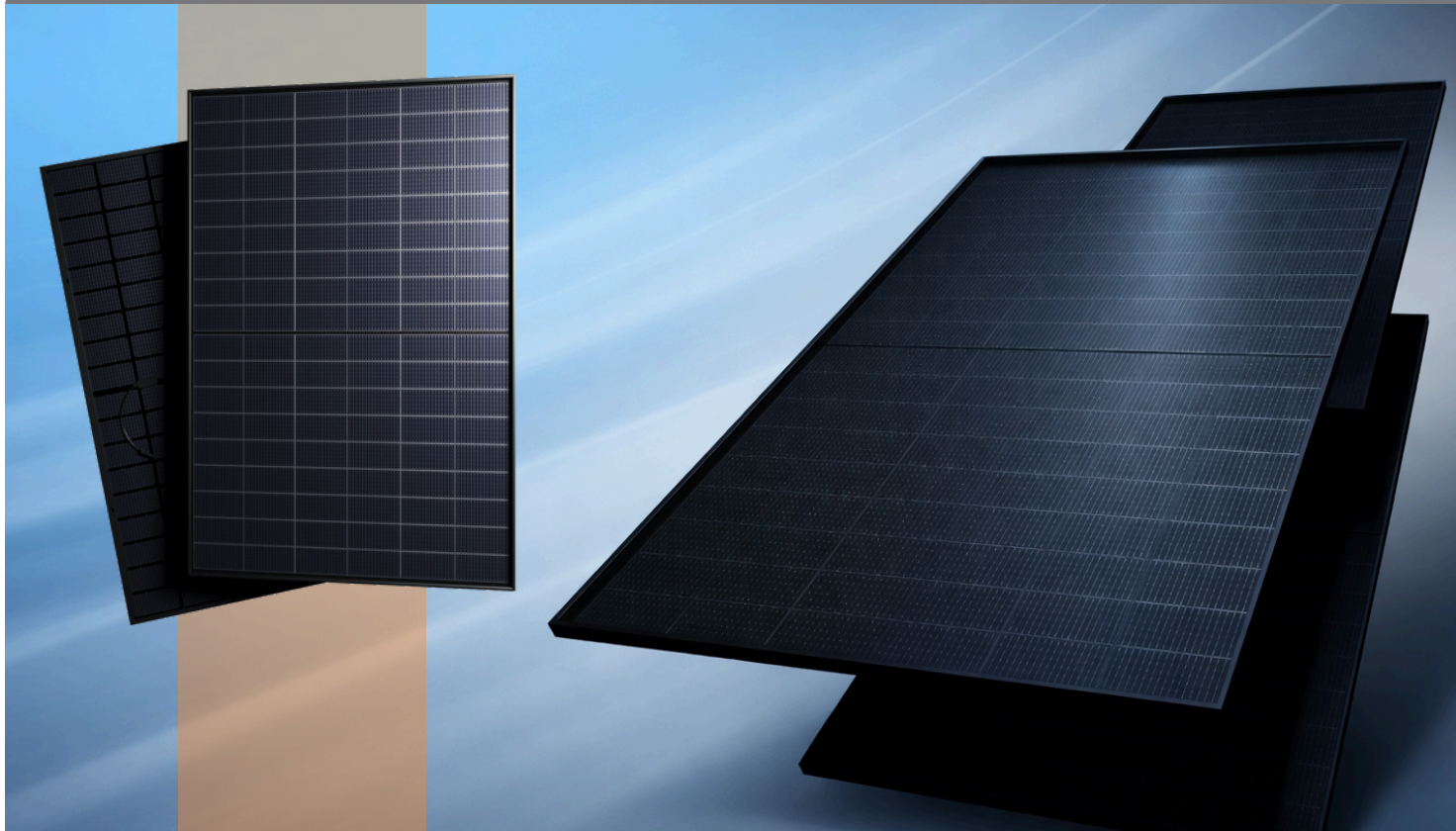


# ELIOS | Voltaic 450HC-BF







All Black 450W Bi-Facial Solar TopCon Panel

Data Sheet



Voltaic 450W N-Type Mono-Crystalline Bifacial solar panel, designed with dual-sided power generation, maximizes energy output by harnessing both direct and reflected sunlight. Built using advanced robotic production lines and premium materials, these panels offer exceptional efficiency and durability in all weather conditions. Perfect for reliable, year-round energy generation in residential and commercial applications.

