

## POWER RANGE

# 650-670W

## HNM8-TPLDD132 Series

Houen Solar 12BB HALF-CELL Bifacial Monocrystalline P - TYPE Solar Module

### KEY FEATURES



#### Excellent Cells Efficiency

MBB technology reduce the distance between busbars and finger grid line which is benefit to power increase.



#### Anti PID

Ensured PID resistance through the quality control of cell manufacturing process and raw materials.



#### Bifacial Technology

Up to 25% additional power gain from back side depending on albedo.



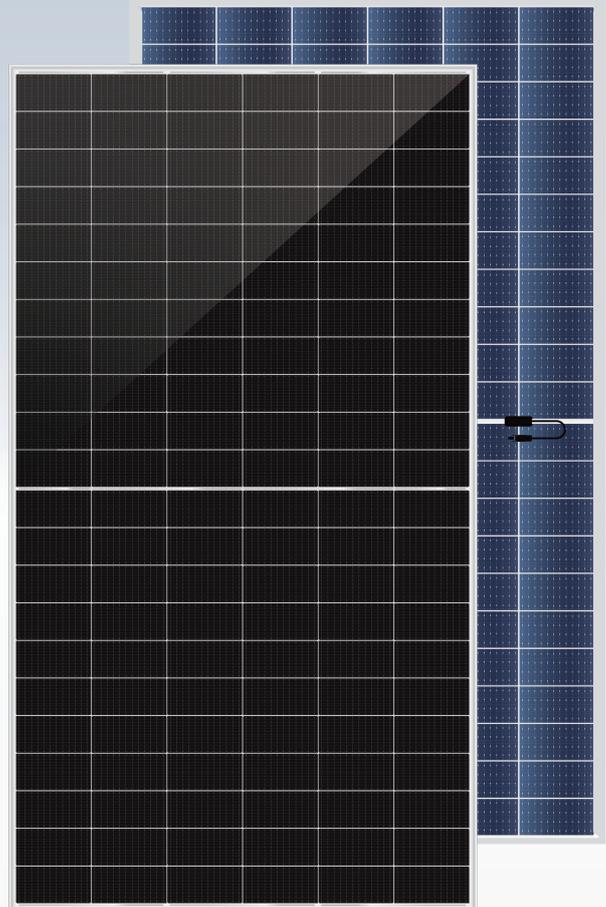
#### Better Weak Illumination Response

More power output in weak light condition, such as haze, cloudy, and early morning.

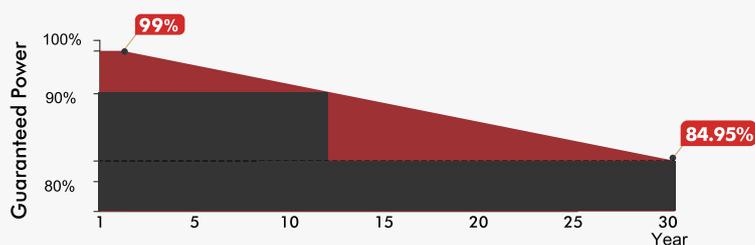


#### Adapt To Harsh Outdoor Environment

Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.



### LINEAR PERFORMANCE WARRANTY



### WARRANTY



Product Warranty



Power Warranty

### SYSTEM AND PRODUCT CERTIFICATIONS:

IEC61730, UL61730

ISO9001:2015: Quality Management System

ISO14001:2015: Environment Management System

ISO45001:2018 Occupational health and safety management systems



# 670W

MAXIMUM POWER OUTPUT

# 21.57%

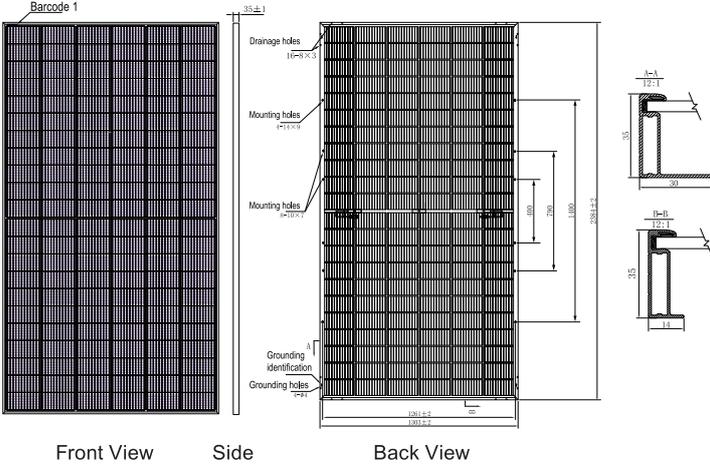
MAXIMUM EFFICIENCY

# 70±5%

BIFACIALITY

## DIMENSIONS OF PV MODULE

Unit: mm



\*Customized frame color available upon request.

