



ASTRONERGY

ENERGYNAT  
TRADE

Import and distribution of top PV components

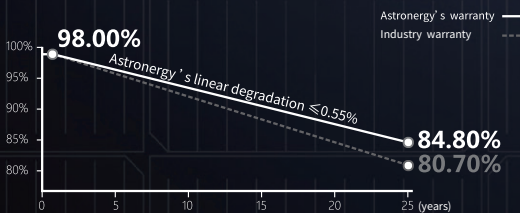
# ASTRO 5s

Create Sustainable and Efficient Green Energy

CHSM54M-HC  
Monofacial Series (182)

## 400~415W

PERC+ / Multi-busbar / Half-cut  
Non-destructive cutting  
PID resistance



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



ISO 9001:2015:ISO Quality Management System  
 ISO 14001:2015:ISO Environment Management System  
 ISO 45001:2018:Occupational Health and Safety  
 The first solar company which passed the Nord IEC/TS 62941 certification audit.



Tier 1  
BloombergNEF



**400~415W**

POWER RANGE

**0~+5W**

POWER SORTING

**21.3%**MAX MODULE  
EFFICIENCY**≤ 2.0%**FIRST YEAR  
POWER DEGRADATION**≤ 0.55%**YEAR 2-25  
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> )	400	405	410	415
Rated voltage (V <sub>mpp</sub> / V)	31.09	31.26	31.43	31.60
Rated current (I <sub>mpp</sub> / A)	12.86	12.96	13.05	13.13
Open circuit voltage (V <sub>oc</sub> / V)	37.00	37.20	37.40	37.60
Short circuit current (I <sub>sc</sub> / A)	13.65	13.76	13.88	13.99
Module efficiency	20.5%	20.7%	21.0%	21.3%

**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> )	298.9	302.7	306.4	310.1
Rated voltage (V <sub>mpp</sub> / V)	28.98	29.13	29.29	29.45
Rated current (I <sub>mpp</sub> / A)	10.32	10.39	10.46	10.53
Open circuit voltage (V <sub>oc</sub> / V)	34.97	35.15	35.34	35.53
Short circuit current (I <sub>sc</sub> / A)	11.07	11.17	11.26	11.35

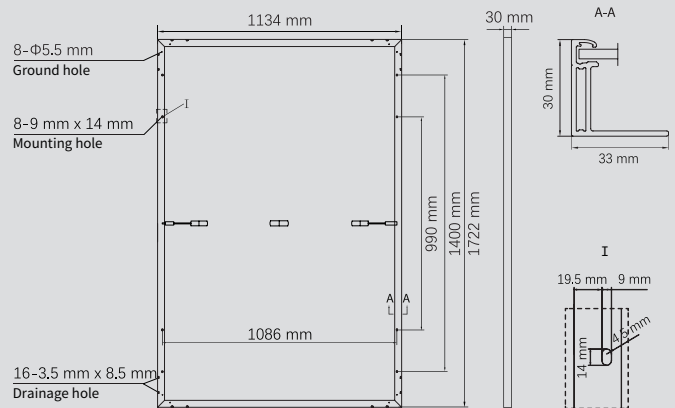
## Temperature Ratings (STC)

Temperature coefficient (P <sub>mpp</sub> )	-0.34%/°C	No. of diodes	3
Temperature coefficient (I <sub>sc</sub> )	+0.04%/°C	Junction box IP rating	IP 68
Temperature coefficient (V <sub>oc</sub> )	-0.25%/°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	P type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, black or silver 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-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

