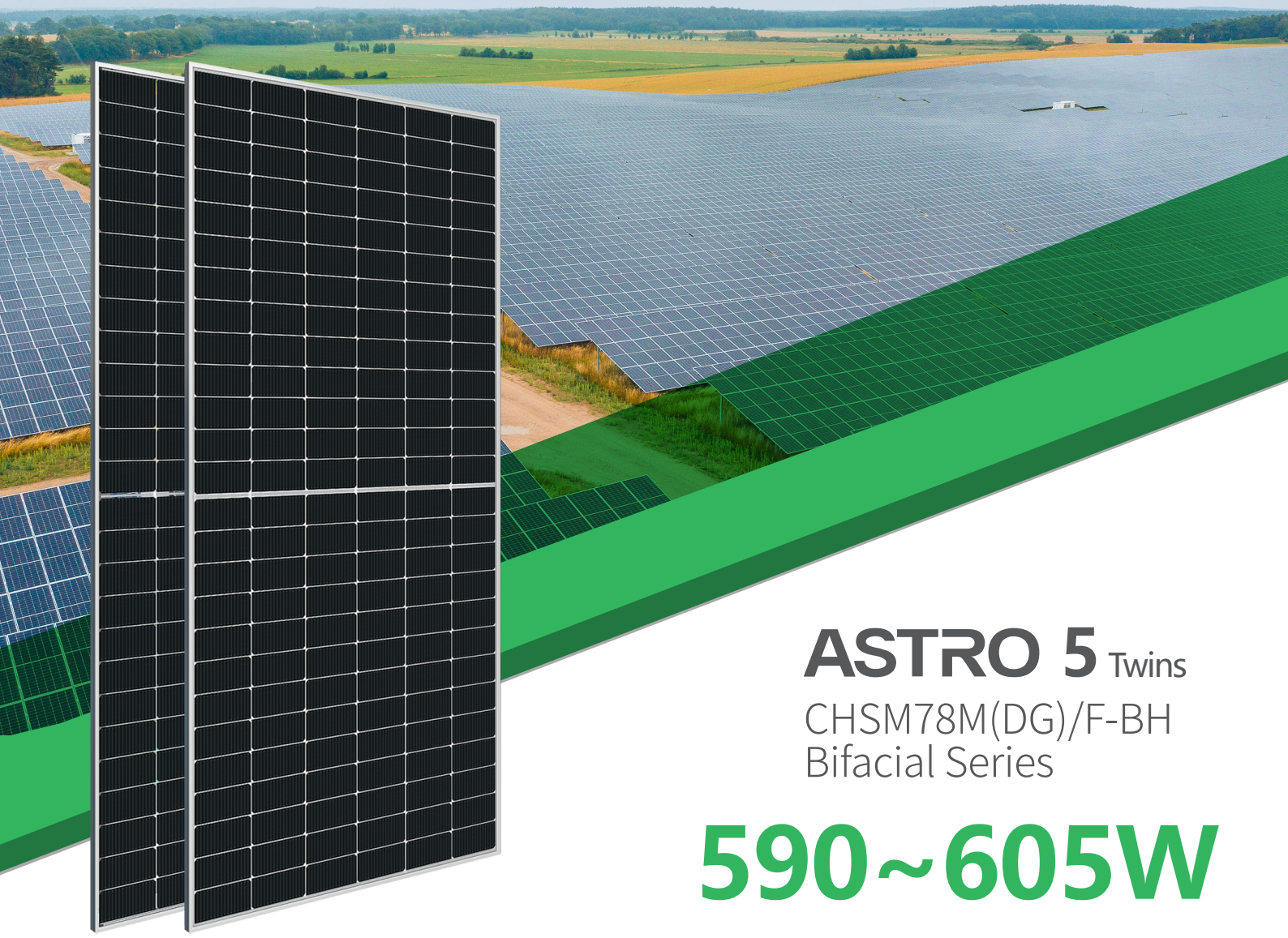
ASTRONERGY



ASTRO 5 Twins

CHSM78M(DG)/F-BH
Bifacial Series

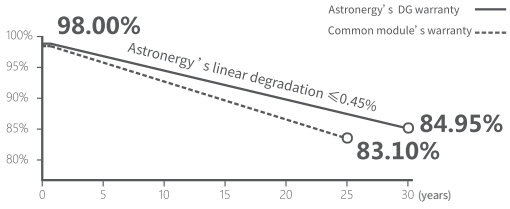
590~605W

Assist carbon neutrality CO_2

Warranty

15 15-year Product Warranty

30 30-year Linear Power Warranty



PERC+ Technology
Upgraded PERC, empowering PV module

SMBB Design
Enhancing current collection, minimizing power loss

Bifacial Power Generation
Maximizing bifaciality, boosting backside power output

Non-destructive cutting
Improved cell bending strength, ensuring mechanical performance

