

HDT Double Glasses Solar Module (Frame)

HDT double glasses solar module use high efficiency mono-crystalline hetero-junction double-sided solar cells technology(HDT). HDT solar cells can generate power from both sides. It uses N-type mono-crystalline silicon as substrate. A thin layer of un-doped(intrinsic)hydrogenated amorphous silicon is deposited on both sides of the silicon substrate followed by the P-type and N-type thin film silicon.

This process improves the performance of PN junction, enabling HDT solar cells to achieve one of the highest conversion efficiency in the world. Today HDT solar module provides the best value among all mass produced high efficiency solar modules in the market.

Characteristics



High efficiency

10%-20% higher than those of traditional crystalline solar module, therefore, greatly reducing the cost of land, frames, cable, transportation and maintenance.



Double-sided power generation

HDT solar cells have symmetrical structure, and are suitable for double glasses encapsulation, thus generating power from both sides, increasing power output by at least 18% over single glass module.



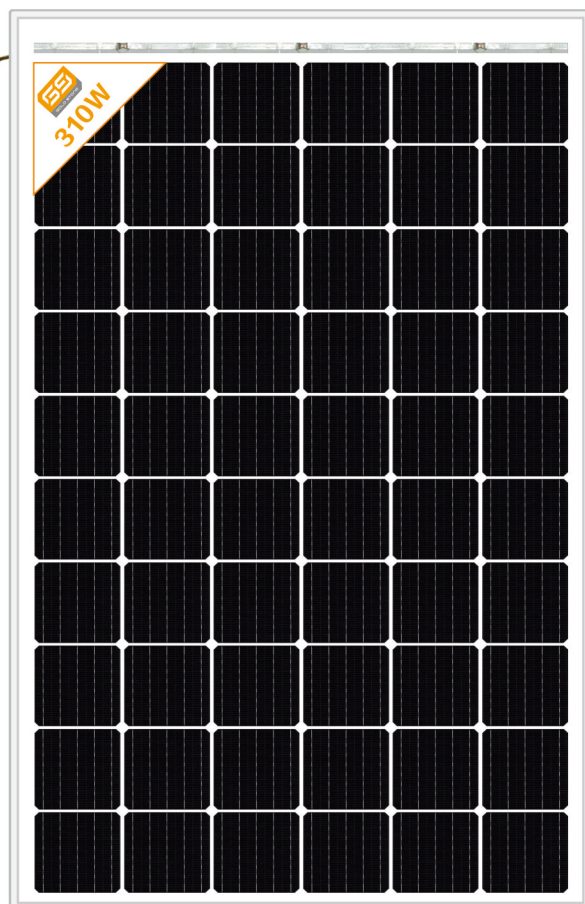
Excellent temperature performance

Power-temperature coefficient($-0.28\%/^{\circ}\text{C}$) is 40% lower than traditional crystalline silicon solar modules, therefore, have much higher power output than traditional solar module in high temperature environment.



High stability

Compared to traditional crystalline silicon modules, HDT double glasses with frame solar module's LTD is 50% lower.



Electrical Data at STC

Name	N-type monocrystalline silicon heterojunction double-glass solar module(Frame)					
Module	HDT-60GF-305		HDT-60GF-310		HDT-60GF-315	
Light Receives	Front Side	Rear Side	Front Side	Rear Side	Front Side	Rear Side
Maximum Power/W	305	250	310	255	315	258
Open Circuit Voltage/V	43.6	43.3	43.8	43.5	44.0	43.7
Max Power Voltage/V	36.0	35.8	36.3	36.0	36.6	36.1
Short Circuit Current/A	9.13	7.4	9.17	7.4	9.21	7.4
Max Power Current/A	8.48	6.98	8.54	7.08	8.61	7.15
Module Efficiency /%	18.43	15.14	18.74	15.42	19.04	15.60
Output Power Tolerance (W)	0/+5 W					
Temperature Coefficient of Isc α (%/°C)	0.059					
Temperature Coefficient of Voc β (%/°C)	-0.277					
Temperature Coefficient of Pmax γ (%/°C)	-0.28					
Test conditions	Air Mass 1.5, Irradiance 1000W/m ² , Cell Temperature 25°C					

The module gain of different backside reflectors (Take 310 as an example)

