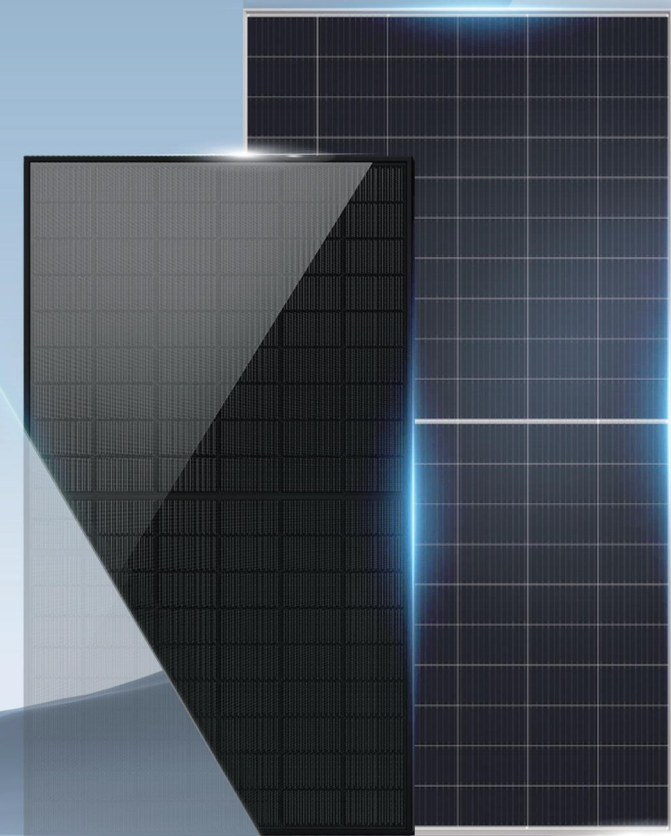




CONTACT US

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Wechat



Wechat Channel



LinkedIn



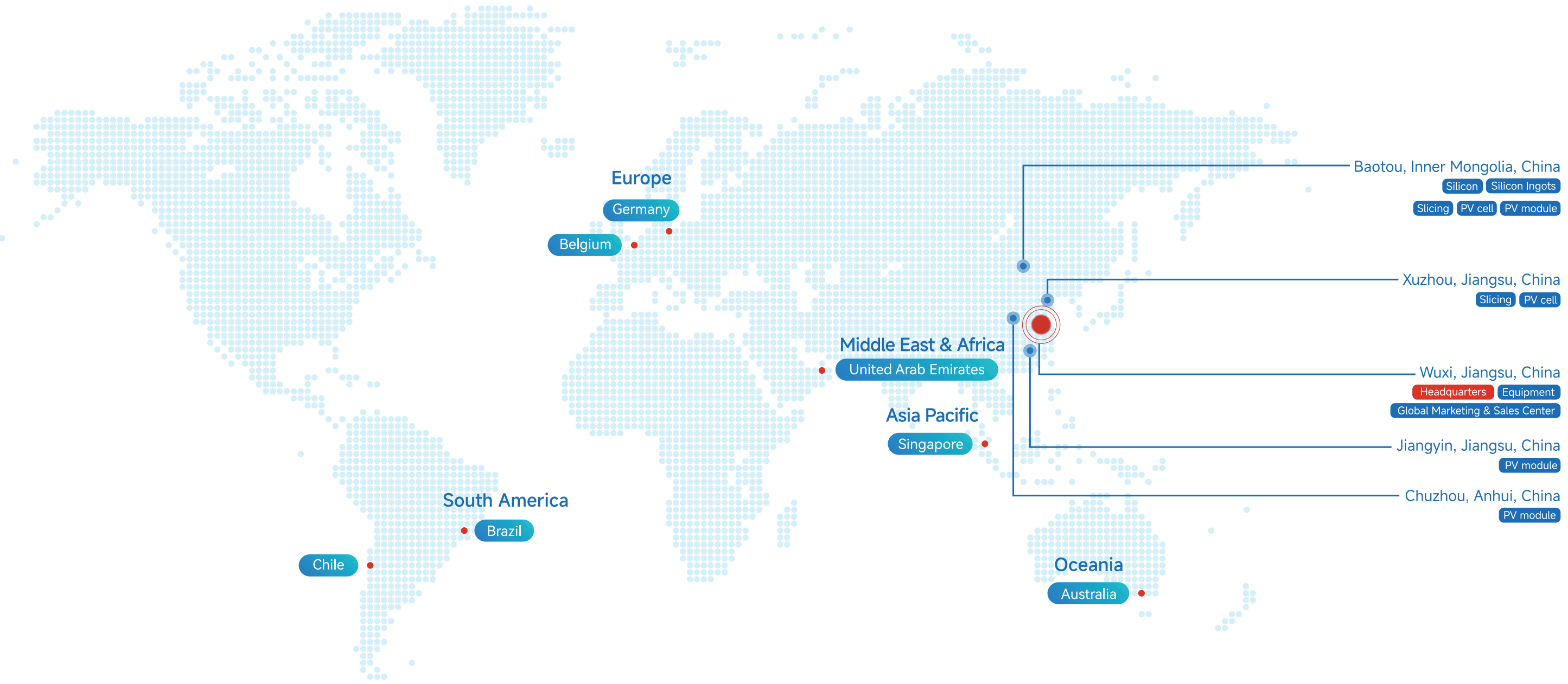
YouTube

Product Handbook 2025
HY SOLAR PV Modules

TO MAKE ENERGY **CLEANER**
TO MAKE THE WORLD **BETTER**

HY SOLAR N-Type Strength		01-04
HT Module Technical Advantages		05-12
HY SOLAR Main Products		13-14
HY SOLAR TOPCon Module Datasheets		15-56
HY SOLAR Six Manufacturing Bases		57-58

Globalization



Headquarters Wuxi, Jiangsu, China	Global Marketing & Sales Center Wuxi, Jiangsu, China	Overseas Regional Headquarters Asia Pacific: Singapore Europe: Germany South America: Brazil Oceania: Australia Middle East & Africa: United Arab Emirates	Manufacturing Bases Equipment: Wuxi, Jiangsu, China Slicing: Baotou, Inner Mongolia, China PV cell: Xuzhou, Jiangsu, China PV module: Chuzhou, Anhui, China	Silicon: Baotou, Inner Mongolia, China Slicing: Xuzhou, Jiangsu, China PV cell: Baotou, Inner Mongolia, China PV module: Baotou, Inner Mongolia, China	Silicon Ingots: Baotou, Inner Mongolia, China PV module: Jiangyin, Jiangsu, China
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Leading in N-Type Route

TOPCon

Cutting-edge PECVD tech

26.9%

PV cell mass production efficiency

LECO, +0.25%

More than +0.25% increase in efficiency

High Yield, +0.3%

+0.3% increase in yield of pv cells

+30^W

30W higher in efficiency compared with PERC modules

26^{GW}

TOPCon cell capacity



Leading in R&D

- It conforms to the construction and operation of ISO17025 standards, and operates according to the requirements of CNAS certification system
- The laboratory covers an area of 5000 square meters, with a total of 58 sets of 28 kinds of equipment
- It has a full set of IEC61215 and IEC61730 standard testing capabilities
- The laboratory adopts a LIMS management system

All instruments and equipment, testing tasks, personnel, testing processes, data results and other information are incorporated into the digital management of the laboratory, so as to realize the efficient operation of the laboratory, improve the testing efficiency, help R&D carry out project test management, retrieval and analysis of test data, and provide decision-making support for product R&D



Honors

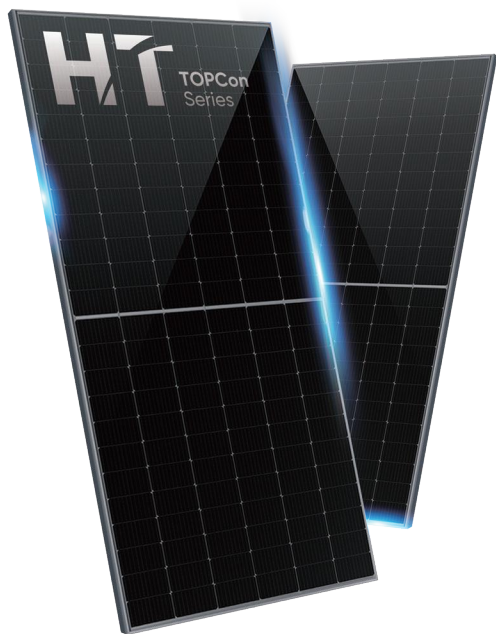


TOP 500
Global New Energy Enterprises
2024 · Ranked 185th

TOP 500
China Manufacturing Enterprises
2023

HY SOLAR

TOPCon Modules Advantages



Champion of **Decathlon**
Choice of **Quality**

 HY SOLAR TOPCon cell technology

 Diverse module types

 SMBB & half-cell

 Non-destructive cutting

 High density cells encapsulating

 Higher bifaciality

 Lower temperature coefficient

 Better low-irradiance performance

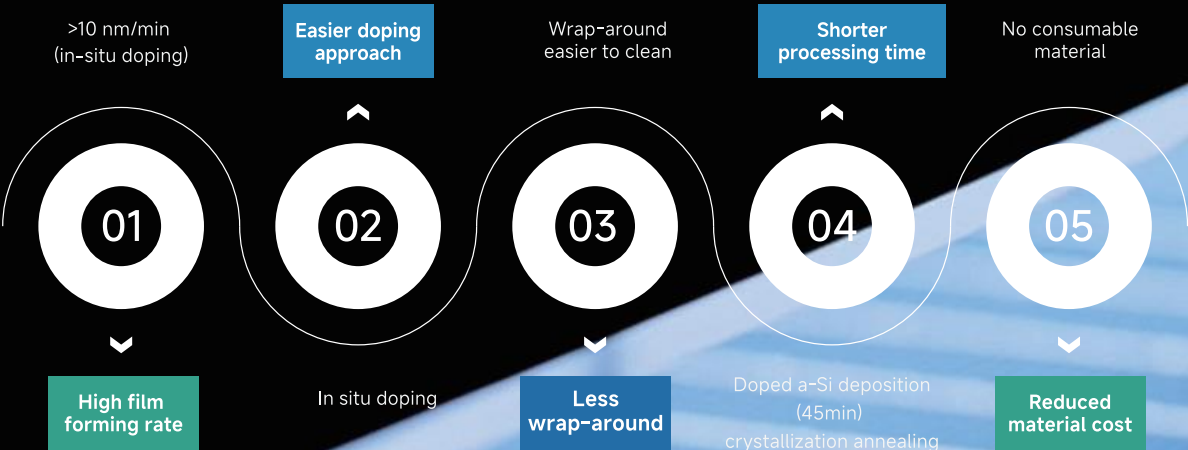
 Lower degradation

 Lower LCOE

HY SOLAR

TOPCon Cell Tech

Film deposition equipment is the key to TOPCon manufacturing.
The tech HY SOLAR adopts is PECVD tech with strong potential for comprehensive performance.



Lower Degradation Longer Warranty

Warranty for N-type TOPCon modules

15^y product workmanship warranty, **30^y** power warranty for modules within 2m² residential rooftops:

30^y product workmanship warranty, **30^y** power warranty

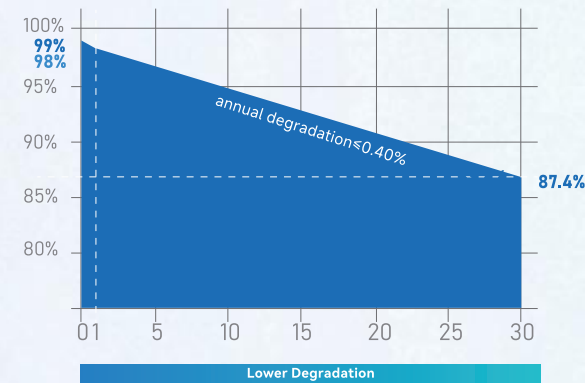
≤1% first year degradation, ≤0.4% of subsequent annual degradation

≥**87.40%** of the initial output after 30 years

30^y
Power Warranty

≤ **1%** 1st year degradation

0.4% Linear degradation

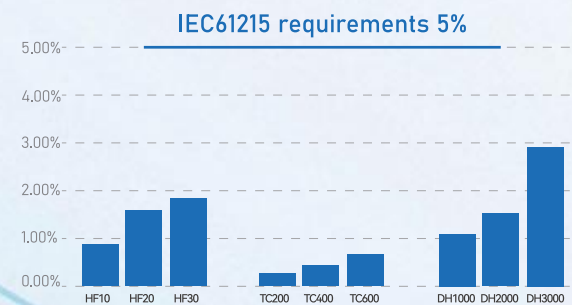


Stricter Testing Demonstrates Outstanding Performance

According to IEC61215 standard test,
Modules exhibit outstanding reliability performance

- IEC61215 Test
- IEC Test triple as demanding

Outstanding
Reliability
Performance



Process Control

Automatic Loading

- Test of temperature & humidity
- Test of raw material
- Test of insulated strips
- Control of EVA size and storage
- MES Data Import

Automatic Welding

- Test of temperature & humidity
- Test of raw material
- Technical parameter verification
- Adhesion test
- EL test
- MES Data Import

Automatic Cell String Layup

- Test of temperature & humidity
- Technical parameter verification
- Control of welding temperature
- Inspection of welding quality
- Control of EVA & backboard storage
- MES Data Import
- 100% EL Test

Lamination & Cooling

- Control of temperature
- Vacuum pressure test
- Technical parameter verification
- Adhesion test
- Visual Inspection
- MES Data Import

Automatic Framing

- Test of raw material
- Gluing with silica gel
- Inspection of module size
- Inspection of junction box welding
- Control of temperature & humidity during module solidify

Testing

- Voltage Test
- Insulation test
- Grounding test
- Control of temperature & humidity
- 100% ELTest

Qualified Modules

IPQC Process Control

Certifications

HY SOLAR has persisted on TOPCon as the primary technical direction of solar modules, and has received industry recognition for the "efficient" product performance. Meanwhile, our thorough global certification and increasingly abundant production capacity allow us to maintain our high-quality market dominance in the module application areas.

Product Certifications



System Certifications



ISO 9001
Quality assurance systems

ISO 14001
Environmental management systems

IEC/TS 62941
PV module manufacturing quality system

ISO 45001
Occupational health and safety management systems

Quality Assurance



Full Industrial Chain Traceability

Starting from self-produced silicon materials, the origin of production is clear, providing information traceability and transparency for the entire manufacturing chain of silicon wafers, cells, and modules. The process is fully traceable, monitorable, and precisely managed, meeting customer demands.

