

60 CELLS 5BB
MONO-CRYSTAL MODULES

275-290W
POWER OUTPUT

17.6%
MAXIMUM EFFICIENCY

30 YEARS
linear performance
warranty

10 YEARS
product warranty

Qingdao RaySolar New Energy Co.,Ltd.(RaySolar), funded in February,2012 and located in Jimo Solar Industrial Park Qingdao city with an area of 400 mu, is a high and new technology enterprise integrating R&D, production and sales. RaySolar is mainly engaged in production and sales of double-glass solar modules, as well as development and construction of distributed power stations.

RaySolar focuses on production and sales of double-glass solar modules and is equipped with automatic production lines with a total annual capacity of 500MW. In addition, its products have obtained the Double-Glass Top-Runner Certification, TÜV, UL, China Compulsory Certification (CCC) of the construction industry, etc.

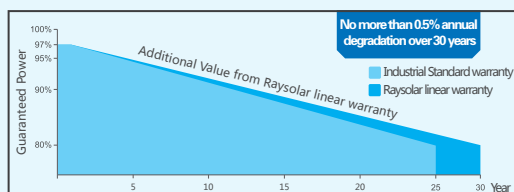
RaySolar adheres to the development concept of "Product-Centric and Service-Oriented", and it is in alliance with upstream suppliers, terminal construction contractors, and back-end service (operation and maintenance) providers to create an outstanding "ecosystem" that can demonstrate the advantages of double glass. Meanwhile, Raysolar will provide the financing platform for the customers, aiming at achieving the closed-loop promotion of the PV industry chain through the financial supply chain.

Solar makes life better!

Certification



Linear Performance Warranty



Excellent durability reliability performance

- Excellent PID resistant.
- No micro-cracks, free of snail trails.



Excellent withstand challenging environmental conditions and safety performance

- Resistant to high temperature and humidity, sand, acid and alkali.
- 5400 Pa snow load, 2400 Pa wind load.
- Passed hail test with 35mm hail stones at 97 km/h.
- Class A fireproofing rating.



High return on investment

- 1500 V system voltage reduces BOS costs.
- 0.5% annual degradation, 30 year linear warranty, more power output
- Frameless design, less dust or snow pilling up, reduces O&M cost



Flexible cells layout design to meet different needs of transmittance

- Flexible solar cell lay out, satisfy different application demand



10% transmittance modules



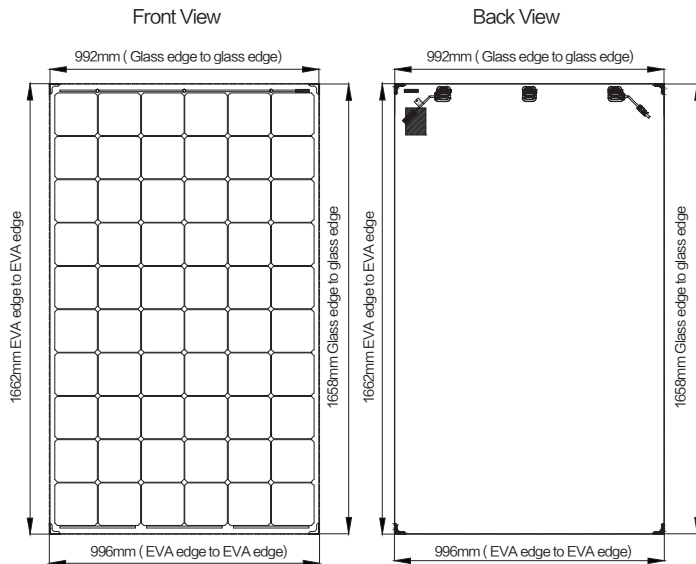
Opaque modules

Qingdao Raysolar New Energy Co.,Ltd

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Engineering drawing



Mechanical Specifications

| | |
|----------------------------|---|
| Cell Type | Mono crystalline (156.75mm*156.75mm) |
| Solar Cells | 60(6*10) |
| Module Dimension [mm] | 1658*992*6 (1662*996*6 with edge banding) |
| Weight [Kg] | 23.0 |
| Front Glass [mm] | 2.5 (Semi tempered coated glass) |
| Interlayer | EVA/POE/PVB |
| Back Glass [mm] | 2.5 (Semi tempered glass) |
| Junction Box | IP67 Rated, 3 by-pass diodes |
| Connector | Multi-Contact MC4(or equivalent) |
| Frame | No frame |
| Maximum Load Capacity [Pa] | 2400(wind load)/ 5400(snow load) |

Electrical Characteristics

| | | | DM60-275 | DM60-280 | DM60-285 | DM60-290 |
|--|------------------------------------|-----|----------|----------|----------|----------|
| STC: Air Mass AM1.5, Ir-radiance 1000W/m ² Cell temperature 25°C | Maximum Power at STC [Pmax] | [W] | 275 | 280 | 285 | 290 |
| | Open Circuit Voltage [Voc] | [V] | 38.38 | 38.49 | 38.55 | 38.89 |
| | Short Circuit Current [Isc] | [A] | 9.33 | 9.41 | 9.50 | 9.57 |
| | Voltage at Maximum Power point[Vm] | [V] | 31.36 | 31.48 | 31.55 | 31.76 |
| | Current at Maximum Power point[Im] | [A] | 8.77 | 8.90 | 9.04 | 9.13 |
| | Power Tolerance | [%] | 0~+3% | | | |
| | Module Efficiency | [%] | 16.7 | 17.0 | 17.3 | 17.6 |
| NOCT: Air Mass AM1.5, Ir-radiance 800W/m ² Ambient temperature 20°C, wind speed 1m/s. | Maximum Power at NOCT [Pmax] | [W] | 204 | 207 | 211 | 215 |
| | Open Circuit Voltage [Voc] | [V] | 35.49 | 35.59 | 35.65 | 35.96 |
| | Short Circuit Current [Isc] | [A] | 7.52 | 7.59 | 7.66 | 7.72 |
| | Voltage at Maximum Power point[Vm] | [V] | 28.50 | 28.61 | 28.67 | 28.86 |
| | Current at Maximum Power point[Im] | [A] | 7.14 | 7.25 | 7.36 | 7.44 |
| | Power Tolerance | [%] | 0~+3% | | | |

10% transmittance modules:275-285W;Opaque modules:280-290W

Scope of Work

| | | |
|------------------------------------|------|----------------------------|
| Maximum System Voltage | [V] | 1000 DC(IEC)or1500 DC(IEC) |
| Operating Temperature | [°C] | -40~+85 |
| Nominal Operating Cell Temperature | [°C] | 45±3 |
| Maximum rated current | [A] | 15 |

Temperature Coefficients

| | | |
|---------------------------------|--------|-------|
| Temperature Coefficient of Pmax | [%/°C] | -0.42 |
| Temperature Coefficient of Voc | [%/°C] | -0.33 |
| Temperature Coefficient of Isc | [%/°C] | 0.04 |

Package Configuration

| | |
|-------------------|-------------------|
| per box 36 pieces | 40" HQ 936 pieces |
|-------------------|-------------------|

Electrical curves

