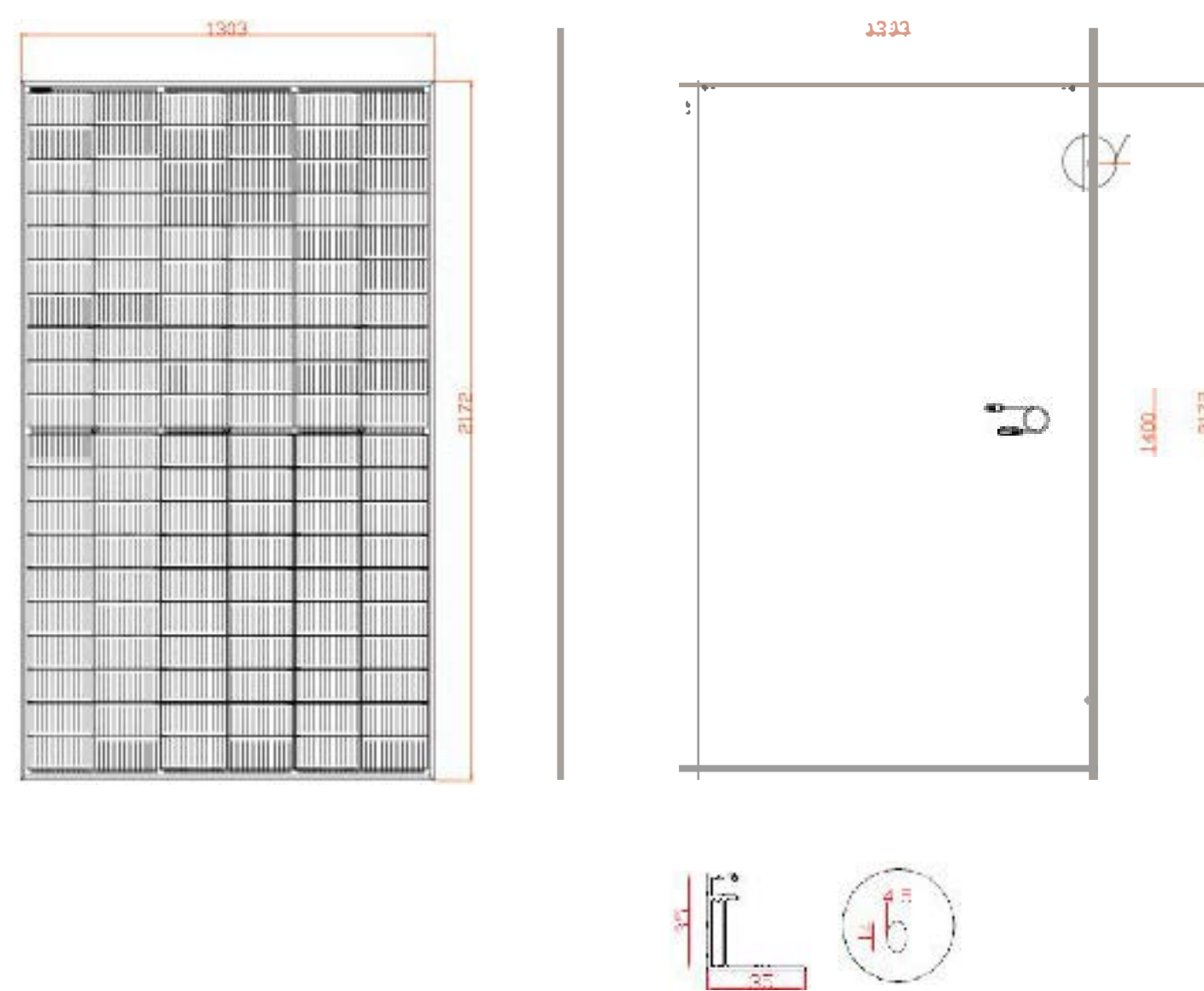
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy (optional for black and white)
Cell	6x20 mono-crystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra-white tempered rolled glass
Junction box	IP68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