Silicon



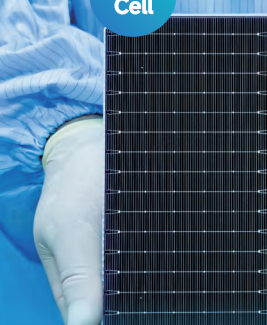
- Own silicon materials
- 100,000** tons
- 11N high purity
- Manufactured in Baotou, with legal and compliant labour practices

PV Wafer



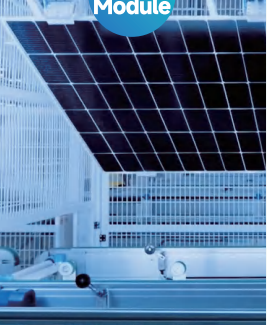
- Own silicon wafer capacity
- 55** GW
- Covers 100% N-type specifications
- Leading in industry with low carbon footprint

PV Cell



- Own cell capacity of
- 26** GW
- Utilizing PECVD technology
- Enhanced with LECO technology
- Efficiency up to 26.9%

PV Module



- Own module capacity of
- 13** GW
- Full N-type coverage

All-scenario Applications



Mountain PV Power Plants



Utility-Scale PV Power Plants



Commercial Distributed PV Power Plants



Residential Distributed PV Power Plants



Agri-PV Applications



PV + Desertification Control Applications



Freshwater Lake PV Applications



Offshore PV Applications

HYDRO SOLAR

HY SOLAR Conventional Products

TOPCon Modules

HT

TOPCon Series

Module Family

465w

NT10-54pcs

All Black Bifacial

515w

NT10-60pcs

All Black Bifacial

610w

NT10-72pcs

Bifacial

655w

NT10-78pcs

Bifacial

630w

NT11-66pcs

Bifacial

725w

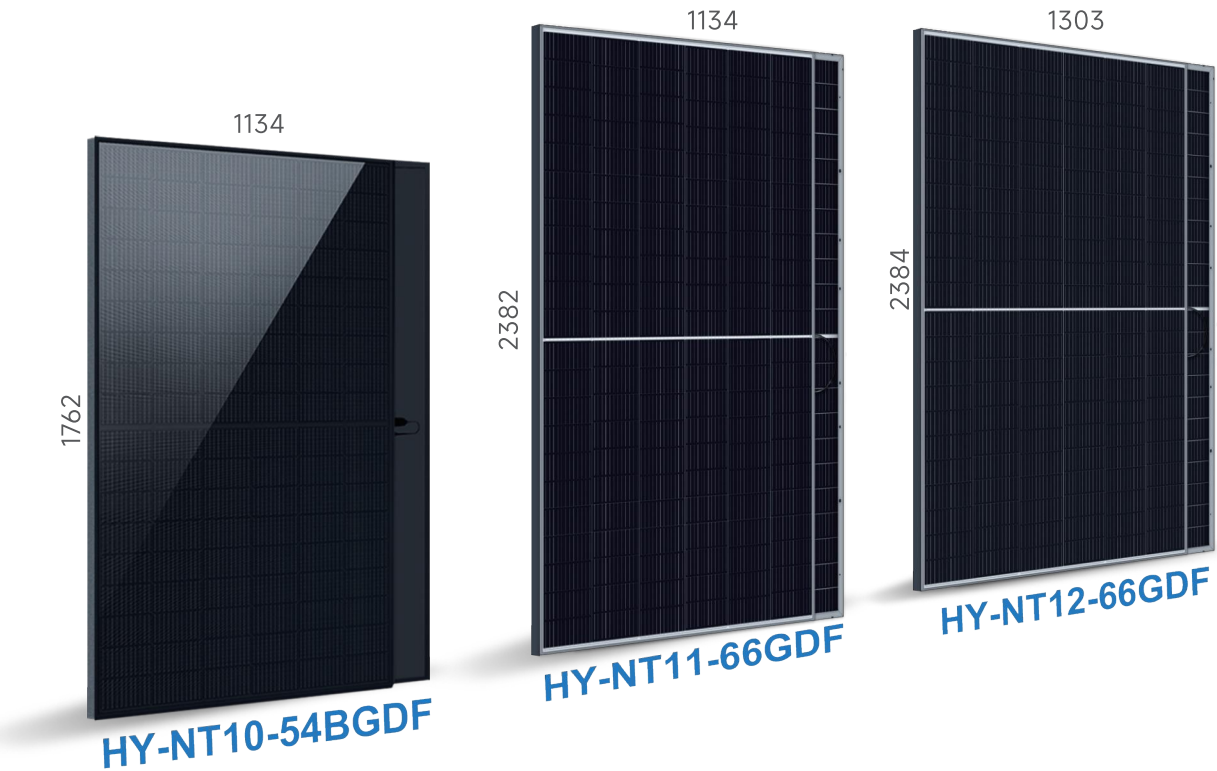
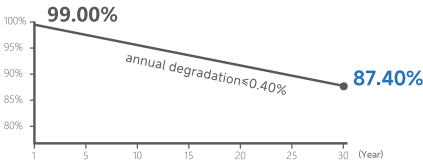
NT12-66pcs

Bifacial

Comprehensive Products and System Certificates

IEC 61215, IEC 61730
ISO 9001:2015 Quality assurance systems
ISO 14001:2015 Environmental management systems
ISO 45001:2018 Occupational health and safety management systems

30-Year Power Warranty



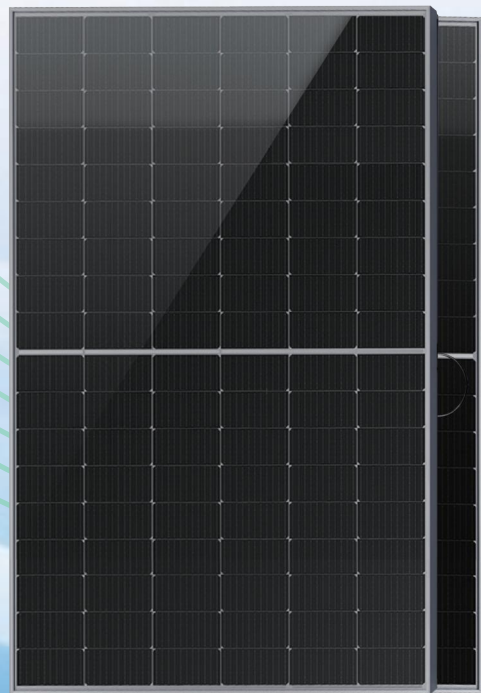
产品目录

Cell	Module product	Number of cells	Application
182	NT10-54GDF(445-465W)	54pcs	Residential Distributed Rooftop
	NT10-54GDF(445-465W)-1.6mm		
	NT10-54BGDF(445-465W)		
	NT10-54BGDF(445-465W)-1.6mm		
	NT10-60GDF(495-515W)	60pcs	Commercial / Residential Distributed Rooftop
	NT10-60BGDF(495-515W)		
	NT10-72H(595-615W)	72pcs	Commercial / Residential Distributed Rooftop
	NT10-72GDF(590-610W)		Utility-Scale PV Power Plants Commercial Distributed Rooftop Freshwater Lake
	NT10-72GDF(590-610W)		Marine Applications
210R	NT10-78GDF(630-655W)	78pcs	Utility-Scale PV Power Plants Freshwater Lake
	NT11-48GDF(445-465W)	48pcs	Residential Distributed Rooftop
	NT11-48GDF(445-465W)-1.6mm		
	NT11-48BGDF(445-465W)		
	NT11-48BGDF(445-465W)-1.6mm		
	NT11-60GDF(550-570W)	60pcs	Commercial / Residential Distributed Rooftop
	NT11-66H(615-635W)	66pcs	Utility-Scale PV Power Plants Residential Distributed Rooftop Freshwater Lake
210	NT11-66GDF(610-630W)		
	NT12-60H(640-660W)	60pcs	Utility-Scale PV Power Plants Commercial Distributed Rooftop Freshwater Lake
	NT12-60GDF(635-655W)		
	NT12-66H(710-730W)	66pcs	Commercial Distributed Rooftop
	NT12-66GDF(705-725W)		Utility-Scale PV Power Plants

HT 182 TOPCon Bifacial Series

445~465W

HY-NT10/54GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature



LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**30** YEAR

Product Workmanship Warranty

30 YEAR

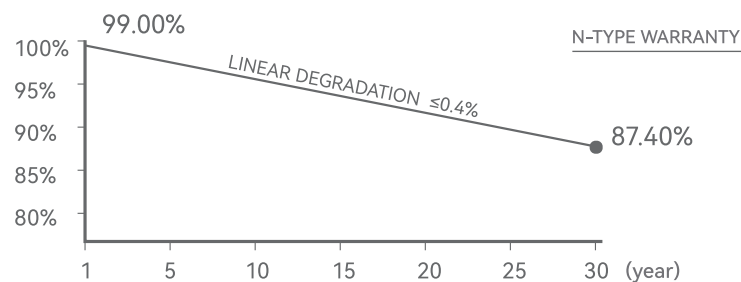
Linear Power Warranty

≤1%

First-year power attenuation

≤0.4%

Linear power attenuation



N-Type Bifacial Series HY-NT10/54GDF	445~465W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	32.71	32.89	33.07	33.24	33.43
Rated current (Impp/A)	13.61	13.67	13.76	13.84	13.91
Open circuit voltage (Voc/V)	39.19	39.39	39.57	39.77	39.95
Short-circuit current (Isc/A)	14.36	14.44	14.52	14.60	14.69
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	336.1	339.8	343.5	347.2	351.1
Rated voltage (Vmpp/V)	30.75	30.92	31.09	31.25	31.43
Rated current (Impp/A)	10.93	10.99	11.05	11.11	11.17
Open circuit voltage (Voc/V)	36.93	37.12	37.29	37.47	37.64
Short-circuit current (Isc/A)	11.53	11.59	11.66	11.72	11.79

DIFFERENT REAR POWER GAINS (450W)

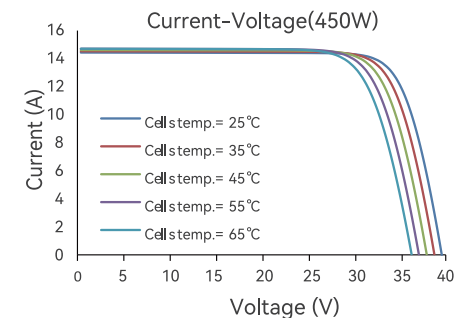
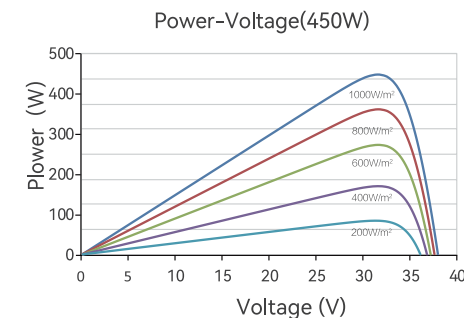
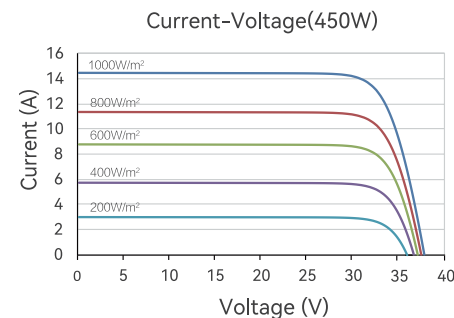
Power gains	Pmpp/Wp	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	473	32.89	14.37	39.39	15.16
15%	518	32.89	15.73	39.39	16.61
25%	563	32.89	17.10	39.39	18.05

TEMPERATURE COEFFICIENT

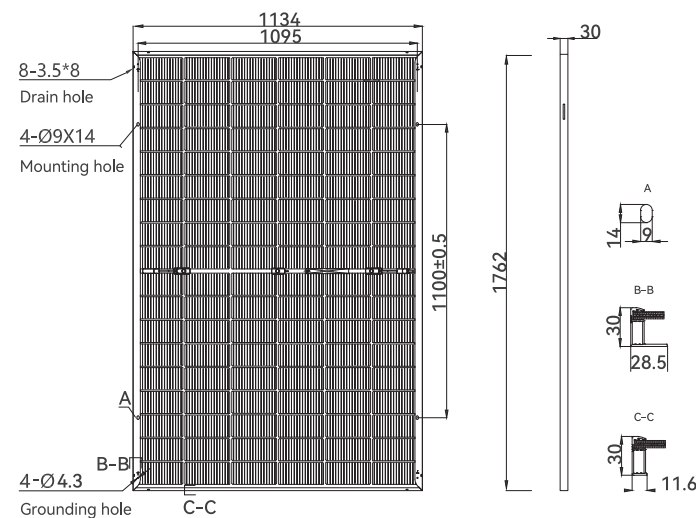
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



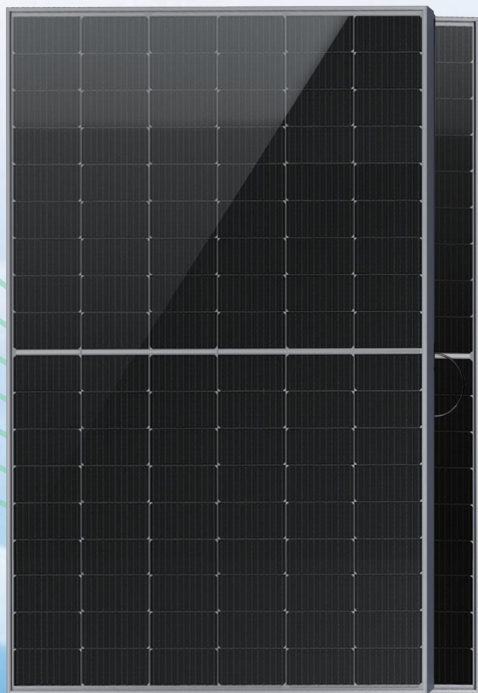
Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	108 (6*18)
Frame Type	Aluminum, silver/black anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	24.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	928 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.

