

CULTIVATOR OF GREEN ENERGY



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A 3D rendering of solar panels against a dark background with a grid of light lines. The panels are shown in two rows: the top row consists of three panels tilted upwards, and the bottom row consists of three panels standing upright. The panels have a grid pattern and are illuminated from the side, creating a sense of depth and perspective.

PRODUCT BROCHURE



ABOUT JOLYWOOD SOLAR

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 technologies of company include 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.

The company has long term research cooperation with Belgium IMEC, Nanjing University, SunYat-sen University, Shanghai Jiao Tong University, and East China University of Science and Technology. Jolywood has applied 140 patents, in which 67 have been granted, 30 are under examination. Among the granted patents, 20 are invention patents. The products of Jolywood gained certifications from global institutions of TUV Rheinland, TUV NORD, CQC, JET, SCA, etc.

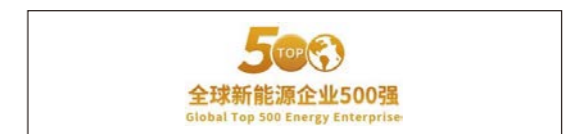
3GW
N-type
Bifacial Module
Capacity

2.1GW
NTOPCon
Bifacial Cell
Capacity

150MW
NIBC Cell
Capacity



Leader of N-type
Bifacial Technology

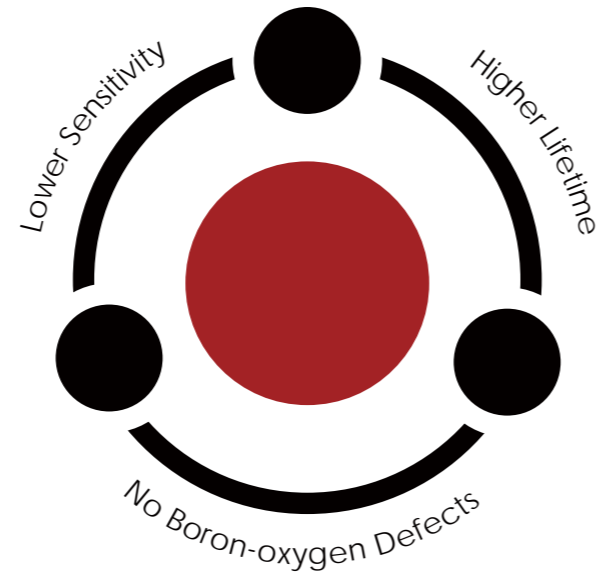
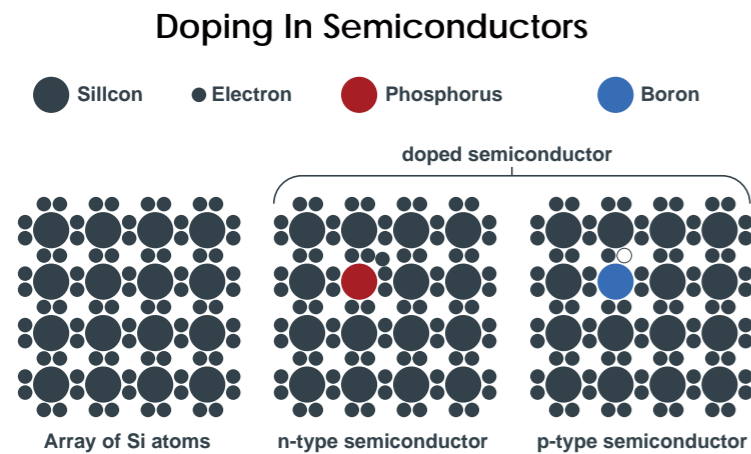


N-type Technology

Higher Efficiency Photovoltaic Technology

N-type Wafer Advantages

- LeTID free, LID free
- Lower temperature coefficient
- Relative tolerance to metal impurities
- Higher bifaciality
- Higher lifetime
- No B-O defect