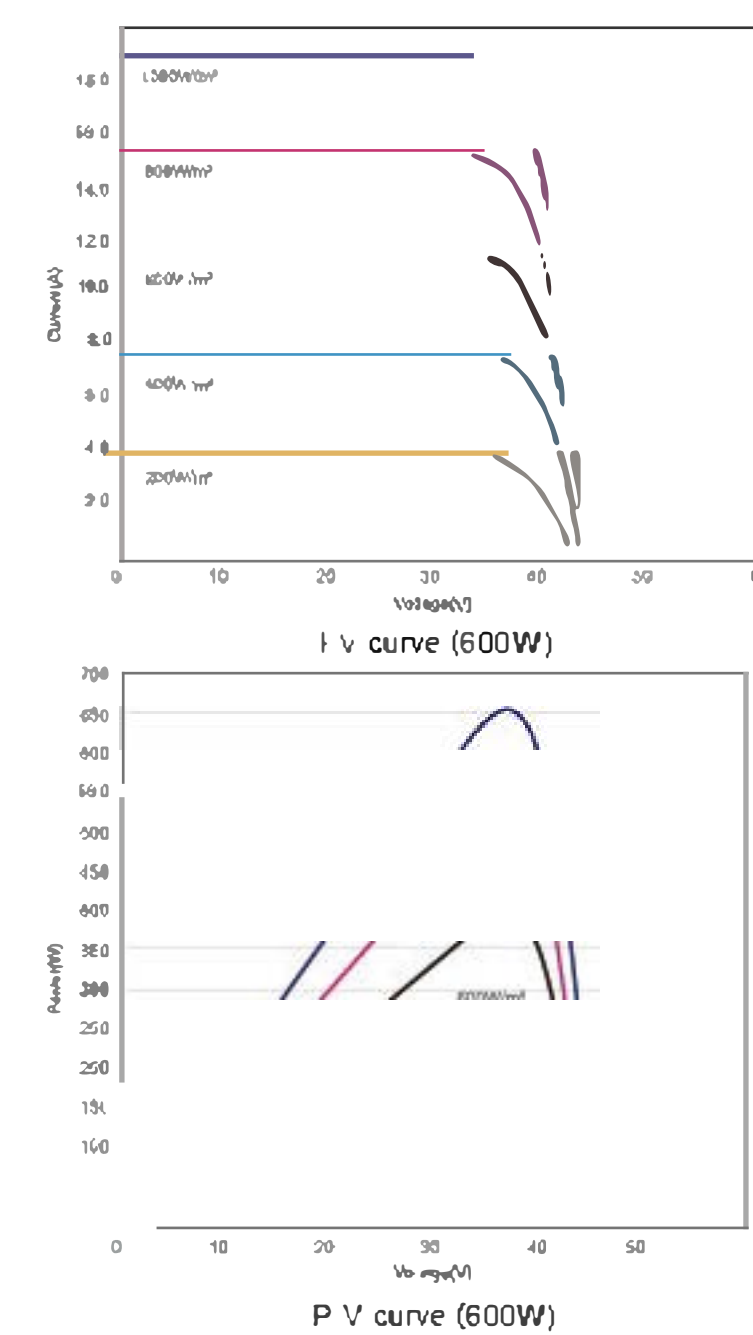
## Packaging parameters

Module dimensions	2172x1303x35mm
Cargo capacity	558PCS/40HQ
Weight	31kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 650W~670W

## Electrical parameters

Module model	GPS-21		GPS-22		GPS-23		GPS-24		GPS-25	
	20.93		21.09		21.25		21.41		21.57	
Module efficiency (%)	20.93		21.09		21.25		21.41		21.57	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	650	492.07	655	495.85	660	499.64	665	503.42	670	507.21
Open circuit voltage (Voc/V)	45.50	41.79	45.70	42.03	45.90	42.26	46.10	42.50	46.32	42.74
Short circuit current (Isc/A)	18.45	15.11	18.5	15.15	18.55	15.17	18.6	15.21	18.65	15.23
Max. operating voltage (V <sub>m</sub> /V)	37.88	34.24	38.06	34.43	38.24	34.63	38.42	34.82	38.59	34.92
Max. operating current (I <sub>m</sub> /A)	17.16	14.37	17.21	14.40	17.26	14.42	17.31	14.46	17.36	14.48
Cell type (mm)	MBB 210x105mm (Mono-Crystalline Silicon)									
Number of cells (PCS)	132 (6x22)									
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		-0.362		Nominal fuse current (A)		30	
Temperature coefficient of open circuit voltage (%/°C)	-0.262		Operating temperature (°C)		-40 to 85		Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	-0.042		Nominal cell operating temperature (°C)		43±2		Back static load (Pa)		2400	

STC (standard test condition): irradiance: 1000 W/m<sup>2</sup>, cell temperature: 25°C, spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>, ambient temperature: 20°C; wind speed: 1 m/s

