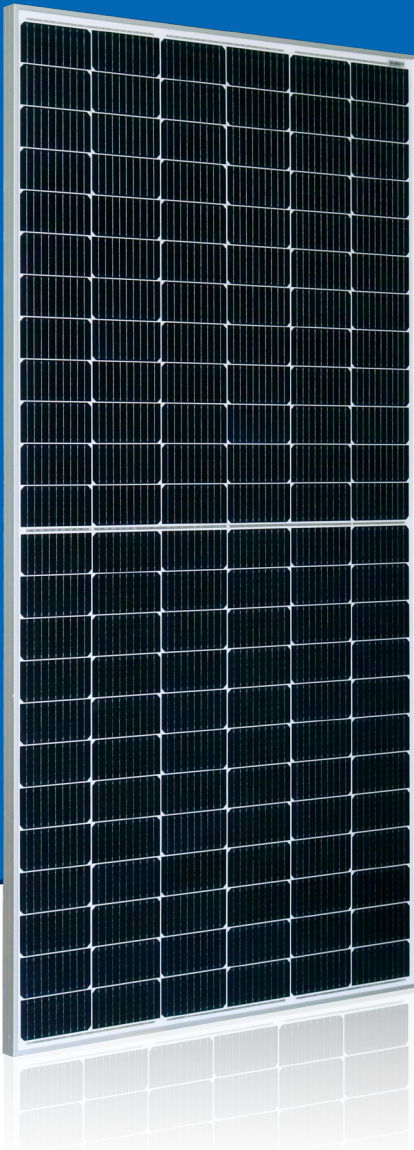


# ASTRO 4 Semi

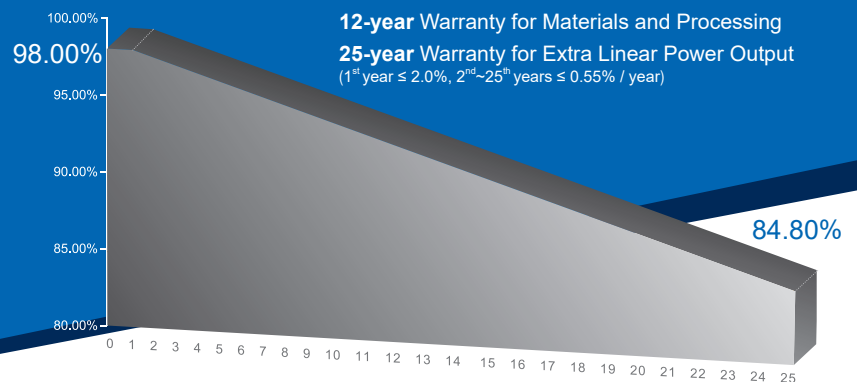
Create Sustainable and Efficient Green Energy



## 440W~455W

Monocrystalline PV Module

CHSM72M-HC Series (166)



### KEY FEATURES

- +5W OUTPUT POSITIVE TOLERANCE**  
Guaranteed 0~+5W positive tolerance to ensure power output.
- INNOVATIONAL HALF-CUT TECHNOLOGY**  
Better shading tolerance, higher reliability.
- INNOVATIONAL MULTI-BUSBAR TECHNOLOGY**  
Higher light absorption, lower risk of microcrack.
- SUPER PERC+ CELL TECHNOLOGY**  
Higher module power and module efficiency, lower power degradation.
- Anti PID PID RESISTANCE**  
Excellent PID resistance.

### COMPREHENSIVE CERTIFICATES



The first solar company which passed the  
TUV Nord IEC/TS 62941 certification audit.

For Global Market



**ASTRONERGY**  
A CHNT COMPANY

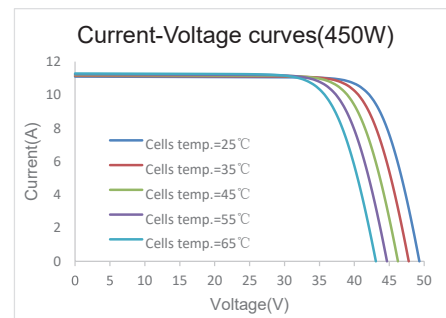
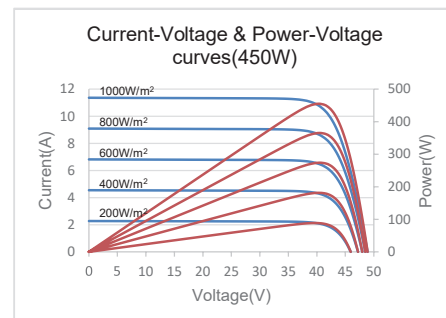
## ELECTRICAL SPECIFICATIONS

STC rated output ( $P_{mpp}$ )	440 Wp	445 Wp	450 Wp	455 Wp
Rated voltage ( $V_{mpp}$ ) at STC	40.85 V	41.05 V	41.32 V	41.51 V
Rated current ( $I_{mpp}$ ) at STC	10.77 A	10.84 A	10.89 A	10.96 A
Open circuit voltage ( $V_{oc}$ ) at STC	48.50 V	48.80 V	49.05 V	49.35 V
Short circuit current ( $I_{sc}$ ) at STC	11.24 A	11.30 A	11.37 A	11.44 A
Module efficiency	20.2%	20.5%	20.7%	20.9%
Rated output ( $P_{mpp}$ ) at NMOT	327.1 Wp	330.8 Wp	334.5 Wp	338.2 Wp
Rated voltage ( $V_{mpp}$ ) at NMOT	37.93 V	38.12 V	38.37 V	38.55 V
Rated current ( $I_{mpp}$ ) at NMOT	8.62 A	8.68 A	8.72 A	8.78 A
Open circuit voltage ( $V_{oc}$ ) at NMOT	45.42 V	45.70 V	45.94 V	46.22 V
Short circuit current ( $I_{sc}$ ) at NMOT	9.06 A	9.10 A	9.16 A	9.22 A
Temperature coefficient ( $P_{mpp}$ )	- 0.35%/°C			
Temperature coefficient ( $I_{sc}$ )	+0.035%/°C			
Temperature coefficient ( $V_{oc}$ )	- 0.28%/°C			
Nominal module operating temperature (NMOT)	41±2°C			
Maximum system voltage (IEC/UL)	1500V <sub>DC</sub>			
Number of diodes	3			
Junction box IP rating	IP 68			
Maximum series fuse rating	20 A			

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, AM=1.5

NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM=1.5, Wind Speed 1m/s

## CURVE



## MECHANICAL SPECIFICATIONS

Outer dimensions (L x W x H)	2094 x 1038 x 35 mm
Frame technology	Aluminum, silver anodized
Front glass thickness	3.2 mm
Cable length (IEC/UL)	Portrait: 300 mm Landscape: 1300 mm
Cable diameter (IEC/UL)	4 mm <sup>2</sup> / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Fire performance (IEC/UL)	Class C (IEC) or Type 4 (UL)
Connector type (IEC/UL)	HCB40 / MC4-EVO2

① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## PACKING SPECIFICATIONS

① Module Weight	23.5 kg
② Packing unit	31 pcs / box
Weight of packing unit (for 40'HQ container)	772 kg
Number of modules per 40'HQ container	682 pcs

① Tolerance +/- 1.0kg  
② Subject to sales contract

## MODULE DIMENSION DETAILS

