



ASTRONERGY

# ASTRO N5s

Create Sustainable and Efficient Green Energy

CHSM54N(BL)-HC  
Monofacial Series (182)

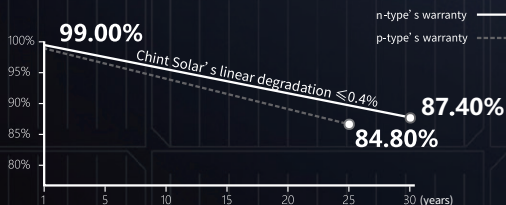
## 405~420W

TOPCon / Multi-busbar / Half-cut

Non-destructive cutting

PID resistance

Lower BOS cost & LCOE



12-year Product Warranty

30-year Linear Power Warranty



ISO 9001:2015:ISO Quality Management System  
ISO 14001:2015:ISO Environment Management System  
ISO 45001:Occupational Health and Safety  
The first solar company which passed the Nord IEC/TS 62941 certification audit.



Tier 1  
BloombergNEF



405~420W

POWER RANGE

0~+5W

POWER  
TOLERANCE

21.5%

MAX MODULE  
EFFICIENCY

≤ 1.0%

FIRST YEAR  
POWER DEGRADATION

≤ 0.4%

YEAR 2-30 POWER  
DEGRADATION

## Electrical Specifications

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

|                                                   |       |       |       |       |
|---------------------------------------------------|-------|-------|-------|-------|
| Rated output (P <sub>mpp</sub> / W <sub>p</sub> ) | 405   | 410   | 415   | 420   |
| Rated voltage (V <sub>mpp</sub> / V)              | 31.43 | 31.60 | 31.76 | 31.93 |
| Rated current (I <sub>mpp</sub> / A)              | 12.89 | 12.98 | 13.06 | 13.15 |
| Open circuit voltage (V <sub>oc</sub> / V)        | 37.40 | 37.60 | 37.80 | 38.00 |
| Short circuit current (I <sub>sc</sub> / A)       | 13.54 | 13.65 | 13.76 | 13.87 |
| Module efficiency                                 | 20.7% | 21.0% | 21.3% | 21.5% |

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

|                                                   |       |       |       |       |
|---------------------------------------------------|-------|-------|-------|-------|
| Rated output (P <sub>mpp</sub> / W <sub>p</sub> ) | 304.6 | 308.3 | 312.1 | 315.8 |
| Rated voltage (V <sub>mpp</sub> / V)              | 29.58 | 29.74 | 29.90 | 30.06 |
| Rated current (I <sub>mpp</sub> / A)              | 10.30 | 10.37 | 10.44 | 10.51 |
| Open circuit voltage (V <sub>oc</sub> / V)        | 35.53 | 35.72 | 35.91 | 36.10 |
| Short circuit current (I <sub>sc</sub> / A)       | 10.93 | 11.02 | 11.11 | 11.20 |

## Temperature Ratings (STC)

|                                             |            |                              |                     |
|---------------------------------------------|------------|------------------------------|---------------------|
| Temperature coefficient (P <sub>mpp</sub> ) | -0.30%/°C  | No. of diodes                | 3                   |
| Temperature coefficient (I <sub>sc</sub> )  | +0.043%/°C | Junction box IP rating       | IP 68               |
| Temperature coefficient (V <sub>oc</sub> )  | -0.24%/°C  | Max. series fuse rating      | 25 A                |
| Nominal module operating temperature (NMOT) | 41±2°C     | Max. system voltage (IEC/UL) | 1000V <sub>DC</sub> |

## Operating Parameters

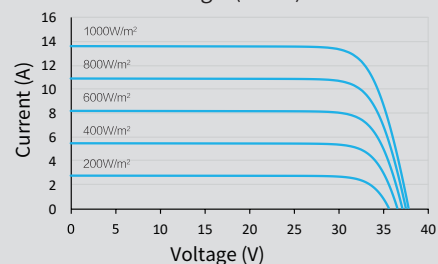
## Mechanical Specifications

|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| Outer dimensions (L x W x H)                 | 1722 x 1134 x 30 mm                      |
| Cell Type                                    | n-type Mono-crystalline                  |
| No. of cells                                 | 108 (6*18)                               |
| Frame technology                             | Aluminum, black anodized                 |
| Front glass thickness                        | 3.2 mm                                   |
| Cable length (IEC/UL)                        | Portrait: 300 mm; 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)         |
| Connector type (IEC/UL)                      | HCB40 / MC4-EVO2 (optional)              |
| Module weight                                | 21.3 kg                                  |
| Packing unit                                 | 36 pcs / box (Subject to sales contract) |
| Weight of packing unit (for 40'HQ container) | 811 kg                                   |
| Modules per 40' HQ container                 | 936 pcs                                  |

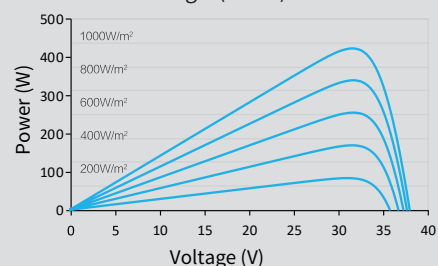
① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## Curve

Current-Voltage (415W)



Power-Voltage (415W)



Current-Voltage (415W)

