



ASTRONERGY



ASTRO N5s

CHSM60N(DG)/F-HC
Monofacial Series

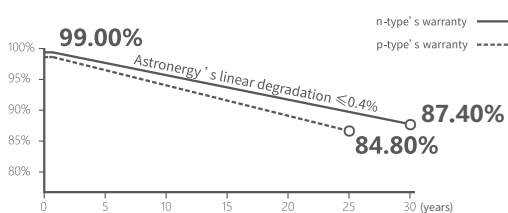
475~490W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 4.0

Novel upgrade, enhancing module efficiency



SMBB Design

Enhancing current collection, minimizing power loss



Better Temperature Coefficient

$\leq -0.29\%/^{\circ}\text{C}$, adapting for high temperature



Double-layer High-transmittance Glass

Enhancing light transmittance, effectively isolating moisture



IEC 61215, IEC 61730
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



475~490W

POWER RANGE

0~+3%

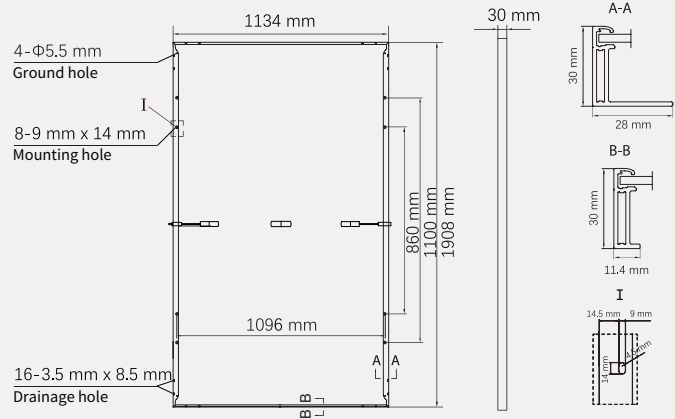
POWER SORTING

22.6%MAX MODULE
EFFICIENCY**≤ 1.0%**FIRST YEAR
POWER DEGRADATION**≤ 0.4%**YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

| | |
|--|--|
| Outer dimensions (L x W x H) | 1908 x 1134 x 30 mm |
| Cell type | n-type mono-crystalline |
| No. of cells | 120 (6*20) |
| Frame technology | Aluminum, black or silver anodized |
| Front / Back glass | 1.6+1.6 mm |
| Cable length (Including connector) | Portrait: (+)350 mm, (-)250 mm; Customized length |
| Cable diameter (IEC/UL) | 4 mm ² / 12 AWG |
| ① Maximum mechanical test load | 5400 Pa (front) / 2400 Pa (back) |
| Connector type (IEC/UL) | HCB40 / MC4-EVO2A (optional) |
| Module weight | 23 kg |
| Packing unit | 36 pcs / box |
| Weight of packing unit (for 40'HQ container) | 874kg |
| Modules per 40' HQ container | 864 pcs (Subject to sales contract) |

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



Electrical Specifications

STC: Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

| | 475 | 480 | 485 | 490 |
|---------------------------------|-------|-------|-------|-------|
| Rated output (Pmpp / Wp) | | | | |
| Rated voltage (Vmpp / V) | 36.39 | 36.52 | 36.65 | 36.77 |
| Rated current (Impp / A) | 13.05 | 13.14 | 13.23 | 13.33 |
| Open circuit voltage (Voc / V) | 43.31 | 43.46 | 43.61 | 43.76 |
| Short circuit current (Isc / A) | 13.80 | 13.91 | 14.02 | 14.12 |
| Module efficiency | 22.0% | 22.2% | 22.4% | 22.6% |

NMOT: Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

| | 357.2 | 361.0 | 364.7 | 368.5 |
|---------------------------------|-------|-------|-------|-------|
| Rated output (Pmpp / Wp) | | | | |
| Rated voltage (Vmpp / V) | 34.26 | 34.37 | 34.49 | 34.61 |
| Rated current (Impp / A) | 10.43 | 10.50 | 10.57 | 10.65 |
| Open circuit voltage (Voc / V) | 41.14 | 41.28 | 41.42 | 41.56 |
| Short circuit current (Isc / A) | 11.14 | 11.23 | 11.32 | 11.40 |

Temperature Ratings (STC)

| | | | |
|---|------------|------------------------------|---------------------|
| Temperature coefficient (Pmpp) | -0.29%/°C | No. of diodes | 3 |
| Temperature coefficient (Isc) | +0.043%/°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) | 1500V _{DC} |

Operating Parameters

Curve

