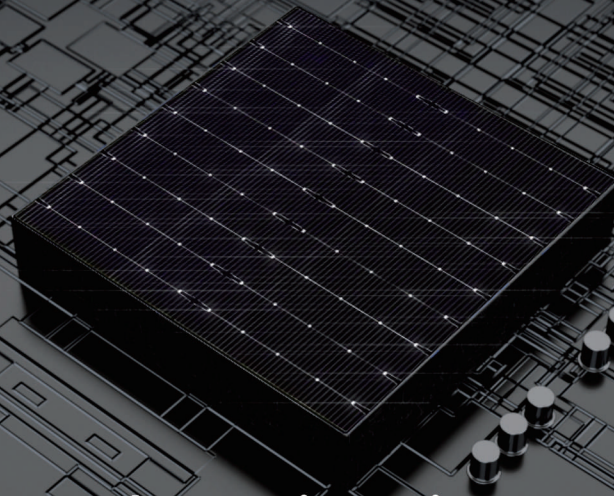


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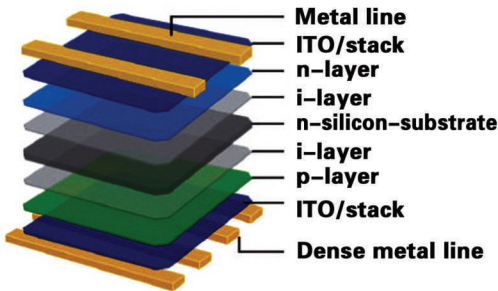


# HDT high efficiency heterojunction bifacial solar cells

## Product introduce

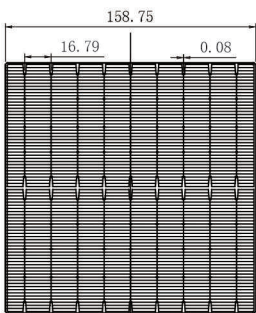
High efficiency mono-crystalline hetero-junction double-sided solar cell (HDT), can generate power from both sides. It uses N-type mono-crystalline silicon as substrate. A thin layer of intrinsic hydrogenated amorphous silicon is deposited on both sides of the silicon substrate followed by the P-type and N-type thin film silicon.

This process improves the performance of P N junction, enabling the HDT solar cell to achieve one of the highest conversion efficiency in the world. HDT solar cell has low manufacturing process temperature, high conversion efficiency and low temperature coefficient.

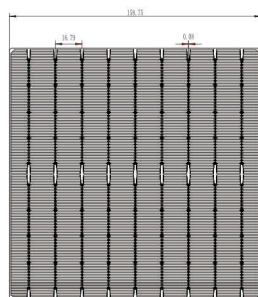


The structure of HDT solar cell

## Product drawings



Front side grid line pattern



Rear side grid line pattern

## Characteristics



### Excellent temperature performance

- Power -temperature coefficient ( $-0.252\%/^{\circ}\text{C}$ ) 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



### Double-sided power generation

- The double-sided light absorption of the cells can be packaged into double-glass module, Rear power generation can increase power generation gain by 10%-20%



### Optimized flexibility

- The dual-cell structure is suitable for using ultra-thin silicon wafers as substrates, which can be flexible in the future

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## Physical Parameters

|                                 |                                       |
|---------------------------------|---------------------------------------|
| <b>Substrate Material</b>       | N-type mono-crystalline silicon wafer |
| <b>Size</b>                     | 158.75 mm × 158.75 mm ±0.25 mm        |
| <b>Thickness</b>                | 140 μm ± 20 μm                        |
| <b>Rear Side Electrode (+)</b>  | 9Busbars/0.08 mm width                |
| <b>Front Side Electrode (-)</b> | 9Busbars/0.08 mm width                |

## Temperature coefficient

|  |           |
|--|-----------|
| <b>Temperature coefficient of Isc</b>  | +0.031%/K |
| <b>Temperature coefficient of Voc</b>  | -0.227%/K |
| <b>Temperature coefficient of Pmax</b> | -0.252%/K |
|  |           |
|  |           |

