



ASTRONERGY

**ENERGYNAT**  
TRADE

Import and distribution of top PV components

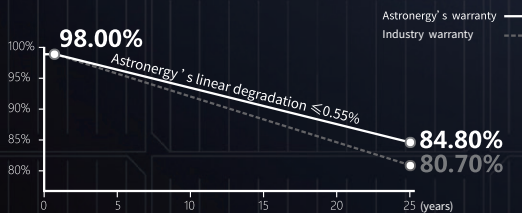
# ASTRO 5s

Create Sustainable and Efficient Green Energy

CHSM54M(BL)-HC  
CHSM54M(BLH)-HC  
Monofacial Series (182)

## 390~405W

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:Occupational Health and Safety  
The first solar company which passed the Nord IEC/TS 62941 certification audit.



Tier 1  
BloombergNEF



**390~405W**

POWER RANGE

**0~+5W**

POWER SORTING

**20.7%**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 (Pmpp / Wp)	390	395	400	405
Rated voltage (Vmpp / V)	30.76	30.92	31.09	31.26
Rated current (Impp / A)	12.68	12.77	12.86	12.96
Open circuit voltage (Voc / V)	36.60	36.80	37.00	37.20
Short circuit current (Isc / A)	13.40	13.52	13.65	13.76
Module efficiency	20.0%	20.2%	20.5%	20.7%

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

Rated output (Pmpp / Wp)	291.5	295.2	298.9	302.7
Rated voltage (Vmpp / V)	28.66	28.82	28.98	29.13
Rated current (Impp / A)	10.17	10.24	10.32	10.39
Open circuit voltage (Voc / V)	34.59	34.78	34.97	35.15
Short circuit current (Isc / A)	10.87	10.97	11.07	11.17

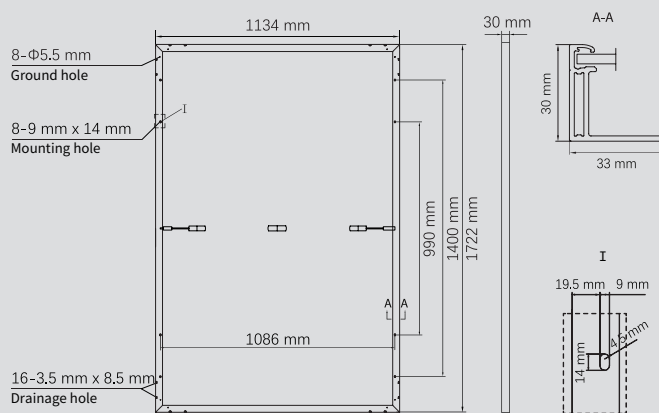
## Temperature Ratings (STC)

Temperature coefficient (Pmpp)	-0.34%/°C	No. of diodes	3
Temperature coefficient (Isc)	+0.04%/°C	Junction box IP rating	IP 68
Temperature coefficient (Voc)	-0.25%/°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

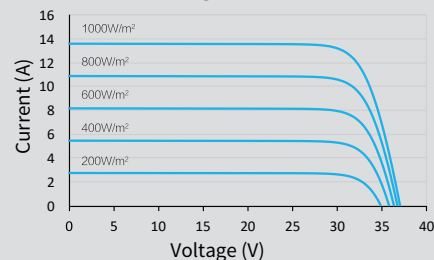
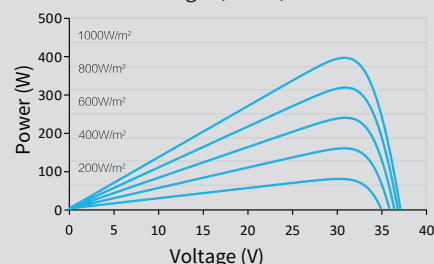
## Mechanical Specifications

Outer dimensions (L x W x H)	1722 x 1134 x 30 mm
Cell type	P 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 (400W)****Power-Voltage (400W)****Current-Voltage (400W)**