

## 144cells Monocrystalline Bifacial Dual Glass Module



### HRAP-144HBD 435-455M6

**20.93%**

Maximum Module Efficiency

**455W**

Maximum Power Output

Power Shorting Tolerance:0-3W

**2094×1038×30mm**

Module Dimensions

**0-3W**

**0-3W%**  
Guaranteed 0-3W positive tolerance ensures the power output reliability

**High customer value**

Lower cost per kilowatt hour.High quality silicon wafer guarantee, high power module output, excellent cost performance advantage, is an ideal choice for solar power stations

**Highly reliable due to stringent quality control**

Three times strict EL testing beyond certification requirements

**Fusion of MBB and half-cut cells technology**

The new circuit design, minimizes the impact of shadow on the power generation of solar module.Excellent light utilization and current collection capacity, effectively improve product power output and reliability

**Excellent Anti-PID performance**

Ensure that the scale production passes the PID test, and greatly reduce the attenuation caused by PID by optimizing the wafer process

**Outstanding low light performance**

The coated glass with high transmittance and the surface technology of the wafer are used to achieve excellent performance in low light environment

IEC 61215 / IEC 61730

Fire safty class:Class C according to UL790

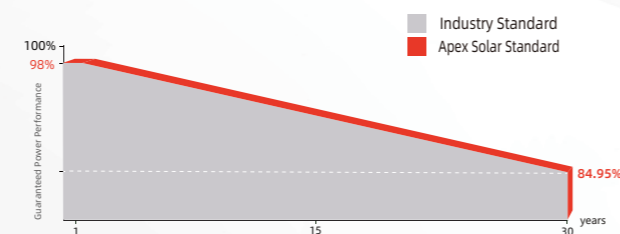
ISO 9001 :Quality Management System

ISO 14001 :Environment Management



**Industry Leading Linear Power Warranty**

12-year Warranty for Materials and Processing .30-year Warranty for Extra Linear Power Output



**12** Process Warranty

**30** Power Warranty

## High Efficiency Half-cells Solar Panel HRAP-144HBD 435-455M6

**ELECTRICAL PARAMETERS AT STC**

Rated Maximum Power(Pmax) [W]	435	440	445	450	455
Maximum Power Voltage(Vmp) [V]	40.97	41.2	41.44	41.67	41.9
Maximum Power Current(Impp) [A]	10.62	10.68	10.74	10.8	10.86
Open Circuit Voltage(Voc) [V]	49.05	49.3	49.55	49.8	50.05
Short Circuit Current(Isc) [A]	11.24	11.3	11.36	11.42	11.48
Module Efficiency [%]	20.01	20.24	20.47	20.7	20.93

STC: Irradiance 1000 W/m2 module temperature 25°C AM=1.5

**ELECTRICAL PARAMETERS AT NMOT**

Rated Maximum Power(Pmax)[W]	331.03	334.76	338.61	342.39	346.19
Maximum Power Voltage(Vmp) [V]	39.07	39.29	39.52	39.74	39.96
Maximum Power Current(Impp) [A]	8.47	8.52	8.57	8.62	8.66
Open Circuit Voltage(Voc) [V]	46.52	46.76	46.99	47.23	47.47
Short Circuit Current(Isc) [A]	9.04	9.09	9.14	9.19	9.24

NMOT: Irradiance 800 W/m2 ambient temperature 20°C wind speed: 1m/s

**BIFACIAL OUTPUT-REAR SIDE POWER GAIN**

5%	Maximum Power (Pmax) [W]	457	462	467	473	478
	Module Efficiency STC[%]	21.01	21.26	21.50	21.74	21.98
10%	Maximum Power (Pmax) [W]	479	484	490	495	501
	Module Efficiency STC[%]	22.01	22.27	22.52	22.77	23.03
20%	Maximum Power (Pmax) [W]	522	528	534	540	546
	Module Efficiency STC[%]	24.02	24.29	24.57	24.84	25.12

**MECHANICAL SPECIFICATION**

Cell Type	Monocrystalline
Cell Dimensions	166×166mm
Cell Arrangement	144(6×24)
Weight	27kg(±3%)
Module Dimensions	2094×1038×30mm
Cable	4.0 mm <sup>2</sup> positive/negative:300mm(11.8inches ),length Can be customized
Front Glass	2.0 mm (0.08 inches), High Transmission, ARCoated Heat Strengthened Glass
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
Frame	Anodized aluminium alloy
Junction Box	Protection class IP68
Connector	Mc4 Compatible
Mechanical Load	Front side 5400Pa/Rear side 2400Pa

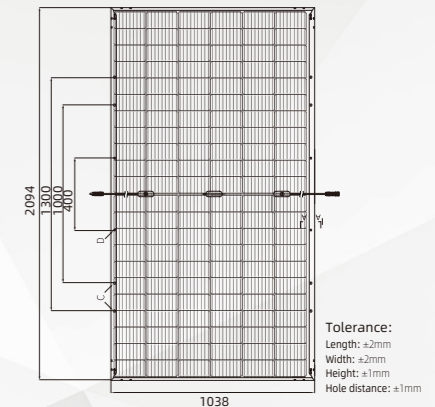
**OPERATING CONDITIONS**

Maximum System Voltage (V)	1000/1500VDC (IEC)
Pmax Temperature Coefficient	-0.34%/°C
Voc Temperature Coefficient	-0.28%/°C
ISC Temperature Coefficient	+0.05%/°C
Nominal Operating Cell Temperature	45±2°C
Operating Temperature	-40°C-+85°C
Maximum Series Fuse	20A

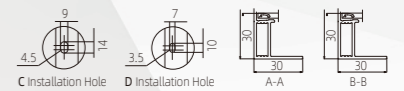
**PPACKING CONFIGURATION**

Quantity/Pallet	36pcs/pallet
Quantity/Container	825pcs/40HQ

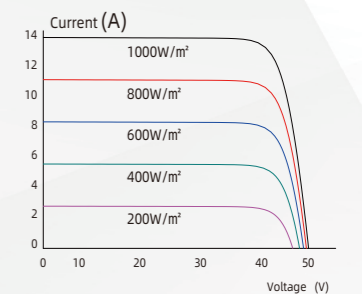
**Module Dimension(mm)**



Tolerance:  
Length: ±2mm  
Width: ±2mm  
Height: ±1mm  
Hole distance: ±1mm



**Current-Voltage Curve (455W)**



**Power-Voltage Curve (455W)**

