



### High Conversion Efficiency



Module efficiency up to 21.0% through advanced cell technology and manufacturing process

### Excellent Weak Light Performance



More power output in weak light condition, such as cloudy days, morning and sunset

### Extended Mechanical Performance



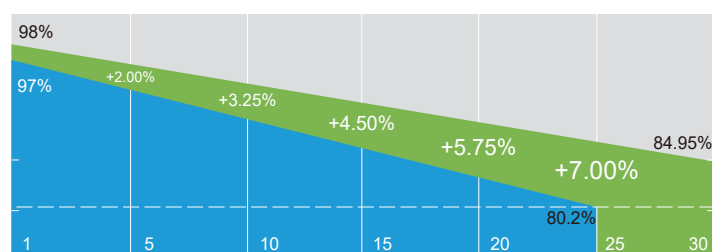
Module certified to withstand extreme wind (2400 Pa) and snow loading (5400 Pa)

### Quality Guarantee



High module quality ensures long-term reliability

## 108 HALF-CELL BIFACIAL MODULE



■ Conventional Module

■ Spitzer Performance



12 Years warranty for materials and workmanship



30 Years warranty for extra linear power output



Warranty partner

IEC61215 / IEC61730 / UL61730  
IEC61701 / IEC62716 / IEC60068  
ISO9001

## Mechanical Parameters

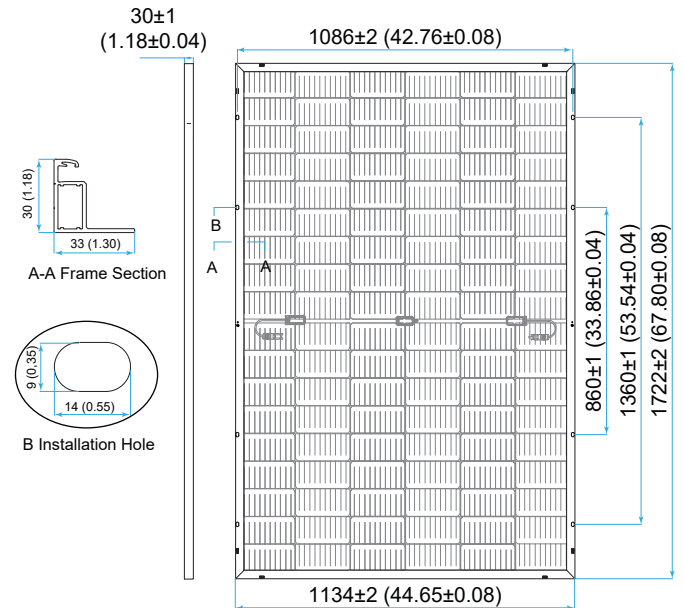
|               |                                                                             |
|---------------|-----------------------------------------------------------------------------|
| Solar Cell    | Mono PERC 182mm                                                             |
| No. of Cells  | 108 (6 × 18)                                                                |
| Dimensions    | 1722 × 1134 × 30mm<br>(67.08 × 44.65 × 1.18in.)                             |
| Weight        | 25.2kg (55.55lbs)                                                           |
| Junction Box  | IP68 rated (3 bypass diodes)                                                |
| Output Cables | 4mm <sup>2</sup> (IEC), 12 AWG(UL)<br>(-/+ )1200mm (47.24in.) or customized |
| Connector     | EVO2 or similar                                                             |
| Front Cover   | 2.0mm ( 0.079in.) semi-tempered AR glass                                    |
| Back Cover    | 2.0mm ( 0.079in.) semi-tempered glass                                       |
| Container     | 36 pcs/Pallet, 792 pcs/40' HC                                               |

## Operating Parameters

|                        |                                 |
|------------------------|---------------------------------|
| Max. System Voltage    | DC 1500V (IEC/UL)               |
| Operating Temperature  | -40°C ~ +85°C (-40°F ~ +185°F)  |
| Max. Fuse Rating       | 30A                             |
| Frontside Max. Loading | 5400Pa (112lb/ft <sup>2</sup> ) |
| Backside Max. Loading  | 2400Pa (50lb/ft <sup>2</sup> )  |
| Bifaciality            | 70%±10%                         |
| Fire Resistance        | IEC Class A, UL Type 29         |

## Engineering Drawing

Unit: mm (inch)



## Electrical Characteristics - STC

Irradiance 1000 W/m<sup>2</sup>, ambient temperature 25 °C, AM1.5.

|                                   |        |       |       |       |       |
|-----------------------------------|--------|-------|-------|-------|-------|
| Maximum Power at STC (Pmax/W)     | 410    | 405   | 400   | 395   | 390   |
| Power Tolerance (W)               | 0 ~ +5 |       |       |       |       |
| Optimum Operating Voltage (Vmp/V) | 31.45  | 31.21 | 31.01 | 30.84 | 30.64 |
| Optimum Operating Current (Imp/A) | 13.04  | 12.98 | 12.90 | 12.81 | 12.73 |
| Open Circuit Voltage (Voc/V)      | 37.32  | 37.23 | 37.07 | 36.98 | 36.85 |
| Short Circuit Current (Isc/A)     | 13.95  | 13.87 | 13.79 | 13.70 | 13.61 |
| Module Efficiency                 | 21.0%  | 20.7% | 20.5% | 20.2% | 20.0% |

## Electrical Characteristics - NMOT

Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

|                                   |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|
| Maximum Power at NMOT (Pmax/W)    | 310.2 | 306.4 | 302.5 | 298.8 | 295.0 |
| Optimum Operating Voltage (Vmp/V) | 29.82 | 29.60 | 29.41 | 29.25 | 29.06 |
| Optimum Operating Current (Imp/A) | 10.40 | 10.35 | 10.29 | 10.22 | 10.15 |
| Open Circuit Voltage (Voc/V)      | 35.39 | 35.31 | 35.15 | 35.07 | 34.95 |
| Short Circuit Current (Isc/A)     | 11.25 | 11.19 | 11.13 | 11.05 | 10.98 |

## Rearside Power Gain (Reference to 410W Front)

|                                   |       |       |       |
|-----------------------------------|-------|-------|-------|
| Rearside Power Gain               | 5%    | 15%   | 25%   |
| Maximum Power (Pmax/W)            | 431   | 472   | 513   |
| Optimum Operating Voltage (Vmp/V) | 31.45 | 31.55 | 31.55 |
| Optimum Operating Current (Imp/A) | 13.69 | 14.94 | 16.24 |
| Open Circuit Voltage (Voc/V)      | 37.32 | 37.42 | 37.42 |
| Short Circuit Current (Isc/A)     | 14.65 | 16.00 | 17.39 |
| Module Efficiency                 | 22.1% | 24.2% | 26.3% |

## Temperature Characteristics

|                                      |           |
|--------------------------------------|-----------|
| Nominal Module Operating Temperature | 42 ± 2 °C |
| Nominal Cell Operating Temperature   | 45 ± 2 °C |
| Temperature Coefficient of Pmax      | -0.35%/°C |
| Temperature Coefficient of Voc       | -0.27%/°C |
| Temperature Coefficient of Isc       | 0.05%/°C  |

Current-Voltage & Power-Voltage Curve (410W)