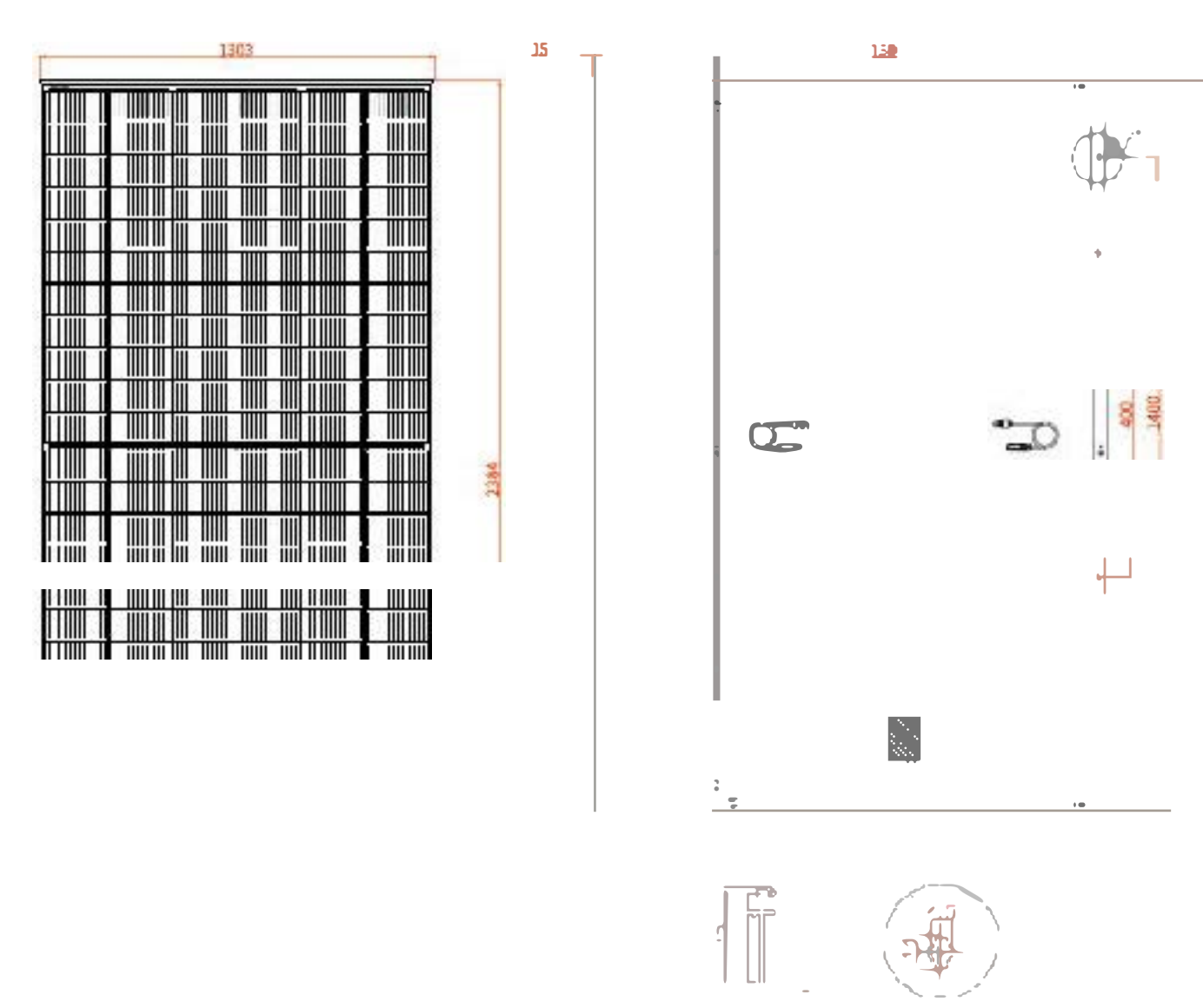
## Auxiliary material parameters

Frame	Anticorrosion aluminum alloy (optional for black and white)
Cell	6x22 mono-crystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	3.2mm low iron ultra white tempered rolled glass
Junction box	IP68 TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

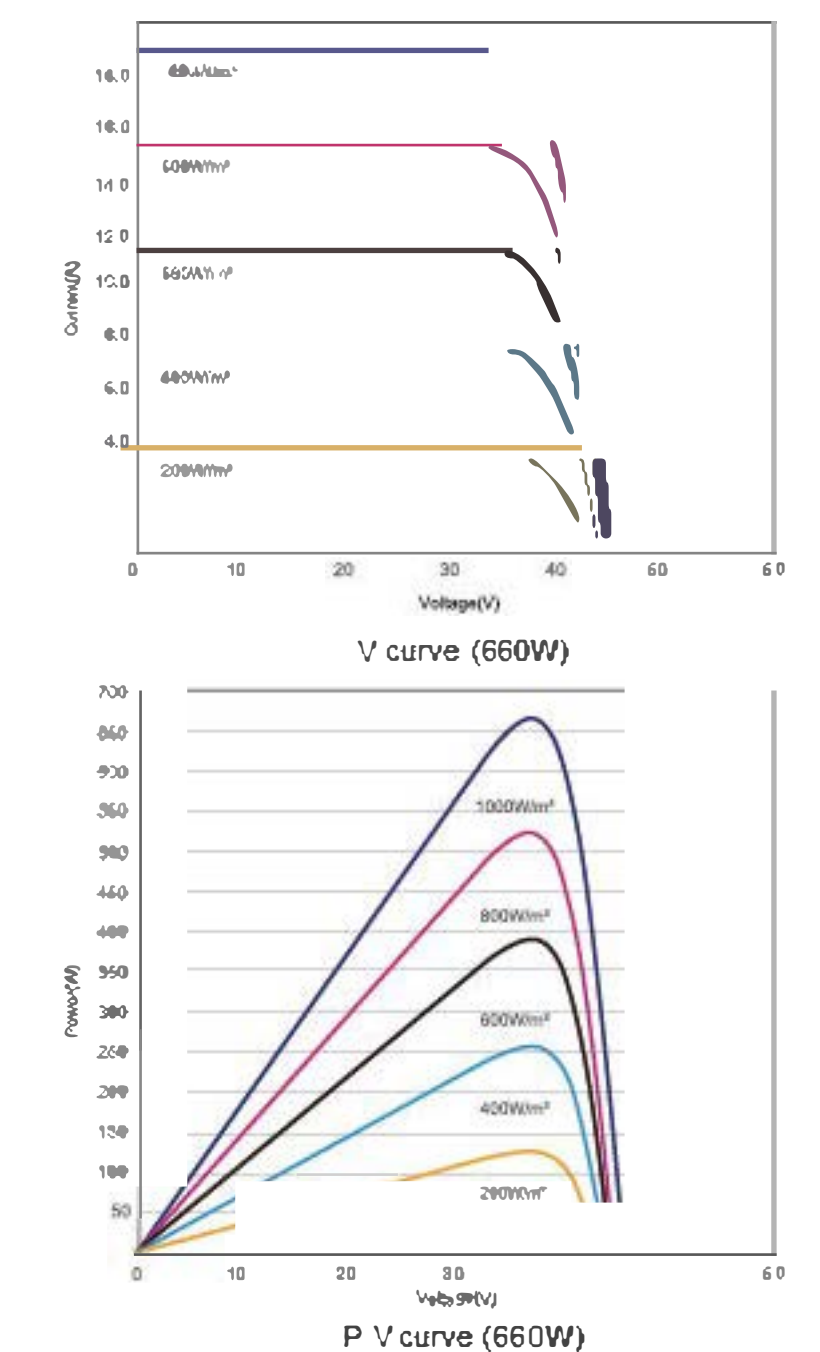
## Packaging parameters

Module dimensions	2384x1303x35mm
Cargo capacity	806PCS/17.5M flatbed truck
Weight	33.5kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