## MECHANICAL DATA

Solar cells	Mono P-Type
Number of cells	132 (6x22)
Module dimension	2384x1303x35 (With Frame)
Weight	38,5±1 kg
Glass	2.0 mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction Box	IP68, 3 diodes
Cables	4 mm <sup>2</sup> , 1200mm (With Connectors)
Connectors	MC4-EVO2 (PV-KST4/6II-UR,PV-KBT4/6II-UR)

## PACKAGING CONFIGURATION

Container	40'HQ
Piece/Box	31
Piece/Container	558

\*Customized packaging is available upon request.

## ELECTRICAL CHARACTERISTICS

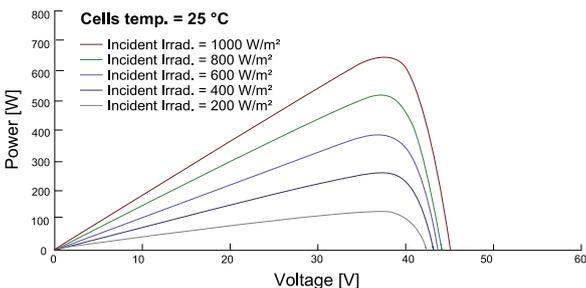
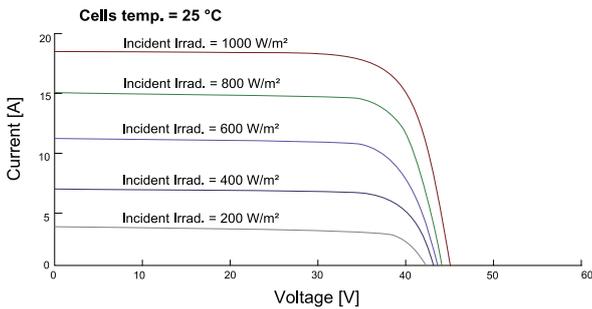
Module Type	HNM8-TPLDD132-650/M		HNM8-TPLDD132-655/M		HNM8-TPLDD132-660/M		HNM8-TPLDD132-665/M		HNM8-TPLDD132-670/M	
	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Nominal Power Watt Pmax(W)*	650	488.6	655	492.3	660	496.10	665	499.8	670	503.6
Maximum Power Voltage Vmp(V)	37.70	35.20	37.90	35.40	38.10	35.60	38.30	35.70	38.50	35.90
Maximum Power Current Imp(A)	17.25	13.88	17.29	13.92	17.33	13.95	17.37	13.99	17.41	14.03
Open Circuit Voltage Voc(V)	45.20	42.40	45.40	42.60	45.60	42.80	45.80	43.00	46.00	43.20
Short Circuit Current Isc(A)	18.27	14.75	18.32	14.79	18.37	14.83	18.42	14.87	18.47	14.91
Module Efficiency (%)	20.92		21.09		21.25		21.41		21.57	

\*The data above is for reference only and the actual data is in accordance with the practical testing  
 \*STC (Standard Test Condition): Irradiance 1000W/m<sup>2</sup>, Module Temperature 25±2°C, AM 1.5.  
 \*NMOT: Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s.  
 \*Measuring uncertainty: ±3%, Power tolerance: ±3%

\*Electrical data in this catalog do not refer to a single module and they are not part of the offer.  
 \*They only serve for comparison among different module types.  
 \*All the electrical characteristics such as Im, Vm, Isc, Voc and FF are within ±5% tolerance.

## I-V & P-V CURVES

(650W)



## BIFACIAL OUTPUT-REAR SIDE POWER GAIN

	Maximum Power (Pmax)	683Wp	688Wp	693Wp	698Wp	704Wp
5%	Maximum Efficiency STC (%)	21.97%	22.14%	22.31%	22.48%	22.65%
15%	Maximum Power (Pmax)	748Wp	753Wp	759Wp	765Wp	771Wp
	Maximum Efficiency STC (%)	24.06%	24.25%	24.43%	24.62%	24.80%
25%	Maximum Power (Pmax)	813Wp	819Wp	825Wp	831Wp	838Wp
	Maximum Efficiency STC (%)	26.16%	26.36%	26.56%	26.76%	26.96%

## WORKING CONDITIONS

Maximum System Voltage	1500VDC
Operating Temperature	-40°C~+85°C
Maximum Fuse Rating	35A
Rear Side Mechanical Load	2400Pa
Front Side Mechanical Load	5400Pa
Safety Class	Class II

## TEMPERATURE RATINGS

NMOT	44°C±2°C
Temperature coefficient of Pmax	-0.34%/°C
Temperature coefficient of Voc	-0.29%/°C
Temperature coefficient of Isc	0.05%/°C
Refer. Bifacial Factor	70±5%

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