



**ASTRONERGY**  
A CHNT COMPANY

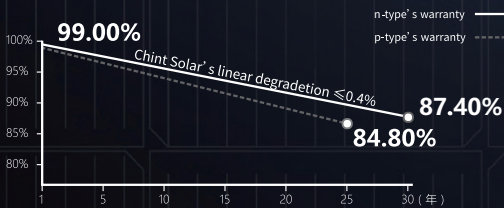
# ASTRO N5s

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)	31.73	31.75	31.76	31.93
Rated current (I <sub>mpp</sub> / A)	12.76	12.91	13.06	13.15
Open circuit voltage (V <sub>oc</sub> / V)	37.76	37.78	37.80	38.00
Short circuit current (I <sub>sc</sub> / A)	13.41	13.58	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)	29.87	29.88	29.90	30.06
Rated current (I <sub>mpp</sub> / A)	10.20	10.32	10.44	10.51
Open circuit voltage (V <sub>oc</sub> / V)	35.87	35.89	35.91	36.10
Short circuit current (I <sub>sc</sub> / A)	10.82	10.96	11.11	11.20

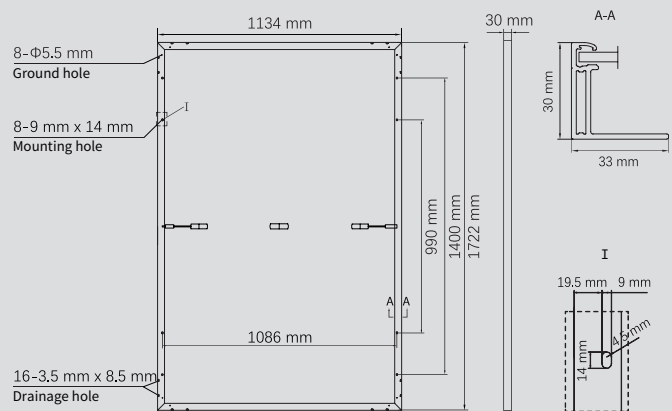
## Temperature Ratings (STC)

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)	1500V <sub>DC</sub>

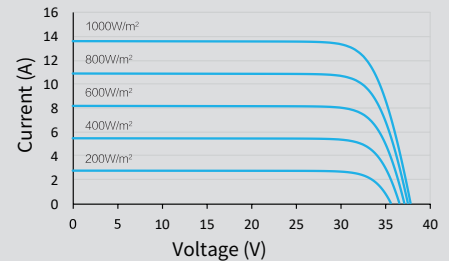
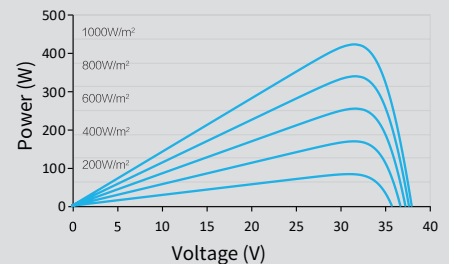
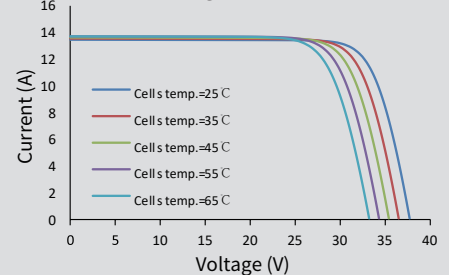
## Operating Parameters

## 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	21.6 kg
Packing unit	36 pcs / box (Subject to sales contract)
Weight of packing unit (for 40' HQ container)	821 kg
Modules per 40' HQ container	936 pcs



## Curve

**Current-Voltage (415W)****Power-Voltage (415W)****Current-Voltage (415W)**

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