HT 182 TOPCon Bifacial Series

445~465W

HY-NT10/54GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

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- Lower Operating Temperature



LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**30** YEAR

Product Workmanship Warranty

30 YEAR

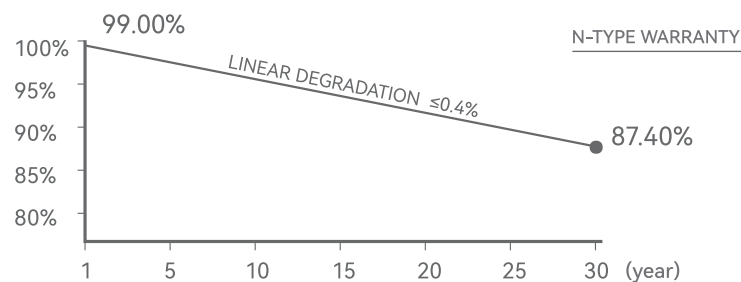
Linear Power Warranty

≤1%

First - year power attenuation

≤0.4%

Linear power attenuation



N-Type Bifacial Series HY-NT10/54GDF	445~465W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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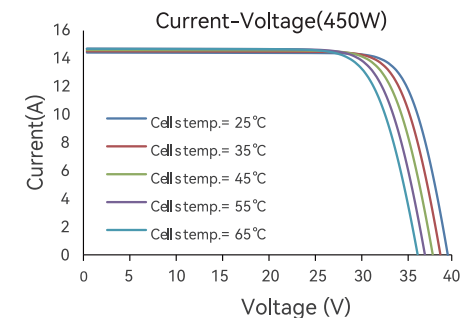
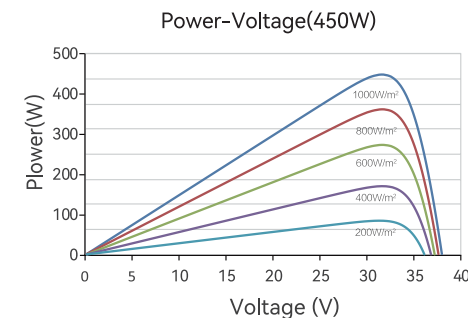
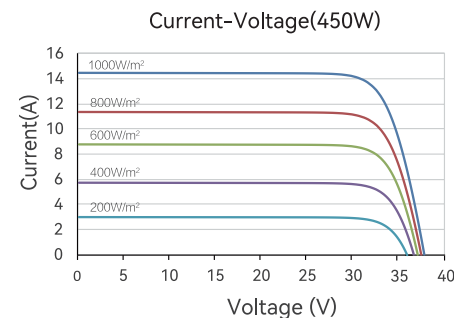
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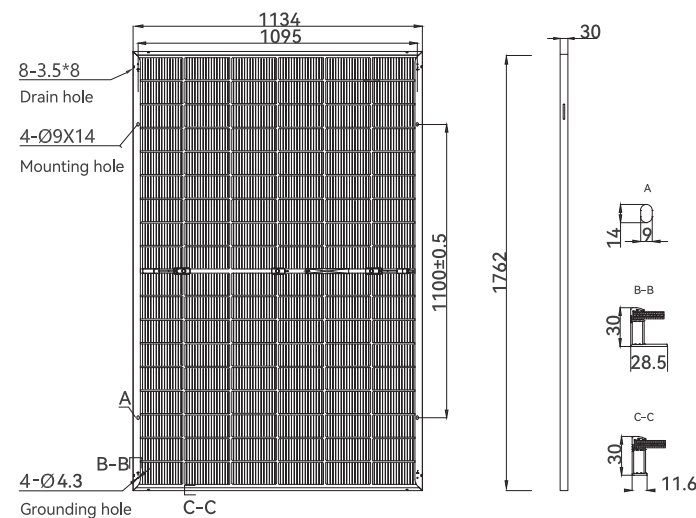
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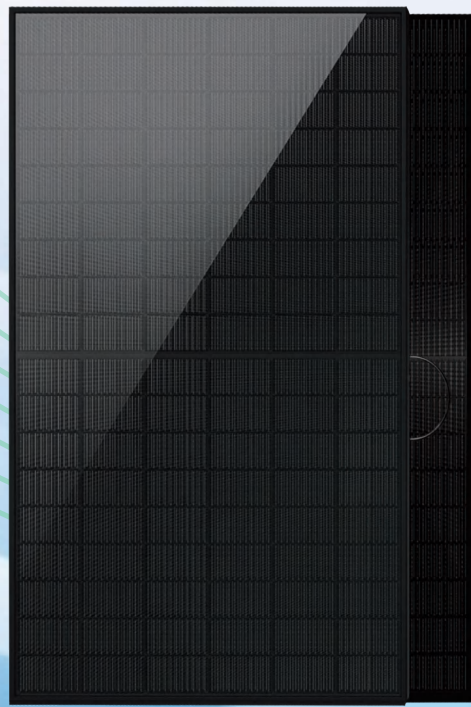


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Glass thickness	1.6+1.6 mm
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① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
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Module weight	21.0 kg
Packaging unit	36 pcs / box
Weight of packing unit	802 kg / box
Modules per 40' HQ container	936 pcs

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TOPCON TECH

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- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

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- Minimized Micro-Crack Impact

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- Anti-PID

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- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

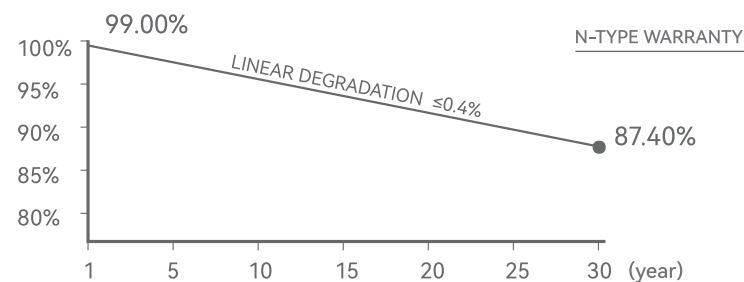
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series Full Black
HY-NT10/54BGDF445~465W
POWER RANGE23.3%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

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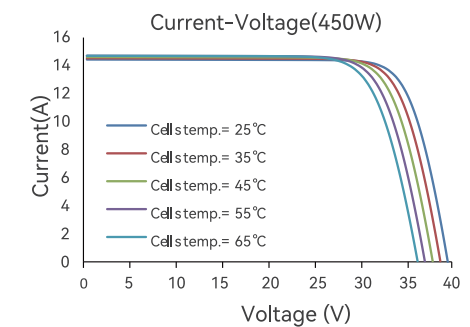
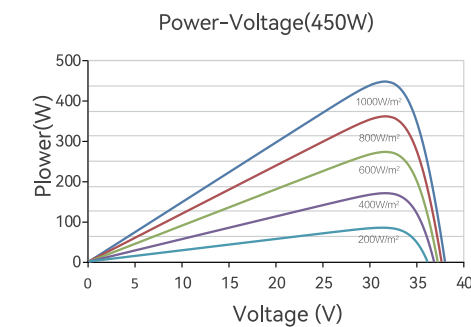
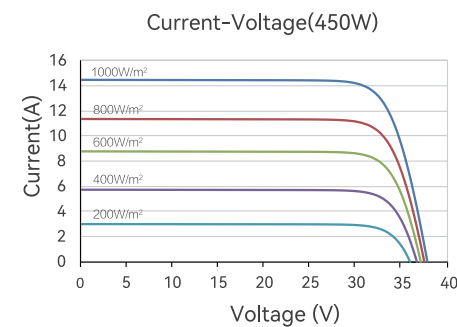
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	473	32.89	14.37	39.39	15.16
15%	518	32.89	15.73	39.39	16.61
25%	563	32.89	17.10	39.39	18.05

TEMPERATURE COEFFICIENT

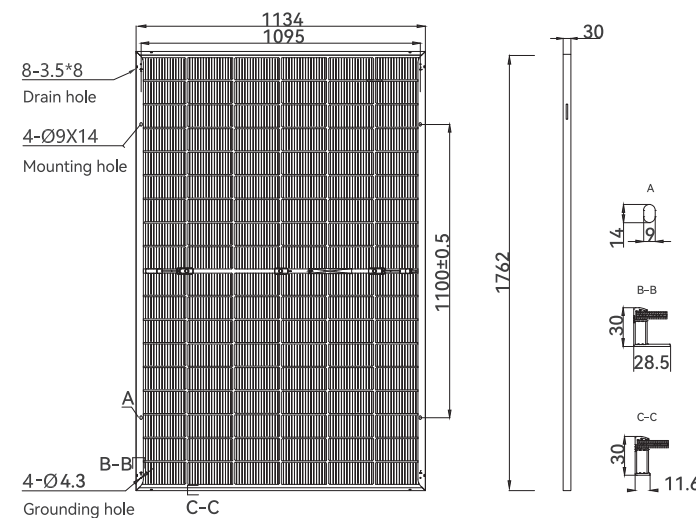
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

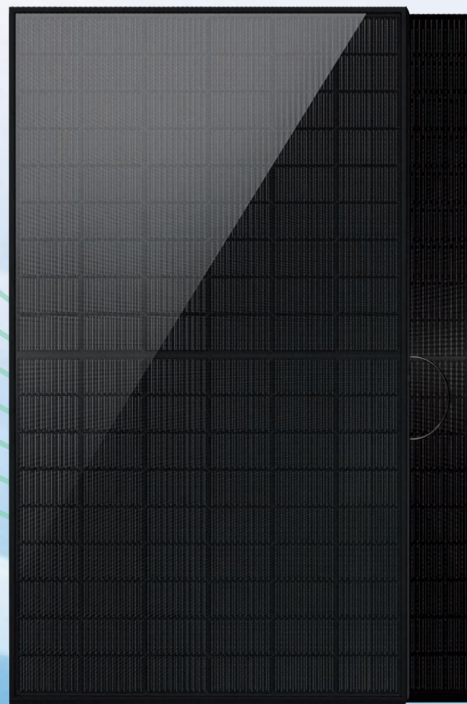


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	108 (6*18)
Frame Type	Aluminum, black anodized
Glass thickness	2.0+2.0mm (rear glass in glazed black/transparent)
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	24.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	928 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

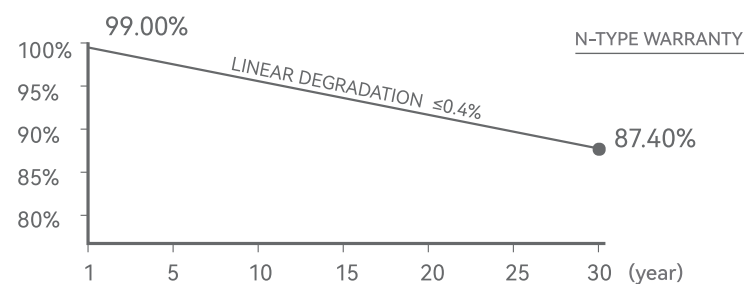
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series Full Black
HY-NT10/54BGDF445~465W
POWER RANGE23.3%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	32.71	32.89	33.07	33.24	33.43
Rated current (Impp/A)	13.61	13.67	13.76	13.84	13.91
Open circuit voltage (Voc/V)	39.19	39.39	39.57	39.77	39.95
Short-circuit current (Isc/A)	14.36	14.44	14.52	14.60	14.69
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	336.1	339.8	343.5	347.2	351.1
Rated voltage (Vmpp/V)	30.75	30.92	31.09	31.25	31.43
Rated current (Impp/A)	10.93	10.99	11.05	11.11	11.17
Open circuit voltage (Voc/V)	36.93	37.12	37.29	37.47	37.64
Short-circuit current (Isc/A)	11.53	11.59	11.66	11.72	11.79

DIFFERENT REAR POWER GAINS (450W)

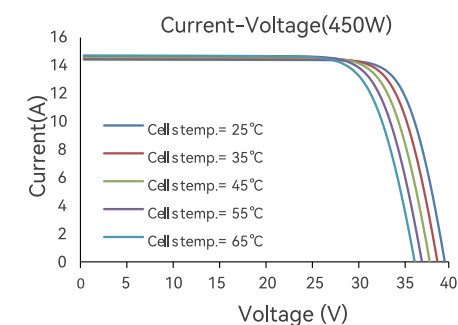
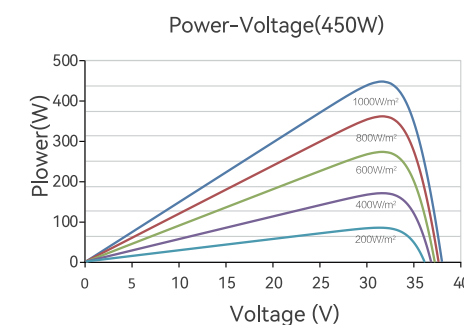
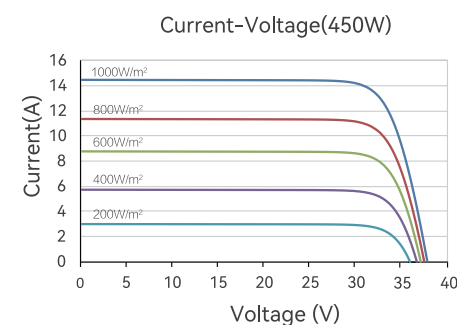
Power gains	Pmpp/Wp	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	473	32.89	14.37	39.39	15.16
15%	518	32.89	15.73	39.39	16.61
25%	563	32.89	17.10	39.39	18.05

TEMPERATURE COEFFICIENT

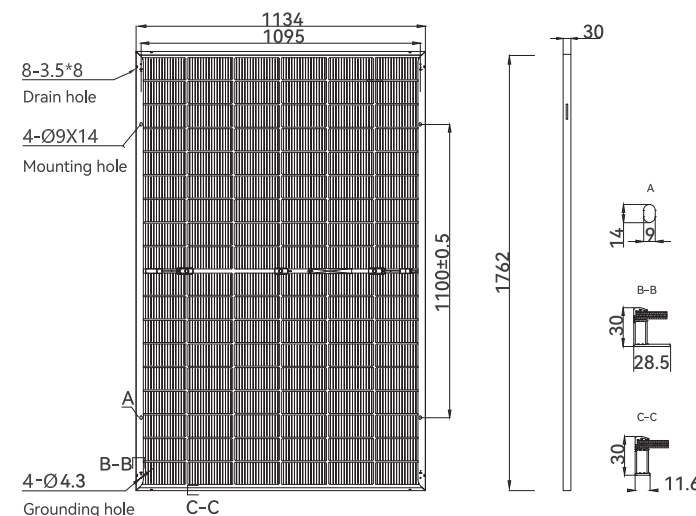
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

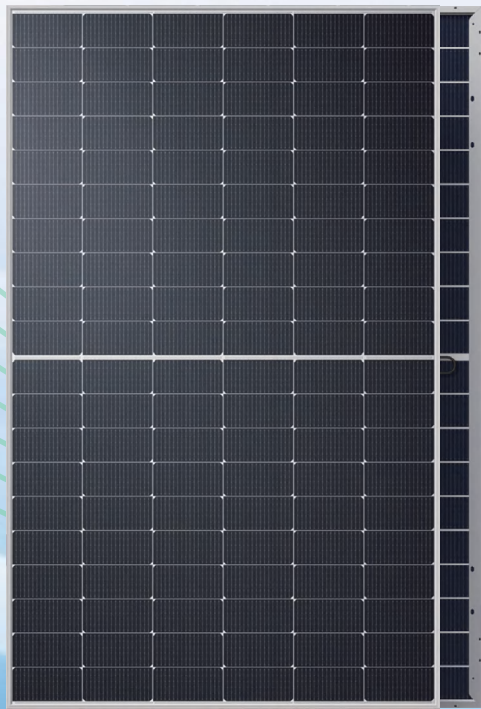


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	108 (6*18)
Frame Type	Aluminum, black anodized
Glass thickness	1.6+1.6 mm (rear glass in glazed black/transparent)
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	21.0 kg
Packaging unit	36 pcs / box
Weight of packing unit	802 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

