

# AstroSemi™

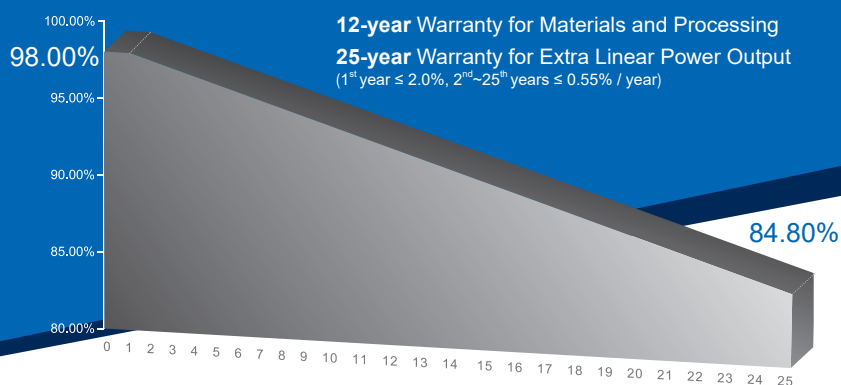
Incredible Power for Small Body



## 370W~380W

Monocrystalline PV Module

CHSM60M-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.
- REDUCE SHADOW LOSS**  
 Effectively reduces the effect of shadow on the module surface.
- REDUCE INTERNAL MISMATCH LOSS**  
 Reduces mismatch loss and improves output.

### COMPREHENSIVE CERTIFICATES



Special for Australian Market



**ASTRONERGY**  
 A CHNT COMPANY

## ELECTRICAL SPECIFICATIONS

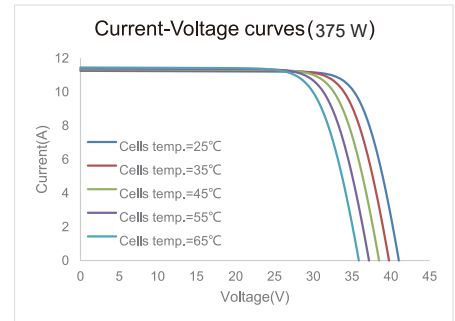
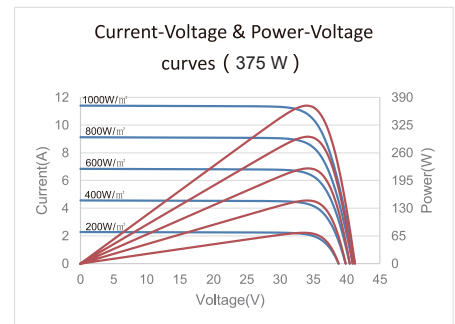
|   |                     |          |   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
|---|---------------------|----------|---|--|--------|--------|--------|---------------------------------------|------------|--|--|--------------------------------------|-----------|--|--|--------------------------------------|------------|--|--|---|--------|--|--|---------------------------------|---------------------|--|--|------------------|---|--|--|------------------------|-------|--|--|----------------------------|------|--|--|
| STC rated output ( $P_{mpp}$ )*             | 370 Wp              | 375 Wp   | 380 Wp  |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Rated voltage ( $V_{mpp}$ ) at STC          | 33.98 V             | 34.28 V  | 34.51 V   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Rated current ( $I_{mpp}$ ) at STC          | 10.89 A             | 10.94 A  | 11.01 A   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Open circuit voltage ( $V_{oc}$ ) at STC    | 40.75 V             | 41.05 V  | 41.34 V   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Short circuit current ( $I_{sc}$ ) at STC   | 11.35 A             | 11.42 A  | 11.49 A   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Module efficiency                           | 20.0%               | 20.3%    | 20.5%   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Rated output ( $P_{mpp}$ ) at NMOT          | 275.9 Wp            | 279.6 Wp | 283.4 Wp  |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Rated voltage ( $V_{mpp}$ ) at NMOT         | 31.68 V             | 31.96 V  | 32.18 V   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Rated current ( $I_{mpp}$ ) at NMOT         | 8.71 A              | 8.75 A   | 8.81 A  |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Open circuit voltage ( $V_{oc}$ ) at NMOT   | 38.31 V             | 38.59 V  | 38.87 V </tr <tr> <td>Short circuit current (<math>I_{sc}</math>) at NMOT</td> <td>9.13 A</td> <td>9.19 A</td> <td>9.24 A</td> </tr> <tr> <td>Temperature coefficient (<math>P_{mpp}</math>)</td> <td colspan="3">- 0.34%/°C</td> </tr> <tr> <td>Temperature coefficient (<math>I_{sc}</math>)</td> <td colspan="3">+0.04%/°C</td> </tr> <tr> <td>Temperature coefficient (<math>V_{oc}</math>)</td> <td colspan="3">- 0.27%/°C</td> </tr> <tr> <td>Nominal module operating temperature (NMOT)</td> <td colspan="3">44±2°C</td> </tr> <tr> <td>Maximum system voltage (IEC/UL)</td> <td colspan="3">1500V<sub>DC</sub></td> </tr> <tr> <td>Number of diodes</td> <td colspan="3">3</td> </tr> <tr> <td>Junction box IP rating</td> <td colspan="3">IP 68</td> </tr> <tr> <td>Maximum series fuse rating</td> <td colspan="3">20 A</td> </tr> | Short circuit current ( $I_{sc}$ ) at NMOT | 9.13 A | 9.19 A | 9.24 A | Temperature coefficient ( $P_{mpp}$ ) | - 0.34%/°C |  |  | Temperature coefficient ( $I_{sc}$ ) | +0.04%/°C |  |  | Temperature coefficient ( $V_{oc}$ ) | - 0.27%/°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 |  |  |
| Short circuit current ( $I_{sc}$ ) at NMOT  | 9.13 A              | 9.19 A   | 9.24 A  |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Temperature coefficient ( $P_{mpp}$ )       | - 0.34%/°C          |          |   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Temperature coefficient ( $I_{sc}$ )        | +0.04%/°C           |          |   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |
| Temperature coefficient ( $V_{oc}$ )        | - 0.27%/°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                |          |   |  |        |        |        |                                       |            |  |  |                                      |           |  |  |                                      |            |  |  |   |        |  |  |                                 |                     |  |  |                  |   |  |  |                        |       |  |  |                            |      |  |  |

