中来股份 JOLYWOOD

NTOPCon Cell Technology

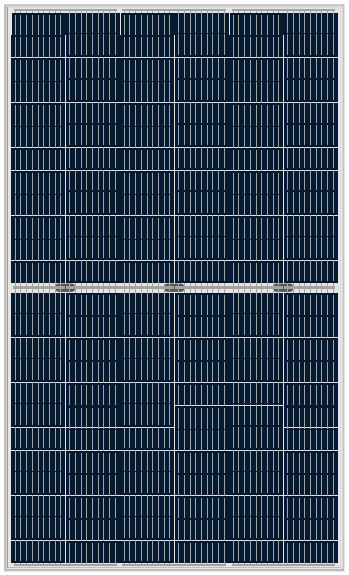
JW-HD144N

N-type Bifacial High Efficiency
Mono Silicon Half-Cell Double Glass Module

405-430W

Cell Type

9BB



430W
Maximum Power Output

21.42%
Maximum Module Efficiency

0~+5W
Power Output Guarantee

Additional Power Generation Gain
At least 30-year product life, more than 10%- 30% additional power gain comparing with conventional module

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

Lower LCOE
High power and 1500V system voltage,saving BOS cost

Better Weak Illumination Response
Wide spectral response, higher power output evenunder low-light settings like smog or cloudy days

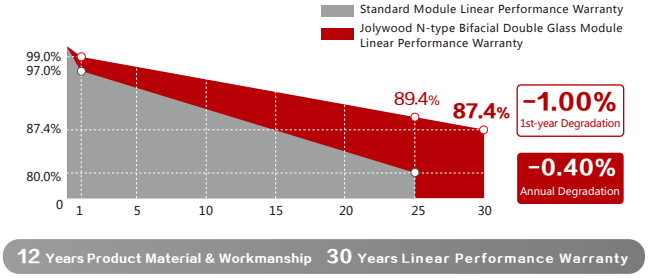
Better Temperature Coefficient
Higher power generation under working conditions, thanks to passivating contact cell technology

Wider Applicability
BIPV,vertical installation, snowfield, high-humid area, windy and dusty area

Jolywood Delivers Reliable Performance Over Time

- Leader of n-type bifacial technology
- Fully automatic facility and world-class technology
- Long term reliability tests
- 100% EL inspection ensuring defect-free modules

Linear Performance Warranty



12 Years Product Material & Workmanship 30 Years Linear Performance Warranty

Additional Insurance Backed by Munich Re

"optional" Munich RE

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Jolywood (Taizhou) Solar Technology Co., Ltd. , a subsidiary under Jolywood Group (stock code: SZ300393), is the world leading n-type bifacial solar cells and modules manufacture. The technology of company NTOPCon, NIBC, TBC, etc, and the annual n-type bifacial production capacity reaches 2.1GW cells and 3GW modules. With vision of "Cultivator of Green Energy", Jolywood adheres to the road of advanced and high efficiency solar technology industrialization.

SEN

JW-HD144N Series | N-type Bifacial High Efficiency Mono Silicon Half-Cell Double Glass Module

Electrical Properties | STC*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power (Pmax) (W)	405	410	415	420	425	430
MPP Voltage (Vmp) (V)	41.8	42.1	42.4	42.7	42.9	43.1
MPP Current (Imp) (A)	9.69	9.74	9.79	9.84	9.91	9.98
Open Circuit Voltage (Voc) (V)	50.1	50.4	50.7	51.0	51.1	51.3
Short Circuit Current (Isc) (A)	10.19	10.24	10.29	10.34	10.40	10.48
Module Efficiency (%)	20.17	20.42	20.67	20.92	21.17	21.42

*STC: Irradiance 1000 W/m², Cell Temperature 25°C, AM1.5
The data above is for reference only and the actual data is in accordance with the pratical testing

Electrical Properties | NOCT*

Testing Condition	Front Side	Front Side	Front Side	Front Side	Front Side	Front Side
Peak Power (Pmax) (W)	306	310	314	318	322	325
MPP Voltage (Vmp) (V)	39.2	39.5	39.8	40.0	40.2	40.4
MPP Current (Imp) (A)	7.81	7.85	7.89	7.93	7.99	8.05
Open Circuit Voltage (Voc) (V)	47.9	48.2	48.5	48.7	48.8	49.0
Short Circuit Current (Isc) (A)	8.22	8.26	8.30	8.34	8.39	8.45

