

Special for Energy3000



ASTRONERGY

ASTRO N7s

CHSM54RNs(DG)/F-BH
Bifacial Series

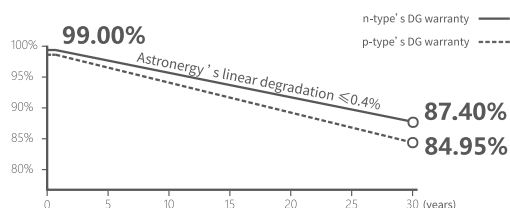
445~465W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 4.0

Novel upgrade, enhancing module efficiency



ZBB-TF (Tiling Film)

Zero-busbar integrated interconnection



Sleek Design

$\leq 2 \text{ m}^2$ area, easy to transport and install



Integrated Appearance

Streamlined design without busbars or harpoon-like ribbons, perfect for upscale zero-carbon buildings



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



445~465W

POWER RANGE

0~+3%

POWER SORTING

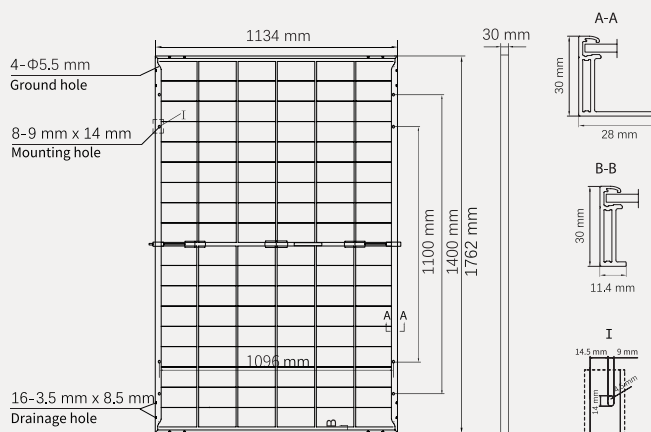
23.3%

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	108 (6*18)
Frame technology	Aluminum, black or silver anodized
Front / Back glass	1.6+1.6 mm
Cable length (Including connector)	1200 mm
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 (Standard) / MC4-EVO2A (Optional)
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

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

Rated output (Pmpp / Wp)	445	450	455	460	465
Rated voltage (Vmpp / V)	32.77	32.94	33.11	33.28	33.45
Rated current (Impp / A)	13.58	13.66	13.74	13.82	13.90
Open circuit voltage (Voc / V)	39.00	39.20	39.40	39.60	39.80
Short circuit current (Isc / A)	14.26	14.35	14.44	14.52	14.60
Module efficiency	22.3%	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)	490	495	500	505	510
Rated voltage (Vmpp / V)	32.78	32.95	33.12	33.29	33.45
Rated current (Impp / A)	14.95	15.02	15.10	15.17	15.24
Open circuit voltage (Voc / V)	39.01	39.21	39.41	39.61	39.81
Short circuit current (Isc / A)	15.79	15.87	15.95	16.02	16.10

Temperature Ratings (STC)

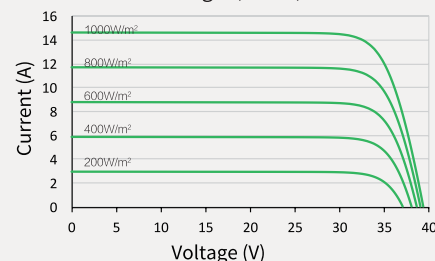
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.25%/°C

Operating Parameters

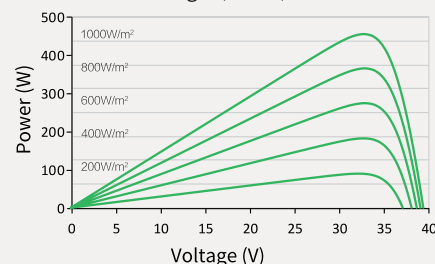
Bifaciality (Pmpp)	80±5%
Junction box IP rating	IP 68
Max. series fuse rating	30 A
Max. system voltage (IEC/UL)	1500V _{DC}

Curve

Current-Voltage (455W)



Power-Voltage (455W)



Current-Voltage (455W)

