NIWA Black Series

JOLYWOOD

JW-HD108N

N-type Bifacial Mono Black Module

400-420W

J-TOPCon 2.0 Technology

420W	21.51%	0~+5W
Maximum Power Output	Maximum Module Efficiency	Power Output Tolerance

IEC61215(2016), IEC61730(2016) | ISO9001:2015: Quality Management System | ISO14001:2015: Environment Management System
ISO45001:2018: Occupational health and safety management systems | IEC62941: 2019: Quality system for PV module manufacturing

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10-30% Additional Power Generation
30 years lifespan brings 10-30% additional power generation comparing with conventional P-type module

ZERO LID (Light Induced Degradation)
N-type solar cell has no LID naturally which can increase power generation

Higher Reliability
Adpoted Jolywood lastest J-TOPCon2.0 technology, No polysilicon wrap around, Full electrical isolation, Zero leakage current; Much Safer for roof

Better Weak Illumination Response
Higher power output even under low-light environments like on cloudy or foggy days

Better Temperature Coefficient
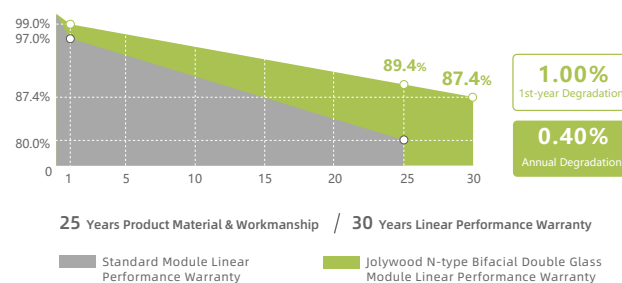Higher power generation under working conditions, thanks to passivating contact cell technology

Outstanding visual appearance
Designed with aesthetics in mind,thinner wires that appear all black at a distance

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Jolywood Delivers Reliable Performance Over Time

- Leader of N-type bifacial manufacturer
- Full-automatic facility and industry-leading technology
- Best-in-class durability and reliability
- BNEF Tier One

Linear Performance Warranty

99.0%
97.0%
87.4%
80.0%

89.4%   87.4%

1.00% 1st-year Degradation
0.40% Annual Degradation

1   5   10   15   20   25   30

25 Years Product Material & Workmanship / **30** Years Linear Performance Warranty

Standard Module Linear Performance Warranty

Jolywood N-type Bifacial Double Glass Module Linear Performance Warranty

*Subject to the terms and conditions contained in the applicable Jolywood Solar Limited Warranty Statement. Also this 25 -year limited product warranty is available only for products installed and operating on residential rooftops in certain regions.

Munich RE   IEC   TÜV SÜD   CE

JW-HD108N Series | N-type Bifacial Mono Black Module

SEN

Electrical Properties | STC*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power（Pmax）(W)	400	405	410	415	420
MPP Voltage（Vmp）(V)	31.1	31.3	31.5	31.7	31.9
MPP Current（Imp)(A)	12.87	12.95	13.02	13.10	13.17
Open Circuit Voltage（Voc）(V)	37.1	37.3	37.5	37.7	37.9
Short Circuit Current（Isc）(A)	13.67	13.75	13.82	13.91	13.98
Module Efficiency（%）	20.48	20.74	21.00	21.25	21.51

*STC: Irradiance 1000 W/m², Cell Temperature 25℃, AM1.5
The data above is for reference only and the actual data is in accordance with the pratical testing Power Measurement Tolerance ±3%

Electrical Properties | NOCT*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power（Pmax）(W)	303	307	311	315	318
MPP Voltage（Vmp）(V)	29.2	29.4	29.6	29.8	30.0
MPP Current（Imp)(A)	10.38	10.44	10.50	10.56	10.62
Open Circuit Voltage（Voc）(V)	35.5	35.7	35.8	36.0	36.2
Short Circuit Current（Isc）(A)	11.02	11.09	11.14	11.22	11.27

*NOCT: Irradiance 800 W/m², Ambient Temperature 20℃, Wind Speed 1 m/s

Operating Properties

Operating Temperature（℃）	-40℃~+85℃
Maximum System Voltage（V）	1500V DC（IEC）
Maximum Series Fuse Rating（A）	30
Power Tolerance	0~+5W
Bifaciality*	80%