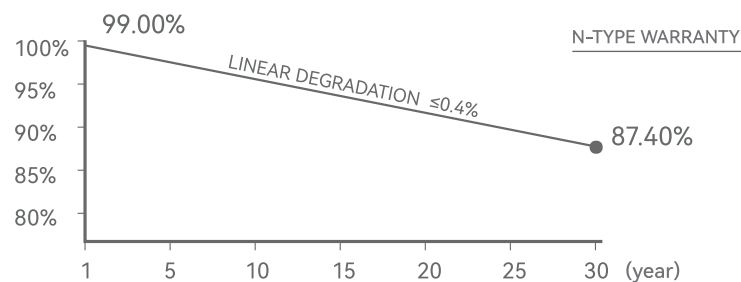
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Bifacial Series HY-NT10/60GDF	495~515W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	495	500	505	510	515
Rated voltage (Vmpp/V)	36.37	36.55	36.73	36.91	37.08
Rated current (Imp/A)	13.61	13.68	13.75	13.82	13.89
Open circuit voltage (Voc/V)	43.52	43.72	43.92	44.12	44.32
Short-circuit current (Isc/A)	14.35	14.42	14.49	14.56	14.63
Module efficiency	22.4%	22.6%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	371.7	375.2	378.8	382.4	386.3
Rated voltage (Vmpp/V)	34.13	34.30	34.47	34.64	34.80
Rated current (Imp/A)	10.89	10.94	10.99	11.04	11.10
Open circuit voltage (Voc/V)	41.01	41.20	41.39	41.58	41.77
Short-circuit current (Isc/A)	11.51	11.57	11.63	11.69	11.75

DIFFERENT REAR POWER GAINS (500W)

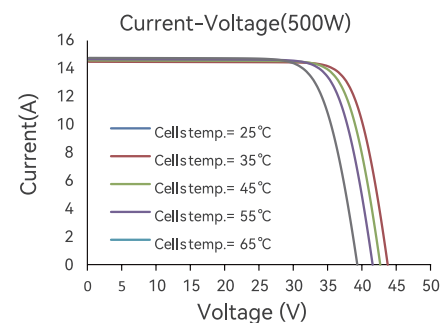
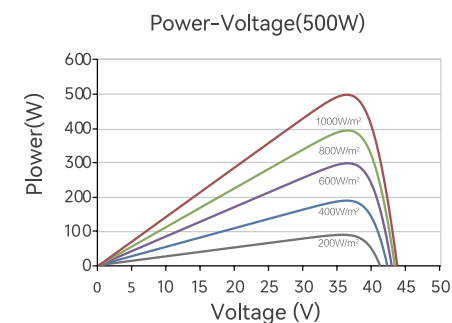
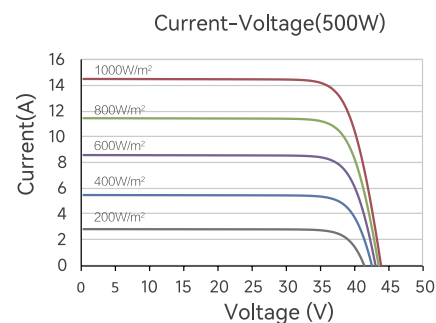
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	525	36.55	14.36	43.72	15.14
15%	575	36.55	15.73	43.72	16.58
25%	625	36.55	17.10	43.72	18.03

TEMPERATURE COEFFICIENT

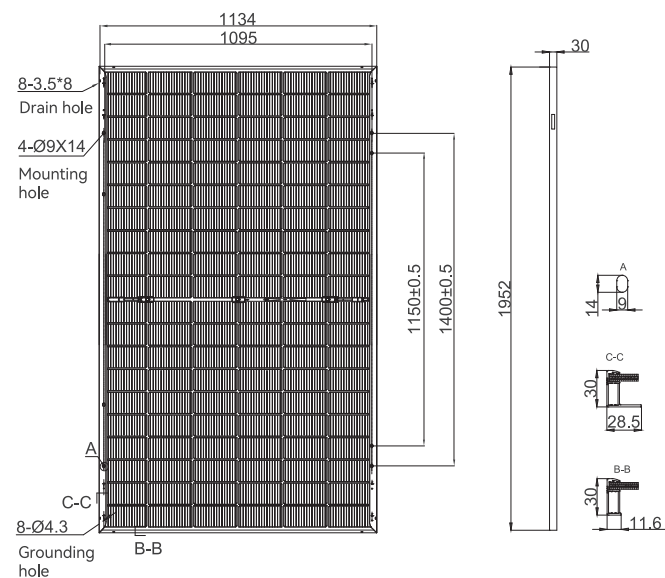
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

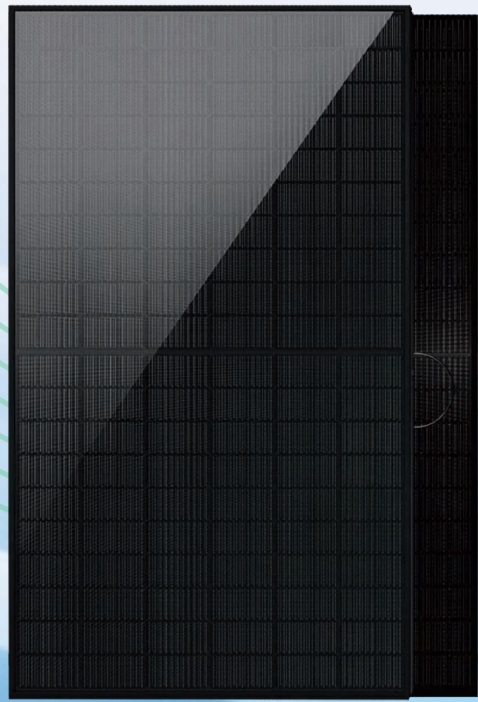
Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1952 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	120 (6*20)
Frame Type	Aluminum, silver/black anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	26.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	1003 kg / box
Modules per 40' HQ container	864 pcs



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

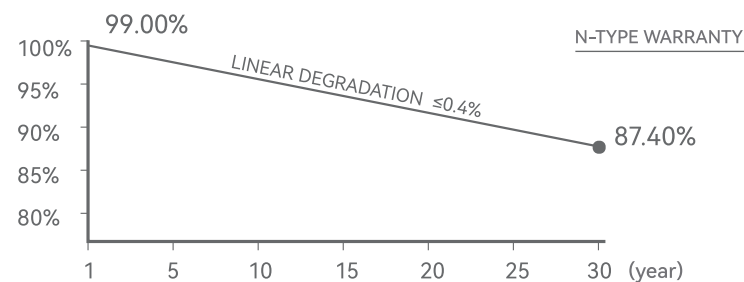
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series Full Black
HY-NT10/60BGDF495~515W
POWER RANGE23.3%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	495	500	505	510	515
Rated voltage (Vmpp/V)	36.37	36.55	36.73	36.91	37.08
Rated current (Imp/A)	13.61	13.68	13.75	13.82	13.89
Open circuit voltage (Voc/V)	43.52	43.72	43.92	44.12	44.32
Short-circuit current (Isc/A)	14.35	14.42	14.49	14.56	14.63
Module efficiency	22.4%	22.6%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	371.7	375.2	378.8	382.4	386.3
Rated voltage (Vmpp/V)	34.13	34.30	34.47	34.64	34.80
Rated current (Imp/A)	10.89	10.94	10.99	11.04	11.10
Open circuit voltage (Voc/V)	41.01	41.20	41.39	41.58	41.77
Short-circuit current (Isc/A)	11.51	11.57	11.63	11.69	11.75

DIFFERENT REAR POWER GAINS (500W)

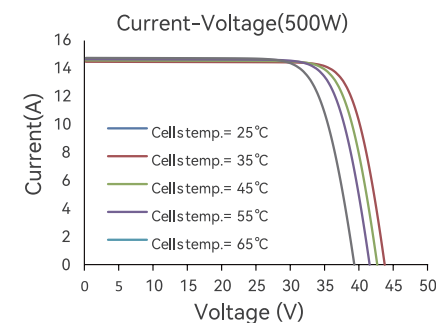
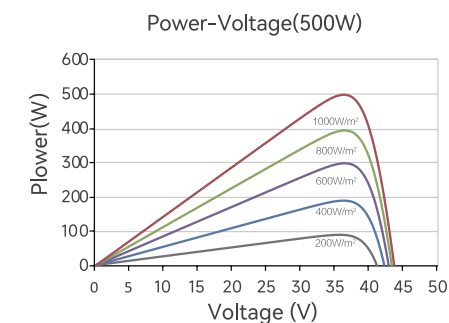
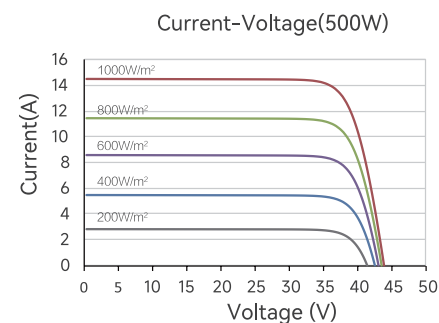
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	525	36.55	14.36	43.72	15.14
15%	575	36.55	15.73	43.72	16.58
25%	625	36.55	17.10	43.72	18.03

TEMPERATURE COEFFICIENT

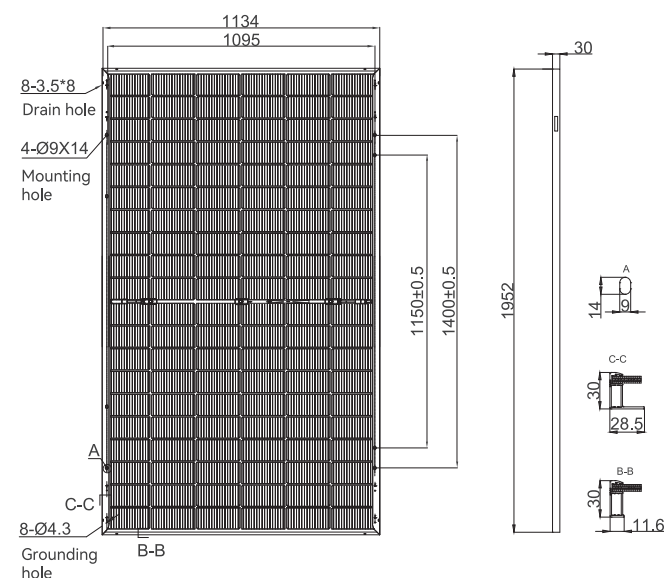
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

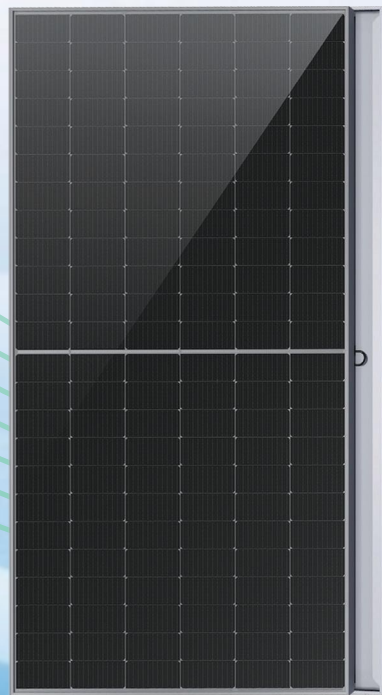


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1952 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	120 (6*20)
Frame Type	Aluminum, black anodized
Glass thickness	2.0+2.0mm (rear glass in glazed black/transparent)
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	26.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	1003 kg / box
Modules per 40' HQ container	864 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.8%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

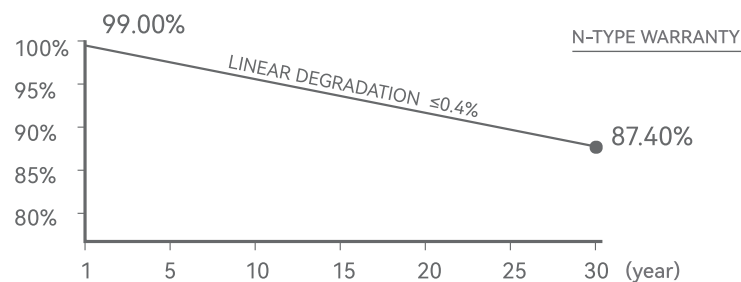
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15

Product
Workmanship
Warranty

30

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Monofacial Series HY-NT10/72H	595~615W POWER RANGE	23.8% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	595	600	605	610	615
Rated voltage (Vmpp/V)	44.15	44.35	44.53	44.73	44.93
Rated current (Impp/A)	13.48	13.53	13.59	13.64	13.69
Open circuit voltage (Voc/V)	52.30	52.47	52.66	52.86	53.06
Short-circuit current (Isc/A)	14.20	14.26	14.31	14.36	14.41
Module efficiency	23.0%	23.2%	23.4%	23.6%	23.8%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

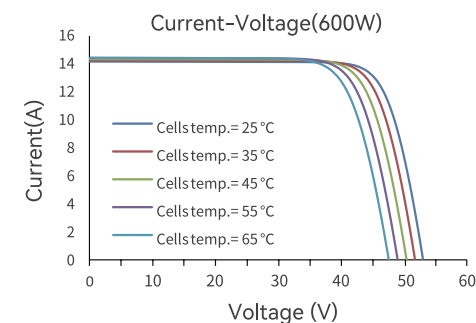
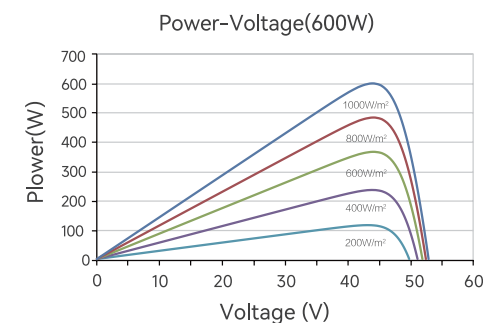
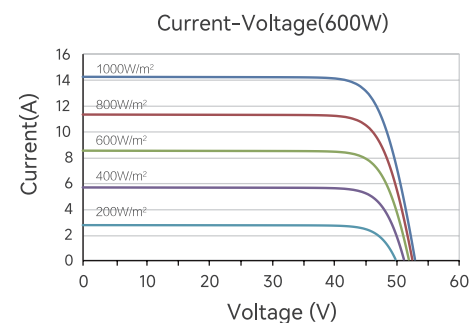
Rated output (Pmpp/Wp)	449.1	452.9	456.8	460.6	464.2
Rated voltage (Vmpp/V)	41.51	41.70	41.87	42.06	42.24
Rated current (Impp/A)	10.82	10.86	10.91	10.95	10.99
Open circuit voltage (Voc/V)	49.68	49.84	50.02	50.21	50.40
Short-circuit current (Isc/A)	11.49	11.53	11.58	11.62	11.66