## Double-sided Double glass Module

Backside power generation with additional gains up to 25%

# 540W~555W

### Electrical parameters

Module model	GPS-26		GPS-27		GPS-28		GPS-29	
	Module efficiency (%)		21.12		21.31		21.48	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	540	401.88	545	405.61	550	409.33	555	413.05
Open circuit voltage (Voc/V)	49.60	46.58	49.75	46.73	49.90	46.87	49.91	47.02
Short circuit current (Isc/A)	13.93	11.27	14.0	11.34	14.07	11.41	14.09	11.47
Max. operating voltage (Vm/V)	41.63	37.89	41.79	38.02	41.95	38.14	41.98	38.26
Max. operating current (Im/A)	12.97	10.60	13.04	10.67	13.11	10.73	13.22	10.80
Cell type (mm)	MBB-182x91 mm Mono-crystalline Silicon							
Number of cells (PCS)	144(6x24)							
Max. system voltage (V)	1500V DC	Max. temperature coefficient (%/°C)		0.348	Nominal fuse current (A)		25	
Temperature coefficient of open circuit voltage (%/°C)	-0.282	Operating temperature (°C)		-40 to 85	Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	0.05	Nominal cell operating temperature (°C)		45±2	Back static load (Pa)		2400	

STC (standard test condition): irradiance 1,000 W/m²; cell temperature: 25°C; spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance 800 W/m²; ambient temperature: 20°C; wind speed: 1 m/s

### Auxiliary material parameters

Frame	Anodized aluminum alloy
Cell	6x24 monocrystalline solar cells
Number of diodes	3
Cable length	300 mm or customized according to customer requirements
Glass	2.0 semi-tempered coated glass for front side, 2.0 glass coated glass for back side
Junction box	IP≥68, TÜV&UL
Output wire & connector	4mm² wire & MC4

### Packaging parameters

Module dimensions	2278x1134x35mm
Cargo capacity	620PCS/40HQ (20 pallets) 930PCS/17.5M flatbed truck (30 pallets)
Weight	31.6kg
Packaging method	31PCS/Pallet

### Features



#### High power

The double-sided power generation is designed to realize additional gains up to 25%. The multi-busbar half cell technology improves energy density and output power.



#### High reliability

It passes TÜV certification, salt spray and ammonia corrosion test, and 2400 Pa wind load and 5400 Pa snow load certification, so it has high reliability.



#### High profit

The BOS cost is reduced to lower electricity cost per kWh and improve project benefit.



#### Low attenuation

The decay is less than 2.0% in the first year and 0.45% linear per year within 30 years.



#### Low hot spot

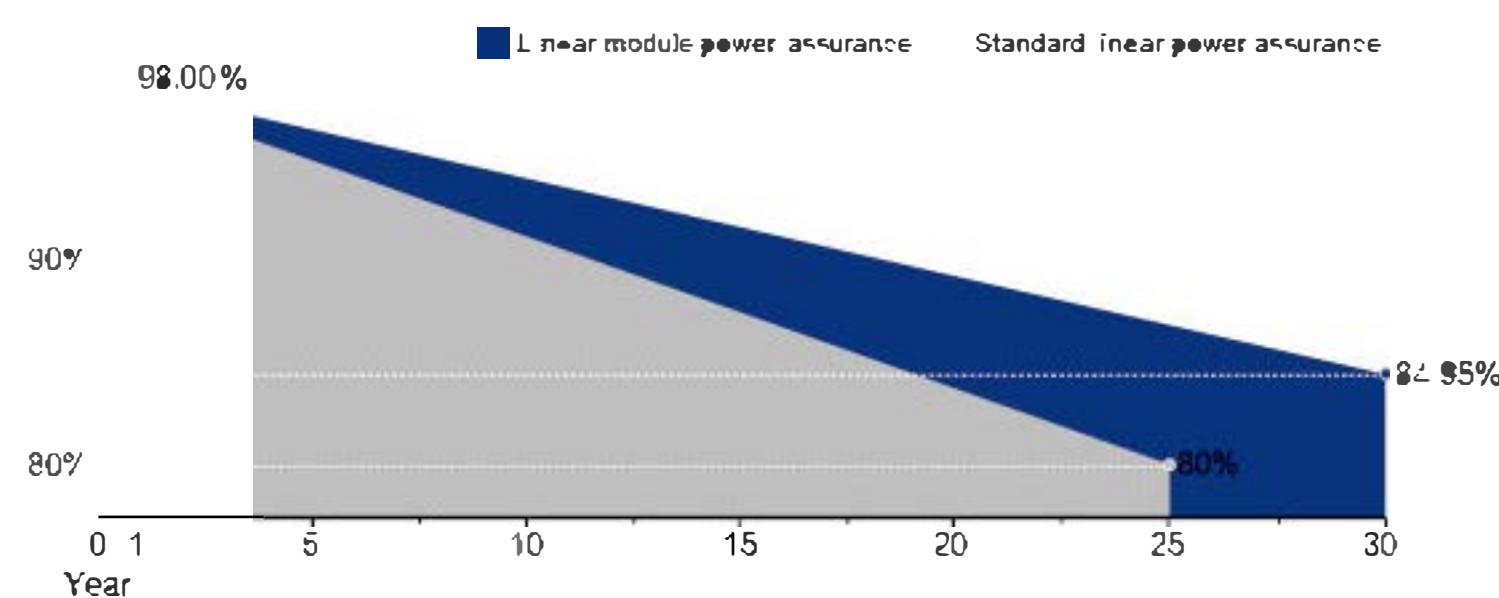
The new cell technology and optimized circuit design are used to obtain better temperature coefficient and hot spot resistance.



#### Less crack

The multi-busbar technology is applied, which is featured with stronger anti-crack ability and anti-busbar breaking ability.

