



## QUANTUM N-Type High-Efficiency Module Specification

Monocrystalline 6X20 Solar Modules

# 475Wp~505Wp



**Zero light-induced degradation**



**Better low light response**



**Additional power gain**



**The highest Mechanical Load Test in PV Industry**



**Better temperature coefficient**



**Lower LCOE**



**The toughest Salt Mist Test in PV Industry**

Green Energy

Made in Taiwan



**Sustainable Development**



# QUANTUM N-Type High-Efficiency Module Specification

## Monocrystalline 6X20 Solar Modules

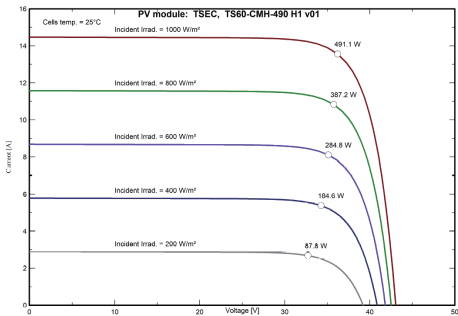
### 475-505Wp



| Electrical Data        |                    |                 |                 |                 |                 |                 |                 | General Data    |                                                      |
|------------------------|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------------------------------|
| Model Name             |                    | TS60-CMH-475 H1 | TS60-CMH-480 H1 | TS60-CMH-485 H1 | TS60-CMH-490 H1 | TS60-CMH-495 H1 | TS60-CMH-500 H1 | TS60-CMH-505 H1 |                                                      |
| Max. power at STC      | P <sub>max</sub> W | 475             | 480             | 485             | 490             | 495             | 500             | 505             | Cell type                                            |
| Max. power voltage     | V <sub>mp</sub> V  | 36.12           | 36.26           | 36.45           | 36.64           | 36.83           | 37.02           | 37.2            | Monocrystalline N-Type solar cell                    |
| Max. power current     | I <sub>mp</sub> A  | 13.16           | 13.24           | 13.32           | 13.40           | 13.48           | 13.56           | 13.64           | Cell per module                                      |
| Open circuit voltage   | V <sub>oc</sub> V  | 42.54           | 42.73           | 42.92           | 43.11           | 43.3            | 43.49           | 43.68           | Mono-crystalline silicon N-Type solar cell (120 pcs) |
| Short circuit current  | I <sub>sc</sub> A  | 13.83           | 13.92           | 14.01           | 14.1            | 14.19           | 14.28           | 14.37           | Front                                                |
| Module Conversion Eff. | %                  | 22.0%           | 22.2%           | 22.4%           | 22.7%           | 22.9%           | 23.1%           | 23.4%           | PV Coated glass                                      |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Encapsulant Film                                     |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Low water vapor transmission rate (WVTR) material    |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Rear                                                 |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Backsheet (Inner side foil black)                    |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Frame                                                |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Anodized aluminum black                              |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Junction Box                                         |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | IP68                                                 |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Connector                                            |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | EVO-2 Compatible                                     |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | Cable                                                |
|                        |                    |                 |                 |                 |                 |                 |                 |                 | 1500mm / 12 AWG / 4mm <sup>2</sup>                   |

| Temperature Coefficient |      |       |        | Operation Conditions                                 |              | Module Dimensions and Weight |                     |
|-------------------------|------|-------|--------|------------------------------------------------------|--------------|------------------------------|---------------------|
| Nominal Operating       | NOCT | °C    | 45±2   | Max. system voltage                                  | 1500V        | Dimension                    | 1908 x 1134 x 35 mm |
| Cell Temperature        |      |       |        | Module fire resistance class                         | Class C      | Weight                       | 23.5 Kg             |
| TC I <sub>sc</sub>      | α    | %/ °C | 0.045  | Protection Class (IEC 61140)                         | Class II     |                              |                     |
| TC V <sub>oc</sub>      | β    | %/ °C | - 0.25 | Series fuse rating                                   | 30 A         |                              |                     |
| TC P <sub>max</sub>     | γ    | %/ °C | - 0.29 | Number of bypass diodes                              | 3            |                              |                     |
|                         |      |       |        | Temperature range                                    | -40 to +85°C |                              |                     |
|                         |      |       |        | Max. mechanical load                                 | 5400 pa      |                              |                     |
|                         |      |       |        | * Please follow installation manual provided by TSEC |              |                              |                     |

IV Curve

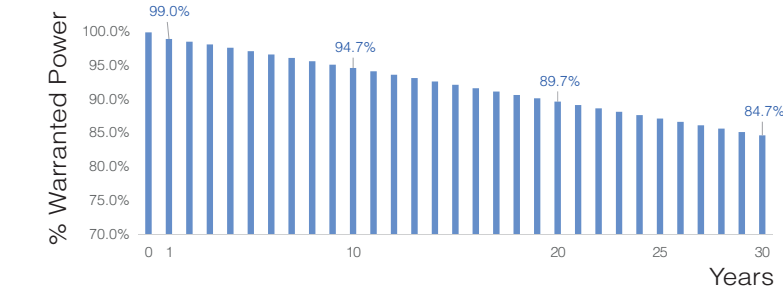
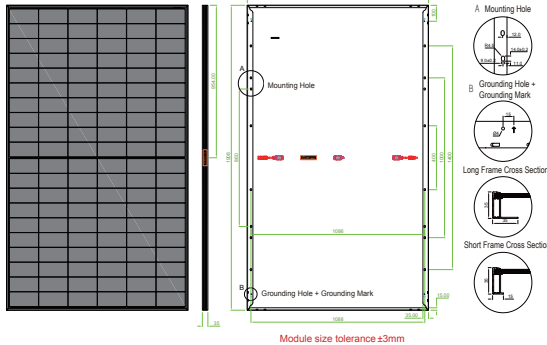


Certifications

- IEC 61215:2021、IEC 61730-1:2021 & IEC 61730-2:2021、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

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