NIWA Black Series

JOLYWOOD

JW-HD108N

N-type Bifacial Mono Black Module

415-440W

440W	22.53%	0~+5W
Maximum Power Output	Maximum Module Efficiency	Power Output Tolerance

IEC61215(2021), 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

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

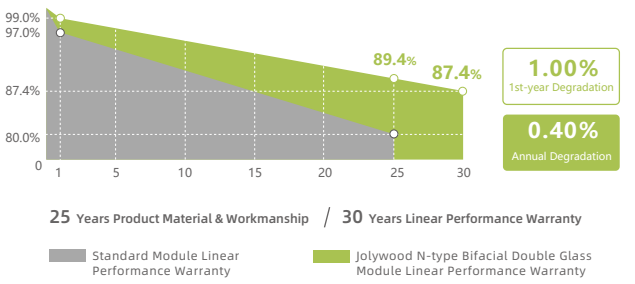
Outstanding visual appearance

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

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



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 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	Front Side
Peak Power (Pmax) (W)	415	420	425	430	435	440
MPP Voltage (Vmp) (V)	31.7	31.9	32.1	32.3	32.5	32.7
MPP Current (Imp) (A)	13.10	13.17	13.24	13.32	13.39	13.46
Open Circuit Voltage (Voc) (V)	37.7	37.9	38.1	38.3	38.4	38.6
Short Circuit Current (Isc) (A)	13.91	13.98	14.05	14.12	14.18	14.25
Module Efficiency (%)	21.25	21.51	21.76	22.02	22.27	22.53

*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	Front Side
Peak Power (Pmax) (W)	315	318	322	326	330	334
MPP Voltage (Vmp) (V)	29.8	30.0	30.2	30.3	30.5	30.7
MPP Current (Imp) (A)	10.56	10.62	10.67	10.74	10.82	10.88
Open Circuit Voltage (Voc) (V)	36.0	36.2	36.4	36.6	36.8	37.0
Short Circuit Current (Isc) (A)	11.22	11.27	11.33	11.38	11.44	11.49

*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%
Front Static Load	Snow load 5400Pa, Wind load 2400Pa

*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

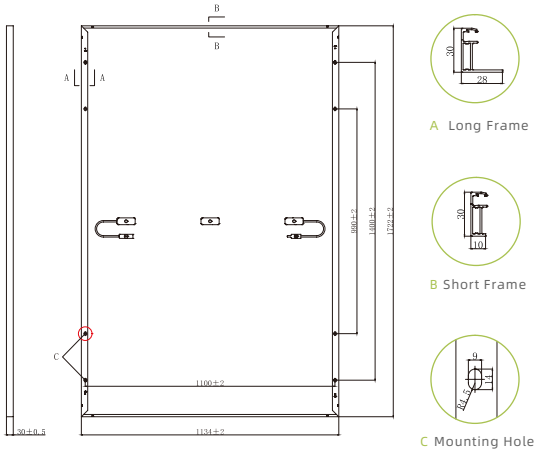
Cell Size	182.00mm*91.00mm
Number of Cells	108pcs(12*9)
Module Dimension	1722mm*1134mm*30mm
Weight	24.5kg
Front / Rear Glass*	2.0mm/2.0mm
Frame	Anodized Aluminium Alloy
Junction Box	IP68 (3 diodes)
Length of Cable	4.0mm², +300mm/-180mm (Cable length can be customized)

*Heat strengthened glass

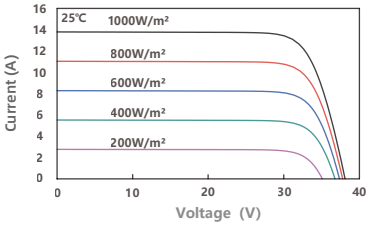
With Different Power Generation Gain (regarding 415W as an example)

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

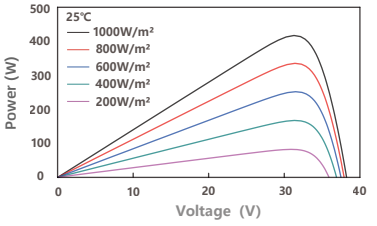
Engineering Drawing (unit: mm)



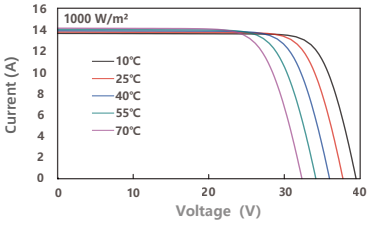
Characteristic Curves | HD108N-415



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

*The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to ongoing innovation, R&D enhancement,Jolywood (Taizhou) Solar Technology Co., Ltd. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products descri-bed herein.

JOLYWOOD
JOLYWOOD (TAIZHOU) SOLAR TECHNOLOGY CO.,LTD.
www.jolywood.cn

DuraSolar
Vertriebspartner: DuraSolar
www.dura-solar.de