REDSOLAR

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

22.2% /Maximum efficiency

0~+5W /Power tolerance

PID Resistant

Strict selection of encapsulation materials eliminates PID risk.

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 returnon investment
No Boron-oxygen LID (Light Induced Degradation).

High Returns

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

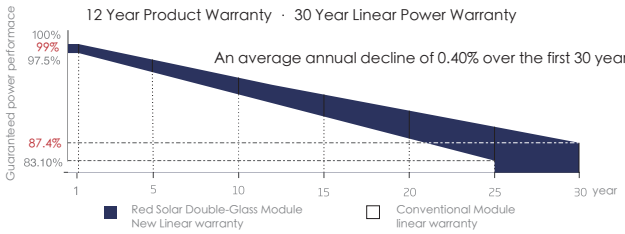
Black Design

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..

Comprehensive product certification

· 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



Hunan Red Solar New Energy Science and Technology Co.,Ltd
www.red-solar.com

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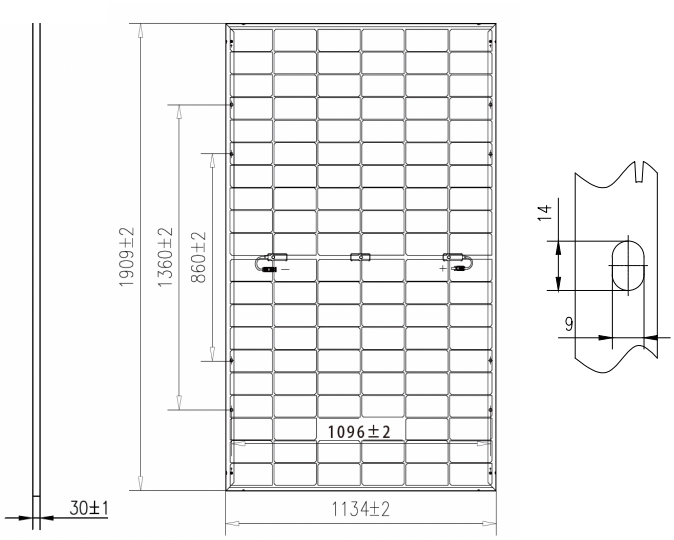
Model of PV Module

CETC-xxxT(GDF)/120

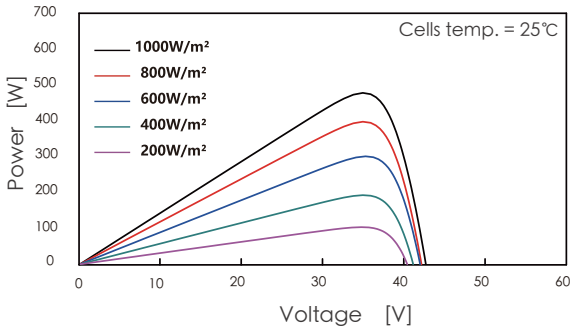
Power Range

460-480W

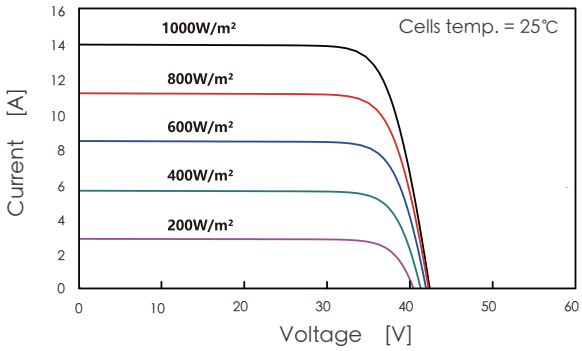
PV module dimensions (mm)



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/㎡, Cell Temperature 25℃				

RearSide Power gain

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

NMOT	42±2℃
Temperature coefficient of maximum power(Pmax)	-0.29%/℃
Temperature coefficient of open circuit voltage(Voc)	-0.25%/℃
Temperature coefficient of short circuit current(Isc)	+0.045%/℃

Maximum Ratings

Working temperature	-40~+85℃
Maximum system voltage	1500VDC
Maximum fuse rated current	30A

All data contained in this specification are subject to change without prior notice. The final interpretation rights belong to Hunan Red Solar New Energy Science and Technology Co.,Ltd