



## Hitouch<sup>5N</sup>

### HN18RN-54HT

## 435-460W

### BIFACIAL

Black Frame Module

### 23.0%

Maximum Efficiency



#### Long-Term Reliability

Module certified to withstand 5400 Pa positive static load and 2400 Pa negative static load.

Excellent anti-PID performance to guarantee a better sustainability in harsh environment.



#### Lower Hot Spot and Crack Risk

Reduce hot-spot risk with optimized electrical design and lower operating current.

Reduce crack risk by optimization of solar cell design.



#### Higher Power Output

Higher module conversion efficiency benefit from bigger wafer and half-cell structure.

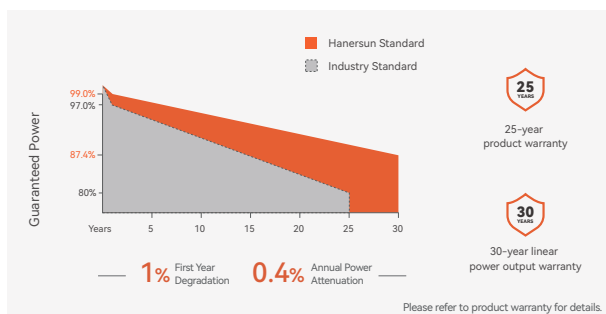
Better light trapping and current collection to improve module power output and reliability.



#### Excellent Temperature Coefficient

Lower operating temperature and temperature coefficient increases the power output.

### Power Warranty



### Certificates



Warranty partner

**Munich RE**

15Y Product / 30Y Linear Power Warranty under Munich Re insurance.

### About Hanersun

Hanersun is a world-leading clean energy company, focusing on R&D, manufacturing and distribution of solar module and energy storage system, as well as comprehensive clean energy solutions. Committed to high-efficiency technologies, the company is one of the first to launch PV modules of 600W+ and 700W+ in the industry.

## Electrical Characteristics (STC)

| Module Type                 | HN18RN-54HT435W | HN18RN-54HT440W | HN18RN-54HT445W | HN18RN-54HT450W | HN18RN-54HT455W | HN18RN-54HT460W |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Maximum Power (Pmax)        | 435             | 440             | 445             | 450             | 455             | 460             |
| Maximum Power Voltage (Vmp) | 32.29           | 32.47           | 32.65           | 32.82           | 33.00           | 33.18           |
| Maximum Power Current (Imp) | 13.47           | 13.55           | 13.63           | 13.71           | 13.79           | 13.87           |
| Open-circuit Voltage (Voc)  | 38.70           | 38.90           | 39.10           | 39.30           | 39.50           | 39.70           |
| Short-circuit Current (Isc) | 14.23           | 14.31           | 14.40           | 14.48           | 14.56           | 14.64           |
| Module Efficiency(%)        | 21.8%           | 22.0%           | 22.3%           | 22.5%           | 22.8%           | 23.0%           |

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.

Power Tolerance: 0~+3%

## Electrical Characteristics (BNPI)

| Module Type                 | 435W  | 440W  | 445W  | 450W  | 455W  | 460W  |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power (Pmax)        | 482   | 488   | 494   | 499   | 505   | 510   |
| Maximum Power Voltage (Vmp) | 32.29 | 32.47 | 32.65 | 32.82 | 33.00 | 33.18 |
| Maximum Power Current (Imp) | 14.93 | 15.03 | 15.14 | 15.21 | 15.31 | 15.38 |
| Open-circuit Voltage (Voc)  | 38.70 | 38.90 | 39.10 | 39.30 | 39.50 | 39.70 |
| Short-circuit Current (Isc) | 15.77 | 15.86 | 15.96 | 16.04 | 16.13 | 16.22 |

BNPI: Irradiance: Front 1000W/m<sup>2</sup>, Rear 135W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.