TEMPERATURE COEFFICIENT

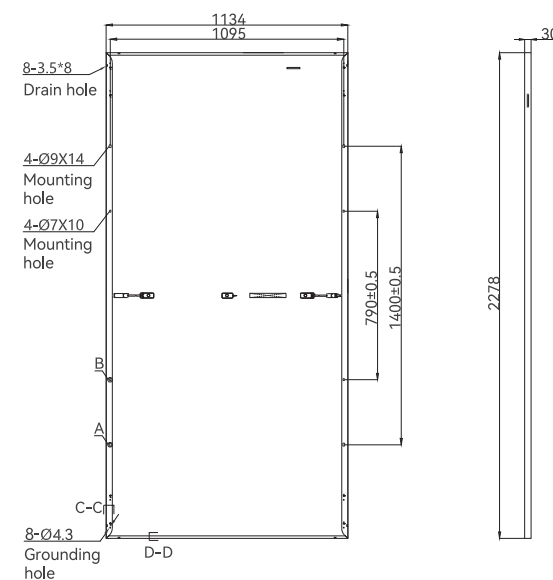
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	25A
Operational temperature	-40~+85°C



MECHANICAL PARAMETERS

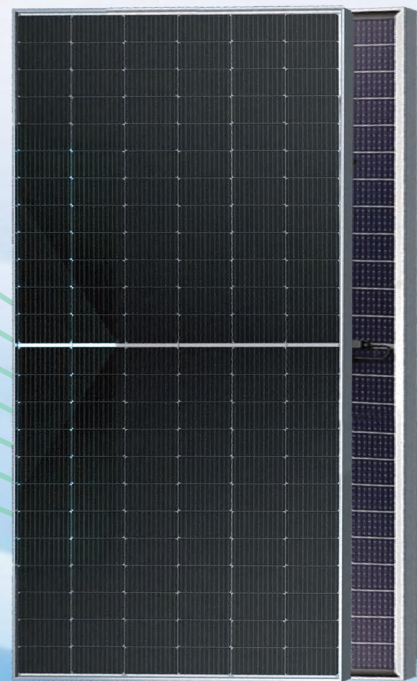


Outer dimensions (L x W x H)	2278 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	144 (6*24)
Frame Type	Aluminum, silver anodized
Glass thickness	3.2 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	27.2 kg
Packaging unit	36 pcs / box
Weight of packing unit	1040 kg / box
Modules per 40' HQ container	720 pcs

HT 182 TOPCon Bifacial Series

590~610W

HY-NT10/72GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.6%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

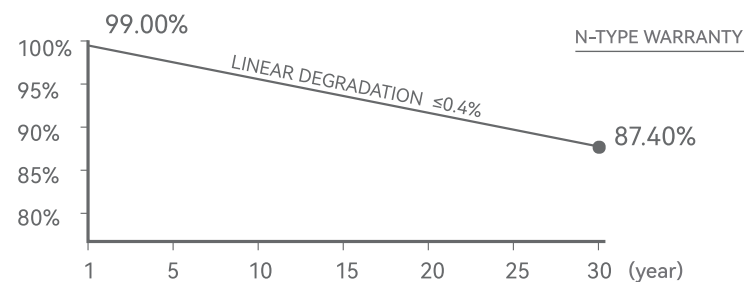


LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**15** YEAR

Product Workmanship Warranty

30 YEAR

Linear Power Warranty

 $\leq 1\%$

First - year power attenuation

 $\leq 0.4\%$

Linear power attenuation

N-Type Bifacial Series HY-NT10/72GDF

590~610W
POWER RANGE**23.6%**
EFFICIENCY**0~+5W**
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	590	595	600	605	610
Rated voltage (Vmp/V)	44.15	44.34	44.54	44.74	44.94
Rated current (Imp/A)	13.37	13.42	13.48	13.53	13.58
Open circuit voltage (Voc/V)	52.20	52.35	52.55	52.75	52.95
Short-circuit current (Isc/A)	14.13	14.19	14.25	14.31	14.37
Module efficiency	22.8%	23.0%	23.2%	23.4%	23.6%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	444.9	449.5	453.4	457.6	461.9
Rated voltage (Vmp/V)	41.50	41.70	41.90	42.10	42.30
Rated current (Imp/A)	10.72	10.78	10.82	10.87	10.92
Open circuit voltage (Voc/V)	49.64	49.84	50.04	50.24	50.44
Short-circuit current (Isc/A)	11.41	11.46	11.51	11.56	11.61

DIFFERENT REAR POWER GAINS (600W)

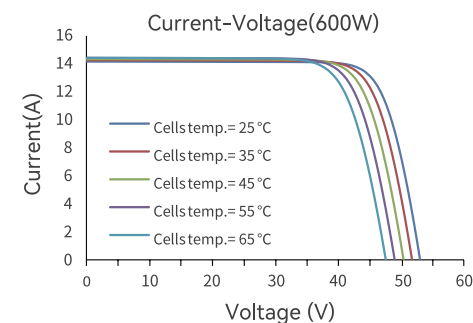
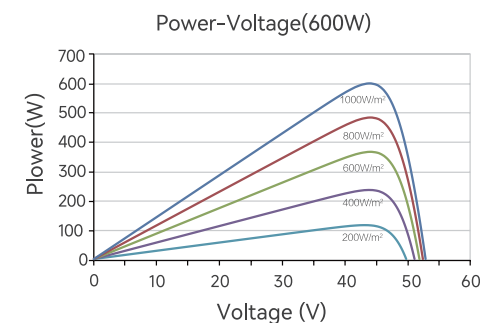
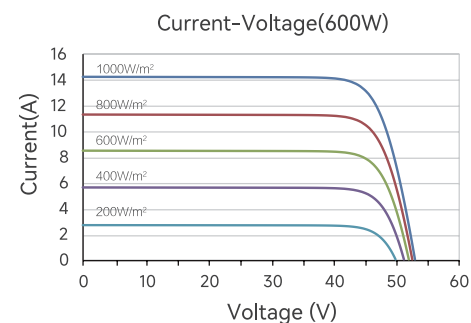
Power gains	Pmpp/Wp	Vmp/V	Imp/A	Voc/V	Isc/A
5%	630	44.54	14.14	52.55	14.96
15%	690	44.54	15.49	52.55	16.39
25%	750	44.54	16.84	52.55	17.81

TEMPERATURE COEFFICIENT

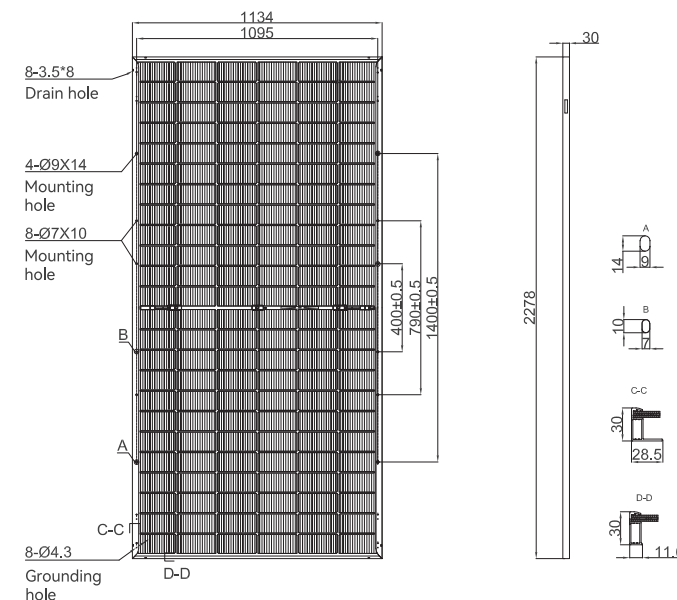
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

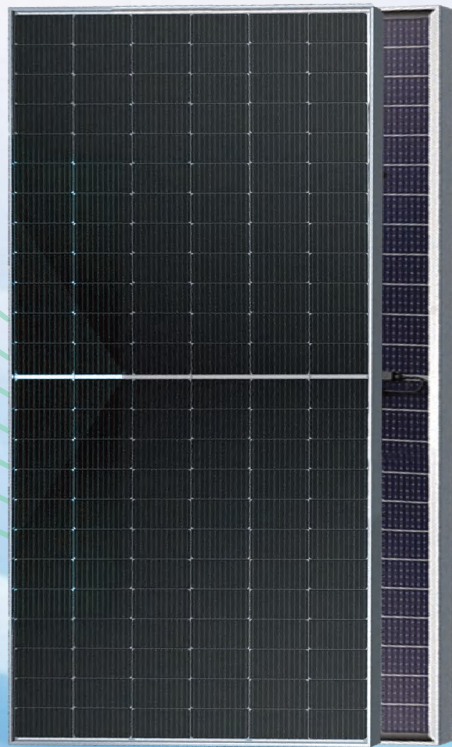


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	2278 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	144 (6*24)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	32.1 kg
Packaging unit	36 pcs / box
Weight of packing unit	1215 kg / box
Modules per 40' HQ container	720 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance $\pm 3\%$ under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.6%
- Bifaciality Rate Up to 80~85%

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

RESISTANT TO HARSH
MARINE ENVIRONMENTS

- Strong Wind Resistance, Wave Impact Resistance, Salt Mist Resistance
- UV Aging Resistance, Superior Waterproofing & Light Transmission

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

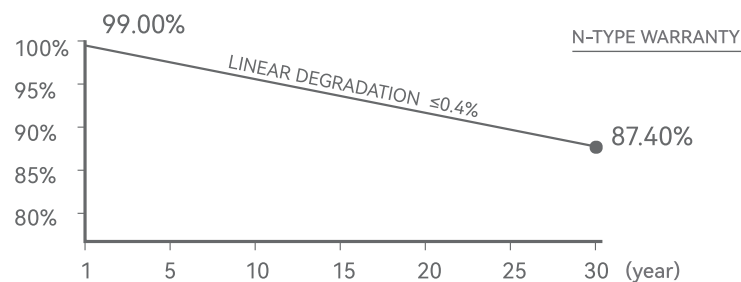
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15

Product
Workmanship
Warranty

30

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series
HY-NT10/72GDF (For Marine Applications)590~610W
POWER RANGE23.6%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	590	595	600	605	610
Rated voltage (Vmpp/V)	44.15	44.34	44.54	44.74	44.94
Rated current (Imp/A)	13.37	13.42	13.48	13.53	13.58
Open circuit voltage (Voc/V)	52.20	52.35	52.55	52.75	52.95
Short-circuit current (Isc/A)	14.13	14.19	14.25	14.31	14.37
Module efficiency	22.8%	23.0%	23.2%	23.4%	23.6%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	444.9	449.5	453.4	457.6	461.9
Rated voltage (Vmpp/V)	41.50	41.70	41.90	42.10	42.30
Rated current (Imp/A)	10.72	10.78	10.82	10.87	10.92
Open circuit voltage (Voc/V)	49.64	49.84	50.04	50.24	50.44
Short-circuit current (Isc/A)	11.41	11.46	11.51	11.56	11.61

DIFFERENT REAR POWER GAINS (600W)

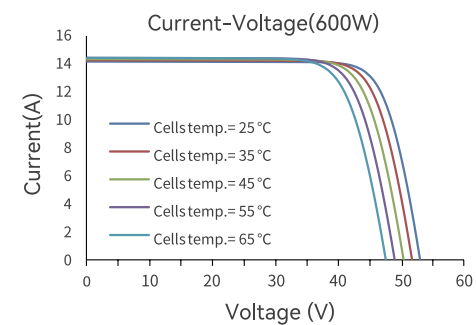
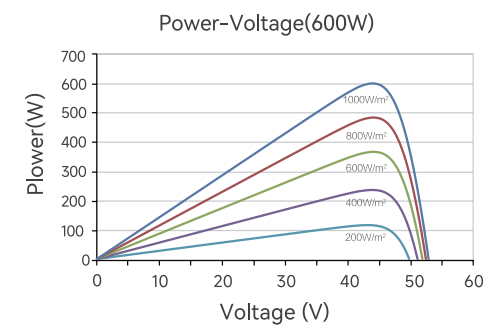
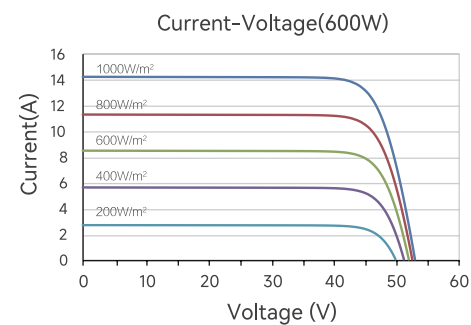
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	630	44.54	14.14	52.55	14.96
15%	690	44.54	15.49	52.55	16.39
25%	750	44.54	16.84	52.55	17.81

TEMPERATURE COEFFICIENT

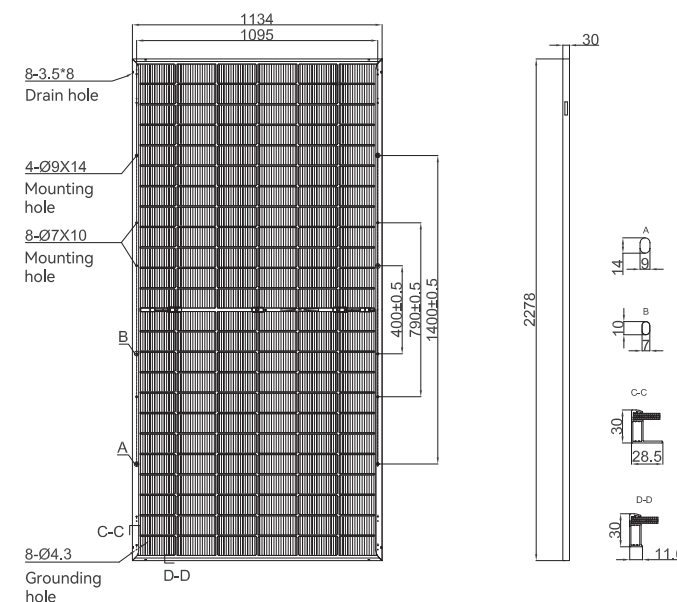
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



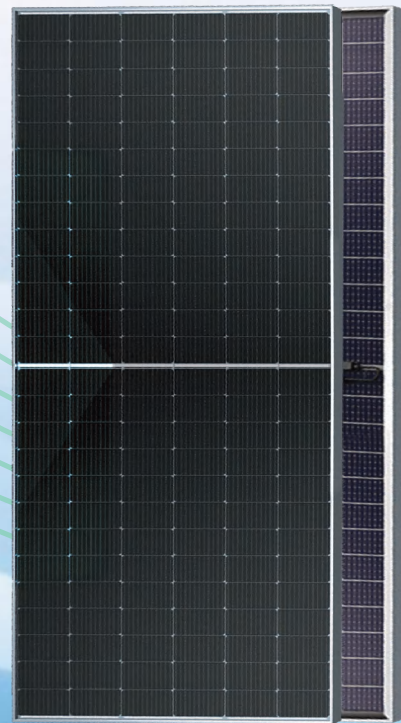
Outer dimensions (L x W x H)	2278x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	144 (6*24)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	32.1 kg
Packaging unit	36 pcs / box
Weight of packing unit	1215 kg / box
Modules per 40' HQ container	720 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance $\pm 3\%$ under STC standard.

