



ASTRONERGY

ASTRO N7s 2.0

CHSM48RN(DG)(BLH)/F-BH
Bifacial Series

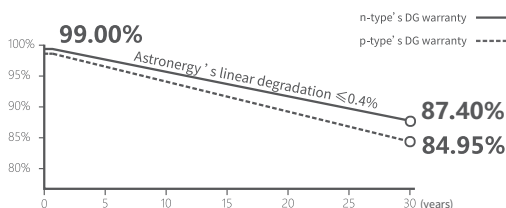
450~465W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 5.0

Newly upgraded cell technology, ultra-high product energy efficiency



ZBB Design

Zero-busbar integrated interconnection



Sleek Design

< 2 m² area, easy to transport and install



All-black Technology

Sleek crystalline black appearance, seamlessly blending into rooftops



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



450~465W

POWER RANGE

0~+3%

POWER SORTING

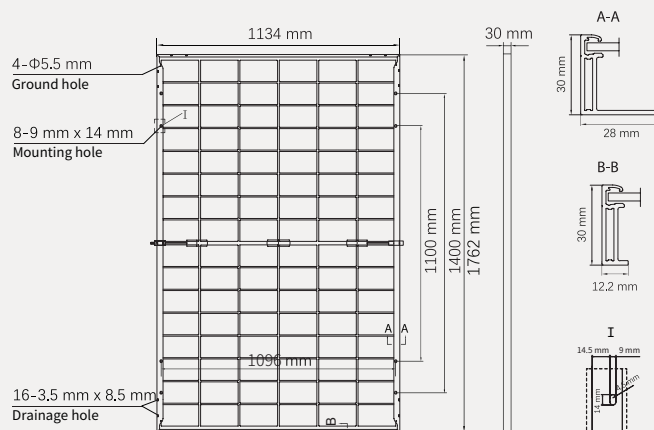
23.3%

MAX MODULE
EFFICIENCY $\leq 1.0\%$ FIRST YEAR
POWER DEGRADATION $\leq 0.4\%$ YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	96 (6*16)
Frame technology	Aluminum, black anodized
Front / Back glass	2.0+2.0 mm
Cable length (Including connector)	Landscape: 1200 mm; or Customized length
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	6000 Pa (front) / 4000 Pa (back)
Connector type (IEC/UL)	MC4-EVO2A (Standard) / HCB40 (Optional)
Module weight	24.5 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	927 kg
Modules per 40' HQ container	936 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, Power measurement tolerance: ±3%

Rated output (Pmpp / Wp)	450	455	460	465
Rated voltage (Vmpp / V)	30.51	30.65	30.78	30.80
Rated current (Impp / A)	14.75	14.85	14.94	15.10
Open circuit voltage (Voc / V)	36.59	36.75	36.91	36.93
Short circuit current (Isc / A)	15.61	15.71	15.81	15.84
Module efficiency	22.5%	22.8%	23.0%	23.3%

BNPI: Irradiance: front 1000W/m², rear 135W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp / Wp)	495.9	501.4	506.9	512.4
Rated voltage (Vmpp / V)	30.52	30.66	30.79	30.81
Rated current (Impp / A)	16.25	16.35	16.46	16.63
Open circuit voltage (Voc / V)	36.60	36.76	36.92	36.94
Short circuit current (Isc / A)	17.28	17.39	17.50	17.53

Temperature Ratings (STC)

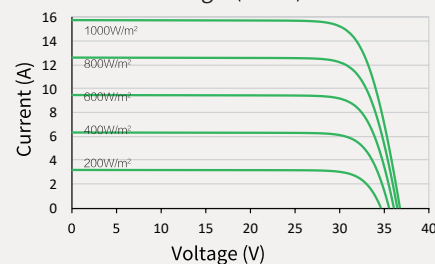
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.25%/°C

Operating Parameters

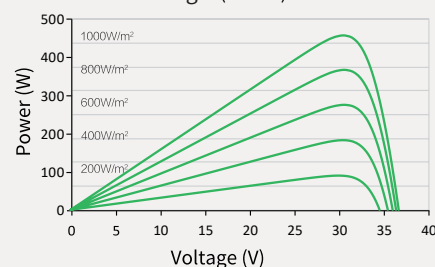
Operating Temperature	-40°C ~+85°C
Bifaciality (Pmpp)	80±5%
Junction box IP rating	IP 68
Max. series fuse rating	30 A
Max. system voltage (IEC/UL)	1500V _{DC}

Curve

Current-Voltage (460W)



Power-Voltage (460W)



Current-Voltage (460W)