*Bifaciality=Pmaxrear（STC）/Pmaxfront（STC）, Bifaciality tolerance:±5%

Temperature Coefficient

Temperature Coefficient of Pmax*	-0.300%/℃
Temperature Coefficient of Voc	-0.250%/℃
Temperature Coefficient of Isc	+0.045%/℃
Nominal Operating Cell Temperature (NOCT)	42±2℃

*Temperature Coefficient of Pmax±0.03%/℃
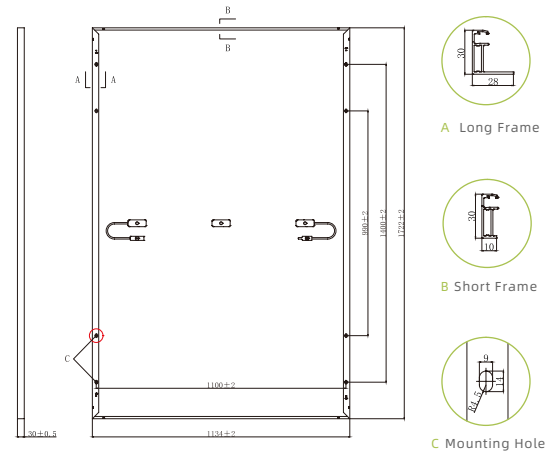
Mechanical Properties

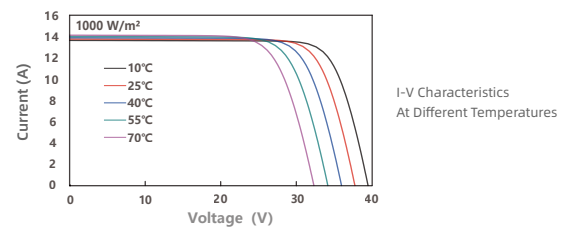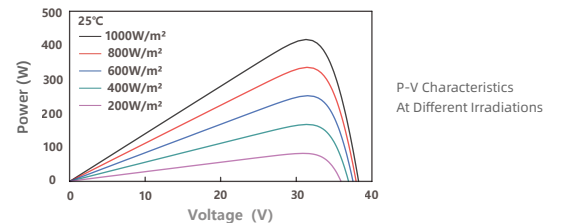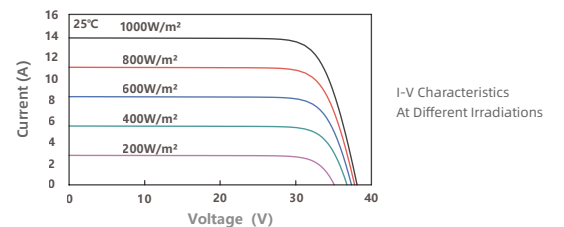|	
Cell Size	182.00mm*91.00mm
Number of Cells	108pcs(12*9)
Module Dimension	1722mm*1134mm*30mm
Weight	24.5kg
Front / Rear Glass*	2.0mm/2.0mm
Frame	Anodized Aluminium Alloy
Junction Box	IP68（3 diodes）
Length of Cable	4.0mm², +300mm/-180mm（Cable length can be customized）

*Heat strengthened glass

With Different Power Generation Gain（regarding 415W as an example）

Power Gain (%)	Peak Power (Pmax) (W)	MPP Voltage (Vmp) (V)	MPP Current (Imp) (A)	Open Circuit Voltage (Voc) (V)	Short Circuit Current (Isc) (A)
10	448	31.7	14.13	37.7	14.99
15	465	31.7	14.65	37.7	15.54
20	481	31.7	15.17	37.7	16.08
25	498	31.7	15.69	37.7	16.62
30	515	31.8	16.20	37.8	17.16

Engineering Drawing（unit: mm）

A Long Frame

B Short Frame

C Mounting Hole

Characteristic Curves | HD108N-415

I-V Characteristics
At Different Irradiations

P-V Characteristics
At Different Irradiations

I-V Characteristics
At Different Temperatures

Packaging Configuration

Packing Type	20'GP	40'GP	40'HQ
Piece/Pallet		36	
Pallet/Container	6	13	26
Piece/Container	216	468	936

JOLYWOOD

JOLYWOOD (TAIZHOU) SOLAR
TECHNOLOGY CO.,LTD.

DuraSolar

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