



ASTRONERGY



ASTRO N7s 2.0

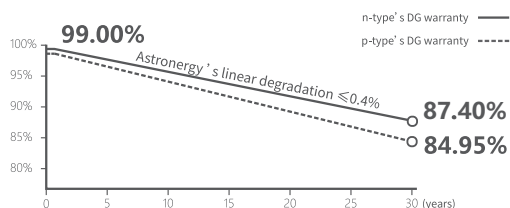
CHSM48RN(DGT)(BLH)/F-BH
Bifacial Series

450~465W

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
- 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



450~465W

POWER RANGE

±5W

POWER SORTING

23.3%

MAX MODULE
EFFICIENCY

≤ 1.0%

FIRST YEAR
POWER DEGRADATION

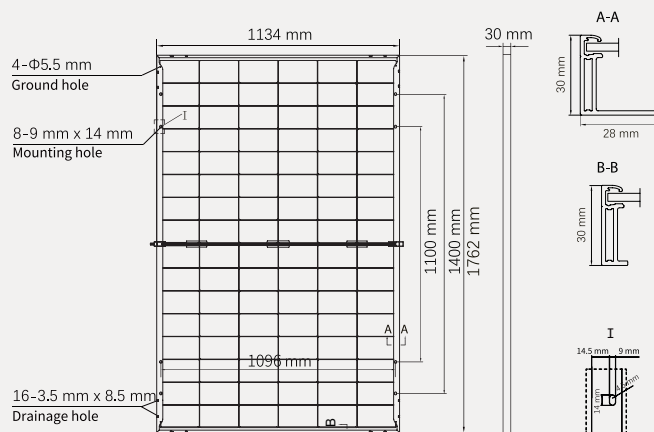
≤ 0.4%

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	96 (6*16)
Frame technology	Aluminum, black anodized
Front / Back glass	2.0+2.0 mm (1.6+1.6 mm optional)
Cable length (Including connector)	landscape: (+) 1200mm, (-) 1200mm; 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-KST4EVO2A/xy, PV-KBT4-EVO2A/xy (Staubli) (standard) or PV-HCB40 (Chint New Energy) (optional)
Module weight	24.5 kg (21.5 kg for 1.6 mm glass)
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	927 kg (820 kg for 1.6 mm glass)
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 CHSM48RN(DGT)(BLH)/F-BH-XXX(XXX=450~465)

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

Rated output (P _{mpp} / Wp)	450	455	460	465
Rated voltage (V _{mpp} / V)	30.37	30.51	30.52	30.60
Rated current (I _{mpp} / A)	14.82	14.91	15.07	15.19
Open circuit voltage (V _{oc} / V)	36.46	36.62	36.64	36.74
Short circuit current (I _{sc} / A)	15.66	15.76	15.79	15.89
Module efficiency	22.5%	22.8%	23.0%	23.3%

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

BNPI & BSI: Bifaciality(φP_{mpp}/φI_{sc}) : 80±5 %, Bifaciality(φV_{oc}) : 98±5 %

Rated output (P _{mpp} / Wp)	495.9	501.4	506.9	512.4
Rated voltage (V _{mpp} / V)	30.38	30.52	30.53	30.61
Rated current (I _{mpp} / A)	16.32	16.43	16.60	16.74
Open circuit voltage (V _{oc} / V)	36.47	36.64	36.65	36.75
Short circuit current (I _{sc} / A)	17.34	17.45	17.47	17.58
I _{sc} aBSI (BSI)	19.39	19.52	19.53	19.65

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

aBSI (BSI) : Irradiance: front 1000W/m², rear 300W/m²

Electrical characteristics with 10% Bifacial Gains

Rated output (P _{mpp} / Wp)	495.00	501.00	506.00	511.50
Rated voltage (V _{mpp} / V)	30.37	30.51	30.52	30.60
Rated current (I _{mpp} / A)	16.30	16.41	16.58	16.71
Open circuit voltage (V _{oc} / V)	36.47	36.63	36.64	36.74
Short circuit current (I _{sc} / A)	17.23	17.34	17.37	17.48

Temperature Ratings (STC)

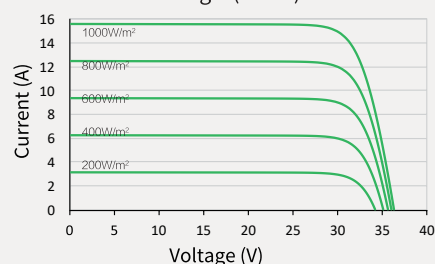
Temperature coefficient (P _{mpp})	-0.29%/°C
Temperature coefficient (I _{sc})	+0.043%/°C
Temperature coefficient (V _{oc})	-0.25%/°C
Fire performance: Class C	

Operating Parameters

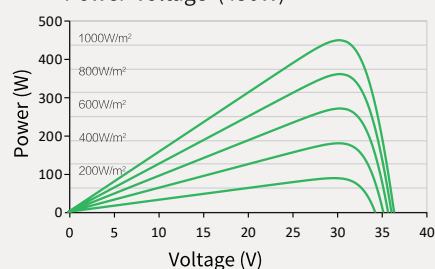
Operating Temperature	-40°C ~+85°C
No. of diodes	3
Junction box IP rating	IP 68
Max. series fuse rating	30 A
Max. system voltage (IEC/UL)	1500V _{DC}
Module [T ₉₈] max[°C]: 70	

Curve

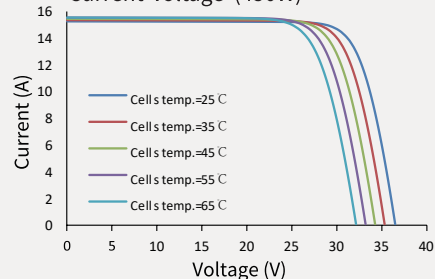
Current-Voltage (450W)



Power-Voltage (450W)



Current-Voltage (450W)



Made in China, Made in Turkey.

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