

## M10-MBB TOPCon Mono Black Bifacial Module

(120Half Cells)

12 years Product warranty 30 years Linear power warranty

Integrated Solar Manufacturing & Technology Since 1964



460-480W /Output power



PID Resistant

Strict selection of encapsulation materials eliminates PID risk.

22.2% /Maximum efficiency



Better Performance

30-year linear warranty, 1% decline in the first year an average annual decline of 0.40% over the first 30 years, increased return on investment No Boron-oxygen LID (Light Induced Degradation).

0~+5W /Power tolerance



High Returns

The n-type module has lower annual attenuation, better photoelectric conversion efficiency and temperature coefficient benefit, bifaciality can reach 80%.

Comprehensive product certification



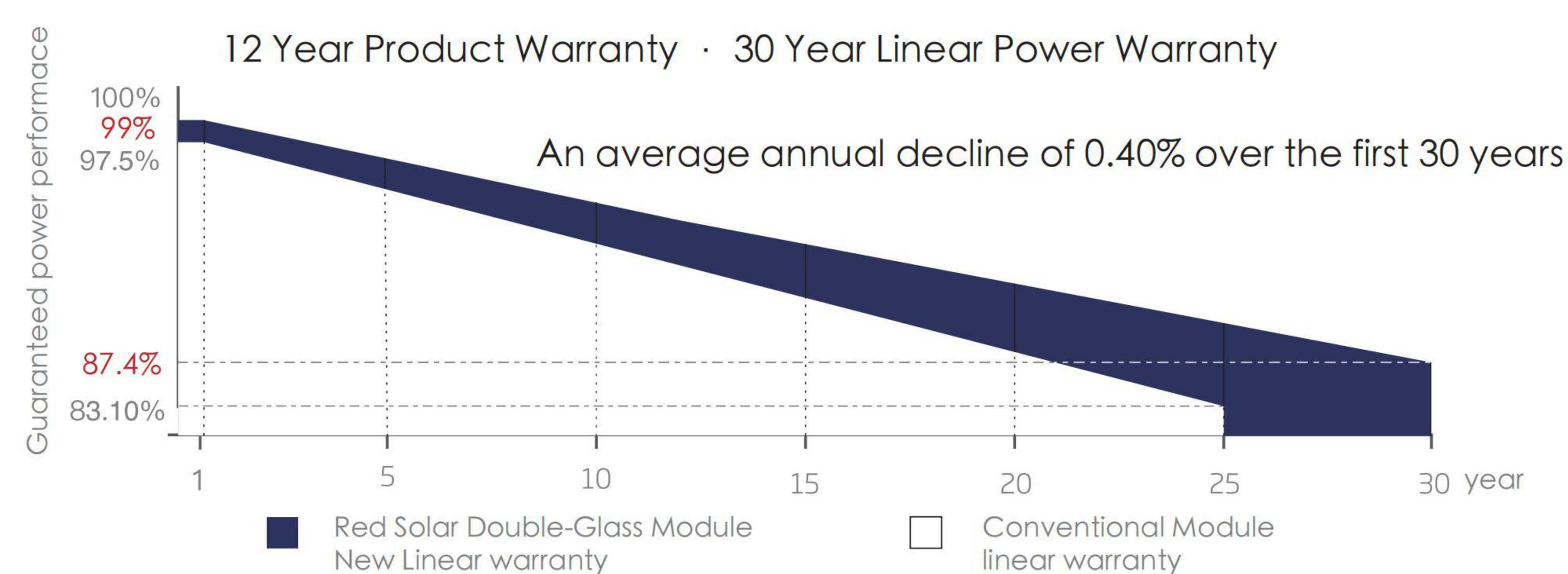
Black Design

The module is made of black cells and black auxiliary materials. All-black appearance can be more integrated with the building, bringing charming visual impact..

- IEC TS 62941 (PV quality Management System)
- ISO9001: 2015 (Quality Management System)
- ISO14001 (Environmental Management System)
- OHSAS18001 (Occupational Health and Safety Management System)



