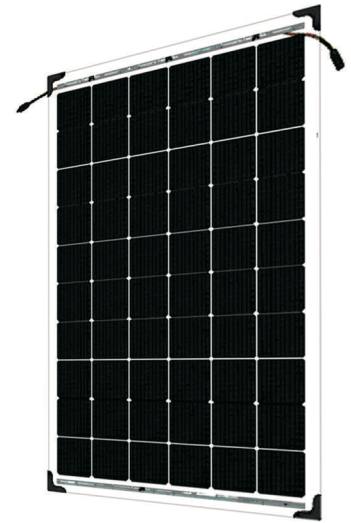




# HETERO-JUNCTION TECHNOLOGY

HDT DOUBLE GLASSES SOLAR MODULE

**-0.28%/°C**  
Temperature Coefficient

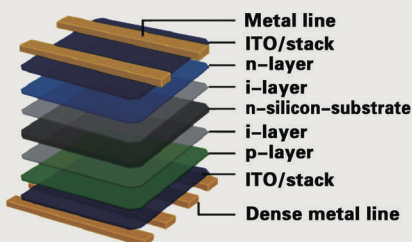
**19.76%**  
Max Efficiency

**315W-325W**  
Output Wattage

**0**  
Not PID、LETID Effect

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.

## THE CHIP STRUCTURE OF HDT SOLAR CELL



### HIGH EFFICIENCY

- 10%-20% higher than traditional crystalline solar module
- Lower cost of land, frames, cable, transportation and maintenance



### DOUBLE-SIDED POWER GENERATION

- Symmetrical structure which is suitable for double glasses encapsulation
- Generating power from both sides
- Increasing power output by at least 18% over single glass module



### EXCELLENT TEMPERATURE PERFORMANCE

- Power-temperature coefficient(-0.28%/°C) is 40% lower than traditional crystalline silicon solar modules
- Higher power output than traditional solar module in high temperature environment



### HIGH STABILITY

- The LID is 50% lower than traditional crystalline silicon solar modules



### HIGH ROI

- HDT solar modules have lower LCOE for solar farm than that the traditional crystalline silicon solar module
- Higher return on investment

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## Electrical Data at STC

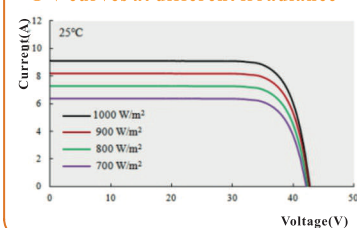
Name | N-type monocrystalline silicon heterojunction double-glass solar module

| Module                                          | HDT-60G-315                                                           |           | HDT-60G-320 |           | HDT-60G-325 |           |
|-------------------------------------------------|-----------------------------------------------------------------------|-----------|-------------|-----------|-------------|-----------|
|                                                 | Front Side                                                            | Rear Side | Front Side  | Rear Side | Front Side  | Rear Side |
| Maximum Power/W                                 | 315                                                                   | 258       | 320         | 262       | 325         | 266       |
| Open Circuit Voltage/V                          | 44.1                                                                  | 43.8      | 44.3        | 44.0      | 44.5        | 44.2      |
| Max Power Voltage/V                             | 36.9                                                                  | 36.7      | 37.2        | 37.0      | 37.5        | 37.3      |
| Short Circuit Current/A                         | 9.14                                                                  | 7.52      | 9.19        | 7.57      | 9.24        | 7.61      |
| Max Power Current/A                             | 8.55                                                                  | 7.03      | 8.61        | 7.09      | 8.67        | 7.14      |
| Module Efficiency /%                            | 19.15                                                                 | 15.70     | 19.45       | 15.93     | 19.76       | 16.17     |
| Output Power Tolerance (W)                      | 0/+5 W                                                                |           |             |           |             |           |
| Temperature Coefficient of Isc $\alpha$ (%/°C)  | 0.059                                                                 |           |             |           |             |           |
| Temperature Coefficient of Voc $\beta$ (%/°C)   | -0.277                                                                |           |             |           |             |           |
| Temperature Coefficient of Pmax $\gamma$ (%/°C) | -0.28                                                                 |           |             |           |             |           |
| Test conditions                                 | Air Mass 1.5, Irradiance 1000W/m <sup>2</sup> , Cell Temperature 25°C |           |             |           |             |           |

