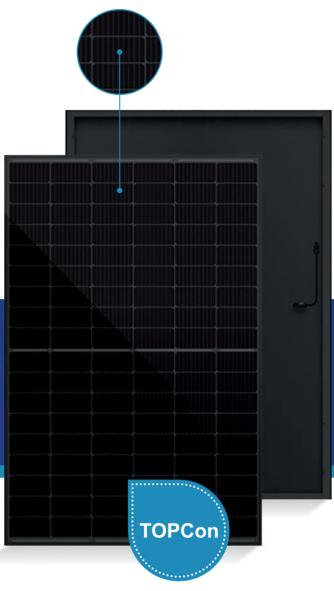


# TOPCon All Black Solar Panel

Monocrystalline Half-Cut Solar Module N Type

RHFSM4430-BN



## **Product Features**



MBB Half-Cut Solar Cell 108 cells (6x9x2)



Light-weight design

Light-weight design using transparent backsheet for easy installation and low BOS cost



Higher Module Conversion Efficiency Half-Cut Technology Higher module output up to 430W with module efficiency up to 22%



**Higher Power Output** 

Module power increases 5-25% generally, bringing significantly lower LCOE and higher IRR



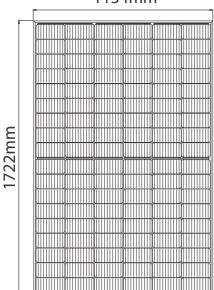
**Low Light Performance**Low-light environments allow for optimal performance



Tough Environmental Conditions; Sand, Acid and Alkali Hailstones 3600/5400 Pa Mechanical Load Strength







1134mm

Rear Side

Front Side

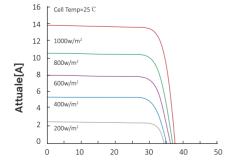
| ELECTRICAL SPECIFITION         |              |       |       |       |       |  |  |
|--------------------------------|--------------|-------|-------|-------|-------|--|--|
| Туре                           |              | 415   | 420   | 425   | 430   |  |  |
| Test Conditions                |              | STC   | STC   | STC   | STC   |  |  |
| Maximum Power (Wp)             | Pmax         | 415   | 420   | 425   | 430   |  |  |
| Open Circuit Voltage (V)       | Voc          | 37.80 | 38.00 | 38.20 | 38.40 |  |  |
| Short Circuit Current (A)      | Isc          | 13.76 | 13.87 | 13.98 | 14.09 |  |  |
| Max. Power Voltage (V)         | Vmpp         | 31.76 | 31.93 | 32.10 | 32.27 |  |  |
| Max. Power Current (A)         | Impp         | 13.06 | 13.15 | 13.24 | 13.33 |  |  |
| PV Module Efficiency (%)       |              | 21.3  | 21.5  | 21.8  | 22.00 |  |  |
| Maximum Power Tolarence (Watt) | 0~+3W        |       |       |       |       |  |  |
| Temperature Coefficent of Isc  | + 0.043 %/°C |       |       |       |       |  |  |
| Temperature Coefficent of Voc  | - 0.24 %/°C  |       |       |       |       |  |  |
| Temperature Coefficent of Pmax | - 0.30 %/°C  |       |       |       |       |  |  |

STC (Standard Test Conditions):  $1000 \text{ W/m}^2$ , AM 1.5,  $25 \,^{\circ}\text{C}$  NMOT (Nominal Module Operating Temperature):  $800 \text{ W/m}^2$ , Ambient Temperature  $20 \,^{\circ}\text{C}$ , Wind Speed 1 m/s

