



ASTRONERGY



ASTRO 5 Twins

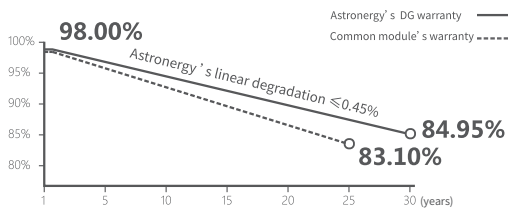
CHSM78M(DG)/F-BH
Bifacial Series(182)

580~595W

Warranty

15 15-year Product Warranty

30 30-year Linear Power Warranty



Key Features

- PERC+ / Half-cut
- Non-destructive cutting
- PID resistance
- Low BOS cost & LCOE
- Bifacial gain



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



580~595W

POWER RANGE

0~+5W

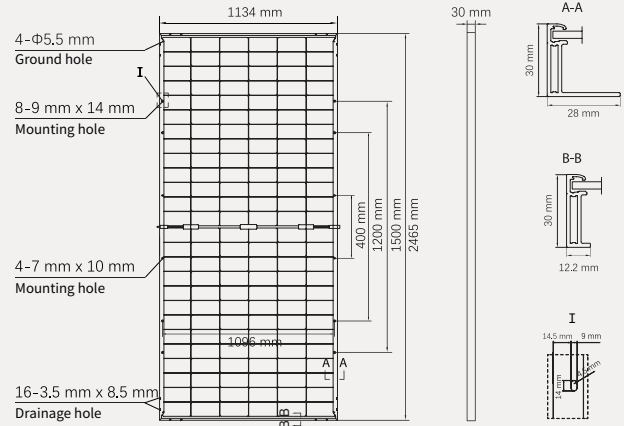
POWER SORTING

21.3%MAX MODULE
EFFICIENCY**≤ 2.0%**FIRST YEAR
POWER DEGRADATION**≤ 0.45%**YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	2465 x 1134 x 30 mm
Cell type	P type mono-crystalline
No. of cells	156 (6*26)
Frame technology	Aluminum, silver anodized
Front / Back glass	2.0+2.0 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)	HCB40 (Standard) / MC4-EVO2A (Optional)
Module weight	34.7 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	1304 kg
Modules per 40' HQ container	576 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

	580	585	590	595
Rated output (Pmpp / Wp)	580	585	590	595
Rated voltage (Vmpp / V)	45.26	45.43	45.60	45.76
Rated current (Impp / A)	12.82	12.88	12.94	13.00
Open circuit voltage (Voc / V)	53.86	54.06	54.26	54.46
Short circuit current (Isc / A)	13.58	13.66	13.75	13.83
Module efficiency	20.7%	20.9%	21.1%	21.3%

NMOT: Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

	433.4	437.2	440.9	444.6
Rated output (Pmpp / Wp)	433.4	437.2	440.9	444.6
Rated voltage (Vmpp / V)	42.18	42.34	42.49	42.65
Rated current (Impp / A)	10.28	10.33	10.38	10.43
Open circuit voltage (Voc / V)	50.90	51.09	51.27	51.46
Short circuit current (Isc / A)	11.02	11.08	11.15	11.22

Electrical Specifications (Integrated power)

Pmpp gain	Pmpp / Wp	Vmpp / V	Impp / A	Voc / V	Isc / A
5%	620	45.60	13.59	54.26	14.43
10%	649	46.44	13.98	55.26	14.85
15%	679	47.29	14.35	56.27	15.24
20%	708	48.13	14.71	57.27	15.63
25%	738	48.97	15.06	58.28	16.00

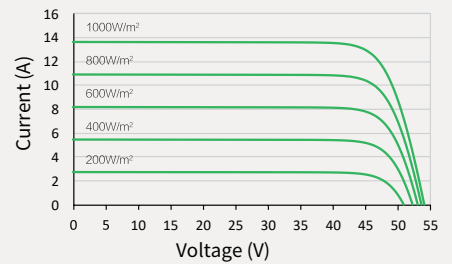
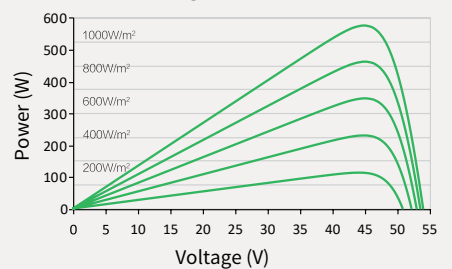
Electrical characteristics with different rear power gain (reference to 590W)

Temperature Ratings (STC)

Operating Parameters

Temperature coefficient (Pmpp)	-0.34%/°C	No. of diodes	3
Temperature coefficient (Isc)	+0.04%/°C	Junction box IP rating	IP 68
Temperature coefficient (Voc)	-0.25%/°C	Max. series fuse rating	30 A
Nominal module operating temperature (NMOT)	41±2° C	Max. system voltage (IEC/UL)	1500V _{DC}

Curve

Current-Voltage (590W)**Power-Voltage (590W)****Current-Voltage (590W)**