\* Measurement tolerance +/- 3%

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)   | 1765 x 1048 x 35 mm  |
| Frame technology               | Aluminum, silver or black anodized   |
| Module composition             | Glass / EVA / Backsheet (white)  |
| Front glass thickness          | 3.2 mm   |
| Cable length (IEC/UL)          | Portrait: 350 mm<br>Landscape: 1200 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)        | PV-CY03L (Logo:CHUANG YUAN) or PV-HCB40 (Logo:XINHUI, Chint Solar) or PV-KST4-EVO2/XY-UR,PV-KBT4-EVO2/XY-UR(Logo:MC) |

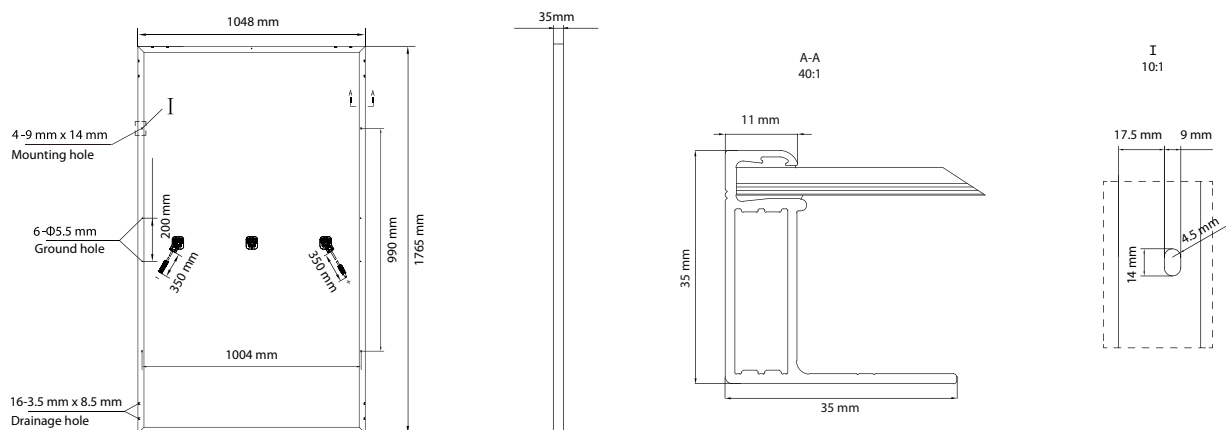
① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## PACKING SPECIFICATIONS

|  |              |
|--|--------------|
| ① Weight (module only)                       | 20.0 kg      |
| ② Packing unit                               | 31 pcs / box |
| Weight of packing unit (for 40'HQ container) | 661 kg       |
| Number of modules per 40'HQ container        | 806 pcs      |

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

## MODULE DIMENSION DETAILS



Made in Zhejiang, Jiangsu and Anhui of China, Made in Sincan/ Ankara of Turkey

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