



**ASTRONERGY**  
A CHNT COMPANY

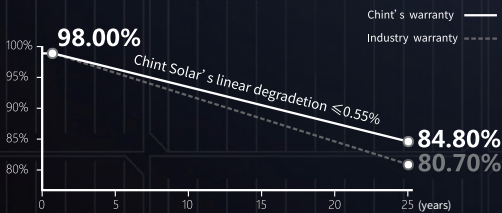
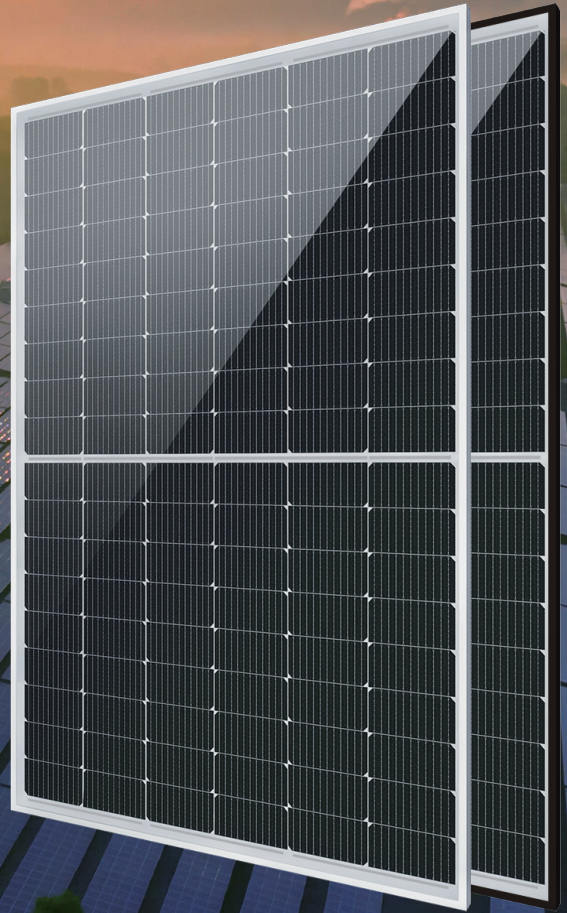
# ASTRO 5s

Create Sustainable and Efficient Green Energy

CHSM54M-HC  
Monofacial Series (182)

**390~415W**

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



- 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



**390~415W**

POWER RANGE

**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 (Pmpp / Wp)	390	395	400	405	410	415
Rated voltage (Vmpp / V)	30.76	30.92	31.09	31.26	31.43	31.60
Rated current (Impp / A)	12.68	12.77	12.86	12.96	13.05	13.13
Open circuit voltage (Voc / V)	36.60	36.80	37.00	37.20	37.40	37.60
Short circuit current (Isc / A)	13.40	13.52	13.65	13.76	13.88	13.99
Module efficiency	20.0%	20.2%	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 (Pmpp / Wp)	291.5	295.2	298.9	302.7	306.4	310.1
Rated voltage (Vmpp / V)	28.66	28.82	28.98	29.13	29.29	29.45
Rated current (Impp / A)	10.17	10.24	10.32	10.39	10.46	10.53
Open circuit voltage (Voc / V)	34.59	34.78	34.97	35.15	35.34	35.53
Short circuit current (Isc / A)	10.87	10.97	11.07	11.17	11.26	11.35

Power Sorting: +/-5W

Measurement tolerance +/- 3%

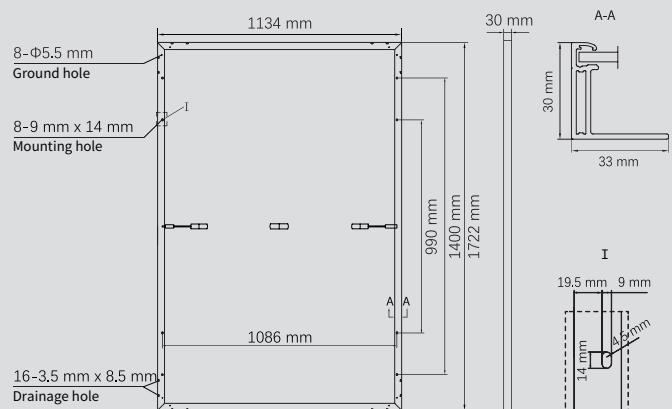
## Temperature Ratings (STC)

Temperature coefficient (Pmpp)	-0.35%/°C	No. of diodes	3
Temperature coefficient (Isc)	+0.045%/°C	Junction box IP rating	IP 68
Temperature coefficient (Voc)	-0.27%/°C	Max. series fuse rating	25 A
Nominal module operating temperature (NMOT)	41±2°C	Max. system voltage (IEC/UL)	1500V <sub>DC</sub>

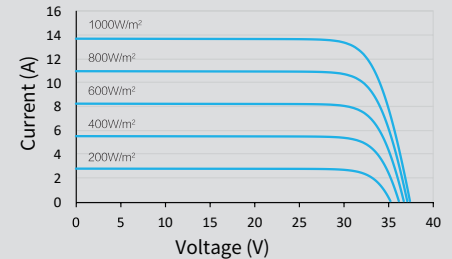
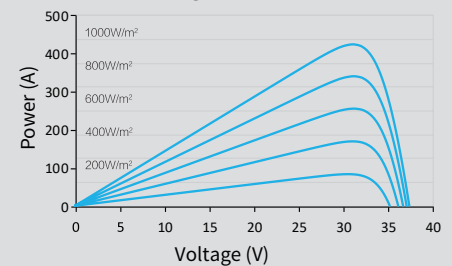
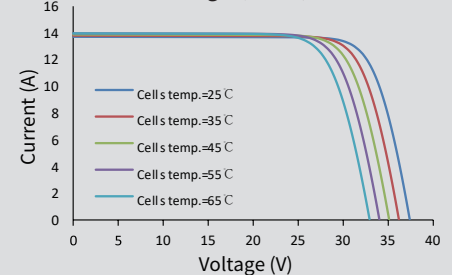
## Operating Parameters

## 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, silver or 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)	PV-HCB40 or PV-KST4-EVO2/xy-UR,PVKBT4-EVO2/xy-UR(optional)
Module weight	21.6 kg (Tolerance +/- 1.0kg)
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 (410W)****Power-Voltage (410W)****Current-Voltage (410W)**

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