### Leading linear power warranty



### Comprehensive product and system certification

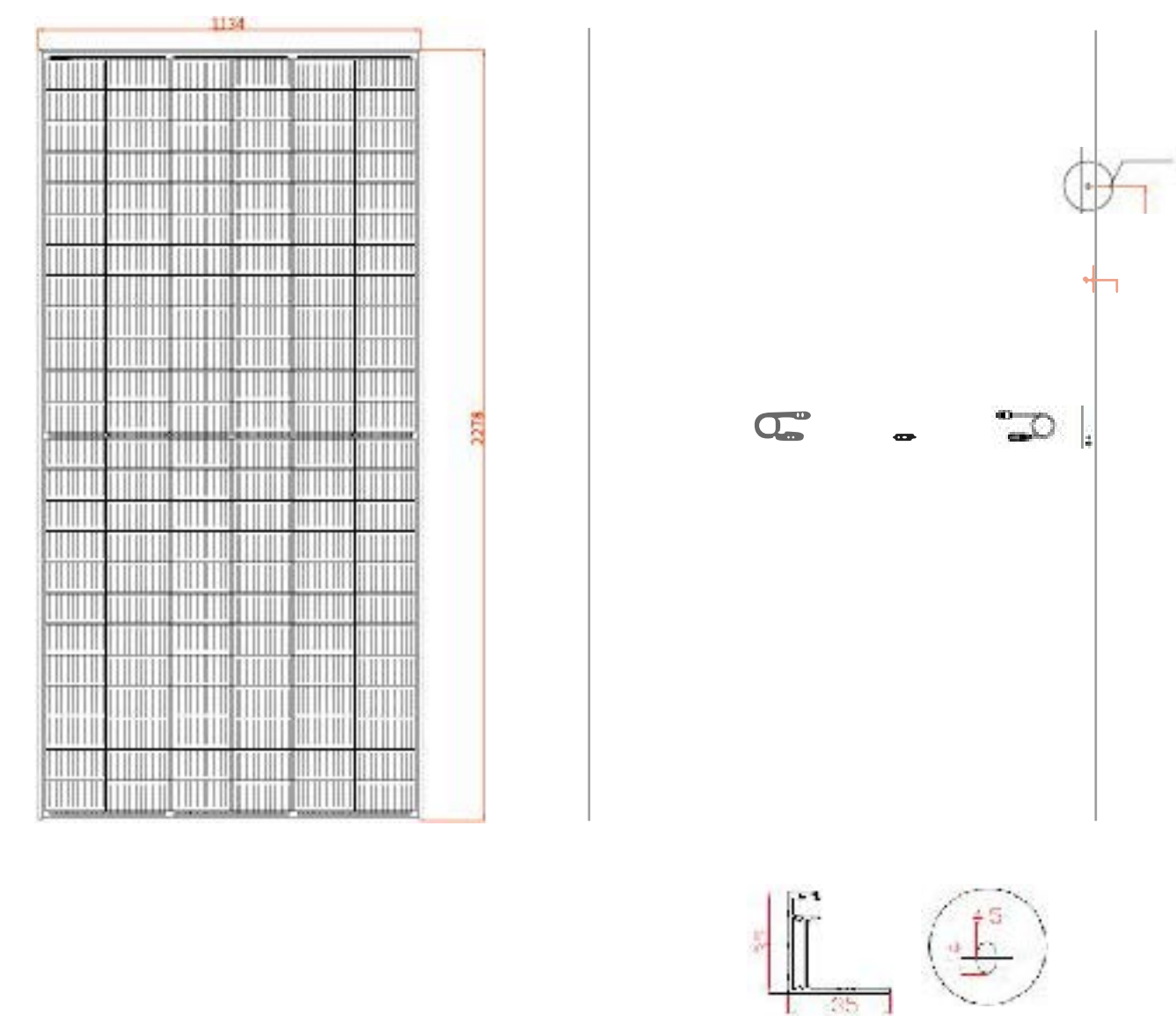
IEC 61215, IEC 61730

ISO9001:2005 Quality Management System

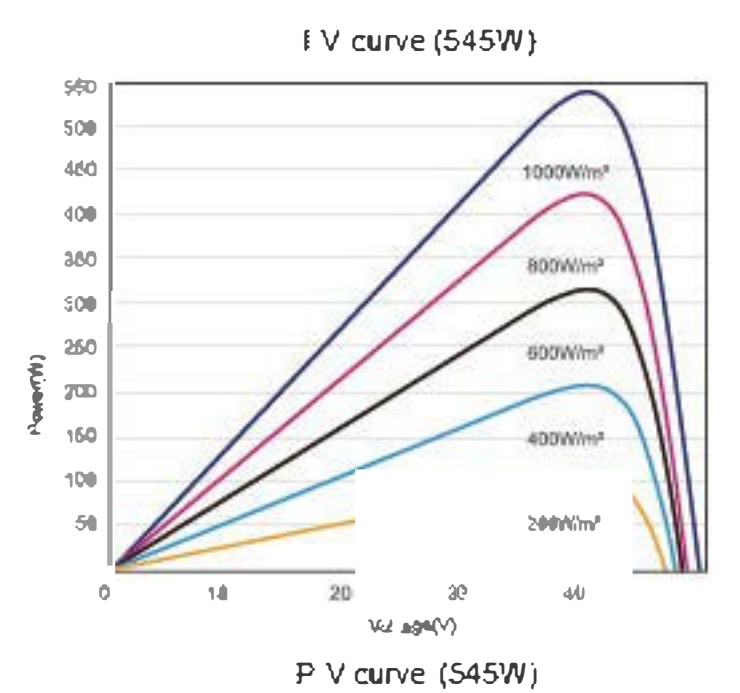
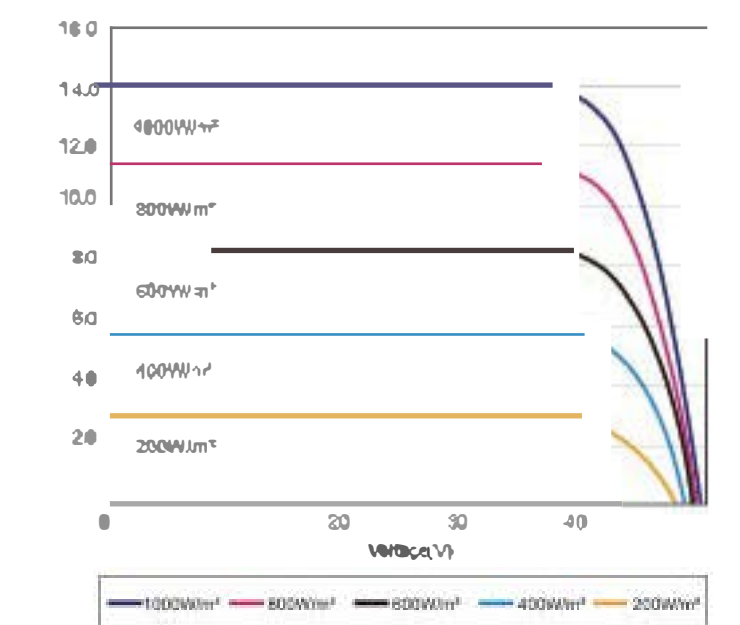
ISO14001:2015 Environmental Management System