HT 182 TOPCon Bifacial Series

630~655W

HY-NT10/78GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.4%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature



LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**15** YEAR

Product Workmanship Warranty

30 YEAR

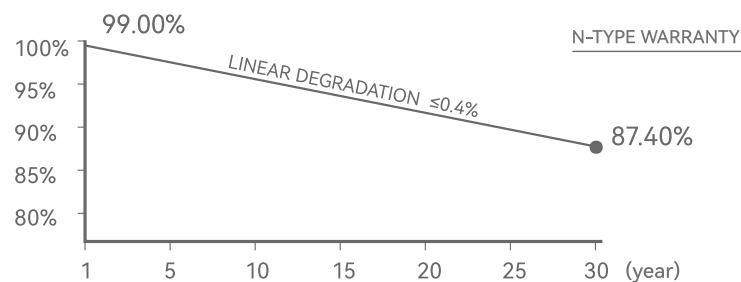
Linear Power Warranty

≤1%

First-year power attenuation

≤0.4%

Linear power attenuation



N-Type Bifacial Series HY-NT10/78GDF	630~655W POWER RANGE	23.4% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	630	635	640	645	650	655
Rated voltage (Vmpp/V)	46.57	46.75	46.95	47.15	47.35	47.55
Rated current (Imp/A)	13.53	13.59	13.64	13.68	13.73	13.78
Open circuit voltage (Voc/V)	56.41	56.61	56.81	57.01	57.21	57.41
Short-circuit current (Isc/A)	14.11	14.17	14.21	14.25	14.29	14.33
Module efficiency	22.5%	22.7%	22.9%	23.1%	23.3%	23.4%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	469.0	473.1	476.7	480.3	483.9	487.5
Rated voltage (Vmpp/V)	43.31	43.48	43.65	43.82	43.99	44.16
Rated current (Imp/A)	10.83	10.88	10.92	10.96	11.00	11.04
Open circuit voltage (Voc/V)	53.58	53.77	53.96	54.15	54.34	54.53
Short-circuit current (Isc/A)	11.29	11.34	11.38	11.42	11.46	11.50

DIFFERENT REAR POWER GAINS (635W)

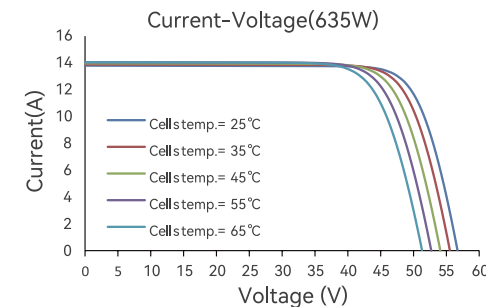
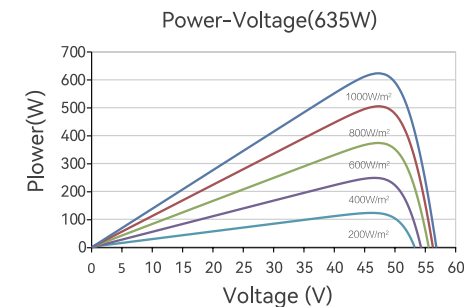
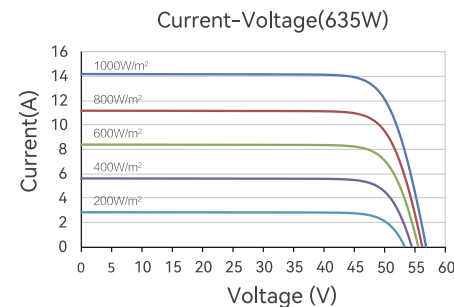
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	667	46.75	14.26	56.61	14.88
15%	730	46.75	15.62	56.61	16.30
25%	794	46.75	16.98	56.61	17.71

TEMPERATURE COEFFICIENT

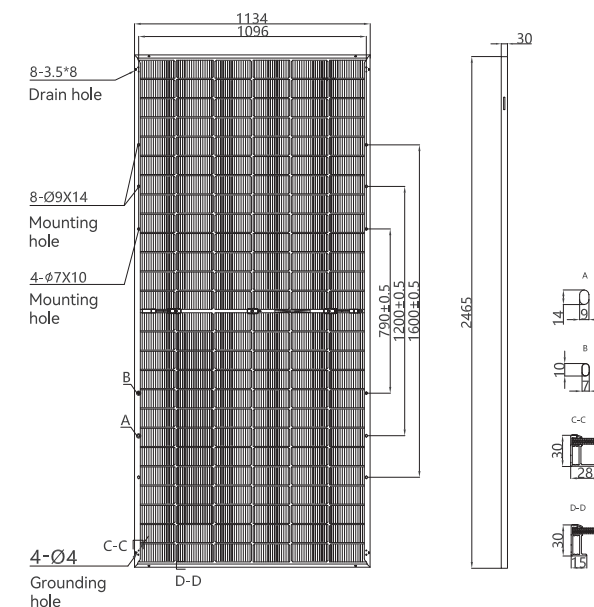
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500V _{DC}
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS

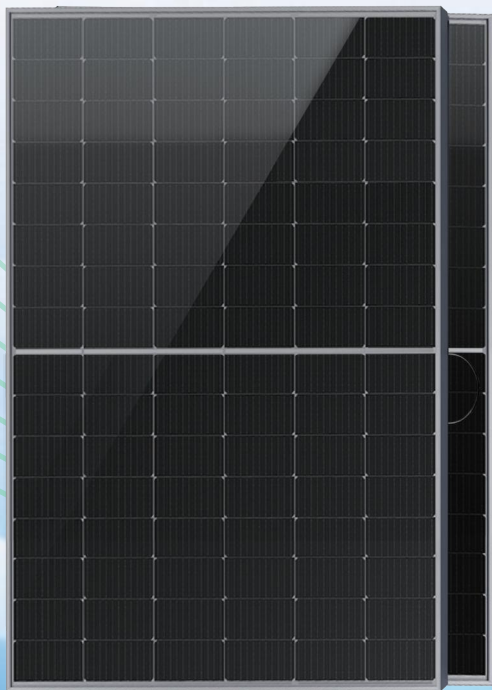


Outer dimensions (L x W x H)	2465 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	156 (6*26)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	34.7 kg
Packaging unit	36 pcs / box
Weight of packing unit	1302 kg / box
Modules per 40' HQ container	576 pcs

HT 210R TOPCon Bifacial Series

445~465W

HY-NT11/48GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature



LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**30** YEAR

Product Workmanship Warranty

30 YEAR

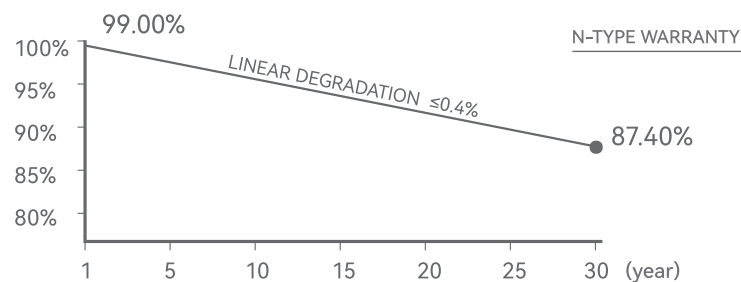
Linear Power Warranty

≤1%

First - year power attenuation

≤0.4%

Linear power attenuation



N-Type Bifacial Series HY-NT11/48GDF

445~465W
POWER RANGE**23.3%**
EFFICIENCY**0~+5W**
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Imp/A)	15.01	15.08	15.14	15.21	15.27
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	15.90	15.97	16.02	16.09	16.15
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	340.2	344.3	348.5	352.7	356.9
Rated voltage (Vmpp/V)	27.84	28.04	28.24	28.44	28.64
Rated current (Imp/A)	12.22	12.28	12.34	12.40	12.46
Open circuit voltage (Voc/V)	33.33	33.53	33.73	33.93	34.13
Short-circuit current (Isc/A)	12.83	12.89	12.95	13.01	13.07

DIFFERENT REAR POWER GAINS (455W)

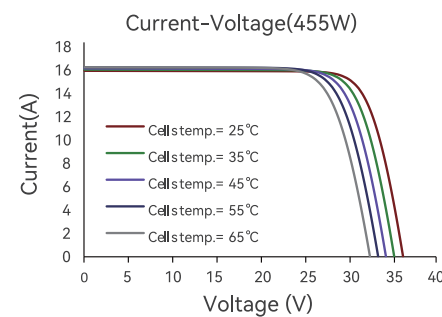
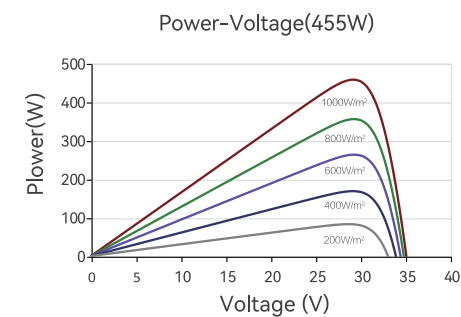
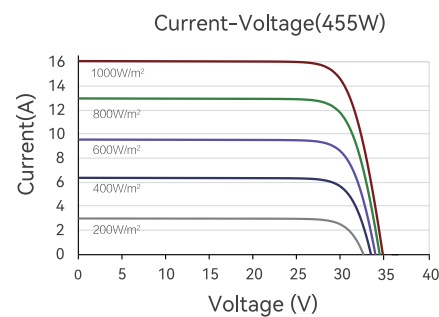
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	478	30.06	15.89	35.64	16.82
15%	523	30.06	17.41	35.64	18.42
25%	569	30.06	18.92	35.64	20.03

TEMPERATURE COEFFICIENT

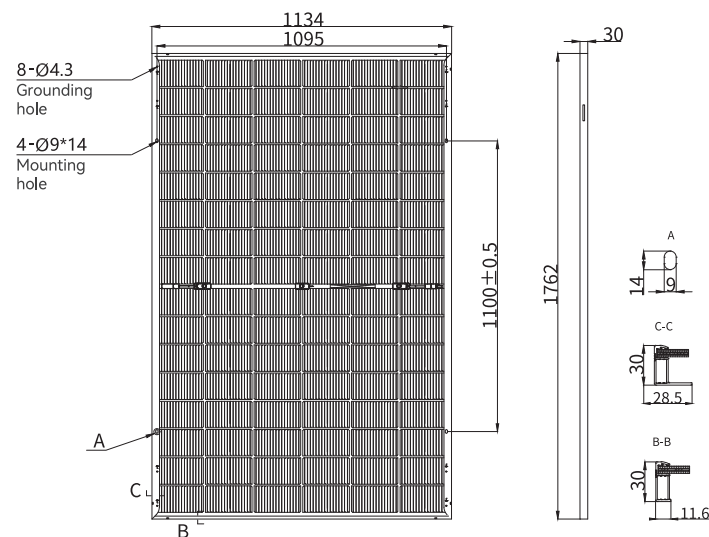
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



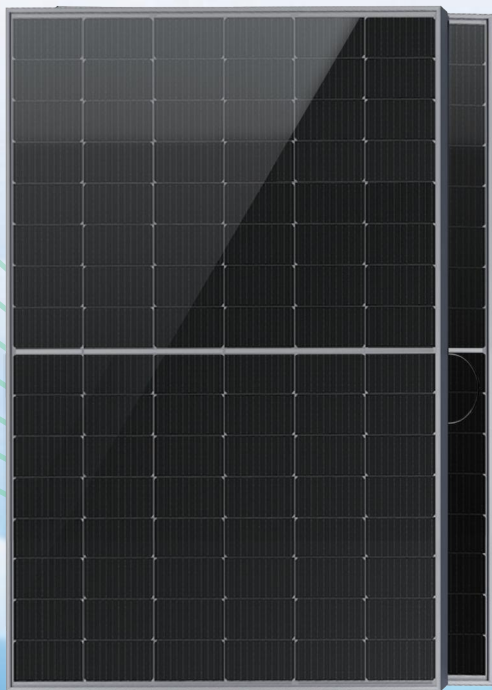
Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	96 (6*16)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	24.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	928 kg / box
Modules per 40' HQ container	936 pcs

HT

210R
TOPCon
Bifacial Series

445~465W

HY-NT11/48GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

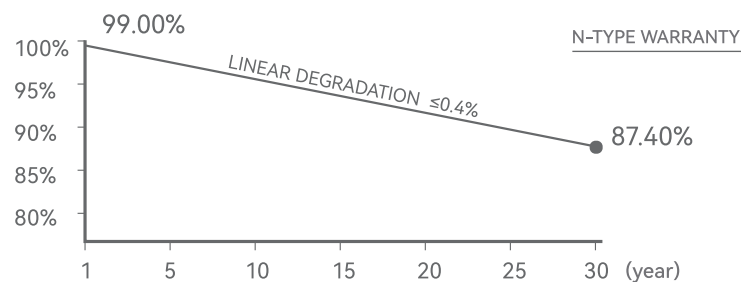


LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**30**Product
Workmanship
Warranty**30**Linear Power
Warranty**≤1%**First - year
power
attenuation**≤0.4%**Linear power
attenuation

