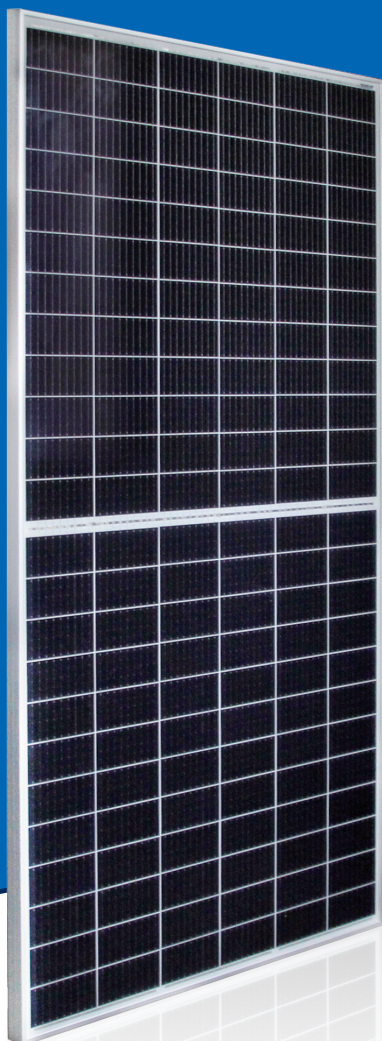


AstroTwins™

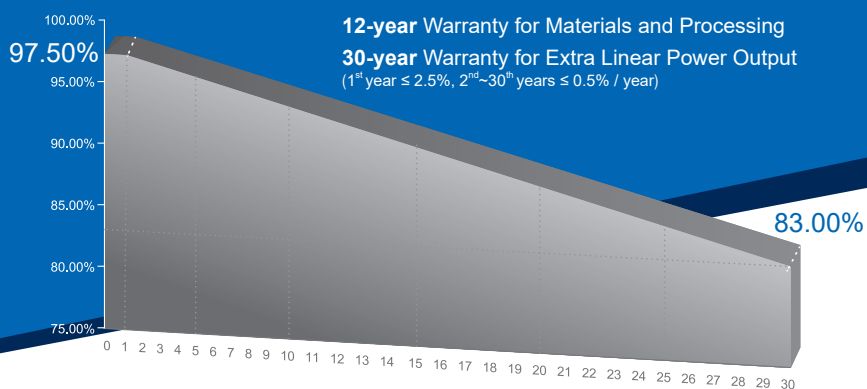
Enjoy the Energy of the Universe



405W~415W

P-type Monocrystalline PV Module
CHSM72M(DG)/F-BH Series (158.75)

CHSM72M(DG)/F-BH is bifacial module with white glazed glass



KEY FEATURES

- OUTPUT POSITIVE TOLERANCE**
 Guaranteed 0~+5W positive tolerance ensures power output reliability.
- ENHANCED FIRE PERFORMANCE**
 Fire Class A certified according to IEC standard.
- EXCELLENT WEATHER RESISTANCE**
 Reduces the cell micro-crack and extended product warranty.
- BIFACIAL POWER**
 The backside makes use of the reflected and scattered light from the surroundings, the modules can yield up to 5%~30% power more, depending on the albedo.
- REDUCE INTERNAL MISMATCH LOSS**
 Reduces mismatch loss and improves output.
- APPLICABLE FOR MULTI DIFFERENT ENVIRONMENTS**
 The wide range of applications, such as BIPV, vertical installation, snow area, high humidity area and strong sandstorm area, etc.
- SNAIL TRAIL RESISTANCE**
 Reduces the probability of snail trails with zero water vapor transmittance.

COMPREHENSIVE CERTIFICATES



First solar company which passed the TUV Nord IEC/TS 62941 certification audit.

For Global Market



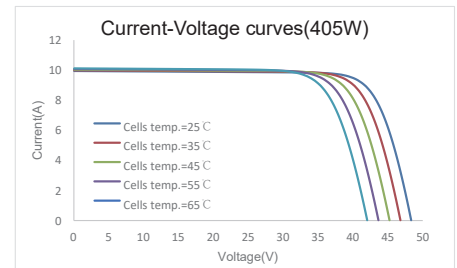
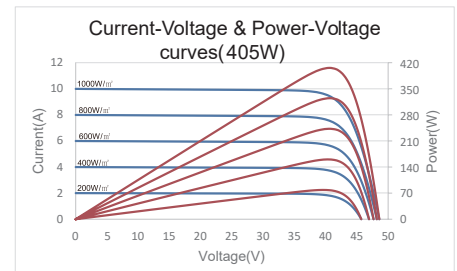
ASTRONERGY
A CHNT COMPANY