ISO45001:2018 Occupational Health and Safety Management System

### Module outline



### Curve



# 590W~610W

## Electrical parameters

Module model	GPS-30		GPS-31		GPS-32		GPS-33		GPS-34	
	) 21.08		21.00		21.20		21.57		21.60	
Module efficiency (%)	) 21.08		21.00		21.20		21.57		21.60	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	590	447	595	451	600	503.42	605	458	610	462.2
Open circuit voltage (Voc/V)	41.1	38.7	41.3	38.9	41.5	39.1	41.7	39.3	41.9	39.5
Short circuit current (Isc/A)	18.47	14.85	18.52	14.88	18.57	14.92	18.62	14.96	18.67	15
Max. operating voltage (V <sub>m</sub> /V)	33.8	31.7	34.0	31.9	34.2	32	34.4	32.2	34.6	32.2
Max. operating current (I <sub>m</sub> /A)	17.31	14.09	17.35	14.13	17.4	14.18	17.44	14.22	17.49	14.36
Cell type (mm)	MBB-210X105mm (Mono-Crystalline Silicon)									
Number of cells (PCS)	120 (6X20)									
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		-0.362		Nominal fuse current (A)		30	
Temperature coefficient of open circuit voltage (%/°C)	-0.262		Operating temperature (°C)		-40 to 85		Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	0.042		Nominal cell operating temperature (°C)		43±2		Backstatic load (Pa)		2400	

STC (standard test condition): irradiance: 1,000 W/m<sup>2</sup>; cell temperature: 25°C; spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>; ambient temperature: 20°C; wind speed: 1 m/s