## Features & Benefits

-  More energy, even in partially shaded areas with half cut cell technology.
-  Designed to Withstand High Mechanical load : 5400 Pa (Front) and 5400 Pa (Back), ensuring durability in extreme weather conditions.
-  TOPCon technology with 16-busbar design for better performance in hot climates.
-  Delivers up to 25% extra power, thanks to its bifacial design.
-  Exceptional Anti-PID performance through the use of optimized mass-production processes and strict materials control
-  Better temperature coefficients come from half-cell design.

## Certifications

TUV Austria | MCS | INTERTEK | UL | IECCE | Archiles| UL 61215 / UL 61730 | IEC 61215 / IEC 61730 | CSA C22.2#61730:2019 | HALT Test Highly Accelerated Life and Extended Reliability Test | IEC 61853 PAN File | IEC TS 62804 PID Resistance | IEC 60068 Dust and Sand Resistance | IEC 62716 Ammonia Resistance | IEC 61701 Salt Mist Resistance | Bankability Report | EN ISO 9001:2015 Quality Management System | EN ISO 14001:2015 Environmental Management System | EN ISO 45001:2018 Occupational Health and Safety Management Systems

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## ELECTRICAL SPECIFICATIONS

Short Circuit Current - I <sub>sc</sub> (A)	14.47
Maximum Power Current - I <sub>mpp</sub> (A)	13.44
Open Circuit Voltage - V <sub>oc</sub> (V)	38.84
Maximum Power Voltage - V <sub>mpp</sub> (V)	33.51
Module Efficiency - $\eta'$ (%)	23.08%
Bifacial Ratio (%)	80% $\pm$ 5
Power Tolerance (%)	0~+3%

## THERMAL SPECIFICATIONS

Open Voltage Temperature Coefficient V <sub>OC</sub> (%/C°)	-0.25
Open Voltage Temperature Coefficient I <sub>SC</sub> (%/C°)	+0.046
Power Temperature Coefficient PMP (%/C°)	-0.29
NOCT (C°)	45 $\pm$ 2

## OPERATING CONDITIONS

Maximum System Voltage - V <sub>max</sub> (V)	1500
Maximum Series Fuse (A)	30
Operating Temperature	IEC: -40°C to +85°C UL: -40°C to +90°C

## BIFACIALITY PERFORMANCE INCREASE\*

*depending on Albedo and irradiation conditions at -40°	B <sub>max</sub> (Bifacial)	I <sub>mp</sub> (Front)	I <sub>mp</sub> (Bifacial)	I <sub>sc</sub> (Bifacial)	V <sub>oc</sub> (Cold)
Bifacial Gain 10%	495W(+45)	13.43A	14.77A	15.92A	45.15V
Bifacial Gain 20%	540W(+90)	13.43A	16.11A	17.36A	45.15V
Bifacial Gain 25%	562.5W(+112.5)	13.43A	16.79A	18.09A	45.15V

## MECHANICAL SPECIFICATIONS

Cells Per Module	108 (54x2)
Cell Type	N Type Mono-Crystalline
Front Surface	3.2mm Tempered AR Coated Glass
Back Cover	Transparent Backsheet
Frame	Anodized Aluminum (Black/Silver)
Junction Box	IP 68 With original MC4
Wire Length	1200mm
Fire Classification	Type I
Dimensions (LxWxD)	67.7 x 46.5 x 1.18 in (1724 x 1134 x 30 mm)
Net Weight	20.5 $\pm$ 1 kg ( 45.2 lb $\pm$ 2.2 lb)
Output Port	MC4

## PACKAGING & SHIPPING INFO

Pallet Dimensions (LxWxD)	69.29 x 44.88 x 49.61 in (1760 x 1140 x 1260 mm)
Pallet Weight	810 kgs 1785.74 lb

## Applications

- Off-Grid Systems
- Residential roof-tops
- Commercial / Industrial
- Solar Power Plant

## Warranty

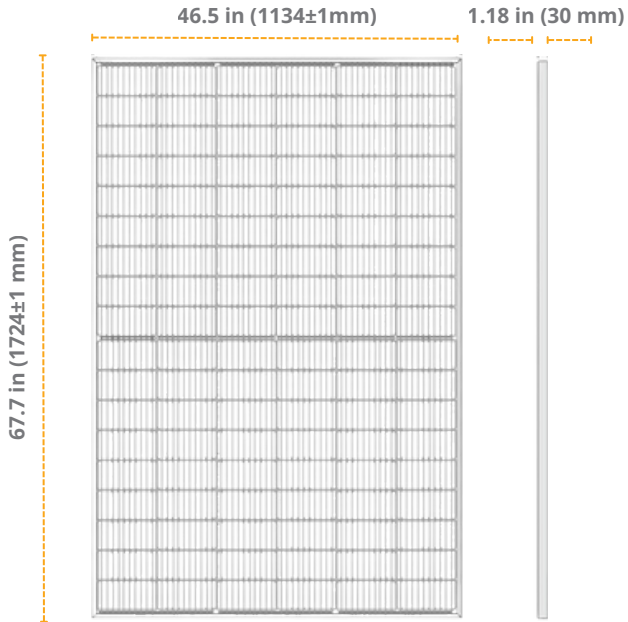
- 30-year linear power Warranty
- 12-year product warranty
- Only -0.4% annual degradation