N-Type Bifacial Series HY-NT11/48GDF	445~465W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Imp/A)	15.01	15.08	15.14	15.21	15.27
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	15.90	15.97	16.02	16.09	16.15
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	340.2	344.3	348.5	352.7	356.9
Rated voltage (Vmpp/V)	27.84	28.04	28.24	28.44	28.64
Rated current (Imp/A)	12.22	12.28	12.34	12.40	12.46
Open circuit voltage (Voc/V)	33.33	33.53	33.73	33.93	34.13
Short-circuit current (Isc/A)	12.83	12.89	12.95	13.01	13.07

DIFFERENT REAR POWER GAINS (455W)

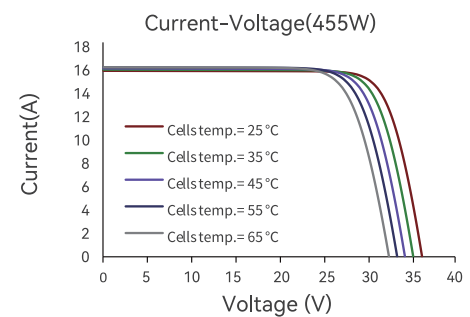
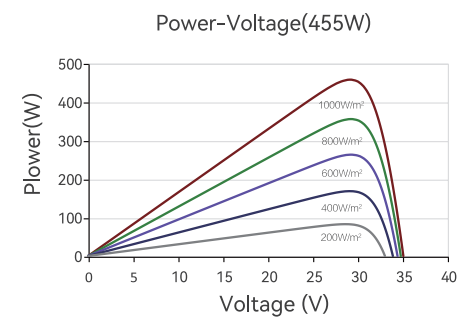
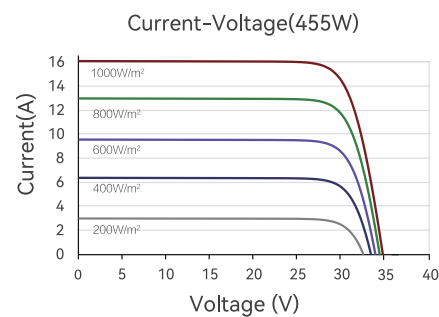
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	478	30.06	15.89	35.64	16.82
15%	523	30.06	17.41	35.64	18.42
25%	569	30.06	18.92	35.64	20.03

TEMPERATURE COEFFICIENT

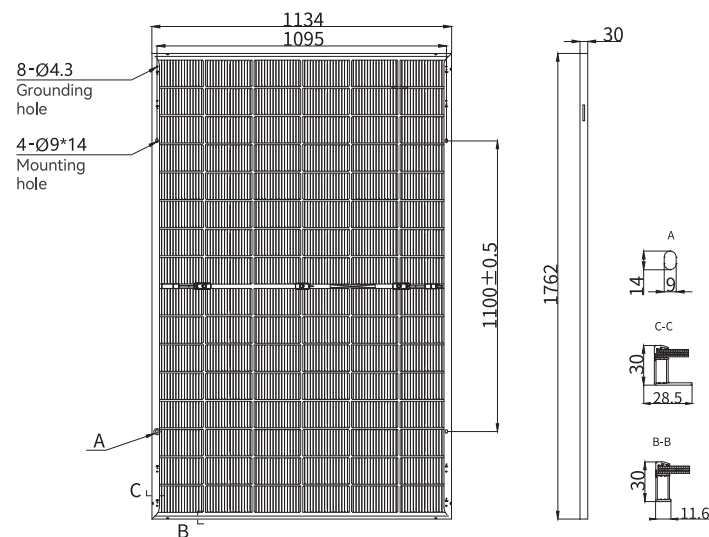
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

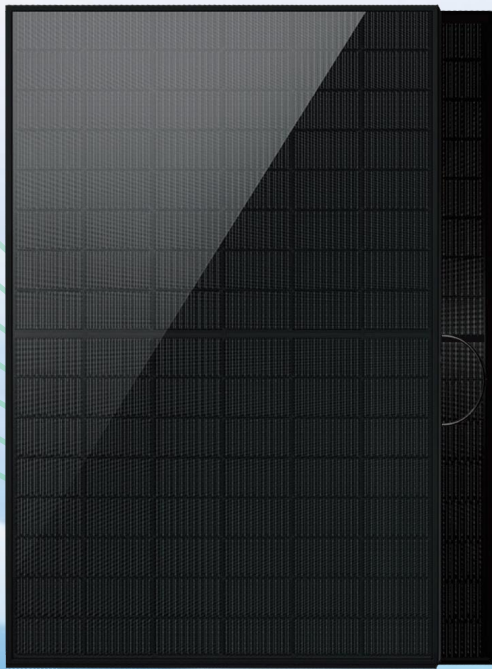


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	96 (6*16)
Frame Type	Aluminum, silver anodized
Glass thickness	1.6+1.6 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	21.0 kg
Packaging unit	36 pcs / box
Weight of packing unit	802 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

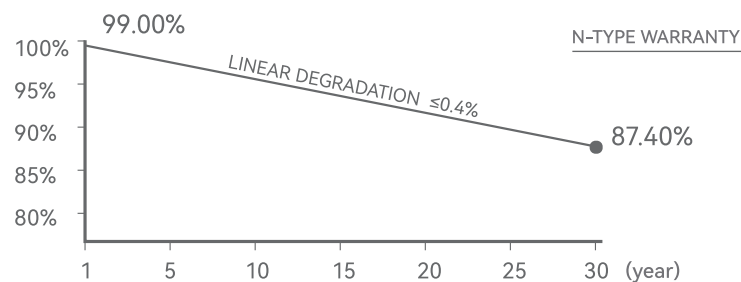
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series Full Black
HY-NT11/48BGDF445~465W
POWER RANGE23.3%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Imp/A)	15.01	15.08	15.14	15.21	15.27
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	15.90	15.97	16.02	16.09	16.15
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	340.2	344.3	348.5	352.7	356.9
Rated voltage (Vmpp/V)	27.84	28.04	28.24	28.44	28.64
Rated current (Imp/A)	12.22	12.28	12.34	12.40	12.46
Open circuit voltage (Voc/V)	33.33	33.53	33.73	33.93	34.13
Short-circuit current (Isc/A)	12.83	12.89	12.95	13.01	13.07

DIFFERENT REAR POWER GAINS (455W)

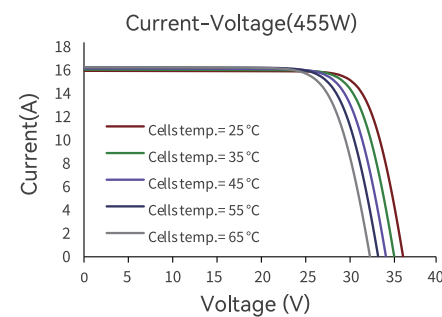
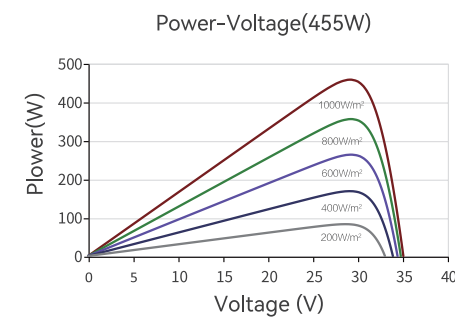
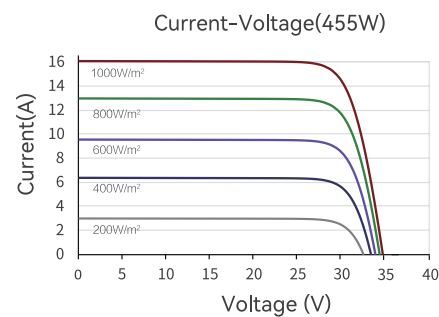
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	478	30.06	15.89	35.64	16.82
15%	523	30.06	17.41	35.64	18.42
25%	569	30.06	18.92	35.64	20.03

TEMPERATURE COEFFICIENT

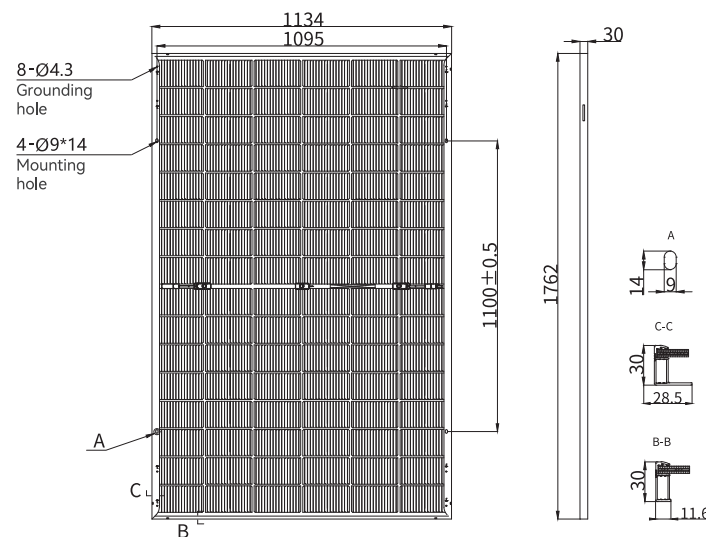
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

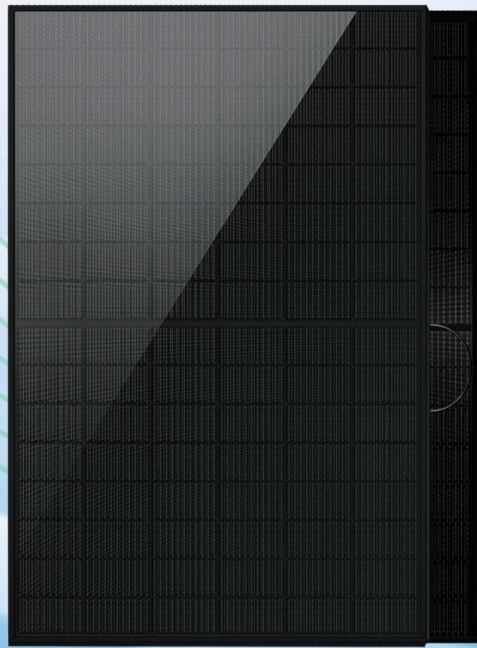


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	96 (6*16)
Frame Type	Aluminum, black anodized
Glass thickness	2.0+2.0 mm (rear glass in glazed black/transparent)
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	24.5 kg
Packaging unit	36 pcs / box
Weight of packing unit	928 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance $\pm 3\%$ under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

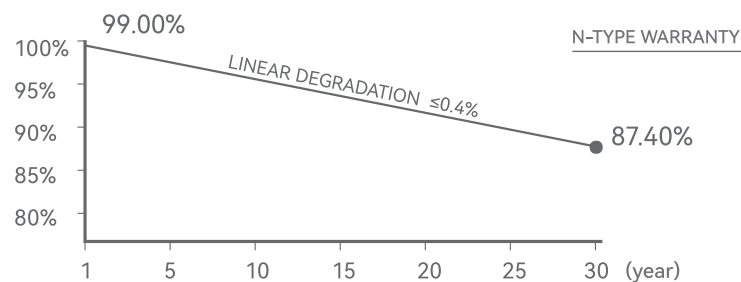
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



30 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuationN-Type Bifacial Series Full Black
HY-NT11/48BGDF445~465W
POWER RANGE23.3%
EFFICIENCY0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	445	450	455	460	465
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Imp/A)	15.01	15.08	15.14	15.21	15.27
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	15.90	15.97	16.02	16.09	16.15
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	340.2	344.3	348.5	352.7	356.9
Rated voltage (Vmpp/V)	27.84	28.04	28.24	28.44	28.64
Rated current (Imp/A)	12.22	12.28	12.34	12.40	12.46
Open circuit voltage (Voc/V)	33.33	33.53	33.73	33.93	34.13
Short-circuit current (Isc/A)	12.83	12.89	12.95	13.01	13.07

DIFFERENT REAR POWER GAINS (455W)

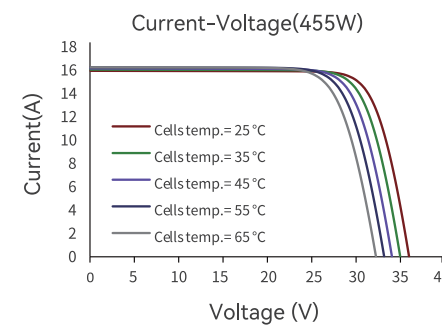
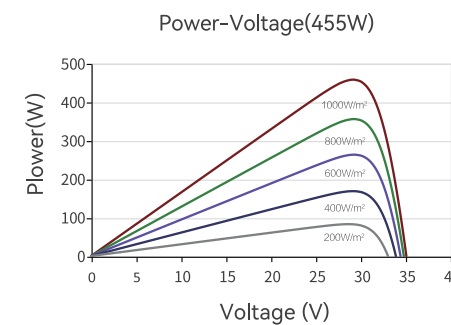
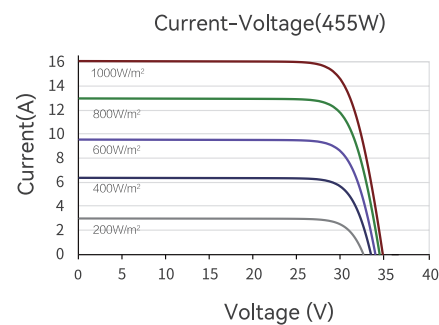
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	478	30.06	15.89	35.64	16.82
15%	523	30.06	17.41	35.64	18.42
25%	569	30.06	18.92	35.64	20.03

TEMPERATURE COEFFICIENT

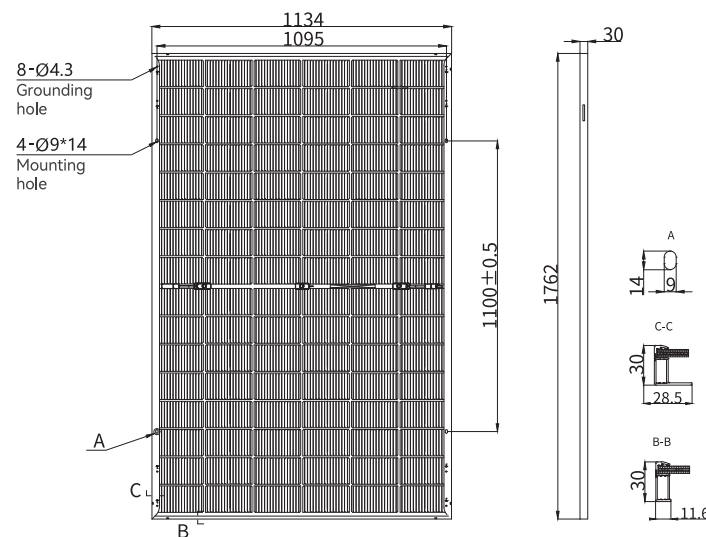
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	96 (6*16)
Frame Type	Aluminum, black anodized
Glass thickness	1.6+1.6 mm (rear glass in glazed black/transparent)
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	21.0 kg
Packaging unit	36 pcs / box
Weight of packing unit	802 kg / box
Modules per 40' HQ container	936 pcs