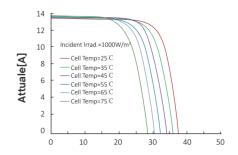
|    |          | Frame Section |
|----|----------|---------------|
| 30 | <b>A</b> | 30            |
|    |          |               |

| MECHANICAL                              | SPECIFITION                                             |  |  |  |  |  |
|-----------------------------------------|---------------------------------------------------------|--|--|--|--|--|
| CELL                                    |                                                         |  |  |  |  |  |
| Туре                                    | TOPCon Monofacial<br>Technology                         |  |  |  |  |  |
| Piece                                   | 120 Pcs                                                 |  |  |  |  |  |
| Size                                    | (6x9x2)                                                 |  |  |  |  |  |
| Busbar                                  | 16 Pcs                                                  |  |  |  |  |  |
| Maximum Series Fuse                     | 25A                                                     |  |  |  |  |  |
| CONNEC                                  | TION BOX                                                |  |  |  |  |  |
| Bypass Diode                            | 3 Pcs                                                   |  |  |  |  |  |
| Wire Size Range                         | 4 mm <sup>2</sup> (IEC)                                 |  |  |  |  |  |
| Cables and Plug connectors              | 300mm in length,length can<br>be customized             |  |  |  |  |  |
| Connector                               | Mc4 Compatiple                                          |  |  |  |  |  |
| Protection Degree                       | IP68                                                    |  |  |  |  |  |
| Rated Current                           | 25A                                                     |  |  |  |  |  |
| Rated Voltage                           | 1500 V DC                                               |  |  |  |  |  |
| MODULE SIZE                             |                                                         |  |  |  |  |  |
| Length                                  | 1722 mm ± 1 mm                                          |  |  |  |  |  |
| Width                                   | 1134 mm ± 1 mm                                          |  |  |  |  |  |
| Frame                                   | 30 mm ± 0.5 mm                                          |  |  |  |  |  |
| Weight                                  | 21.6 kg ± 5%                                            |  |  |  |  |  |
| GL                                      | ASS                                                     |  |  |  |  |  |
| Properties                              | AR (Anti Reflective) Coating<br>Semi Tampered, Low Iron |  |  |  |  |  |
| Front Glass                             | 3.2 mm                                                  |  |  |  |  |  |
| MECHANICAL                              |                                                         |  |  |  |  |  |
| Snow Load                               | +5400 Pa                                                |  |  |  |  |  |
| Wind Load                               | +3600 Pa                                                |  |  |  |  |  |
| Protection Type                         | Class II                                                |  |  |  |  |  |
| Fire Class                              | Type C                                                  |  |  |  |  |  |
| Nominal Module<br>Operating Temperature | -40 ~ +85 °C                                            |  |  |  |  |  |

#### **CURVE I-V**



Voltage [V]
Module characteristics at constant
module temperatures of 25°C and
variable levels of irradiance



Voltage [V]
Module characteristics at variable
module temperatures and constant
module irradiance of 1.000 W/m²





## Engineering, Procurement and Construction (EPC)

#### Supply

Offering the most suitable, most efficient and affordable products on a project basis.

#### Research

Together with our expert and experienced team, we provide on-site inspection of the roof or land location you have planned to install a power plant.

#### **Planning**

The head office plans the purchasing team, sales team and EPC engineering team in a coordinated system.

#### **Project**

Discovery and planning of equipment for the power plant site; it is prepared professionally by our engineers, taking into account environmental factors, impact on shading structures, static strength, suitability for infrastructure, financial analysis and production report.



### **Our Production**

16.000 m2 closed production in Tekirdag/ Çerkezköy state ofthe art technology in our factory optimizing the production line with full automation high efficiency photovoltaic (PV) modules are produced, electricity generation systems R&D studies being carried out.

Product demanded in the solar energy sector our diversity (Glass-Glass, Glass-Back Surface), highquality standards, Multi Busbar technology double-sided Half cut cells, 10 years product warranty, and 30 years of linear energy performance and to serve you, our valued customers, with our EPC and After Sales team.

| Exploration      | Feasibility                                | Design                            |
|------------------|--------------------------------------------|-----------------------------------|
| Project Planning | Application and<br>Acceptance<br>Procedure | Installation and<br>Commissioning |

