



ALPHA 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



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Monocrystalline 6X20 Solar Modules

475-505Wp



Electrical 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	Pmax W	475	480	485	490	495	500
Max. power voltage	Vmp V	36.12	36.26	36.45	36.64	36.83	37.02
Max. power current	Imp A	13.16	13.24	13.32	13.40	13.48	13.56
Open circuit voltage	Voc V	42.54	42.73	42.92	43.11	43.3	43.49
Short circuit current	Isc A	13.83	13.92	14.01	14.1	14.19	14.28
Module Conversion Eff.	%	21.9%	22.1%	22.4%	22.6%	22.8%	23.3%

* Under Standard Test Condition(1,000W/m²,25°C,AM 1.5): Power Tolerance ±3%, Voc Tolerance ±3%, Isc Tolerance ±3%
* Module Conversion Eff. (%) = [Max power at STC(w) / ((Solar Module Area(m²) x 1000 (w/m²))] x 100%

General Data

Cell type	Monocrystalline N-Type solar cell
Cell per module	Mono-crystalline silicon N-Type solar cell (120 pcs)
Front	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 ²

Temperature Coefficient

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

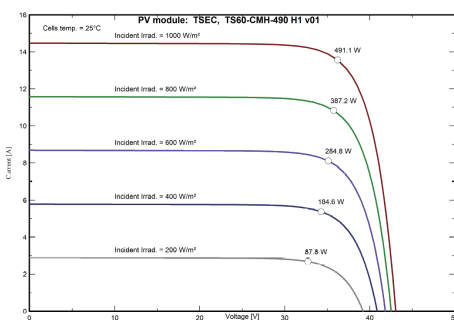
Operation Conditions

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 35 mm
Weight	23.5±5% Kg

IV Curve

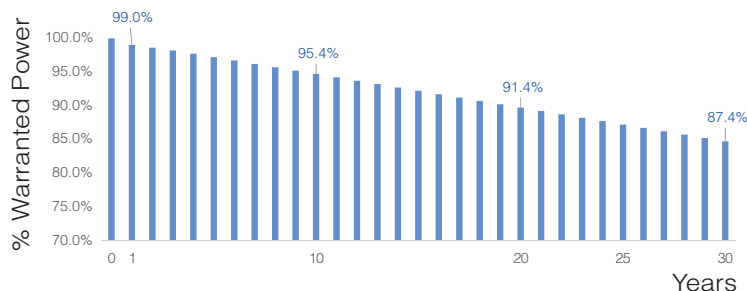
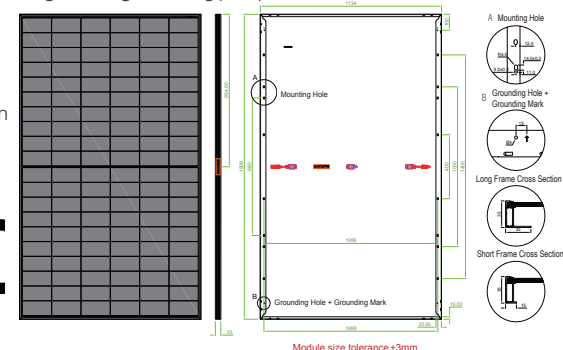


Certifications

- 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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