Backside Reflective Rate	Pmax/W	Voc/V	Vpm/V	I _{max} /A	I _{pm} /A	Power Generation Gain
10%	335.93	43.8	36.1	9.88	9.30	8.2%
15%	348.68	43.8	36.1	10.25	9.65	12.3%
20%	361.43	43.9	36.1	10.62	10.01	16.4%

Operating Conditions

Maximum System Voltage	1500VDC(IEC)
Operating Temperature	-40°C ~ 85°C
Maximum Fuse Rating	15A
Front Static Load Test (Snow)	5400Pa
Rear Static Load Test (Wind)	2400Pa
Hail Stone Impact Test	Distance 1m, Hail stone Diameter 25mm, Speed 23m/s
Nominal Operating Cell Temperature	45°C ± 2°C
Applications Class	Class A

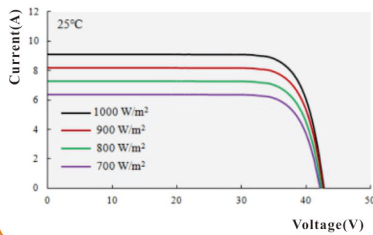
Mechanical Data

Solar Cells	60 pieces/156.75*156.75mm/5 busbar
Dimensions(mm)	1664*994*30mm
Weight(kg)	25kg
Front Glass	Embossed Tempered/2.5mm
Encapsulation	EVA/0.6mm
Rear Glass	Float semi-tempered/2.5mm
Junction Box	II /3
Output Cables	0.3m+0.3m/4mm ²
Connector (Model / protection grade)	Compatibility MC4/IP67

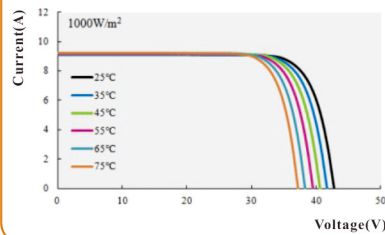
Packaging Data

Modules per Pallet	34 pieces
Packaging Dimensions	1710*1110*1131mm
Weight per Pallet	895kg
Pallets per 40' HQ Container	26 pallets
Pallets per Shipping Flat Car (17.5m)	38 pallets

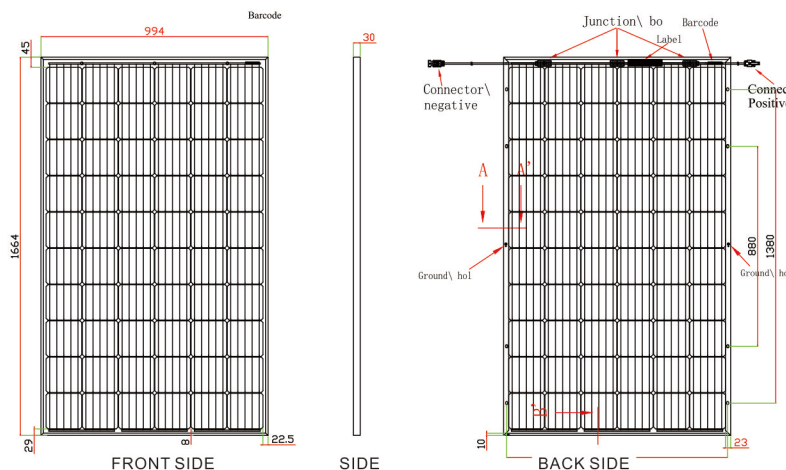
I-V curves at different irradiance



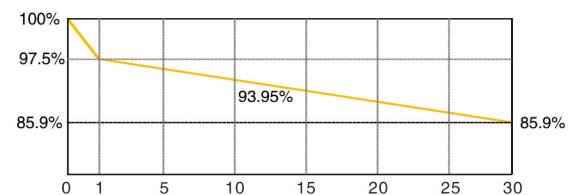
I-V curves at different temperatures




HDT-60GF Double Glasses Module(Frame) Physical Dimensions



Linear Performance Warranty



Certifications

Fire Safety Class	Class C
Certification	TUV NORD/IEC61215, IEC61730
	

Warranty

Product	10 years product warranty
Power Output	10 years [93.95% of Pmin] 30 years [85.9% of Pmin]

Note:

Due to ongoing research and development, innovation and product upgrading, the content in the product specification can be changed without prior notice. These data are not for a single HDT solar module, they are used to differentiate various types of solar modules.

Warning:



Please read installtion manuals carefully before handing, installing and using HDT double glasses solar module(Frame).