QUANTUM N-Type High-Efficiency Bifacial Module Specification - Bifacial glass-glass

Monocrystalline 6X20 Bifacial Solar Modules

465-515Wp

Electrical Data

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	TS60-CMH-505 H6QT	TS60-CMH-510 H6QT	TS60-CMH-515 H6QT
Max. power at STC	Pmax	W	465	470	475	480	485	490	495	500	505	510	515
Max. power voltage	Vmp	V	34.93	35.05	35.21	35.38	35.54	35.7	35.84	36	36.16	36.32	36.48
Max. power current	Imp	A	13.33	13.41	13.49	13.57	13.65	13.73	13.81	13.89	13.97	14.05	14.13
Open circuit voltage	Voc	V	43.21	43.37	43.53	43.69	43.85	44.01	44.17	44.33	44.49	44.65	44.81
Short circuit current	Isc	A	13.9	13.96	14.02	14.08	14.14	14.2	14.26	14.32	14.38	14.44	14.5
Module Conversion Eff.		%	21.4%	21.7%	21.9%	22.1%	22.4%	22.6%	22.8%	23.1%	23.3%	23.5%	23.8%

* Under Standard Test Condition(1,000W/m^2,25°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^2) x 1000 (w/m^2))] 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.

General Data

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

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

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

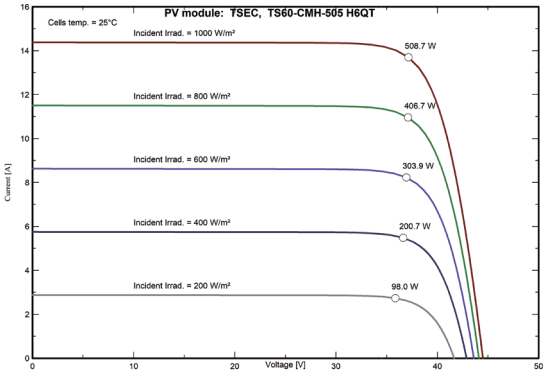
Module Dimensions and Weight

Dimension	1908 x 1134 x 30 mm
Weight	27.8 kg

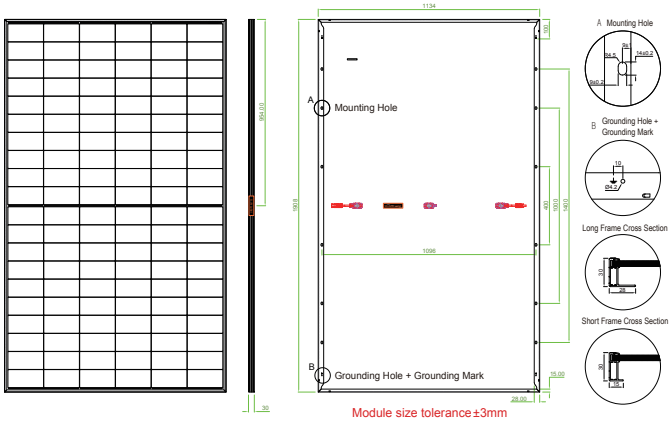
Electrical Data under Different Bifacial Gains (Using TS60-CMH-515 H6QT as an Example)

Bifacial Gain			5%	10%	20%
Max. power at STC	Pmax	W	541	567	618
Max. power voltage	Vmp	V	36.48	36.48	36.48
Max. power current	Imp	A	14.84	15.54	16.96
Open circuit voltage	Voc	V	44.81	44.81	44.81
Short circuit current	Isc	A	15.23	15.95	17.40
Module Conversion Eff.		%	24.9%	26.1%	28.5%

IV Curve



Engineering Drawing(mm)



Module size tolerance ±3mm

Certifications

- IEC 61215:2021 、IEC 61730-1:2023 & IEC 61730-2:2023
- ISO 9001:2015 Quality management system

ISO 9001
26QMA16904



Warranty

- 15-year materials and workmanship warranty
- 30-year linear power warranty
- Annual degradation rate starting from the second year : 0.4%

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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