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

Operating Properties

Operating Temperature (℃)	-40℃~+85℃
Maximum System Voltage (V)	1500V (IEC)
Maximum Series Fuse Rating(A)	20
Power Tolerance	0~+5W
Bifaciality*	80%

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

Temperature Coefficient

Temperature Coefficient of Pmax*	-0.320%/℃
Temperature Coefficient of Voc	-0.260%/℃
Temperature Coefficient of Isc	+0.046%/℃
Nominal Operating Cell Temperature (NOCT)	42±2℃

*Temperature Coefficient of Pmax±0.03%/℃

Mechanical Properties

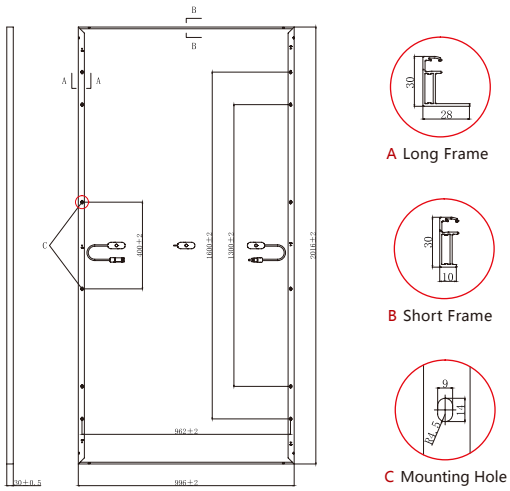
Cell Type	158.75mm*79.375mm
Number of Cells	144pcs(12*12)
Dimension	2016mm*996mm*30mm
Weight	25.5Kg
Front /Rear Glass*	2.0mm/2.0mm
Frame	Anodized Aluminium
Junction Box	IP68 (3 diodes)
Length of Cable*	4.0mm² , 300mm
Connector	MC4 Compatible

*Heat strengthened glass
*Cable length can be customized

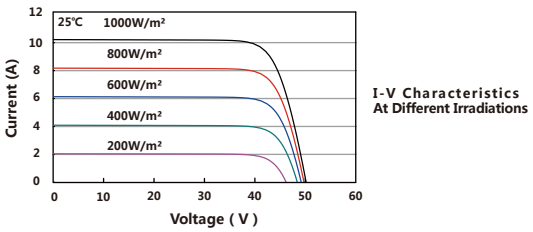
With Different Power Generation Gain (regarding 405W as an example)

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	437	41.8	10.46	50.1	10.98
15	454	41.9	10.84	50.2	11.38
20	470	41.9	11.22	50.2	11.78
25	486	41.9	11.60	50.2	12.18
30	502	41.9	11.99	50.2	12.57

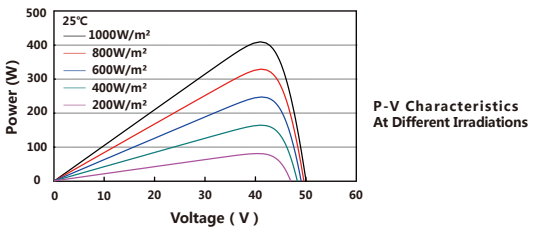
Engineering Drawing (unit : mm)



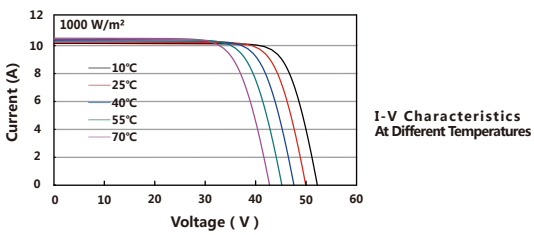
Characteristic Curves | HD144N-405



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		35	
Pallet/Container	5	11	22
Piece/Container	175	385	770

*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 described herein.

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DOC.# : TZ-MP-139 REV : G