



ASTRONERGY

elektrinadomu

# ASTRO N5s

Create Sustainable and Efficient Green Energy

CHSM54N(BL)-HC  
CHSM54N(BLH)-HC  
Monofacial Series (182)

## 405~425W

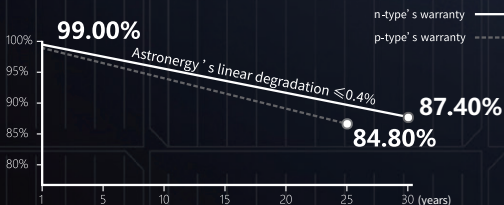
TOPCon / Half-cut

Low temperature coefficient (Pmpp)

Non-destructive cutting

PID resistance

Low BOS cost & LCOE



- 12-year Product Warranty (Standard)
- 15-year Product Warranty (Optional, special for rooftop market)
- 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



**405~425W**

POWER RANGE

**0~+5W**

POWER SORTING

**21.8%**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

	405	410	415	420	425
Rated output (P <sub>mpp</sub> / W <sub>p</sub> )	405	410	415	420	425
Rated voltage (V <sub>mpp</sub> / V)	31.43	31.60	31.76	31.93	32.10
Rated current (I <sub>mpp</sub> / A)	12.89	12.98	13.06	13.15	13.24
Open circuit voltage (V <sub>oc</sub> / V)	37.40	37.60	37.80	38.00	38.20
Short circuit current (I <sub>sc</sub> / A)	13.54	13.65	13.76	13.87	13.98
Module efficiency	20.7%	21.0%	21.3%	21.5%	21.8%

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

	304.6	308.3	312.1	315.8	319.6
Rated output (P <sub>mpp</sub> / W <sub>p</sub> )	304.6	308.3	312.1	315.8	319.6
Rated voltage (V <sub>mpp</sub> / V)	29.58	29.74	29.90	30.06	30.21
Rated current (I <sub>mpp</sub> / A)	10.30	10.37	10.44	10.51	10.58
Open circuit voltage (V <sub>oc</sub> / V)	35.53	35.72	35.91	36.10	36.29
Short circuit current (I <sub>sc</sub> / A)	10.93	11.02	11.11	11.20	11.28

## 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> or 1500V <sub>DC</sub>

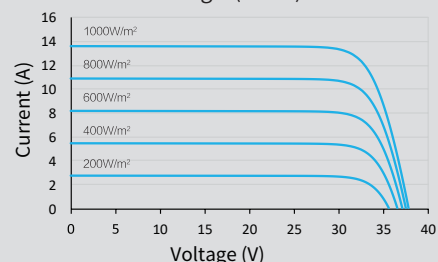
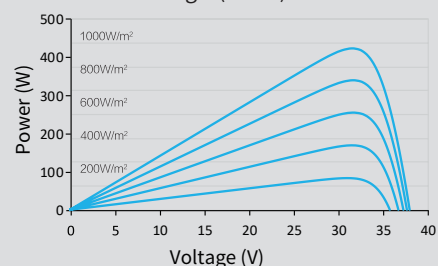
## Operating Parameters

## 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 (Including connector)	Portrait: (+) 350 mm, (-) 250 mm; Customized length
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 (Standard) / MC4, MC4-EVO2A (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)**