



Black

460~480W

Heterojunction Technology

Up to 21.96% efficiency for black module

166mm Cell

Unique 12BB HJT Cell with Half-cut design

SMBB Half-Cut Cell Technology

Black but transparent outfit, elegant for any rooftop

Up to 95% Bifaciality

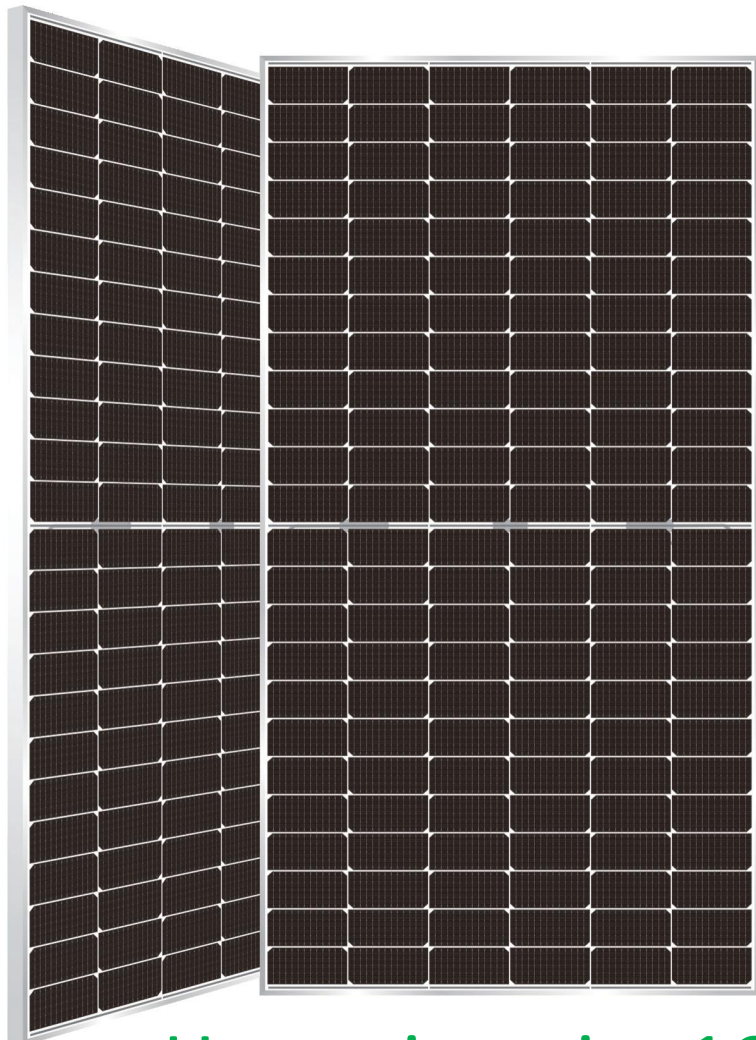
15/30 years warranty, long-term high performance ensured

Reliable, Durable Sustainable

WARRANTY

Product Warranty **15years**

Linear Power Warranty **30years**



Heterojunction 166mm Cell



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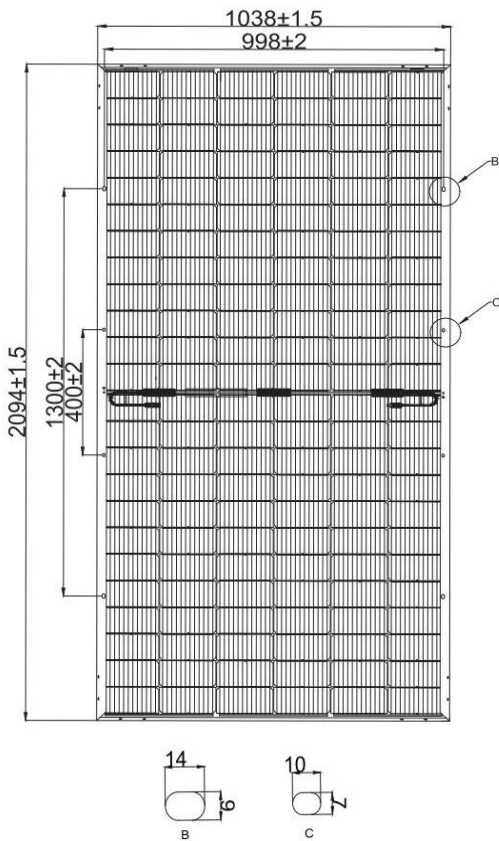