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

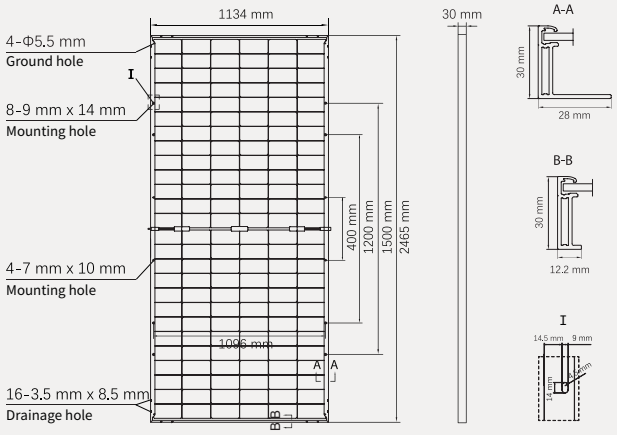
Tier 1 BloombergNEF

Underwritten by International Insurer

590~605W	0~+3%	21.6%	≤ 2.0%	≤ 0.45%
POWER RANGE	POWER SORTING	MAX MODULE EFFICIENCY	FIRST YEAR POWER DEGRADATION	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/m^2, Cell Temperature 25° C, AM=1.5

Rated output (Pmpp / Wp)	590	595	600	605
Rated voltage (Vmpp / V)	45.60	45.76	45.93	46.10
Rated current (Impp / A)	12.94	13.00	13.06	13.12
Open circuit voltage (Voc / V)	54.26	54.46	54.66	54.86
Short circuit current (Isc / A)	13.75	13.83	13.91	13.98
Module efficiency	21.1%	21.3%	21.5%	21.6%

NMOT: Irradiance 800W/m^2, Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp / Wp)	440.9	444.6	448.4	452.1
Rated voltage (Vmpp / V)	42.49	42.65	42.81	42.96
Rated current (Impp / A)	10.38	10.43	10.47	10.52
Open circuit voltage (Voc / V)	51.27	51.46	51.65	51.84
Short circuit current (Isc / A)	11.15	11.22	11.29	11.34

Electrical Specifications (Integrated power)

Pmpp gain	Pmpp / Wp	Vmpp / V	Impp / A	Voc / V	Isc / A
5%	630	45.93	13.72	54.66	14.61
10%	660	45.93	14.37	54.66	15.30
15%	690	45.94	15.02	54.67	16.00
20%	720	45.94	15.68	54.67	16.70
25%	750	45.95	16.33	54.68	17.39

Electrical characteristics with different rear power gain (reference to 600W)

Temperature Ratings (STC)

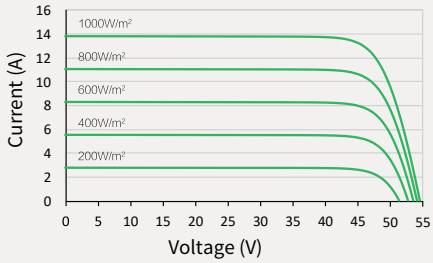
Temperature coefficient (Pmpp)	-0.34%/°C
Temperature coefficient (Isc)	+0.04%/°C
Temperature coefficient (Voc)	-0.25%/°C
Nominal module operating temperature (NMOT)	41±2°C

Operating Parameters

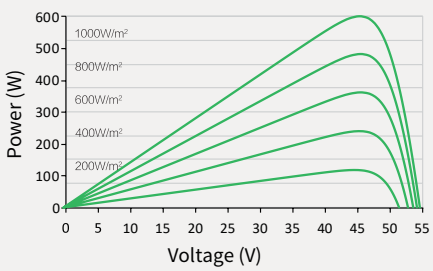
No. of diodes	3
Junction box IP rating	IP 68
Max. series fuse rating	30 A
Max. system voltage (IEC/UL)	1500V_{DC}

Curve

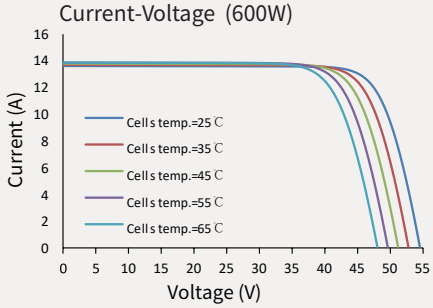
Current-Voltage (600W)



Power-Voltage (600W)



Current-Voltage (600W)



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