Excellent Power Guarantee



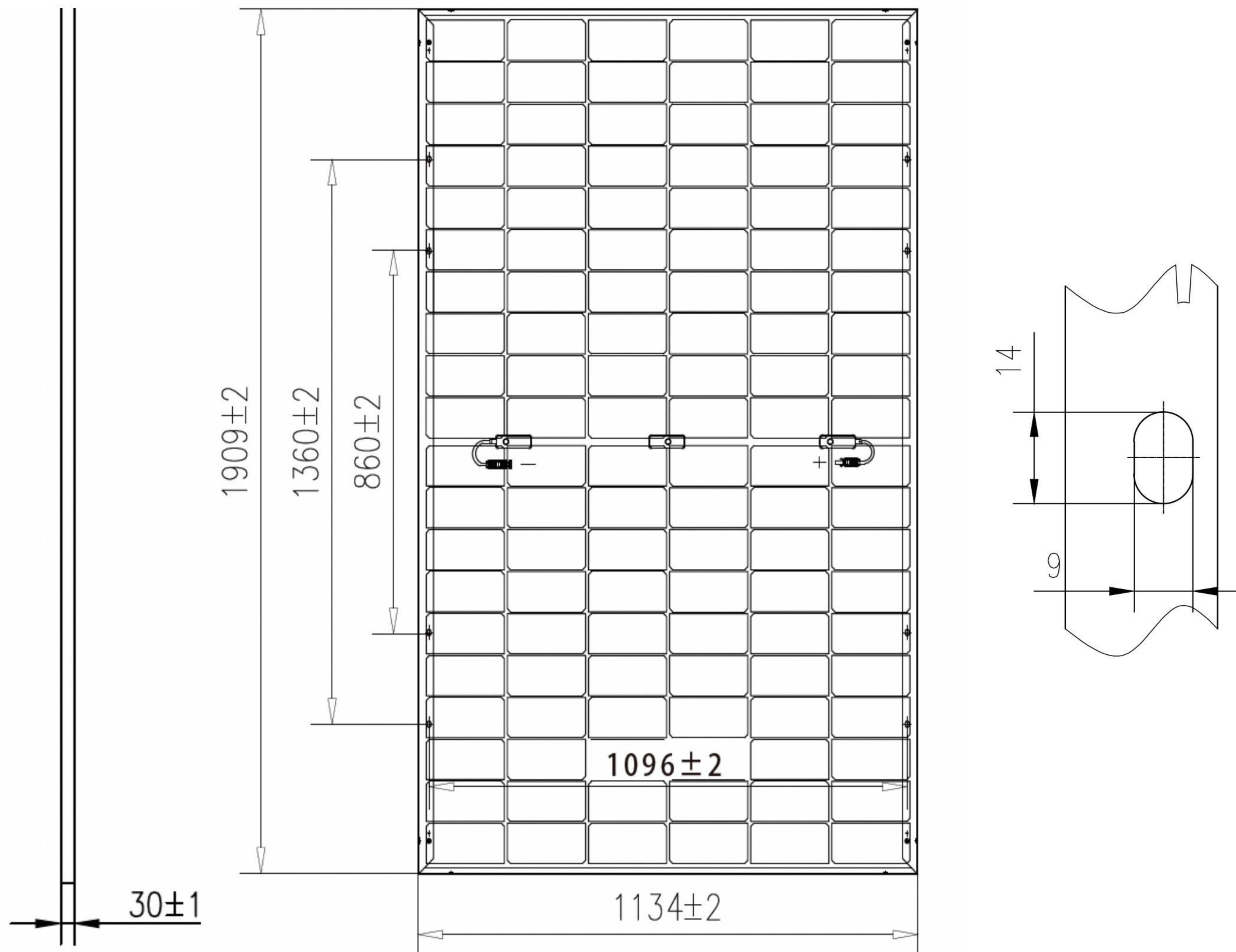
### Model of PV Module

CETC-xxxT(GDF)/120

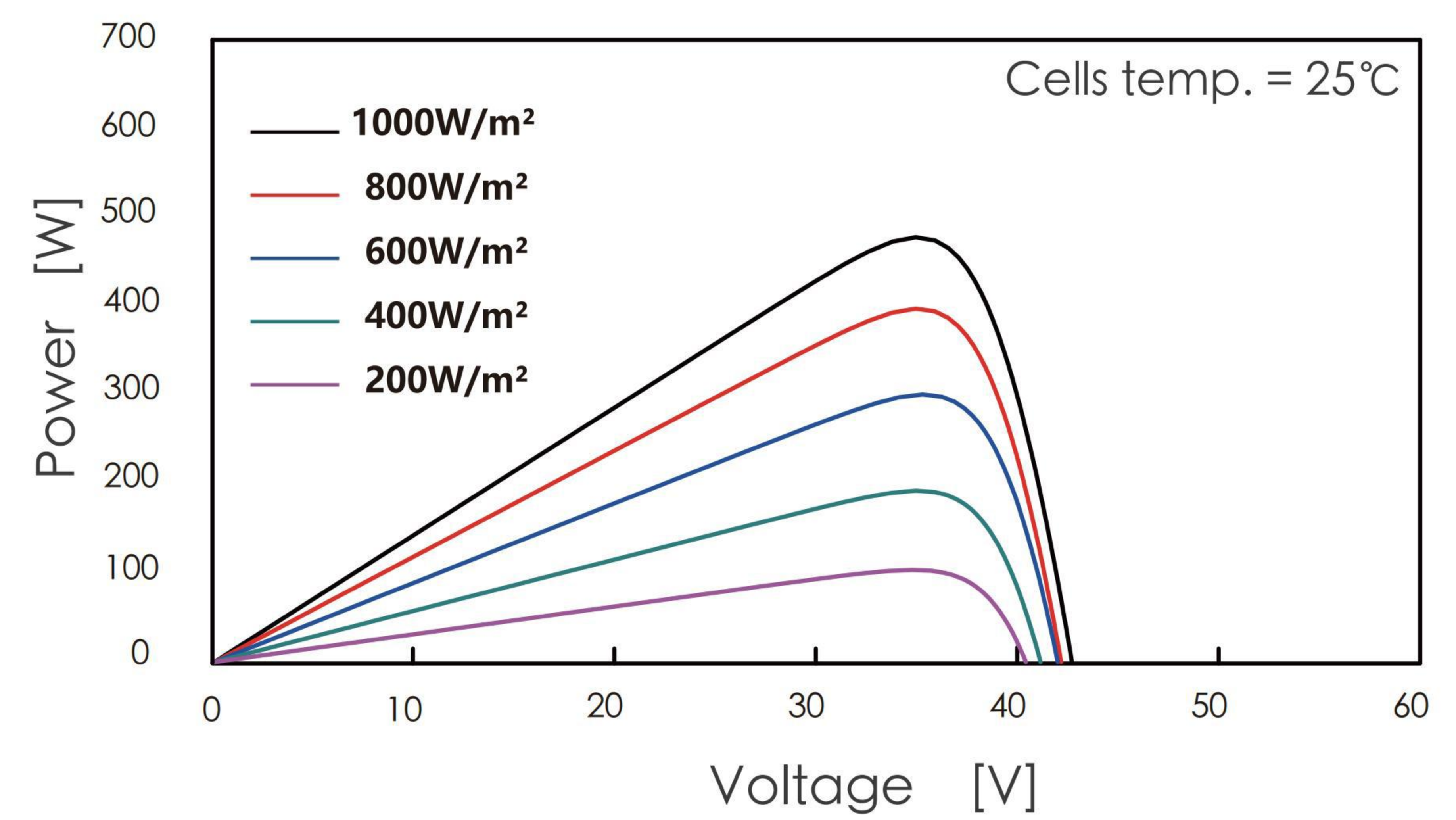
### Power Range

460-480W

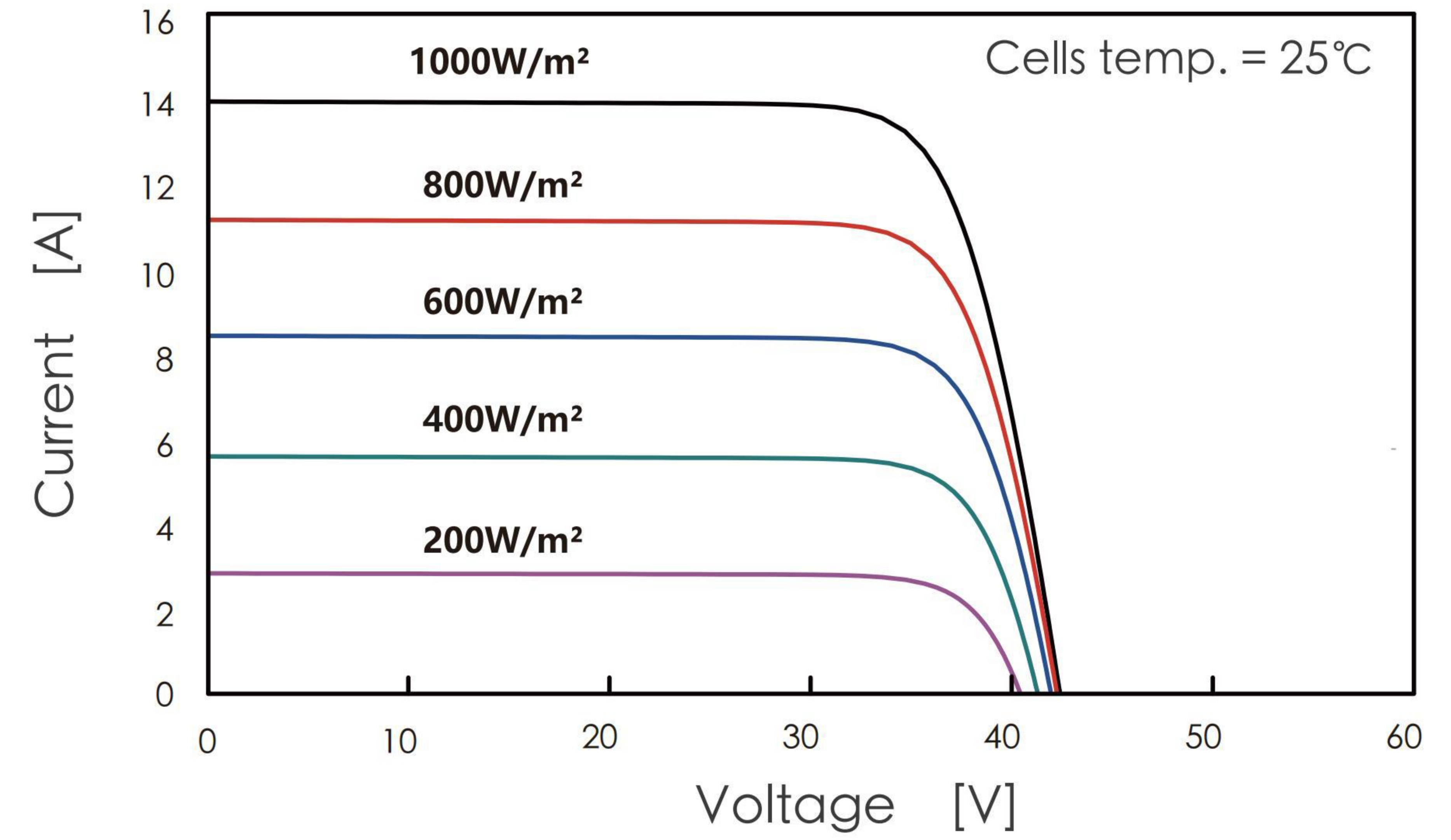
PV module dimensions (mm)



### P-V Curves of PV Module



### I-V Curves of PV Module



### Electrical Parameter(STC)

Model	460T	465T	470T	475T	480T
Maximum power (W)	460	465	470	475	480
Working point voltage (V)	36.31	36.51	36.71	36.91	37.11
Working point current (A)	12.67	12.74	12.80	12.87	12.94
Open circuit voltage (V)	42.00	42.21	42.33	42.46	42.69
Short circuit current (A)	14.02	14.10	14.18	14.32	14.37
PV module efficiency	21.25%	21.48%	21.71%	21.94%	22.17%
