



ALPHA TOPCon T Type Bifacial Module Specification - Transparent Backsheet

Monocrystalline 6X18 Bifacial Solar Modules (182mm Solar Cell)

425-455Wp



Electrical Data

Model		TS54-CMH-425 H2				TS54-CMH-430 H2				TS54-CMH-435 H2				TS54-CMH-440 H2				TS54-CMH-445 H2				TS54-CMH-450 H2				TS54-CMH-455 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%	5%
Max. power at STC	P _{max}	W	425	446	468	510	430	452	473	516	435	457	479	522	440	462	484	528	445	467	490	534	450	473	495	540	455	478	501	546
Max. power voltage	V _{mp}	V	33.01	33.01	33.01	33.01	33.16	33.16	33.16	33.35	33.35	33.35	33.35	33.52	33.52	33.52	33.52	33.71	33.71	33.71	33.71	33.89	33.89	33.89	33.89	34.04	34.04	34.04	34.04	
Max. power current	I _{mp}	A	12.90	13.55	14.19	15.48	12.98	13.63	14.28	15.58	13.06	13.71	14.37	15.67	13.14	13.80	14.45	15.77	13.22	13.88	14.54	15.86	13.30	13.97	14.63	15.96	13.38	14.05	14.72	16.06
Open circuit voltage	V _{oc}	V	38.87	38.87	38.87	38.87	39.06	39.06	39.06	39.25	39.25	39.25	39.25	39.44	39.44	39.44	39.44	39.63	39.63	39.63	39.63	39.82	39.82	39.82	39.82	40.01	40.01	40.01	40.01	
Short circuit current	I _{sc}	A	13.48	14.15	14.83	16.18	13.57	14.25	14.93	16.28	13.66	14.34	15.03	16.39	13.75	14.44	15.13	16.50	13.84	14.53	15.22	16.61	13.93	14.63	15.32	16.72	14.02	14.72	15.42	16.82
Module Conversion Eff.		%	21.8%	22.8%	23.9%	26.1%	22.0%	23.1%	24.2%	26.4%	22.3%	23.4%	24.5%	26.7%	22.5%	23.6%	24.8%	27.0%	22.8%	23.9%	25.1%	27.3%	23.0%	24.2%	25.3%	27.6%	23.3%	24.5%	25.6%	27.9%

* 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%

* 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 TOPCon solar cell
Cell per module	Mono-crystalline silicon TOPCon solar cell (108pcs)
Front	PV Coated glass
Encapsulant Film	Low water vapor transmission rate (WVTR) material
Rear	Backsheet
Frame	Anti-Salt Mist frame
Junction Box	IP68
	
Connector	EVO-2 Compatible
Cable	1500mm / 12 AWG / 4mm ²

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	

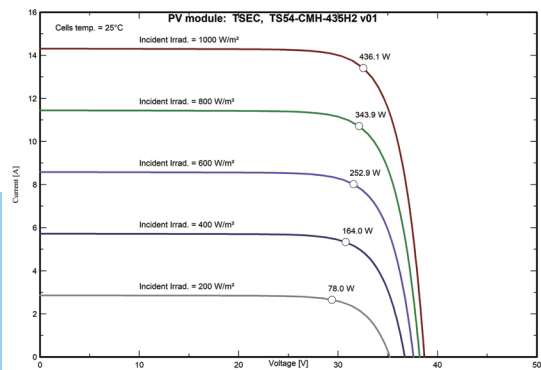
Module Dimensions and Weight

Dimension	1723 x 1134 x 35mm
Weight	21.5 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

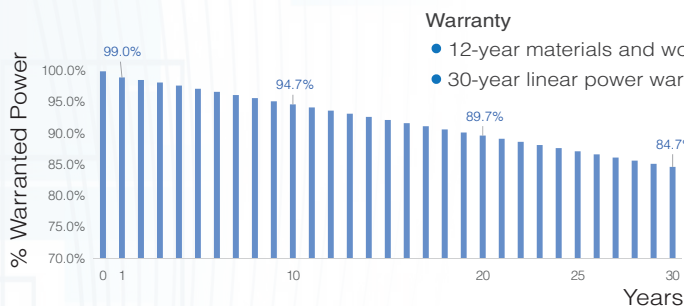
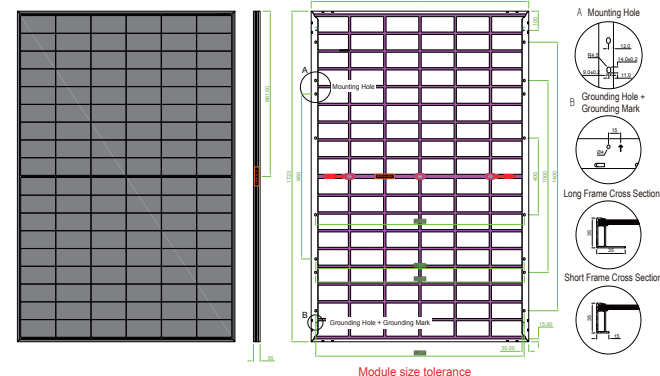


Certifications

- 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

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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)