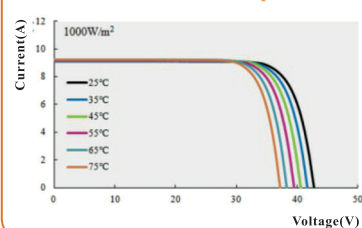
## Electrical Data at Low Irradiance ( Take 310 as an example )

| Irradiance ( W/m <sup>2</sup> ) | Pmax ( W ) | Voc(V) | Vpm(V) | Isc(A) | Imp(A) |
|---------------------------------|------------|--------|--------|--------|--------|
| 200                             | 58.75      | 41.32  | 34.58  | 1.809  | 1.699  |
| 400                             | 121.50     | 42.96  | 35.77  | 3.616  | 3.397  |
| 600                             | 185.73     | 43.33  | 36.46  | 5.425  | 5.094  |
| 800                             | 248.06     | 43.79  | 36.62  | 7.217  | 6.774  |
| 1000                            | 310.75     | 44.03  | 36.70  | 9.031  | 8.467  |

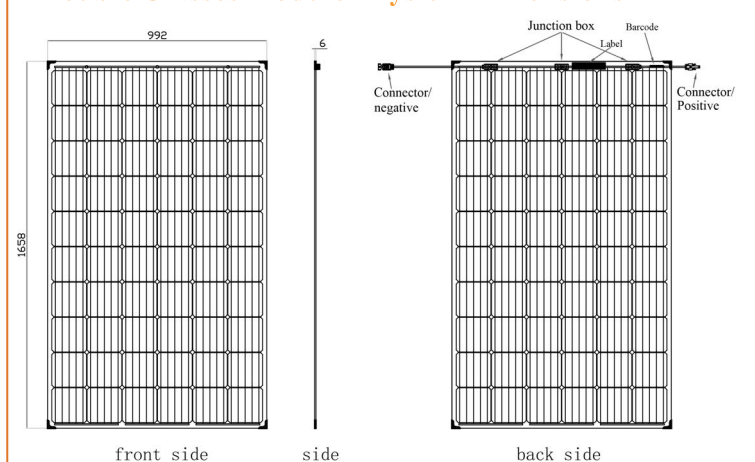
## I-V curves at different irradiance



## I-V curves at different temperatures



## Double Glasses Module Physical Dimensions



## Warning:

Please read installation manuals carefully before handing, installing and using HDT double glasses solar module.

## 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                                            |

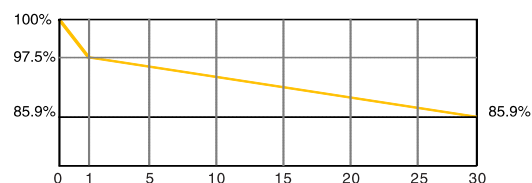
## Mechanical Data

|                                      |                                    |
|--------------------------------------|------------------------------------|
| Solar Cells                          | 60 pieces/156.75*156.75mm/5 busbar |
| Dimensions(mm)                       | 1658*992*6mm                       |
| Weight(kg)                           | 23 kg                              |
| 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 <sup>2</sup>         |
| Connector (Model / protection grade) | Compatibility MC4/IP67             |

## Packaging Data

|                                       |                  |
|---------------------------------------|------------------|
| Modules per Pallet                    | 34 pieces        |
| Packaging Dimensions                  | 1772*1136*1175mm |
| Weight per Pallet                     | 864kg            |
| Pallets per 40' HQ Container          | 26 pallets       |
| Pallets per Shipping Flat Car (17.5m) | 38 pallets       |

## Linear Performance Warranty



## Certifications

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



## Warranty

|              |                                                      |
|--------------|------------------------------------------------------|
| Product      | 10 years product warranty                            |
| Power Output | 10 years [93.9% of Pmin]<br>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.