460w-480w

144-cell Bifacial Transparent HJT Half Cell Solar Module

Engineering Drawings

Unit: mm



Electrical Characteristics (STC*)

Model	HS-B144	HS-B144	HS-B144	HS-B144	HS-B144
	DSN460	DSN465	DSN470	DSN475	DSN480
Maximum Power (P _{max})	460W	465W	470W	475W	480W
Module Efficiency (%)	21.16%	21.39%	21.62%	21.85%	22.08%
Optimum Operating Voltage (V _{mp})	44.57V	44.63V	44.69V	44.75V	44.81V
Optimum Operating Current (I _{mp})	10.34A	10.43A	10.53A	10.63A	10.73A
Open Circuit Voltage (V _{oc})	53.48V	53.58V	53.68V	53.78V	53.88V
Short Circuit Current (I _{sc})	10.84A	10.94A	11.04A	11.14A	11.24A
Operating Module Temperature	-40 to +85 °C				
Maximum System Voltage	DC1500V (IEC)				
Maximum Series Fuse	20A				
Power Tolerance	0~+5W				
Bifaciality	90% ± 5%				

*STC: Irradiance 1000 W/m², cell temperature 25 °C, AM=1.5. Tolerance of P_{max} is within +/- 3%.

BSTC**

Maximum Power (P _{max})	515W	520W	525W	530W	535W
Optimum Operating Voltage (V _{mp})	46.44V	46.64V	46.84V	47.04V	47.24V
Optimum Operating Current (I _{mp})	11.19A	11.23A	11.27A	11.31A	11.35A
Open Circuit Voltage (V _{oc})	54.66V	54.92V	56.37V	55.97V	56.63V
Short Circuit Current (I _{sc})	11.58A	11.61A	11.64A	11.66A	11.69A

**BSTC: Front side irradiation 1000W/m², back side reflection irradiation 135W/m², AM=1.5, ambient temperature 25 °C.

Temperature Characteristics

Nominal Operating Cell Temp. (NOCT)	44 °C ± 2 °C
Temperature coefficient of P _{max}	-0.26%/°C
Temperature coefficient of V _{oc}	-0.24%/°C
Temperature coefficient of I _{sc}	0.04%/°C

Mechanical Characteristics

Cell Type	HJT Mono 166×83mm
Cell Connection	144 (72×2)
Module Dimension	2094×1038×30 mm
Weight	27.5 kg
Junction Box	IP67 / IP68
Output Cable	4mm ² , 1200mm in length, length can be customized / UV Resistant
Connectors Type	MC4 Compatible
Frame	Anodised Aluminum Alloy
Encapsulant	POE
Front Load	5400 Pa
Rear Load	2400 Pa
Glass Thickness	(F) 2.0mm Anti-reflective surface Solar glass (B) 2.0mm Solar glass

Safety & Warranty

Safety Class	Class II
Product Warranty	15 yrs Workmanship
Performance Warranty	30 yrs Linear Warranty*

* 1st year 99%, after 2nd year 0.375% annual degradation to year 30.



* Refer to HUASUN standard warranty for details

Shipping Configurations

	HC	GP
Container Length	40'	20'
Pallets Per Container	22	5
Modules Per Pallet (pcs)	36	36
Modules Per Container (pcs)	792	180