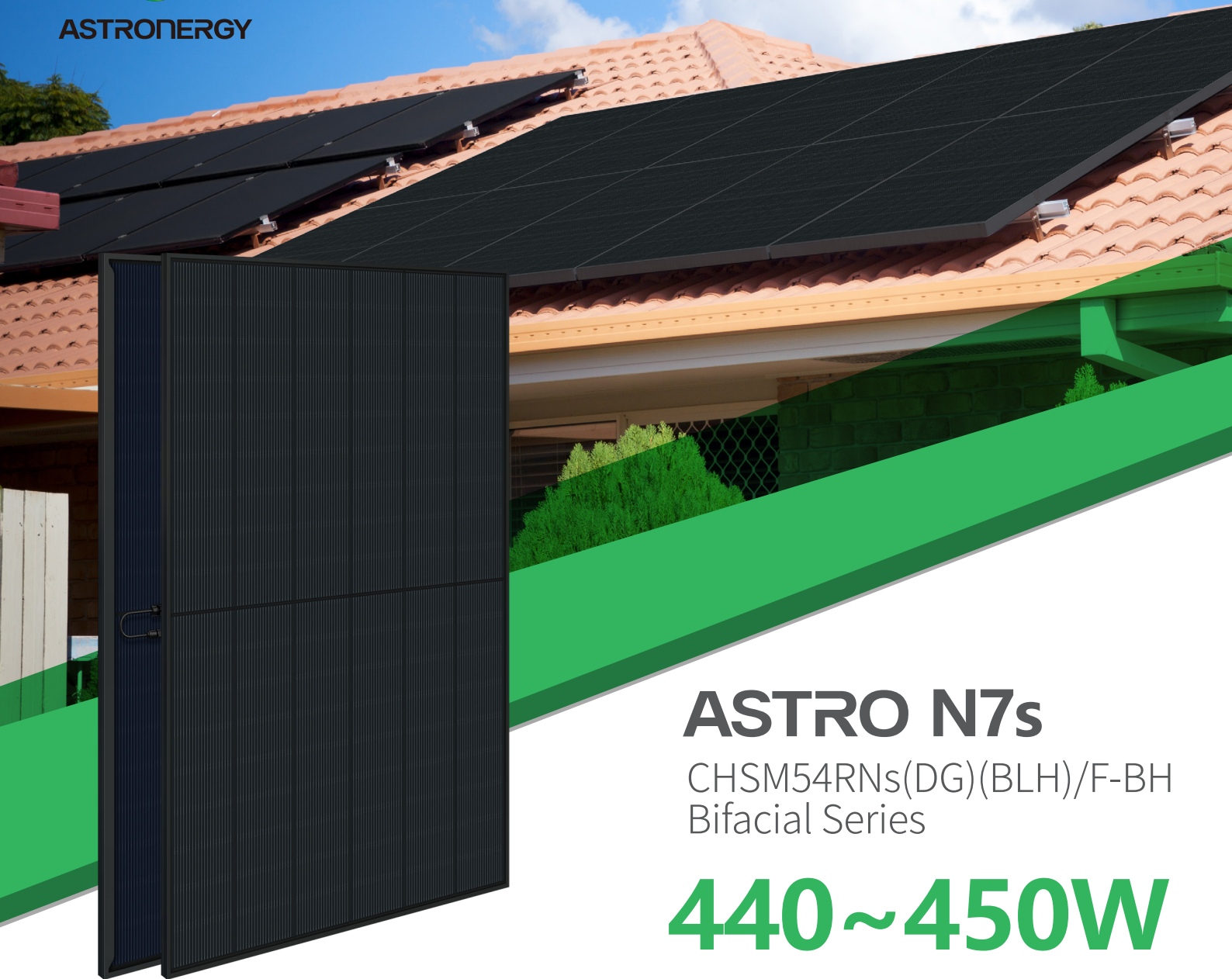




ASTRONERGY



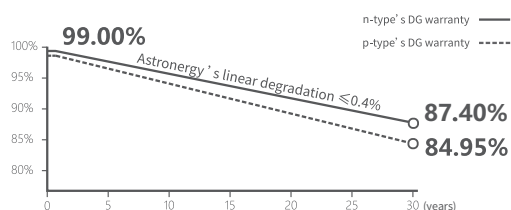
ASTRO N7s

CHSM54RN_s(DG)(BLH)/F-BH
Bifacial Series

440~450W

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



440~450W

POWER RANGE

0~+3%

POWER SORTING

22.5%

MAX MODULE
EFFICIENCY

≤ 1.0%

FIRST YEAR
POWER DEGRADATION

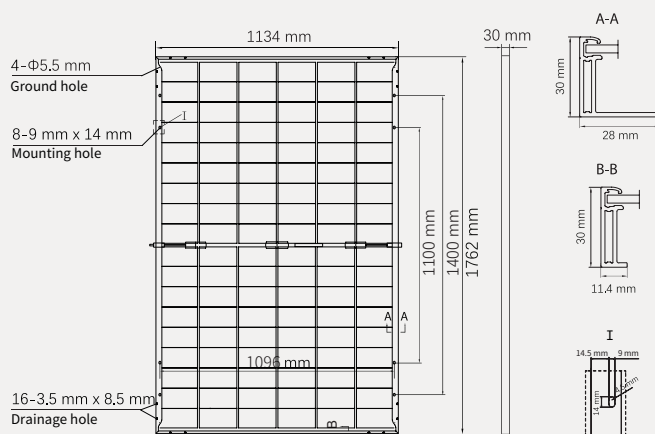
≤ 0.4%

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, 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 CHSM54RN5(DG)(BLH)/F-BH-XXX(XXX=440~450)

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

Rated output (Pmpp / Wp)	440	445	450
Rated voltage (Vmpp / V)	33.05	33.22	33.39
Rated current (Impp / A)	13.31	13.40	13.48
Open circuit voltage (Voc / V)	39.00	39.20	39.40
Short circuit current (Isc / A)	14.10	14.19	14.28
Module efficiency	22.0%	22.3%	22.5%

Tolerance: Pmpp ±3%, Voc ±3% and Isc ±4%.

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

Rated output (Pmpp / Wp)	480	485	490
