



## Hitouch 6N

HN21RN-48HT

# 455-475W

### BIFACIAL

High Efficiency Module

### 23.8%

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.

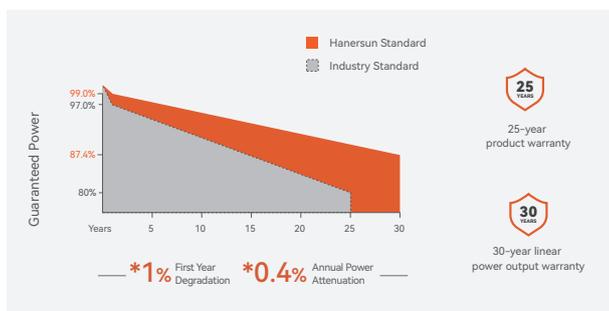
Better light trapping and current collection to improve module power output and reliability.



#### Excellent Temperature Coefficient

Lower operating temperature and temperature coefficient increases the power output.

### Power Warranty



\*The value is only for the front side of the module and is not applicable to the rear side of the modules.

### Certificates



### 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&BNPI) HN21RN-48HTXXXW(XXX=455-475)

Testing Condition	STC	BNPI	BSI												
Maximum Power (Pmax)*	455	504		460	510		465	516		470	521		475	527	
Maximum Power Voltage (Vmp)	29.94	29.94		30.10	30.10		30.26	30.26		30.42	30.42		30.58	30.58	
Maximum Power Current (Imp)	15.20	16.84		15.29	16.95		15.37	17.06		15.46	17.13		15.54	17.24	
Open-circuit Voltage (Voc)*	35.93	35.93		36.13	36.13		36.33	36.33		36.53	36.53		36.73	36.73	
Short-circuit Current (Isc)*	16.06	17.79	19.91	16.12	17.87	19.99	16.18	17.93	20.06	16.24	18.00	20.14	16.30	18.07	20.21
Module Efficiency(%)		22.8%			23.0%			23.3%			23.5%			23.8%	

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5  
BSI: Irradiance: Front 1000W/m<sup>2</sup>, Rear 300W/m<sup>2</sup>, Cell Temperature 25°C, AM1.5

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

\*Measuring Tolerance: ±3%  
Power Binning Tolerance: 0~+5W

### Electrical characteristics with different power bin (reference to 10% backside power gain)

Module Type	455W	460W	465W	470W	475W
Maximum Power (Pmax)	501	506	512	517	523
Maximum Power Voltage (Vmp)	29.94	30.10	30.26	30.42	30.58
Maximum Power Current (Imp)	16.74	16.82	16.93	17.00	17.11
Open-circuit Voltage (Voc)	35.93	36.13	36.33	36.53	36.73
Short-circuit Current (Isc)	17.67	17.73	17.80	17.86	17.93

### Mechanical Parameters

Solar Cells	N-TYPE Monocrystalline(210R)	No. of Cells	96 [2 x (8 x 6)]
Module Dimensions	1762*1134*30mm	Weight	24.1kg
Glass	2mm-2mm	J-Box	IP68
Frame	Anodized Aluminium Alloy	Output Cable	4.0mm <sup>2</sup> , 1200/1200mm
Connector	Zerun Co.,Ltd / Z4S-abcd Stäubli Electrical connectors AG / PV-KST4-EVO2A/xy, PV-KBT4-EVO2A/xy		

### Operating Parameters

Level T98≤70°C	-40°C~+70°C
Maximum System Voltage	1500V DC (IEC)
Maximum Series Fuse Rating	35A
Bifacial	φPmax=80±5% φIsc=80±5% φVoc=98±2%
Fire Class Rating	Class C

### Packaging

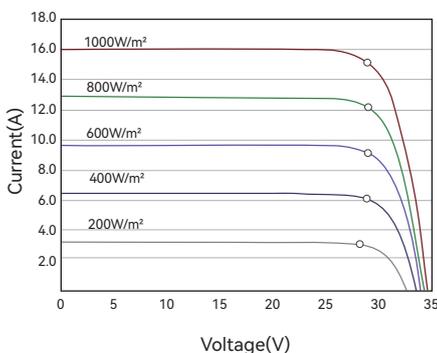
Pcs per Pallet: 37

### Temperature Ratings

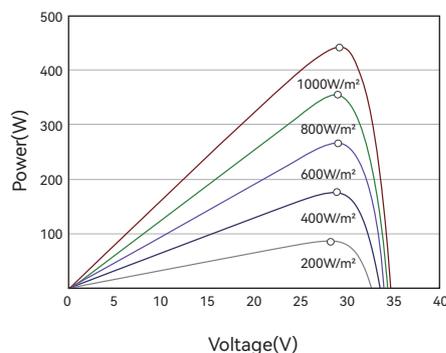
Temperature Coefficient of Pmax	-0.28%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Isc	+0.045%/°C

Pcs per 40' HC: 962

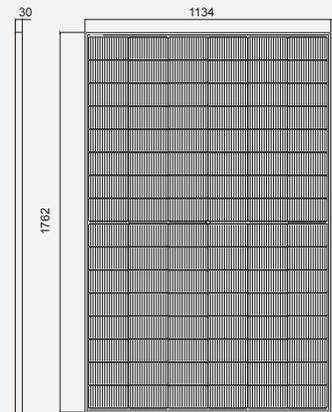
### I-V Curves of PV Module (465W)



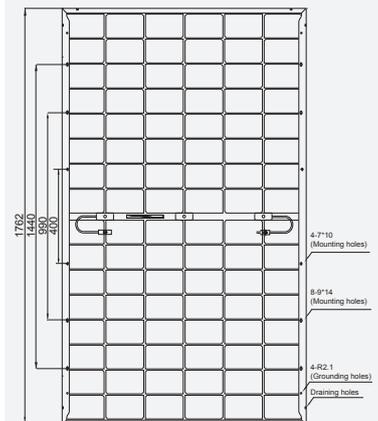
### P-V Curves of PV Module (465W)



### Dimensions (Unit: mm)



Front View



Back View