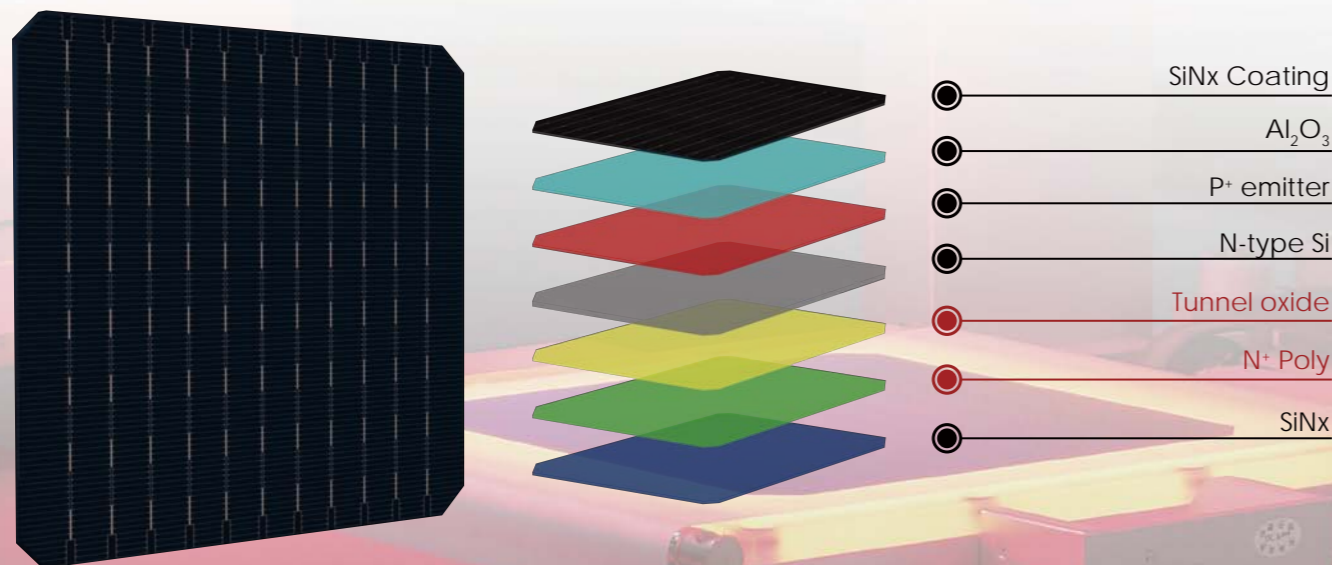
N-type Module Advantages

- No LETID
- Low Degradation
- Low Temperature Coefficient
- Higher Efficiency
- Higher Bifaciality
- Higher Reliability

N-type Cell Advantages

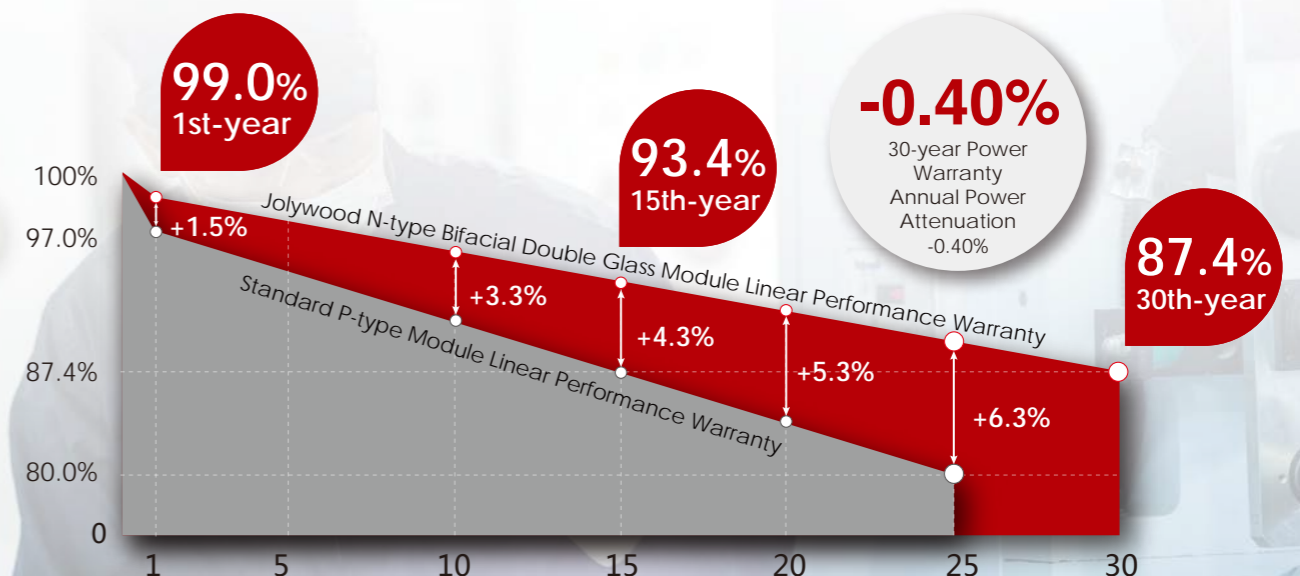
Advantages of passivated contact structure:

- Good interface passivation effect & field passivation effect
- Good majority carrier selective tunneling effect, rapid carriers transport between absorption and doped layer



N-type Module Warranty

- 12 Years Product Material & Workmanship
- 30 Years Linear Performance Warranty





72cell 570W
78cell 615W

Additional Power Generation Gain

At least 30-year product life & bifacial design, more than 10%- 30% additional power gain comparing with conventional module



Protects from initial drop in power

N-type cell technology protects against light induced degradation (LID) & light and elevated temperature induced degradation (LETID)

Lower LCOE

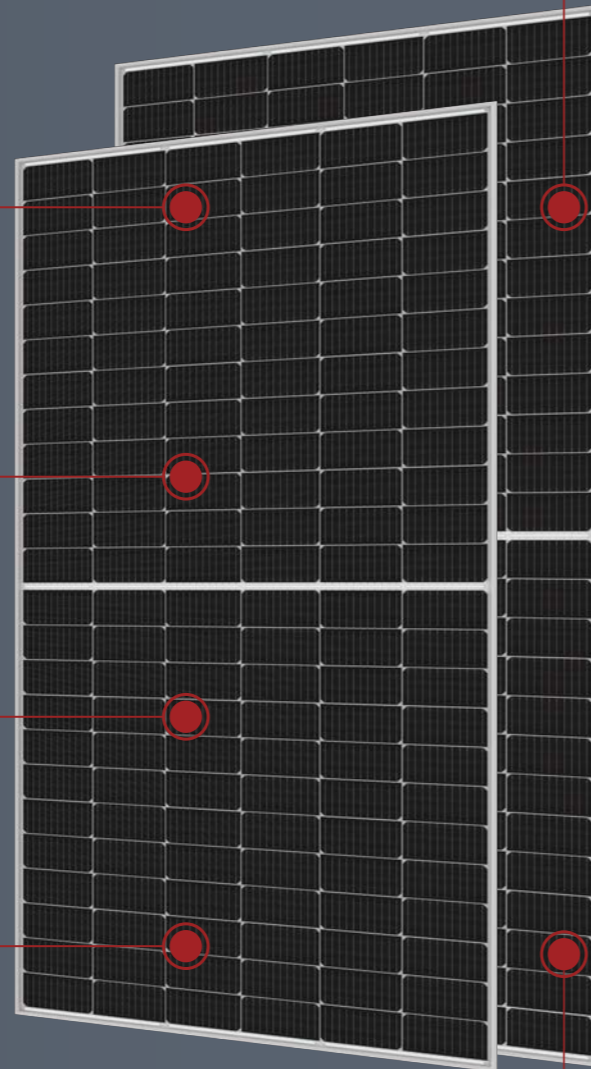
High power and 1500V system voltage, saving BOS cost, improving rate of return on larger systems

Better Weak Illumination Response

Wide spectral response, higher power output even under low-light settings like smog or cloudy days

Better Temperature Coefficient

Higher power generation under working conditions, thanks to NTOPCon cell technology



Wider Applicability

Bifacial design allows a wide range of applications, such as BIPV, vertical installation, snowfield, high-humid area, windy and dusty area

Cell Technology: NTOPCon

Efficiency: Up to 22.05%

Size: 2280mm×1134mm×30mm/35mm (72Cell)

2465mm×1134mm×30mm/35mm (78Cell)

Glass: Dual glass 2.0mm/Singe glass 3.2mm

Weight: 31.5KG (72Cell)/34KG (78Cell) DG

29KG (72Cell)/31.5KG (78Cell) SG

Bifaciality: 80%±5%

Temperature Coefficient : -0.32%/C

Voltage: 1500V (IEC)



60cell 390W
72cell 470W

Additional Power Generation Gain

At least 30-year product life & bifacial design, more than 10%- 30% additional power gain comparing with conventional module



Protects from initial drop in power

N-type cell technology protects against light induced degradation (LID) & light and elevated temperature induced degradation (LETID)