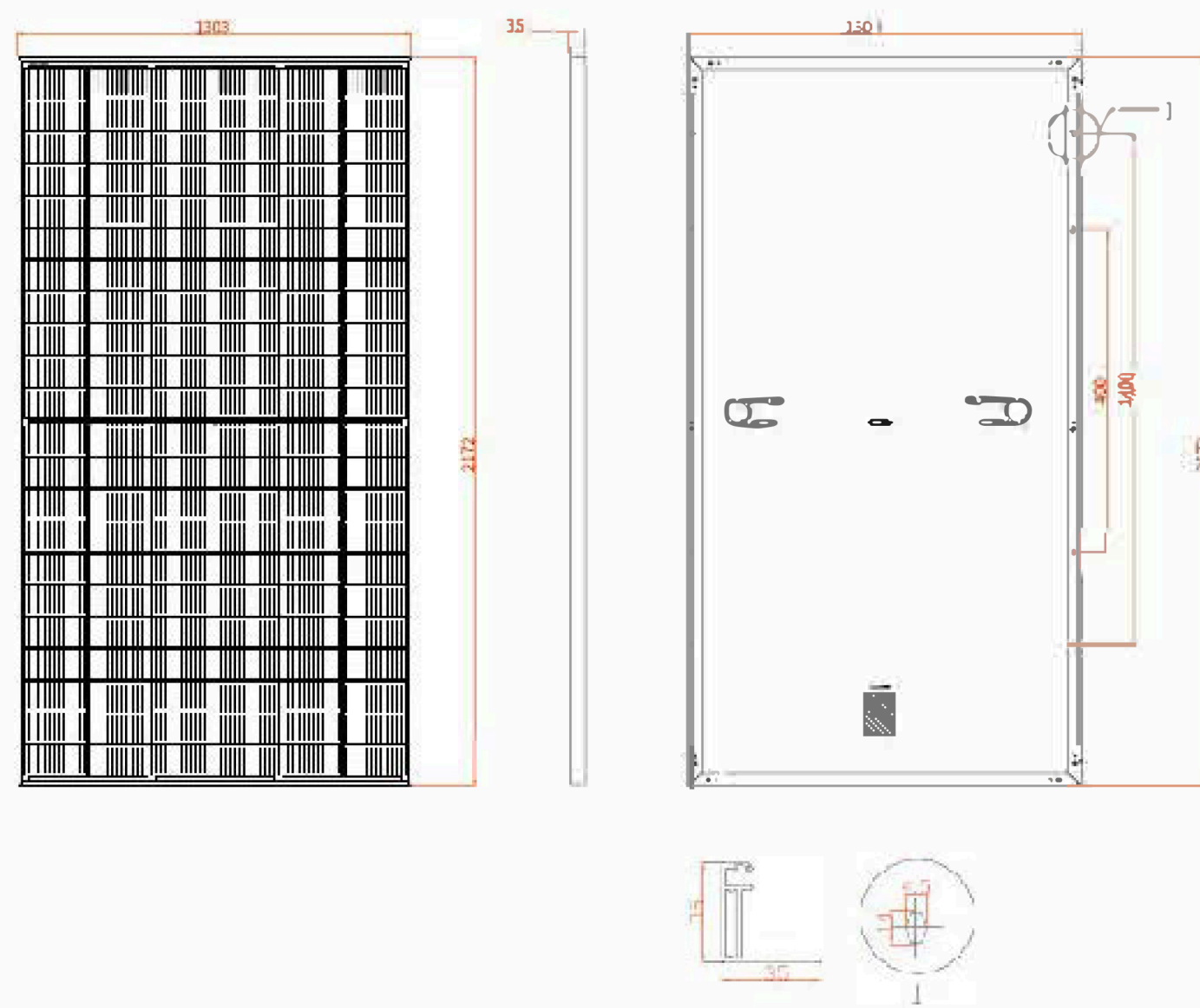
## Auxiliary material parameters

Frame	Anodized aluminum alloy
Cell	6×20 monocrystalline solar cells
Number of diodes	3
Cable length	300mm or customized according to customer requirements
Glass	2.0 semi-tempered coated glass for front side; 2.0 glass coated glass for back side
Junction box	IP≥68, TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

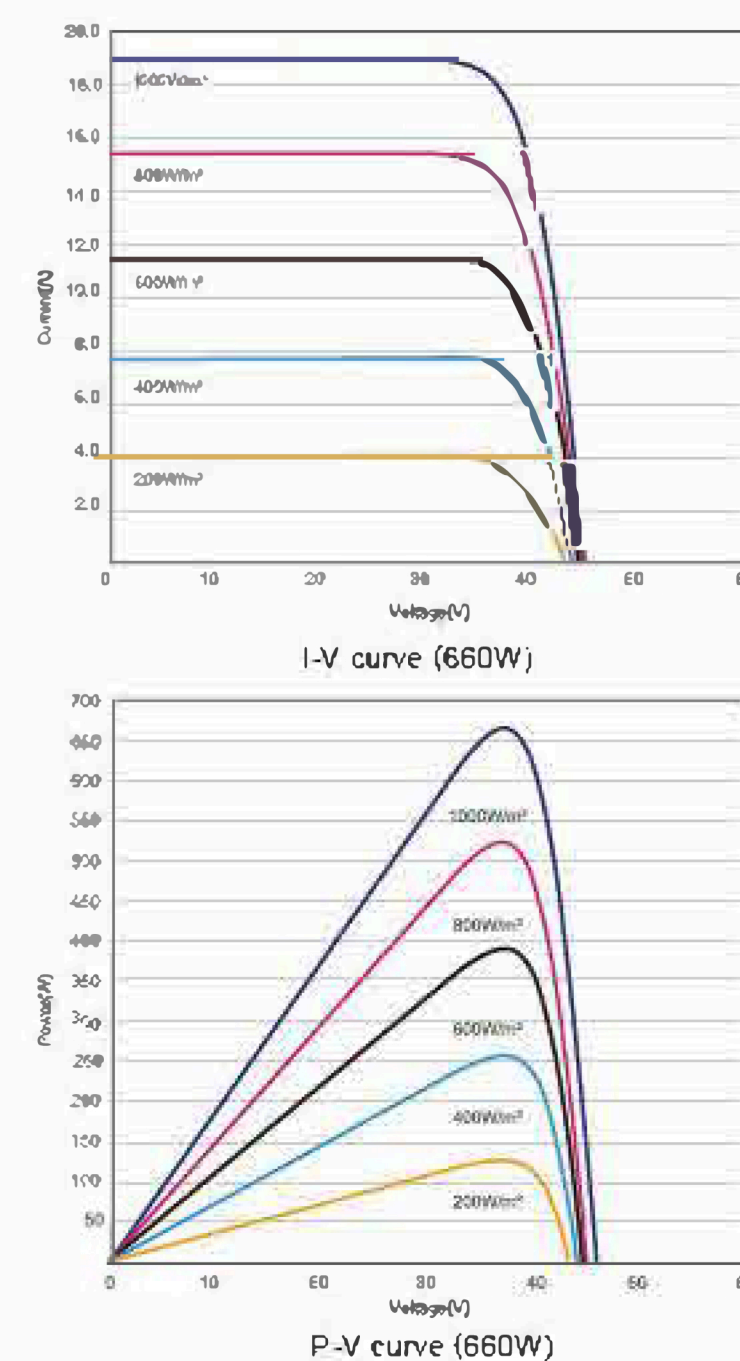
## Packaging parameters

Module dimensions	2172x1303x35mm
Cargo capacity	558PCS/40HQ
Weight	31kg
Packaging method	31PCS/Pallet