## Electrical Parameters

| <b>Name</b> | N-type monocrystalline silicon heterojunction double-side solar cell |                             |        |        |        |         |         |         |
|-------------|--|-----------------------------|--------|--------|--------|---------|---------|---------|
| <b>Type</b> | HDT-C-S  |                             |        |        |        |         |         |         |
| Bin         |  | Efficiency contribution (%) | Isc(A) | Voc(V) | FF(%)  | Impp(A) | Vmpp(V) | Pmpp(W) |
| HC236       | Front side   | 23.6%~23.8%                 | 9.739  | 0.745  | 82.01% | 9.209   | 0.647   | 5.95    |
|             | Rear side  | 22.1%~22.3%                 | 9.146  | 0.743  | 81.94% | 8.625   | 0.646   | 5.57    |
| HC238       | Front side   | 23.8%~24.0%                 | 9.751  | 0.746  | 82.48% | 9.229   | 0.651   | 6.00    |
|             | Rear side  | 22.3%~22.5%                 | 9.169  | 0.745  | 82.27% | 8.645   | 0.650   | 5.62    |
| HC240       | Front side   | 24.0%~24.2%                 | 9.768  | 0.746  | 83.03% | 9.250   | 0.655   | 6.05    |
|             | Rear side  | 22.5%~22.7%                 | 9.189  | 0.745  | 82.84% | 8.670   | 0.654   | 5.67    |
| HC242       | Front side   | 24.2%~24.4%                 | 9.784  | 0.747  | 83.46% | 9.269   | 0.659   | 6.10    |
|             | Rear side  | 22.7%~22.9%                 | 9.202  | 0.746  | 83.37% | 8.696   | 0.658   | 5.72    |
| HC244       | Front side   | 24.4%~24.6%                 | 9.797  | 0.747  | 84.04% | 9.289   | 0.663   | 6.15    |
|             | Rear side  | 22.9%~23.1%                 | 9.215  | 0.747  | 83.89% | 8.721   | 0.662   | 5.77    |
| HC246       | Front side   | 24.6%~24.8%                 | 9.813  | 0.748  | 84.47% | 9.308   | 0.667   | 6.20    |
|             | Rear side  | 23.1%~23.3%                 | 9.235  | 0.747  | 84.49% | 8.762   | 0.666   | 5.83    |
| HC248       | Front side   | 24.8%~25.0%                 | 9.832  | 0.748  | 84.98% | 9.328   | 0.671   | 6.25    |
|             | Rear side  | 23.3%~23.5%                 | 9.254  | 0.748  | 84.95% | 8.785   | 0.670   | 5.88    |
| HC250       | Front side   | 25.0%~25.2%                 | 9.852  | 0.749  | 85.38% | 9.345   | 0.675   | 6.30    |
|             | Rear side  | 23.5%~23.7%                 | 9.275  | 0.748  | 85.50% | 8.809   | 0.674   | 5.93    |

Standard test condition (STC): Air Mass 1.5, Irradiance 1000W/m<sup>2</sup>, Test Temperature 25°C

### • Operating Temperature

Operating temperature range: -40°C ~ +85°C.

### • Packaging

1. 120 pieces of solar cell per inner box;
2. 10 boxes per carton, total 1200 pieces of solar cell per carton.

### • Attentions

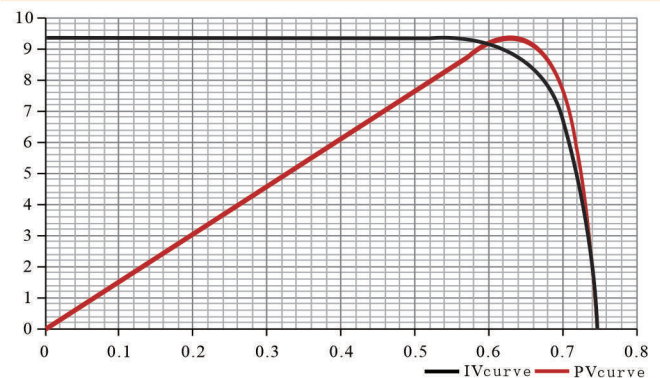
To avoid electrical and soldering performance degradation, the following operations should be avoided:

1. DO NOT touch the solar cells by bare hand;
2. Keep solar cells away from chemical solutions or gases;
3. Keep solar cells away from oil;
4. DO NOT wiping the surface of the solar cells;
5. The soldering temperature should be less than 200 °C, and the soldering time should be less than 3 seconds.

### • Storage

1. Away from corrosion chemical liquid or gases, the temperature of the storage environment is 25±3 °C, and the humidity is < 60%;
2. Suggested to use within 6 months, and please keep the cells in the packing box .

## I-V Curve



Standard test condition (STC):  
Air Mass 1.5, Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C

## Certifications



**Note:** Due to ongoing research and development, innovation and product upgrading, the content in the product specification can be changed without prior notice.