HD SOLAR

Topcon N-type 96 cell Bifacial all black PV Module

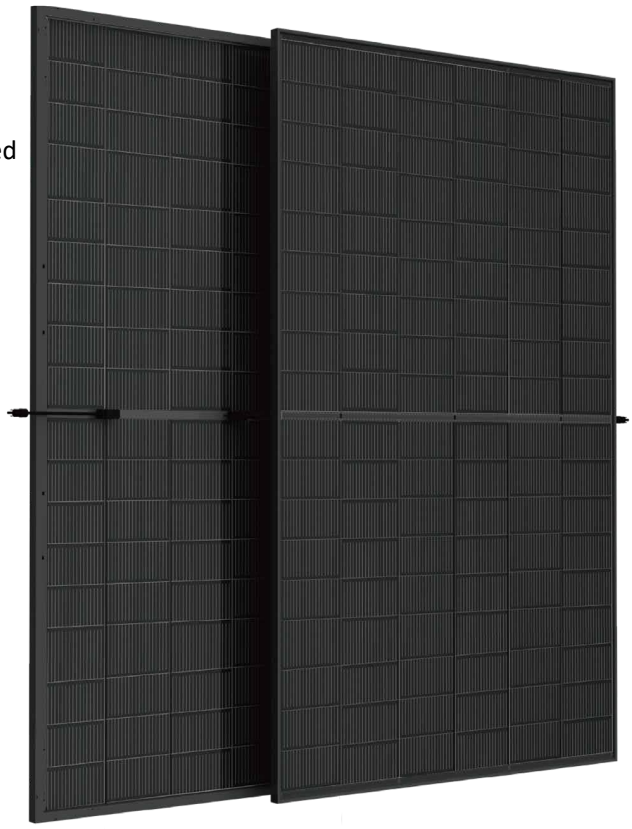
HD-Topcon-96 G12R half cells 435-460wp

RELIABLE QUALITY

- **Excellent Power Output** Ultra efficient N-type technology,the module with higher power and better reliablity
- **Excellent Temperature Coefficienct** The product has excellent temperature coefficient, outstanding outdoor power generation performance and longer lifespan
- **Ultra-multi-busbar Technology** The reaside of the module effectively utilizes the reflected and scattered light in the environment,the high rearside power gian can reduce the LCOE
- **NO LeTID/LID** Whileachieving efficiency gains in N-type photovoltaic cells,virtually no LID loss
- **Excellent Irradiance Response** Superior weak-light power generation performace in environments such as earl morning,evening,and cloudy conditions
- Aestheic Appearance 96pcs half cels,all black appearance

MECHANICAL PARAMETERS

Weight(kg)	23.7KG
Dimensions(L×W×H)(mm)	1762×1134×30mm
Cable cross section size(mm^2)	$4mm^2$ +300mm/-300mm or Customized
N0.of cells and connections	96(48×2)
Front/Real Glass	2.0mm/2.0mm
Frame	Anodized Aluminium Alloy
Junction Box	IP68
Connector	MC4 Compatible



WORKING CONDITIONS

Maximum system voltage	DC1500V(IEC)
Operating temperature	-40℃--- +85℃
Maximum series fuse	25A
Fire Safety	Class C
Power Tolerance	0 -+ 5WP
Bifaciality	80% ±5%
Static load	Snow load 5400Pa
	Wind load 2400Pa
Packing Configuration	36pcs/pallet 936ps/40HQ

Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types

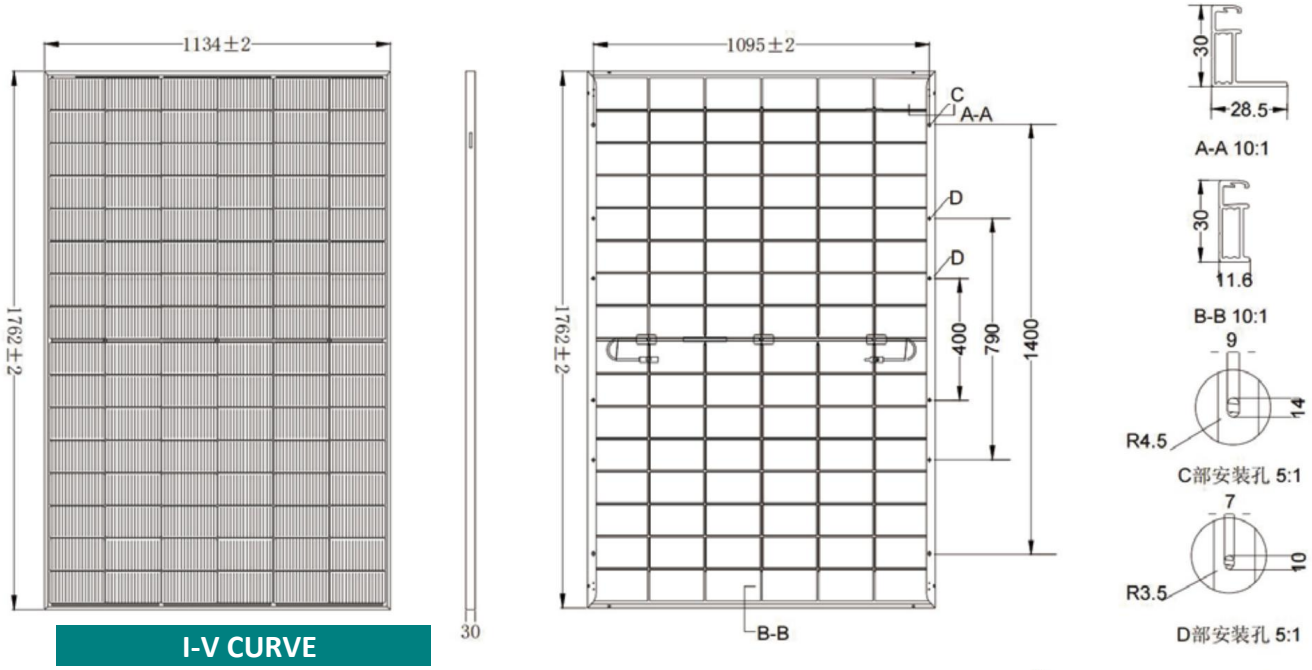
HD solar power ltd

TEL:86-18688922286 email: hdosolar@hdosolar.com www.hdosolar.com

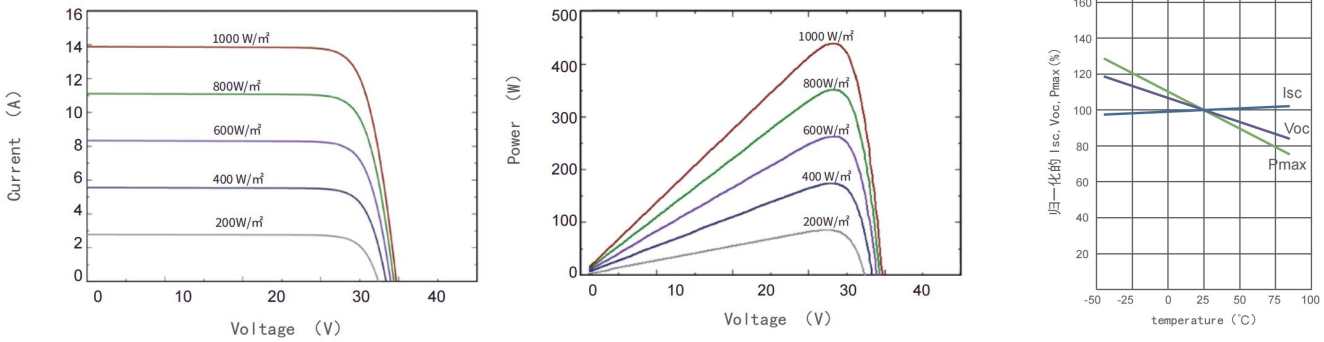
Add: Rm803 Chevalier House 45-51 Chatham Road South Tsim Sha Tsui Hongkong

HD SOLAR

Engineering Drawing(unit mm)



I-V CURVE



Electrical Propeties STC	Irradiance 1000W/m²,Module Temperature 25℃,Air Mass 1.5					
Rated maximum power at STC(W)	435	440	445	450	455	460
Open Circuit Voltage (voc/V)	35.25	35.52	35.72	35.92	36.12	36.32
Maximum Power Voltage(vmp/V)	29.59	29.75	29.98	30.17	30.37	30.56
Short Circuit current(Isc/A)	15.57	15.62	15.67	15.72	15.77	15.82
Maximum power current(Imp/A)	14.70	14.77	14.84	14.91	14.98	15.05
Module Efficiency［%］	22.00	22.30	22.50	22.80	23.00	23.30
Electrical Properties NMOT						
Peak power(Pmax/w)	482	487	493	499	504	510
Open Circuit Voltage (voc/V)	35.34	35.54	35.74	35.94	36.14	36.34
Maximum Power Voltage(vmp/V)	29.61	29.80	30.00	30.19	30.38	30.58
Short Circuit current(Isc/A)	17.24	17.27	17.35	17.42	17.45	17.53
Maximum power current(Imp/A)	16.28	16.34	16.44	16.53	16.59	16.68

Temperature Coefficient

Temperatrue Coefficient of Pmax	-0.290%/℃
Temperature Coefficiency of Voc	-0.250%/℃
Temperature Coefficient of Isc	+0.045%/℃
NOCT	42 ±2℃

Temperature Coefficient of Pmax 0.03%℃