## Mechanical Parameters

|                   |                                               |
|-------------------|-----------------------------------------------|
| Solar Cells       | N-TYPE Monocrystalline (188R)                 |
| Module Dimensions | 1762*1134*30mm                                |
| Frame             | Anodized Aluminium Alloy                      |
| Front Glass       | 2.0 mm,<br>AR Coating Heat Strengthened Glass |
| Back Glass        | 2.0 mm,<br>Heat Strengthened Glass            |

|              |                                                    |
|--------------|----------------------------------------------------|
| No. of Cells | 108 [2 x (9 x 6) ]                                 |
| Weight       | 24.4kg                                             |
| J-Box        | IP68                                               |
| Connector    | Z4S-abcd/MC4-EVO 2A/Others                         |
| Cables       | 4.0mm <sup>2</sup> , 300/300mm (can be customized) |

## Operating Parameters

|                            |                |
|----------------------------|----------------|
| Operational Temperature    | -40°C~+70°C    |
| Maximum System Voltage     | 1500V DC (IEC) |
| Maximum Series Fuse Rating | 30A            |
| Bifacial                   | 80±5%          |
| Fire Class Rating          | Class C        |

## Temperature Ratings

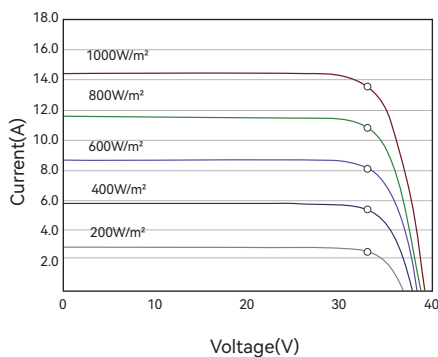
|                                 |            |
|---------------------------------|------------|
| Temperature Coefficient of Pmax | -0.28%/°C  |
| Temperature Coefficient of Voc  | -0.23%/°C  |
| Temperature Coefficient of Isc  | +0.045%/°C |

## Packaging

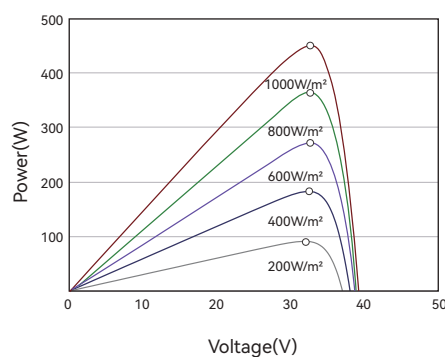
|                    |
|--------------------|
| Pcs per Pallet: 37 |
|--------------------|

|                     |
|---------------------|
| Pcs per 40' HC: 962 |
|---------------------|

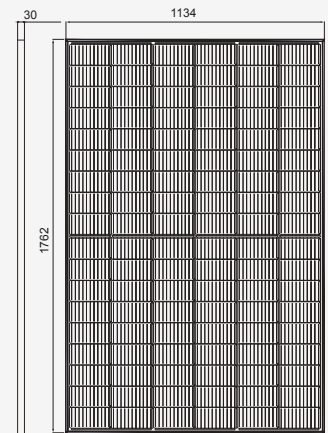
## I-V Curves of PV Module (450W)



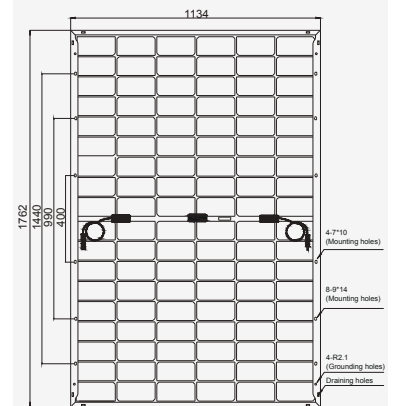
## P-V Curves of PV Module (450W)



## Dimensions (Unit: mm)



Front View



Long frame



Short frame

Back View