Lower LCOE

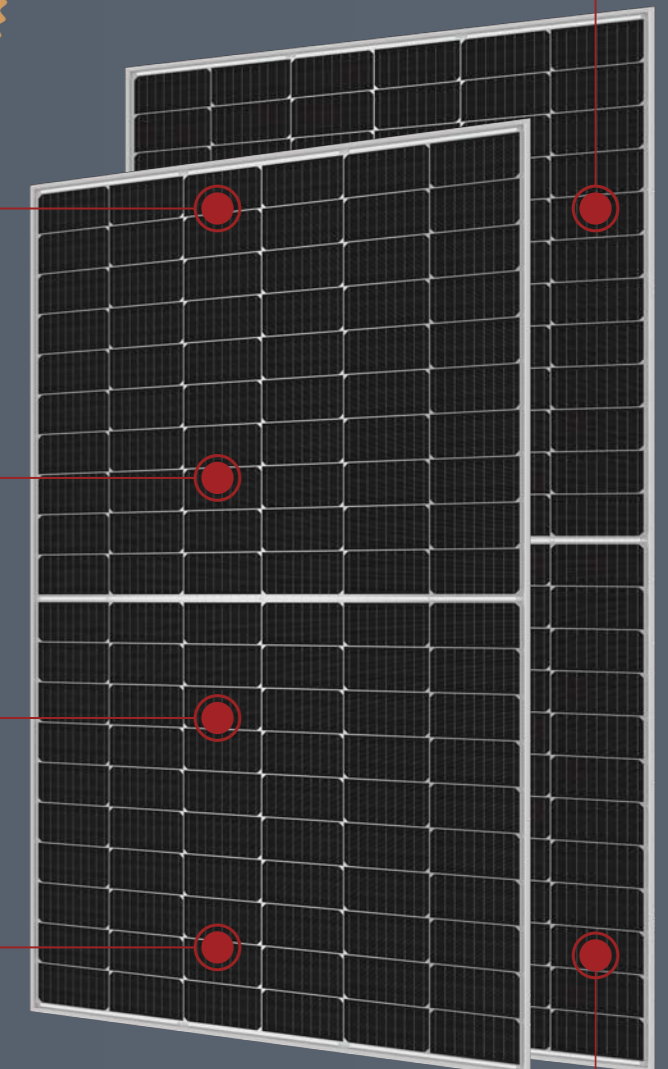
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Better Weak Illumination Response

Wide spectral response, higher power output even under low-light settings like smog or cloudy days

Better Temperature Coefficient

Higher power generation under working conditions, thanks to NTOPCon cell technology



Wider Applicability

Bifacial design allows a wide range of applications, such as BIPV, vertical installation, snowfield, high-humid area, windy and dusty area

Cell Technology: NTOPCon

Efficiency: Up to 21.40%

Size: 1768mm×1042mm×30mm/35mm (60cell)

2108mm×1042mm×30mm/35mm (72cell)

Glass: Dual glass 2.0mm/Singe glass 3.2mm

Weight: 24KG (60cell)/ 28KG (72cell) DG

21.5KG (60cell)/ 24.5KG (72cell) SG

Bifaciality: 80%±5%

Temperature Coefficient: -0.32%/C

Voltage: 1500V (IEC)



60cell 345W
66cell 380W



High Power Output

MBB technology reduces the distance between busbars and finger grid lines, improving reliability and increasing output

Highest density: get the most out of limited space

Protects from Initial Drop in Power

N-type cell technology protects against light induced degradation (LID) & light and elevated temperature induced degradation (LETID)

