



## ALPHA PRO N-Type High-Efficiency Bifacial Module Specification - Bifacial glass-glass

Monocrystalline 6X20 Bifacial Solar Modules

465-500Wp



### Electrical Data

Electrical Data under Different Bifacial Gains  
(Using TS60-CMH-500 H6QT as an Example)

| Model                  |      |   | TS60-CMH-465 H6QT | TS60-CMH-470 H6QT | TS60-CMH-475 H6QT | TS60-CMH-480 H6QT | TS60-CMH-485 H6QT | TS60-CMH-490 H6QT | TS60-CMH-495 H6QT | TS60-CMH-500 H6QT | Bifacial Gain          |      |   | 5%    | 10%   | 20%   |
|------------------------|------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------------|------|---|-------|-------|-------|
| Max. power at STC      | Pmax | W | 465               | 470               | 475               | 480               | 485               | 490               | 495               | 500               | Max. power at STC      | Pmax | W | 525   | 550   | 600   |
| Max. power voltage     | Vmp  | V | 34.89             | 35.05             | 35.21             | 35.38             | 35.54             | 35.7              | 35.84             | 36                | Max. power voltage     | Vmp  | V | 36.00 | 36.00 | 36.00 |
| Max. power current     | Imp  | A | 13.33             | 13.41             | 13.49             | 13.57             | 13.65             | 13.73             | 13.81             | 13.89             | Max. power current     | Imp  | A | 14.58 | 15.28 | 16.67 |
| Open circuit voltage   | Voc  | V | 42.22             | 42.38             | 42.54             | 42.71             | 42.86             | 43.02             | 43.18             | 43.34             | Open circuit voltage   | Voc  | V | 43.34 | 43.34 | 43.34 |
| Short circuit current  | Isc  | A | 14.07             | 14.15             | 14.23             | 14.31             | 14.39             | 14.48             | 14.56             | 14.64             | Short circuit current  | Isc  | A | 15.37 | 16.10 | 17.57 |
| Module Conversion Eff. |      | % | 21.4%             | 21.7%             | 21.9%             | 22.1%             | 22.4%             | 22.6%             | 22.8%             | 23.1%             | Module Conversion Eff. |      | % | 24.2% | 25.4% | 27.7% |

\* Under Standard Test Condition(1,000W/m<sup>2</sup>,25°C,AM 1.5): Power Tolerance ±3%, Voc Tolerance ±3%, Isc Tolerance ±3%

\* Module Conversion Eff. (%) = [Max power at STC(w) / ((Solar Module Area(m<sup>2</sup>) x 1000 (w/m<sup>2</sup>))] x 100%

\* Backside Gain: The additional power gain obtained from the backside of the module relative to the frontside power under standard test conditions, which depends on the installation of the module (including structure, height, tilt angle, etc.) and ground reflectivity conditions.

\* Product specifications and data are subject to change without prior notice.

### General Data

|                  |                                                               |
|------------------|---------------------------------------------------------------|
| Cell type        | Monocrystalline N-Type solar cell                             |
| Cell per module  | Mono-crystalline silicon<br>N-Type solar cell (120pcs)        |
| Front            | 2.0 mm, AR-coating, semi-tempered                             |
| Encapsulant Film | POE/EVA                                                       |
| Rear             | 2.0 mm, semi-tempered                                         |
| Frame            | 6005 T6 Anodized aluminum                                     |
| Junction Box     | IP/68                                                         |
| Connector        | EVO-2 Compatible                                              |
| Cable            | (+)300mm,(-) 200mm or<br>customized length / 4mm <sup>2</sup> |

### Operation Conditions

|                                                      |              |
|------------------------------------------------------|--------------|
| Max. system voltage                                  | 1500V        |
| Module fire resistance class                         | Class C      |
| Protection Class (IEC 61140)                         | Class II     |
| Series fuse rating                                   | 30 A         |
| Number of bypass diodes                              | 3            |
| Temperature range                                    | -40 to +85°C |
| Max. mechanical load                                 | 5400 pa      |
| * Please follow installation manual provided by TSEC |              |

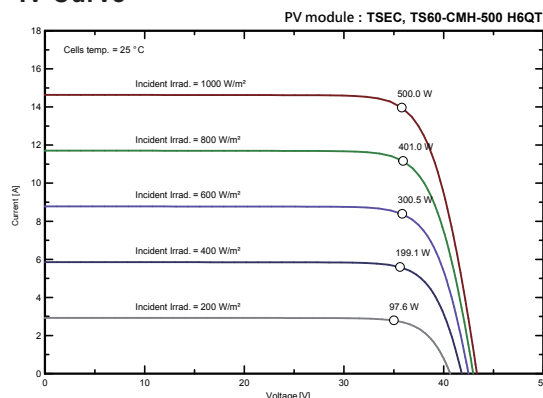
### Module Dimensions and Weight

|                         |                     |
|-------------------------|---------------------|
| Dimension               | 1908 x 1134 x 30 mm |
| Weight(2.0+2.0mm glass) | 27.8 Kg             |

### Temperature Coefficient

|                                    |         |        |
|------------------------------------|---------|--------|
| Nominal Operating Cell Temperature | NOCT °C | 45±2   |
| TC Isc                             | α %/ °C | 0.045  |
| TC Voc                             | β %/ °C | - 0.25 |
| TC Pmax                            | γ %/ °C | - 0.29 |

### IV Curve



### Certifications

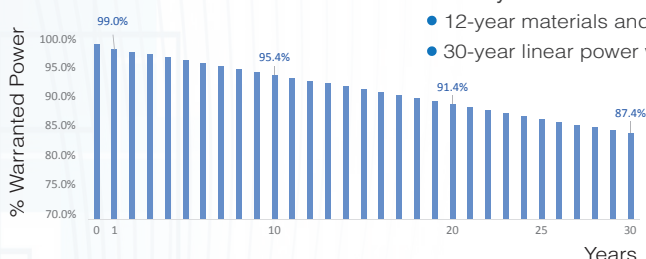
- IEC 61215:2021、IEC 61730-1:2023 & IEC 61730-2:2023、UL 61730
- ISO 9001:2015 Quality management system
- ISO 14001:2015 Environmental management system
- ISO 45001:2018 Occupational health and safety management system



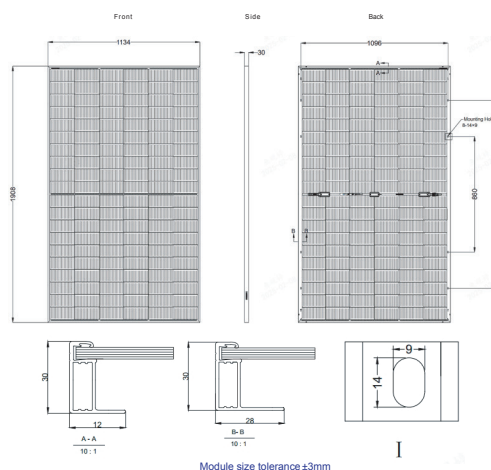
★ Certification is in progress

### Warranty

- 12-year materials and workmanship warranty
- 30-year linear power warranty



### Engineering Drawing(mm)



★ The temporary data sheet is still under development.

Made in Taiwan

\* The information in this document is subject to change without notice

\* TSEC reserves the rights of final interpretation and revision of datasheet

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