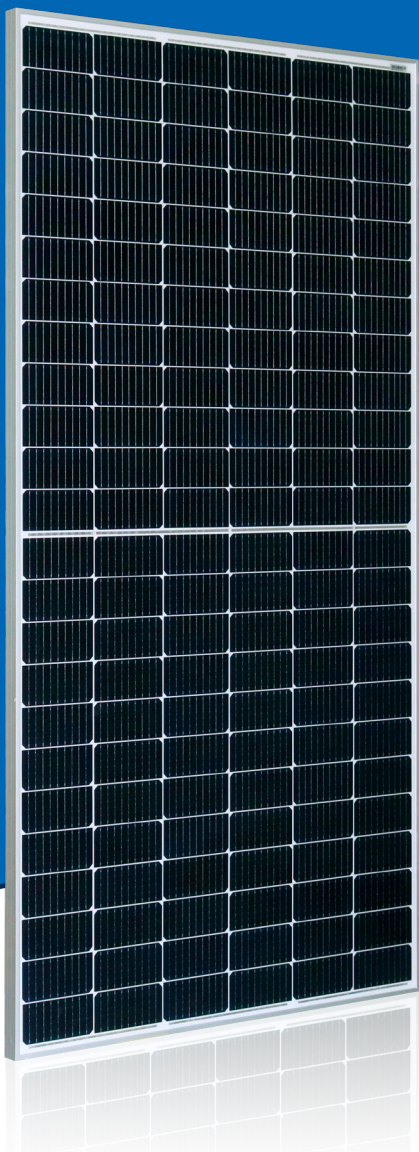


# AstroSemi™

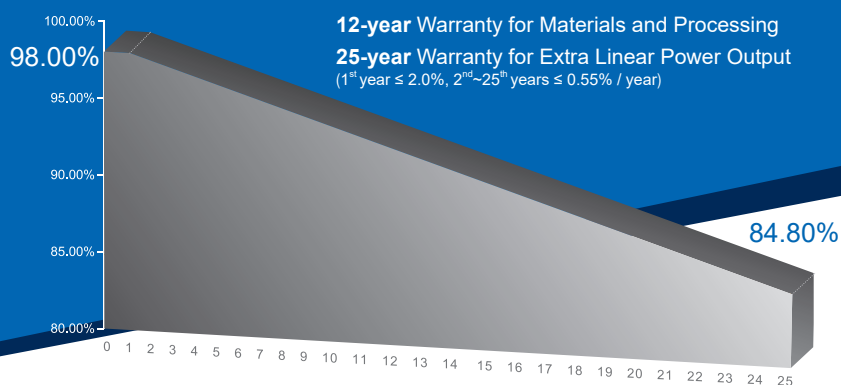
Incredible Power for Small Body



## 445W~455W

Monocrystalline PV Module

CHSM72M-HC Series (166)



### KEY FEATURES

- OUTPUT POSITIVE TOLERANCE**  
 Guaranteed 0~+5W positive tolerance ensures power output reliability.
- INNOVATIONAL HALF-CELL TECHNOLOGY**  
 Improves the module output, decreases the risk of micro-crack, enhances the module reliability.
- INNOVATIVE PERC CELL TECHNOLOGY**  
 Excellent cell efficiency and output.
- REDUCE SHADOW LOSS**  
 Effectively reduces the effect of shadow on the module surface.
- REDUCE INTERNAL MISMATCH LOSS**  
 Reduces mismatch loss and improves output.
- PASSED HAIL TEST**  
 Certified to hail resistance: ice ball size (d=25mm) and ice ball velocity (v=23m/s).
- PID RESISTANCE**  
 Excellent PID resistance at 96 hours (@85°C /85%) test, and also can be improved to meet higher standards for the particularly harsh environment.

### COMPREHENSIVE CERTIFICATES



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

For Global Market



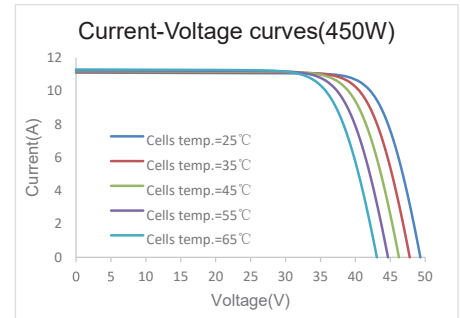
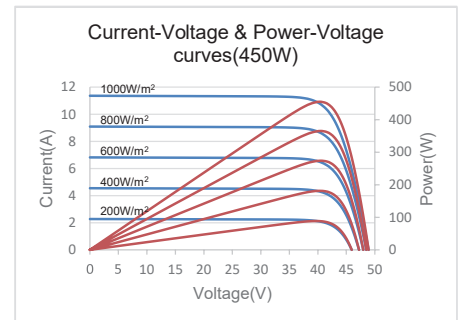
**ASTRONERGY**  
A CHNT COMPANY

## ELECTRICAL SPECIFICATIONS

STC rated output ( $P_{mpp}$ )*	445 Wp	450 Wp	455 Wp
Rated voltage ( $V_{mpp}$ ) at STC	41.05 V	41.32 V	41.51 V
Rated current ( $I_{mpp}$ ) at STC	10.84 A	10.89 A	10.96 A
Open circuit voltage ( $V_{oc}$ ) at STC	48.80 V	49.05 V	49.35 V
Short circuit current ( $I_{sc}$ ) at STC	11.30 A	11.37 A	11.44 A
Module efficiency	20.1%	20.4%	20.6%
Rated output ( $P_{mpp}$ ) at NMOT	330.8 Wp	334.5 Wp	338.2 Wp
Rated voltage ( $V_{mpp}$ ) at NMOT	38.12 V	38.37 V	38.55 V
Rated current ( $I_{mpp}$ ) at NMOT	8.68 A	8.72 A	8.78 A
Open circuit voltage ( $V_{oc}$ ) at NMOT	45.70 V	45.94 V	46.22 V
Short circuit current ( $I_{sc}$ ) at NMOT	9.10 A	9.16 A	9.22 A
Temperature coefficient ( $P_{mpp}$ )	- 0.35%/°C		
Temperature coefficient ( $I_{sc}$ )	+0.04%/°C		
Temperature coefficient ( $V_{oc}$ )	- 0.28%/°C		
Nominal module operating temperature (NMOT)	44±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)	2108 x 1048 x 35 mm
Frame technology	Aluminum, silver anodized
Module composition	Glass / EVA / Backsheet (white)
Front glass thickness	3.2 mm
Cable length (IEC/UL)	Portrait: 350 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 1 (UL)
Connector type (IEC/UL)	MC4 compatible

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

## PACKING SPECIFICATIONS

① Weight (module only)	24.0 kg
② Packing unit	31 pcs / box
Weight of packing unit (for 40'HQ container)	791 kg
Number of modules per 40'HQ container	682 pcs

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

## MODULE DIMENSION DETAILS