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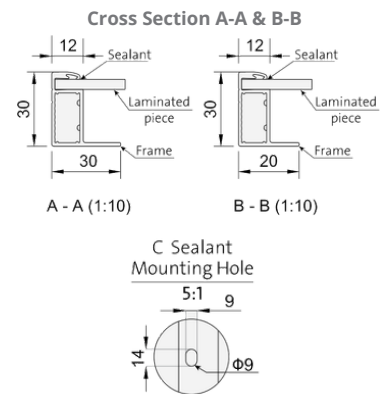
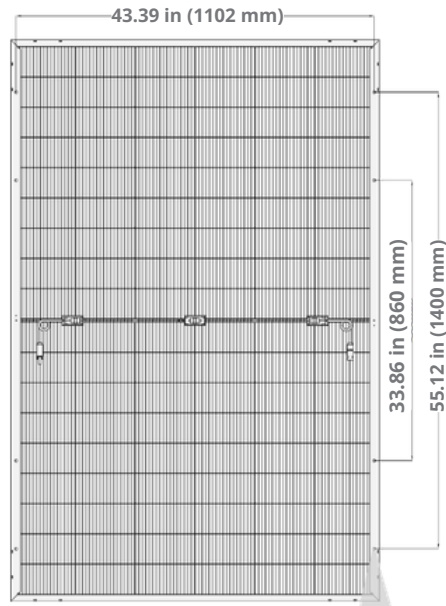
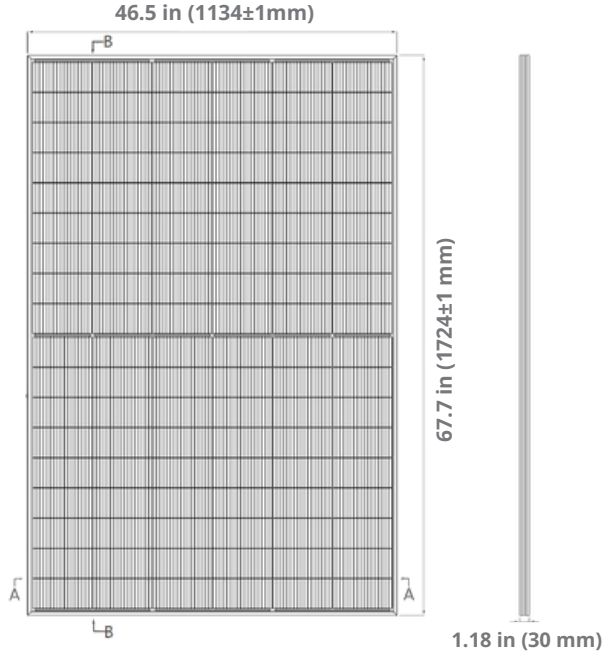
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## Dimensions

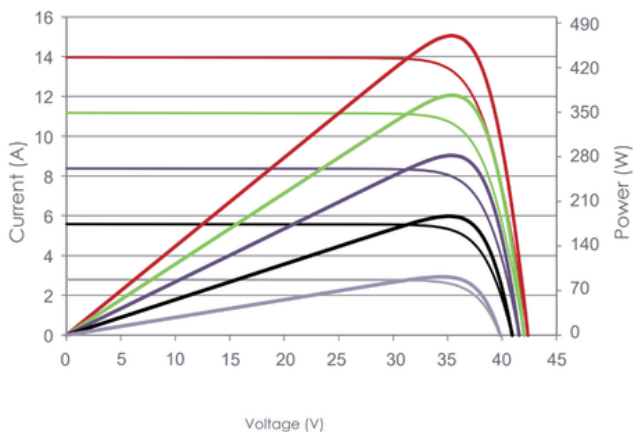


## Module Drawings



## I-V Curves

Current-Voltage & Power-Voltage Curves (430W)



Temperature Dependence of  $I_{sc}$ ,  $V_{oc}$ ,  $P_{max}$