Better Temperature Coefficient

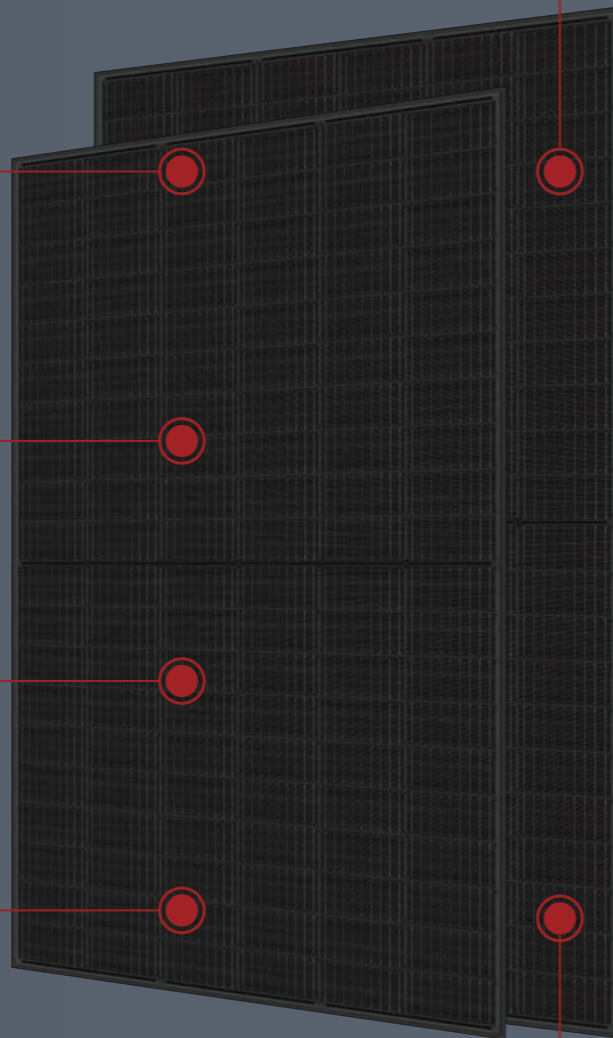
Higher power generation under working conditions, thanks to NTOPCon cell technology

Better Weak Illumination Response

Wide spectral response, higher power output even under low-light settings like smoggy or cloudy days

Environmentally-friendly

Advanced manufacturing technology minimizes carbon footprint



Outstanding Visual Appearance

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

Cell Technology: NTOPCon

Efficiency: Up to 20.58%

Size: 1690mm×996mm×35mm (60Cell)

1854mm×996mm×35mm (66Cell)

Glass: Single glass 3.2mm

Weight: 19KG (60Cell)

21.5KG (66Cell)

Bifaciality: 70%±5%

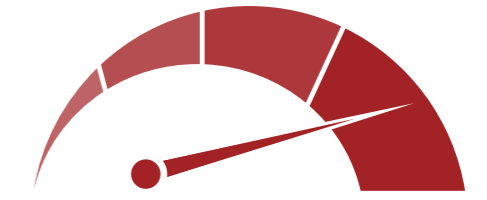
Temperature Coefficient: -0.32%/°C

Voltage: 1500V (IEC)

Premium Quality

Strong Quality Control System

- Witness lab authorized by TÜV NORD
- CNAS recognized lab
- Full sequence reliability test
- Lean Production Management
- All Quality Matters Award for excellent outdoor performance by TÜV Rheinland
- Highly recommended modules by PV-Magazine



Enhanced Testing

- ✓ Outdoor LID Test
- ✓ LETID Test
- ✓ Three times IEC Test
- ✓ Three times PID Test
- ✓ PVEL Reliability Scorecard

Outdoor Performance Proof



Certifications of Product and Quality

- IEC 61215, IEC 61730, CEC, CQC and CE
- ISO 9001: 2015: Quality management systems
- ISO 14001: 2015: Environmental management systems
- ISO 45001: 2018: Occupational Health and Safety



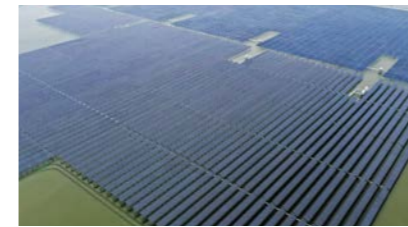
Global Projects



Global Clients



Reference Cases



104MW
Jiangsu, China, 2018
Fishing & PV Complementary Project, Phase I



65MW
Hebei, China, 2018
Haixing Top Runner Project



110MW
Jiangsu, China, 2020
Fishing & PV Complementary Project, Phase II



253MW
Qinghai, China, 2020
Qinghai UHV PV Plant 2#



30MW
Shanxi, China, 2017
Panda Project



95MW
Jilin, China, 2020
Jilin Baicheng Top Runner PV Plant



125MW
Oman, 2019
Marubeni Oman Amin Project



5.6MW
Ukraine, 2019
Starosynyavs'kyi PV Plant



100MW
Shanxi, China, 2017
Yangquan Top Runner Project



4.2MW
Ukraine, 2019
Altes Chernobyl III PV Plant



11.75MW
Netherlands, 2019
Zonnepark Rilland



4.2MW
Germany, 2020
Next2Sun Aasen PV Plant