## Module outline



## Curve



# 650W~670W

## Electrical parameters

Module model	GPS-35		GPS-36		GPS-37		GPS-38		GPS-39	
	20.93		21.09		21.25		21.41		21.57	
Module efficiency (%)	20.93		21.09		21.25		21.41		21.57	
Power tolerance (W)	0~+5		0~+5		0~+5		0~+5		0~+5	
Test condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Max. power Pmax (W)	650	492.07	655	495.85	660	499.64	665	503.42	670	507.21
Open circuit voltage (Voc/V)	45.50	41.79	45.70	42.03	45.90	42.26	46.10	42.50	46.32	42.74
Short circuit current (Isc/A)	18.45	15.11	18.5	15.15	18.55	15.17	18.6	15.21	18.65	15.23
Max. operating voltage (V <sub>m</sub> /V)	37.88	34.24	38.06	34.43	38.24	34.63	38.42	34.82	38.59	25.02
Max. operating current (I <sub>m</sub> /A)	17.16	14.37	17.21	14.40	17.26	14.42	17.31	14.46	17.36	14.48
Cell type (mm)	MBB-210X105mm (Mono-Crystalline Silicon)									
Number of cells (PCS)	132 (6X22)									
Max. system voltage (V)	1500V DC		Max. temperature coefficient (%/°C)		-0.362		Nominal fuse current (A)		30	
Temperature coefficient of open circuit voltage (%/°C)	-0.262		Operating temperature (°C)		-40 to 85		Front static load (Pa)		5400	
Temperature coefficient of short circuit current (%/°C)	0.042		Nominal cell operating temperature (°C)		43±2		Backstatic load (Pa)		2400	

STC (standard test condition): irradiance: 1,000 W/m<sup>2</sup>; cell temperature: 25°C; spectrum: AM1.5

NOCT (nominal operating temperature of cell): irradiance: 800 W/m<sup>2</sup>; ambient temperature: 20°C; wind speed: 1 m/s

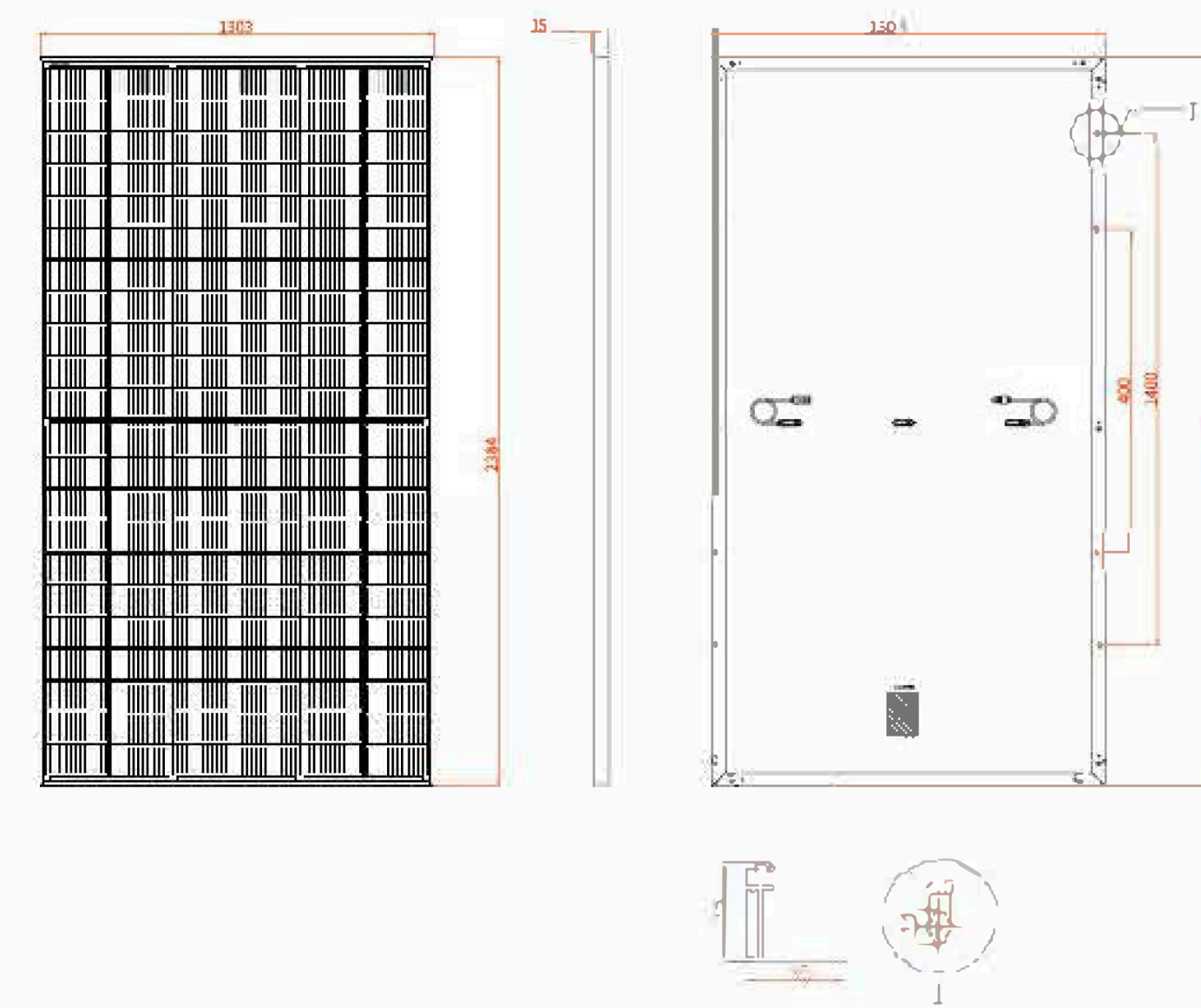
## Auxiliary material parameters

Frame	Anodized aluminum alloy
Cell	6×22 monocrystalline solar cells
Number of diodes	3
Cable length	300 mm or customized according to customer requirements
Glass	2.0 semi-tempered coated glass for front side; 2.0 glass coated glass for back side
Junction box	IP≥68, TÜV&UL
Output wire & connector	4mm <sup>2</sup> wire & MC4

## Packaging parameters

Module dimensions	2384x1303x35mm
Cargo capacity	806PCS/17.5M flatbed truck
Weight	39.16kg
Packaging method	31PCS/Pallet

## Module outline



## Curve