Standard test conditions	Atmospheric quality Am1.5, Irradiance 1000w/m², Cell Temperature 25°C				

### RearSide Power gain

	Maximum Power	483Wp	488Wp	494Wp	499Wp	504Wp
5%	Efficiency STC	22.3%	22.6%	22.8%	23.0%	23.3%
	Maximum Power	529Wp	535Wp	541Wp	546Wp	552Wp
15%	Efficiency STC	24.7%	25.0%	25.2%	25.5%	25.5%
	Maximum Power	575Wp	581Wp	598Wp	594Wp	600Wp
25%	Efficiency STC	26.8%	26.8%	27.2%	27.4%	27.7%

The Electrical performance parameters are neither just referred to one PV panel, nor are a part of the contract; They are only used as reference.

### Mechanical Parameters

Module size	1909*1134*30mm
Number of solar cells	120Cells (2*6*10)
Weight	27Kg ±5%
Junction Box	IP68, 3 diodes
Cables	4mm², +:300mm/-:200mm, (Customizable)
Front plate glass	2.0mm,Ultra white AR coated semi-toughened glass
Rear plate glass	2.0mm, semi-toughened glass
Static load on the front	5400Pa
Static load on the back	2400Pa

### Packaging&Transport

40'HQ container transport

36Pcs/box × 22box = 792 Pcs

### Temperature Parameter Maximum Ratings

NMOT	42±2°C	Working temperature	-40~+85°C
Temperature coefficient of maximum power(Pmax)	-0.30%/°C	Maximum system voltage	1500VDC
Temperature coefficient of open circuit voltage(Voc)	-0.25%/°C	Maximum fuse rated current	30A
Temperature coefficient of short circuit current(Isc)	+0.045%/°C		

