



# QUANTUM N-Type High-Efficiency Bifacial Module Specification - Transparent Backsheet

Monocrystalline 6X20 Bifacial Solar Modules

475-505Wp



## Electrical Data

| Model                  |                  |   | TS60-CMH-475 H2 |               |       |       | TS60-CMH-480 H2 |               |       |       | TS60-CMH-485 H2 |               |       |       | TS60-CMH-490 H2 |               |       |       | TS60-CMH-495 H2 |               |       |       | TS60-CMH-500 H2 |               |       |       | TS60-CMH-505 H2 |               |       |       |
|------------------------|------------------|---|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|-----------------|---------------|-------|-------|
|                        |                  |   | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       | Front           | Bifacial Gain |       |       |
|                        |                  |   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |                 | 5%            | 10%   | 20%   |
| Max. power at STC      | P <sub>max</sub> | W | 475             | 499           | 523   | 570   | 480             | 504           | 528   | 576   | 485             | 509           | 534   | 582   | 490             | 515           | 539   | 588   | 495             | 520           | 545   | 594   | 500             | 525           | 550   | 600   | 505             | 530           | 556   | 606   |
| Max. power voltage     | V <sub>mp</sub>  | V | 36.12           | 36.12         | 36.12 | 36.12 | 36.26           | 36.26         | 36.26 | 36.26 | 36.45           | 36.45         | 36.45 | 36.45 | 36.64           | 36.64         | 36.64 | 36.64 | 36.83           | 36.83         | 36.83 | 36.83 | 37.02           | 37.02         | 37.02 | 37.02 | 37.2            | 37.20         | 37.20 | 37.20 |
| Max. power current     | I <sub>mp</sub>  | A | 13.16           | 13.82         | 14.48 | 15.79 | 13.24           | 13.90         | 14.56 | 15.89 | 13.32           | 13.99         | 14.65 | 15.98 | 13.40           | 14.07         | 14.74 | 16.08 | 13.48           | 14.15         | 14.83 | 16.18 | 13.56           | 14.24         | 14.92 | 16.27 | 13.64           | 14.32         | 15.00 | 16.37 |
| Open circuit voltage   | V <sub>oc</sub>  | V | 42.54           | 42.54         | 42.54 | 42.54 | 42.73           | 42.73         | 42.73 | 42.73 | 42.92           | 42.92         | 42.92 | 42.92 | 43.11           | 43.11         | 43.11 | 43.11 | 43.3            | 43.30         | 43.30 | 43.30 | 43.49           | 43.49         | 43.49 | 43.49 | 43.68           | 43.68         | 43.68 | 43.68 |
| Short circuit current  | I <sub>sc</sub>  | A | 13.83           | 14.52         | 15.21 | 16.60 | 13.92           | 14.62         | 15.31 | 16.70 | 14.01           | 14.71         | 15.41 | 16.81 | 14.1            | 14.81         | 15.51 | 16.92 | 14.19           | 14.90         | 15.61 | 17.03 | 14.28           | 14.99         | 15.71 | 17.14 | 14.37           | 15.09         | 15.81 | 17.24 |
| Module Conversion Eff. |                  | % | 21.9%           | 23.0%         | 24.1% | 26.3% | 22.1%           | 23.2%         | 24.4% | 26.6% | 22.4%           | 23.5%         | 24.6% | 26.9% | 22.6%           | 23.7%         | 24.9% | 27.1% | 22.8%           | 24.0%         | 25.1% | 27.4% | 23.1%           | 24.2%         | 25.4% | 27.7% | 23.3%           | 24.5%         | 25.6% | 28.0% |

\* 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>) × 1000 (w/m<sup>2</sup>))] × 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.

## General Data

|                  |                                                        |
|------------------|--------------------------------------------------------|
| Cell type        | Monocrystalline N-Type solar cell                      |
| Cell per module  | Mono-crystalline silicon<br>N-Type solar cell (120pcs) |
| Front            | PV Coated glass                                        |
| Encapsulant Film | Low water vapor transmission rate<br>(WVTR) material   |
| Rear             | Backsheet                                              |
| Frame            | Anti-Salt Mist frame                                   |
| Junction Box     | IP68                                                   |
|                  |                                                        |
| Connector        | EVO-2 Compatible                                       |
| Cable            | 1500mm / 12 AWG / 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 |              |

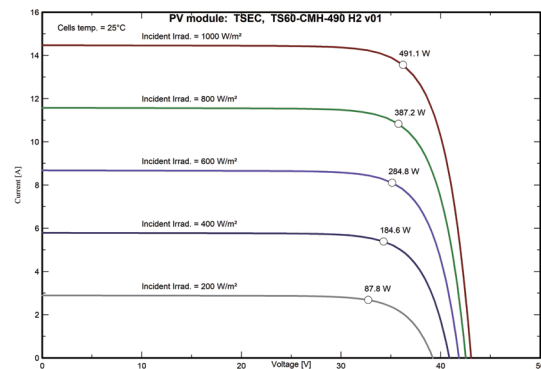
## Module Dimensions and Weight

|           |                    |
|-----------|--------------------|
| Dimension | 1908 x 1134 x 35mm |
| Weight    | 23.5±5% 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

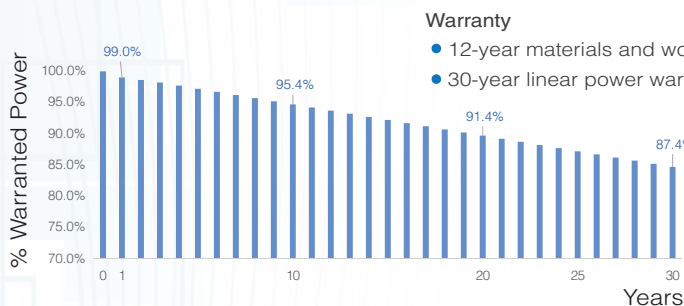
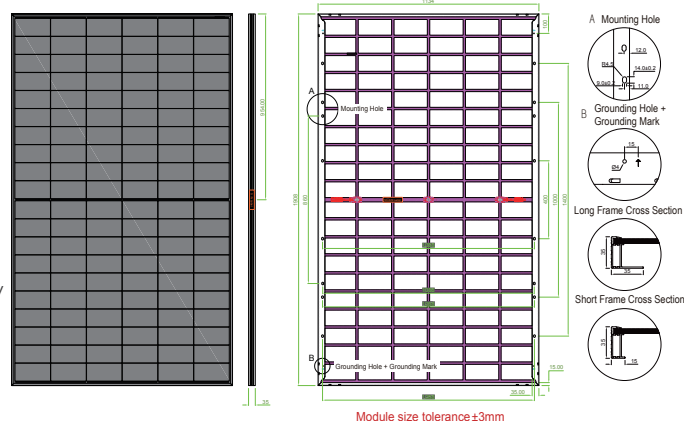


## Certifications

- 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



## Engineering Drawing(mm)



## Warranty

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

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

\* Version : Rev.14, June 2025

## TSEC Corporation

Taipei Headquarters | 8F., No.225, Sec3, Beixin Rd., Xindian Dist., New Taipei City 23143, Taiwan, R.O.C

T +886-2-2912-2199 F +886-2-2917-5399 M international.sales@tsecpv.com(Sales Contact) epc@tsecpv.com(EPC Construction Service)