

# RAYSOLAR DOUBLE-GLASS BIFACIAL MODULE

60CELLS/9BB P-TYPE/MONO/BIFACIAL

320-335W POWER OUTPUT

19.9%
MAX. EFFICIENCY







### **COMPANY PROFILE**

Ningbo RayTech New Energy Materials Co., Ltd. (RayTech) focuses on New Energy & New Materials manufacturing, and integrates Product R&D, Designing, Manufacturing, Sales, After-sale Service as a "One-stop Product & Service Solution Provider" enterprises. The company's headquarter is based in Hangzhou Bay New District, Ningbo City, Zhejiang Province, China. RayTech' s main focus is in two sectors: "solar modules manufacturing & solar system integration" and "smart glass panel materials". The company has a sophisticated Research & Development team, a State Key Laboratory, and an Al-integrated fully-automated factory.

The company has an annual solar module production capacity of 1.2GW, producing both single-glass and double-glass solar modules. The company's smart glass panel material annual manufacturing capacity is 1 million square meters. The smart glass panels support multiple functions such as spatial separation, remote AI control, light brightness and temperature control. The company's factories are located in Zhejiang, Jiangsu and Shandong.

RayTech is dedicated to providing products that can bring optimized values to the customers. The company's sustainable development concept are "Solar makes life better" and "Let modern science and technology perfectly integrate with the nature". Core corporate culture is "Be Pragmatic, Inclusive, Refined and Innovative".

### **PRODUCT FEATURES**



### **Exceptional Product Durability**

- High Resistance to PID;
- Low Risk of Micro-cracks; Zero Snail Trails Probability;



## **Working Condition Compatibility & Safety**

- High Resistance to High Temp., High Humidity, Sand, Acid and Alkali Environment;
- 5400Pa Snow Loading, 2400Pa Wind Loading;
- Passed Hail Test (35mm Diameter, 97km/h);
- Class-A Fireproofing;



### **Optimized Power Gain**

- 25% Max. Rear-side Power Gain;
- Integrates Multiple-Busbar (MBB) Tech;
- Better Low-Light Performance;



### **Higher-Than-Ever ROI**

- 158.75mm Large Cells, Higher Power Gain;
- 1500V System Voltage, Lower BOS Cost;
- Annual Degradation < 0.5%, 30-year Linear Performance Warranty; Lower LCOE, Higher IRR;

### CERTIFICATION

















### **CONTACT US**

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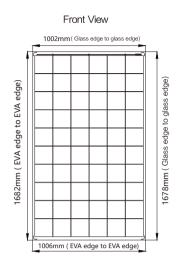


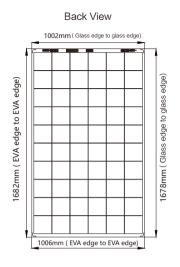


## P-type Bifacial Double-Glass Module (60 Cells): 320-335W

### **ENGINEERING DRAWING**

### **MECHANICAL SPECIFICATIONS**





| Cell Type                     | Mono crystalline (158.75mm*158.75mm)          |
|-------------------------------|-----------------------------------------------|
| Solar Cells                   | 60(6*10)                                      |
| Module Dimension<br>[mm]      | 1678*1002*6<br>(1682*1006*6with edge banding) |
| Weight [Kg]                   | 23.5                                          |
| 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<br>Capacity [Pa] | 2400(wind load)/5400(snow load)               |

| ELECTRICAL CHARACTERISTICS         |     |               |       |               |       |               |       |               |       |
|------------------------------------|-----|---------------|-------|---------------|-------|---------------|-------|---------------|-------|
|                                    |     | BPDM60(S)-320 |       | BPDM60(S)-325 |       | BPDM60(S)-330 |       | BPDM60(S)-335 |       |
|                                    |     | STC           | NMOT  | STC           | NMOT  | STC           | NMOT  | STC           | NMOT  |
| Maximum Power at STC [Pmax]        | [W] | 320           | 237   | 325           | 241   | 330           | 244   | 335           | 248   |
| Open Circuit Voltage [Voc]         | [V] | 40.67         | 37.61 | 40.91         | 37.83 | 41.14         | 38.04 | 41.42         | 38.30 |
| Short Circuit Current [Isc]        | [A] | 10.11         | 8.15  | 10.19         | 8.22  | 10.25         | 8.27  | 10.31         | 8.31  |
| Voltage at Maximum Power point[Vm] | [V] | 33.21         | 30.18 | 33.50         | 30.45 | 33.74         | 30.66 | 34.01         | 30.91 |
| Current at Maximum Power point[Im] | [A] | 9.64          | 7.85  | 9.71          | 7.91  | 9.78          | 7.96  | 9.85          | 8.02  |
| Power Tolerance                    | [%] |               |       |               |       |               |       |               |       |
| Module Efficiency                  | [%] | 19.0          |       | 19.3          |       | 19.6          |       | 19.9          |       |

STC: Air Mass AM1.5, Ir-radiance 1000W/m² Cell temperature 25°C. NMOT: Air Mass AM1.5, Ir-radiance 800W/m² Ambient tempera-ture 20°C, wind speed 1m/s.

### **DOUBLE SIDES POWER OUTPUT (REAR-SIDE GAIN)**

|                      | 5%    |       |       | 10%   |       |       | 15%   |       |       |       |       |       |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Maximum Power [Pmax] | 332   | 337   | 342   | 348   | 344   | 349   | 355   | 360   | 356   | 362   | 367   | 373   |
| Module Efficiency    | 19.7% | 20.0% | 20.3% | 20.6% | 20.4% | 20.7% | 21.1% | 21.4% | 21.1% | 21.5% | 21.8% | 22.1% |

| Maximum System Voltage(With S)     | [V]  | 1000 DC(IEC) |  |  |  |
|------------------------------------|------|--------------|--|--|--|
| Maximum System Voltage(Without S)  | [V]  | 1500 DC(IEC) |  |  |  |
| Operating Temperature              | [°C] | -40~+85      |  |  |  |
| Nominal Operating Cell Temperature | [℃]  | 45±3         |  |  |  |
| Maximum rated current              | [A]  | 15           |  |  |  |

### **TEMPERATURE COEFFICIENTS**

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

# PACKAGE CONFIGURATION Per box 38 pieces 40" HQ 988 pieces

### **ELECTRICAL CURVES**

**WORKING CONDITIONS** 

### **LINEAR PERFORMANCE WARRANTY**