Rated voltage (Vmpp / V)	32.61	32.77	32.94
Rated current (Impp / A)	14.72	14.80	14.88
Open circuit voltage (Voc / V)	38.80	39.00	39.20
Short circuit current (Isc / A)	15.54	15.62	15.70

Bifaciality(Pmpp/Isc) : 80±5 %, Bifaciality(Voc) : 98±2 %

Electrical characteristics with 10% Bifacial Gains

Rated output (Pmpp / Wp)	480	485	490
Rated voltage (Vmpp / V)	32.61	32.77	32.94
Rated current (Impp / A)	14.72	14.80	14.88
Open circuit voltage (Voc / V)	38.80	39.00	39.20
Short circuit current (Isc / A)	15.54	15.62	15.70

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}

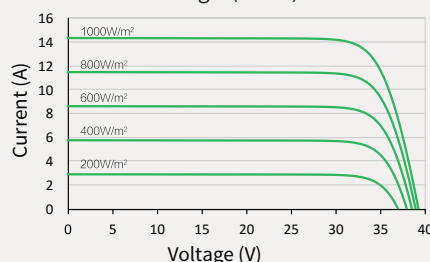
Fire performance: Class C

Temperature Ratings (STC)

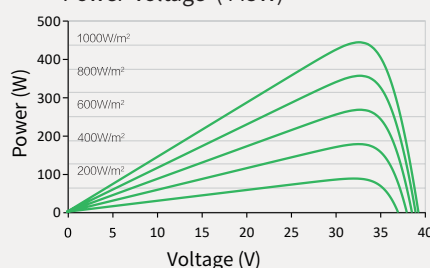
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.25%/°C

Curve

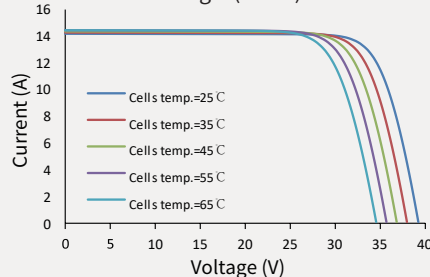
Current-Voltage (445W)



Power-Voltage (445W)



Current-Voltage (445W)



Made in China, Made in Turkey.

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