ELECTRICAL SPECIFICATIONS

Power rating (front)	405 Wp		410 Wp		415 Wp	
	Front	Back	Front	Back	Front	Back
Testing Condition	Front	Back	Front	Back	Front	Back
STC rated output (P_{mpp}/Wp)*	405	285	410	289	415	292
Rated voltage (V_{mpp}/V) at STC	40.89	41.10	41.10	41.31	41.31	41.52
Rated current (I_{mpp}/A) at STC	9.91	6.94	9.98	6.99	10.05	7.04
Open circuit voltage (V_{oc}/V) at STC	48.42	46.99	48.60	47.17	48.78	47.34
Short circuit current (I_{sc}/A) at STC	10.38	7.28	10.46	7.33	10.54	7.39
Module efficiency	19.7%	13.9%	19.9%	14.0%	20.2%	14.2%
Temperature coefficient (P_{mpp})	- 0.3528%/°C					
Temperature coefficient (I_{sc})	+0.0400%/°C					
Temperature coefficient (V_{oc})	- 0.2769%/°C					
Nominal module operating temperature (NMOT)	44±2°C					
Maximum system voltage (IEC/UL)	1500V _{DC}					
Number of diodes	3					
Junction box IP rating	IP 68					
Maximum series fuse rating	20 A					

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

CURVE



ELECTRICAL SPECIFICATIONS (Integrated power)

P_{mpp} gain	P_{mpp}	V_{mpp}	I_{mpp}	V_{oc}	I_{sc}
5%	425 Wp	40.89 V	10.40 A	48.42 V	10.90 A
10%	446 Wp	40.89 V	10.90 A	48.42 V	11.42 A
15%	466 Wp	40.79 V	11.42 A	48.52 V	11.94 A
20%	486 Wp	40.79 V	11.91 A	48.52 V	12.46 A
25%	506 Wp	40.79 V	12.41 A	48.52 V	12.98 A

Electrical characteristics with different rear power gain (reference to 405W)

MECHANICAL SPECIFICATIONS

Outer dimensions (L x W x H)	2038 x 1010 x 30 mm 80.24 x 39.76 x 1.18 in
Module composition	Glass / POE / Glass
Glass thickness	2.5 mm / 0.098 in
Cable length (IEC/UL)	Portrait: 350 mm (13.78 in) Landscape: 1200 mm (47.24 in)
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Fire performance (IEC/UL)	Class A (IEC) or Type 3 (UL)
Connector type (IEC/UL)	MC4 compatible

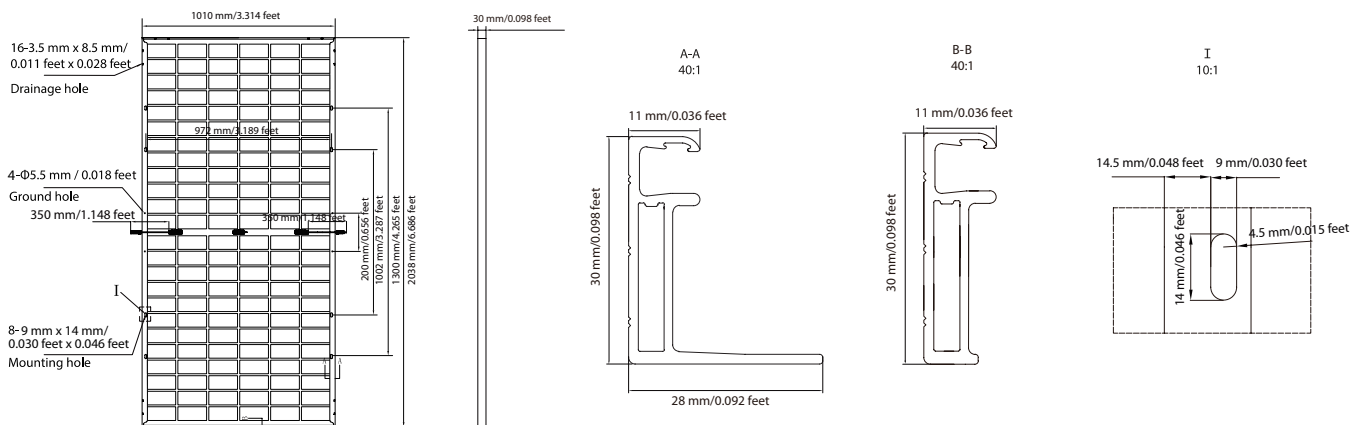
① Refer to Astronergy crystalline installation manual or contact technical department.
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

PACKING SPECIFICATIONS

① Weight (module only)	31.4 kg / 69.23 lbs
② Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	1177 kg / 2595 lbs
Number of modules per 40'HQ container	792 pcs

① Tolerance +/- 1.0kg
② Subject to sales contract

MODULE DIMENSION DETAILS



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