



ASTRONERGY



ASTRO N7s

CHSM54RN_s(DG)/F-BH
Bifacial Series

440~460W

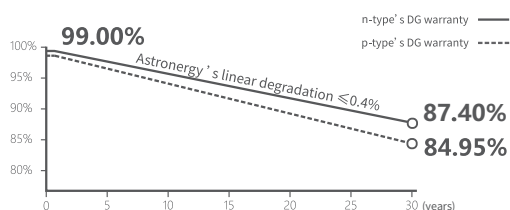
Warranty

30

30-year Product Warranty
(Specified for rooftop market)

30

30-year Linear Power Warranty
(Only to the front-side of modules)



Key Features

- High efficiency n-type TOPCon cells
- Elegant Zero Busbar design
- Dual glass for improved durability
- Manufacturing with AI technology
- Suitable for residential systems
- Easy to install and transport



ISO 9001:2015:ISO Quality Management System
ISO 14001:2015:ISO Environment Management System
ISO 45001:Occupational Health and Safety



Tier 1
BloombergNEF



440~460W

POWER RANGE

0~+3%

POWER SORTING

23.0%

MAX MODULE
EFFICIENCY

≤ 1.0%

FIRST YEAR
POWER DEGRADATION

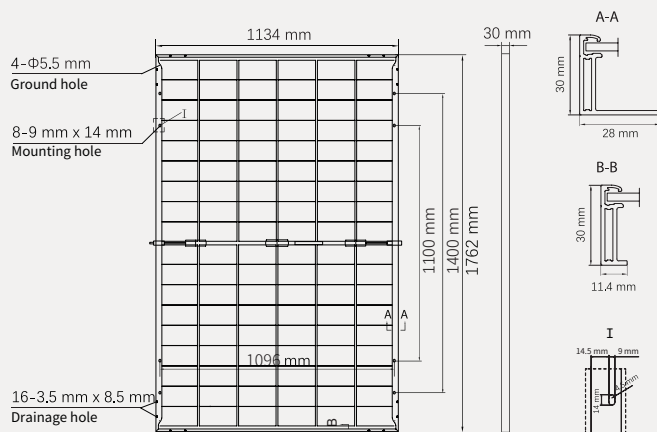
≤ 0.4%

YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, silver or black 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)	PV-HCB40 (Chint New Energy) or PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy (Stäubli)
Module weight	21.5 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	820 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 CHSM54RNs(DG)/F-BH-XXX(XXX=440~460)

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

Rated output (P _{mp} / W _p)	440	445	450	455	460
Rated voltage (V _{mp} / V)	32.61	32.77	32.94	33.11	33.28
Rated current (I _{mp} / A)	13.49	13.58	13.66	13.74	13.82
Open circuit voltage (V _{oc} / V)	38.80	39.00	39.20	39.40	39.60
Short circuit current (I _{sc} / A)	14.18	14.26	14.35	14.44	14.52
Module efficiency	22.0%	22.3%	22.5%	22.8%	23.0%

Tolerance: P_{mp} ±3%, V_{oc} ±3% and I_{sc} ±4%.

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

Rated output (P _{mp} / W _p)	485	490	495	500	505
Rated voltage (V _{mp} / V)	32.44	32.61	32.77	32.94	33.11
Rated current (I _{mp} / A)	14.95	15.03	15.10	15.18	15.25
Open circuit voltage (V _{oc} / V)	38.60	38.80	39.00	39.20	39.40
Short circuit current (I _{sc} / A)	15.78	15.87	15.95	16.02	16.10

Bifaciality(P_{mp}/I_{sc}) : 80±5 %, Bifaciality(V_{oc}) : 98±2 %

Electrical characteristics with 10% Bifacial Gains

Rated output (P _{mp} / W _p)	484	490	495	501	506
Rated voltage (V _{mp} / V)	32.61	32.77	32.94	33.11	33.28
Rated current (I _{mp} / A)	14.84	14.94	15.03	15.12	15.21
Open circuit voltage (V _{oc} / V)	38.80	39.00	39.20	39.40	39.60
Short circuit current (I _{sc} / A)	15.59	15.69	15.78	15.88	15.97

Operating Parameters

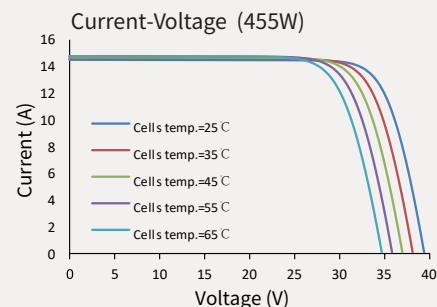
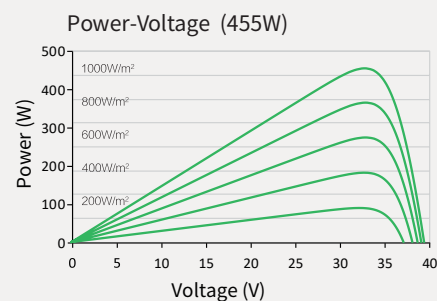
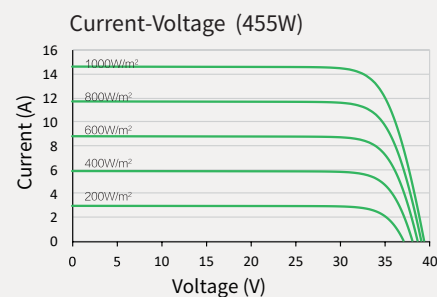
No. of diodes	3
Junction box IP rating	IP 68
Max. series fuse rating	30 A
Max. system voltage (IEC/UL)	1500V _{DC}

Fire performance: Class C

Temperature Ratings (STC)

Temperature coefficient (P _{mp})	-0.29%/°C
Temperature coefficient (I _{sc})	+0.043%/°C
Temperature coefficient (V _{oc})	-0.25%/°C

Curve



Made in China, Made in Turkey.

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