HT^{210R} TOPCon Bifacial Series

550~570W

HY-NT11/60GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.1%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

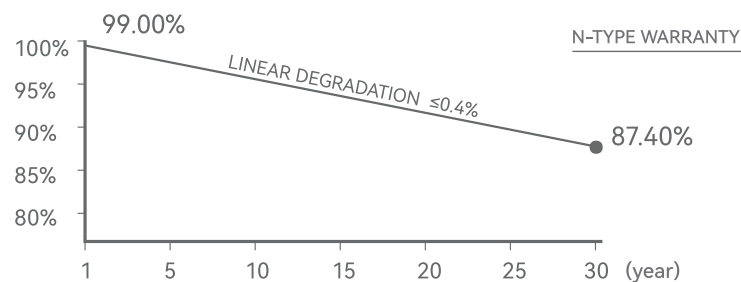


LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**15** YEARProduct
Workmanship
Warranty**30** YEARLinear Power
Warranty**≤1%**First - year
power
attenuation**≤0.4%**Linear power
attenuation

N-Type Bifacial Series HY-NT11/60GDF

550~570W
POWER RANGE**23.1%**
EFFICIENCY**0~+5W**
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	550	555	560	565	570
Rated voltage (Vmp/V)	36.70	36.90	37.10	37.30	37.50
Rated current (Imp/A)	14.99	15.05	15.10	15.15	15.20
Open circuit voltage (Voc/V)	43.80	44.00	44.20	44.40	44.60
Short-circuit current (Isc/A)	15.81	15.85	15.89	15.93	15.97
Module efficiency	22.3%	22.5%	22.7%	22.9%	23.1%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	420.4	424.6	428.8	433.0	437.2
Rated voltage (Vmp/V)	34.43	34.63	34.83	35.03	35.23
Rated current (Imp/A)	12.21	12.26	12.31	12.36	12.41
Open circuit voltage (Voc/V)	41.41	41.61	41.81	42.01	42.21
Short-circuit current (Isc/A)	12.83	12.88	12.93	12.98	13.03

DIFFERENT REAR POWER GAINS (555W)

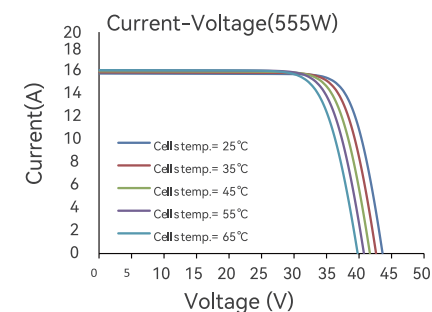
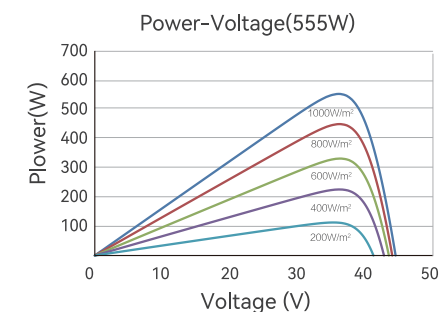
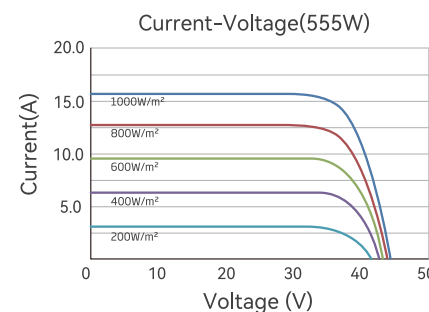
Power gains	Pmpp/Wp	Vmp/V	Imp/A	Voc/V	Isc/A
5%	583	36.90	15.79	44.00	16.64
15%	638	36.90	17.30	44.00	18.23
25%	694	36.90	18.80	44.00	19.81

TEMPERATURE COEFFICIENT

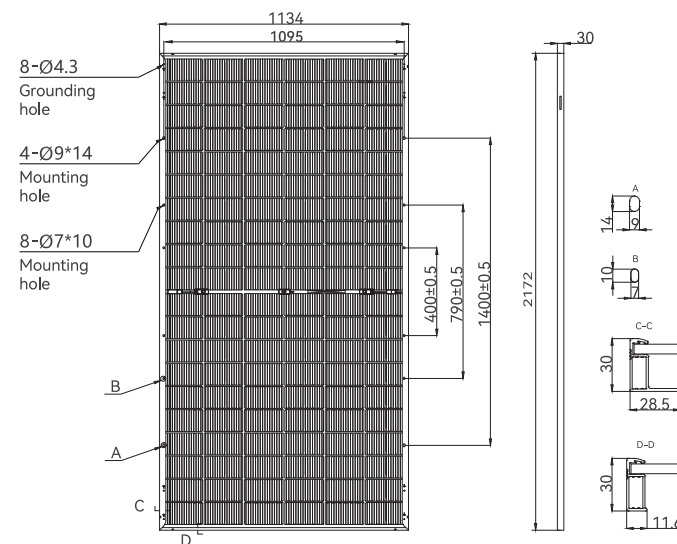
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

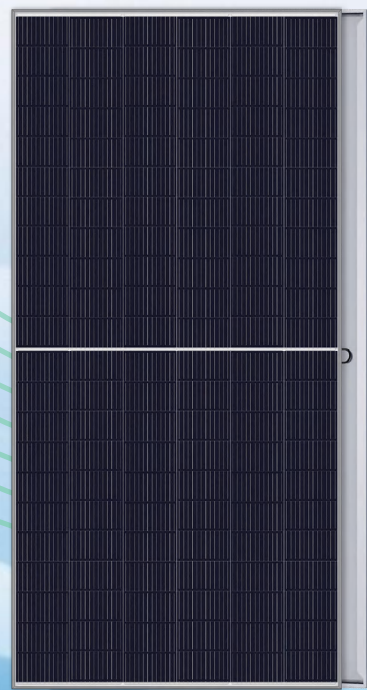


MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	2172 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	120 (6*20)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	30.7 kg
Packaging unit	36 pcs / box
Weight of packing unit	1165 kg / box
Modules per 40' HQ container	720 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.5%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

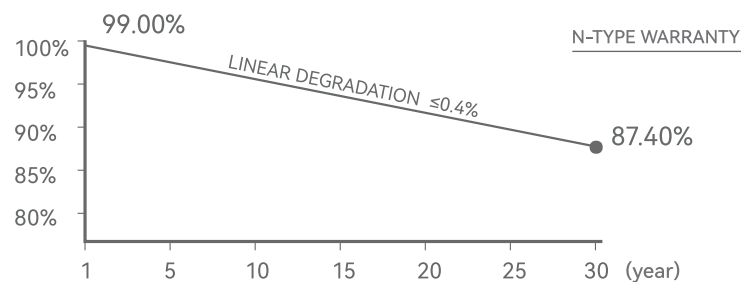
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15

Product
Workmanship
Warranty

30

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Monofacial Series HY-NT11/66H		615~635W POWER RANGE					23.5% EFFICIENCY	0~+5W POWER SORTING
ELECTRICAL PERFORMANCE PARAMETERS							TEMPERATURE COEFFICIENT	
*STC : Irradiance 1000W/m ² , Cell Temperature 25° C, AM=1.5								
Rated output (Pmpp/Wp)	615	620	625	630	635	Temperature coefficient (Pmpp)	-0.29%/°C	
Rated voltage (Vmpp/V)	40.65	40.85	41.05	41.25	41.44	Temperature coefficient (Isc)	+0.043%/°C	
Rated current (Impp/A)	15.13	15.18	15.23	15.28	15.33	Temperature coefficient (Voc)	-0.24%/°C	
Open circuit voltage (Voc/V)	48.66	48.86	49.06	49.26	49.45	Nominal module operating temperature (NMOT)	42±2°C	
Short-circuit current (Isc/A)	15.96	16.00	16.04	16.08	16.12			
Module efficiency	22.8%	23.0%	23.1%	23.3%	23.5%			
NMOT : Irradiance 800W/m ² , Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s								
Rated output (Pmpp/Wp)	469.2	473.2	477.2	481.2	484.9	Max. system voltage (IEC)	1500Vdc	
Rated voltage (Vmpp/V)	38.15	38.35	38.55	38.74	38.92	Number of diodes	3	
Rated current (Impp/A)	12.30	12.34	12.38	12.42	12.46	Junction box protection rating	IP 68	
Open circuit voltage (Voc/V)	46.02	46.22	46.42	46.61	46.79	Max. series fuse rating	25A	
Short-circuit current (Isc/A)	12.91	12.95	12.99	13.02	13.05	Operational temperature	-40~+85°C	

Current-Voltage(620W)

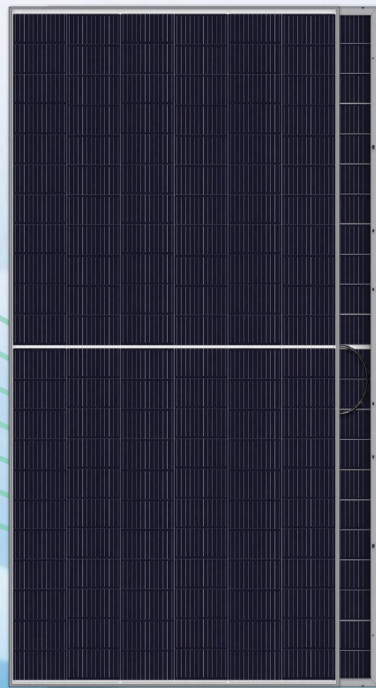
Power-Voltage(620W)

Current-Voltage(620W)

MECHANICAL PARAMETERS

Outer dimensions (L x W x H)	2382 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	132 (6*22)
Frame Type	Aluminum, silver anodized
Glass thickness	3.2 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	28.8 kg
Packaging unit	36 pcs / box
Weight of packing unit	1097 kg / box
Modules per 40' HQ container	720 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance $\pm 3\%$ under STC standard.



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

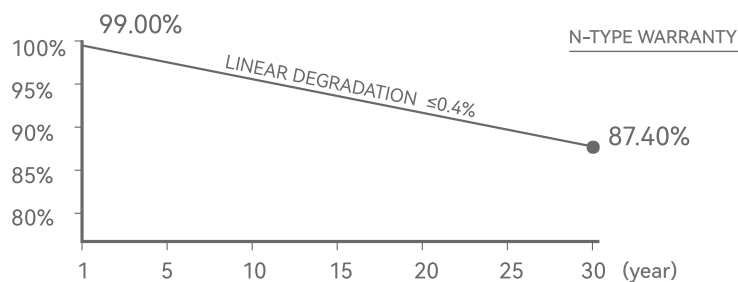
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

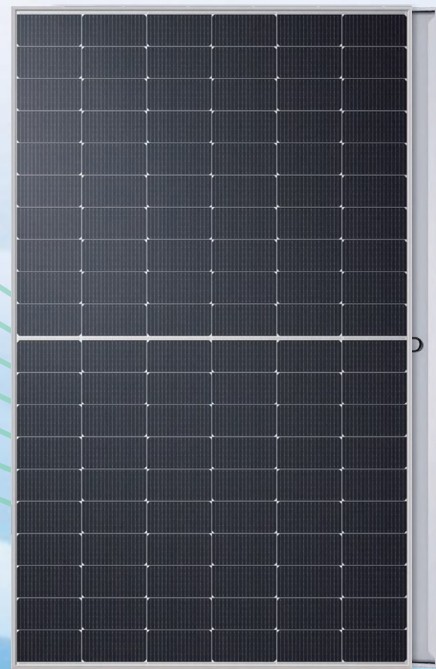
- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

15
YEARProduct
Workmanship
Warranty30
YEARLinear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Bifacial Series HY-NT11/66GDF		610~630W POWER RANGE				23.3% EFFICIENCY		0~+5W POWER SORTING									
ELECTRICAL PERFORMANCE PARAMETERS						DIFFERENT REAR POWER GAINS (620W)											
*STC : Irradiance 1000W/m ² , Cell Temperature 25° C, AM=1.5						Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A						
Rated output (Pmpp/Wp)	610	615	620	625	630	5%	651	40.90	15.92	48.90	16.76						
Rated voltage (Vmpp/V)	40.50	40.70	40.90	41.10	41.30	15%	713	40.90	17.43	48.90	18.35						
Rated current (Imp/A)	15.07	15.12	15.16	15.21	15.26	25%	775	40.90	18.95	48.90	19.95						
Open circuit voltage (Voc/V)	48.50	48.70	48.90	49.10	49.30	TEMPERATURE COEFFICIENT											
Short-circuit current (Isc/A)	15.88	15.92	15.96	16.00	16.04	Temperature coefficient (Pmpp)					-0.29%/°C						
Module efficiency	22.6%	22.8%	23.0%	23.1%	23.3%	Temperature coefficient (Isc)					+0.043%/°C						
NMOT : Irradiance 800W/m ² , Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s						Temperature coefficient (Voc)					-0.24%/°C						
						Nominal module operating temperature (NMOT)					42±2°C						
OPERATING PARAMETERS																	
Rated output (Pmpp/Wp)						465.1	469.1	473.1	477.1	481.1	Max. system voltage (IEC)	1500Vdc					
Rated voltage (Vmpp/V)						38.00	38.20	38.40	38.60	38.80	Number of diodes	3					
Rated current (Imp/A)						12.24	12.28	12.32	12.36	12.40	Junction box protection rating	IP 68					
Open circuit voltage (Voc/V)						45.90	46.10	46.30	46.50	46.70	Max. series fuse rating	30A					
Short-circuit current (Isc/A)						12.85	12.89	12.93	12.97	13.01	Operational temperature	-40~+85°C					
						Bifaciality rate						80±5%					
MECHANICAL PARAMETERS																	
						Outer dimensions (L x W x H)						2382 x 1134 x 30 mm					
						Cell						N type mono-crystalline					
						Number of cells						132 (6*22)					
						Frame Type						Aluminum, silver anodized					
						Glass thickness						2.0+2.0 mm					
						Cable length (including connector)						Portrait: (+)300 mm,(-)300 mm; Customized length					
						Cable cross-sectional area (IEC)						4 mm ² / 12 AWG					
						① Maximum test mechanical load						5400Pa (front) /2400Pa(rear)					
						Connector type (IEC)						PV-HYC11xyz(standard)/MC4 EVO2(optional)					
						Module weight						32.4 kg					
						Packaging unit						36 pcs / box					
						Weight of packing unit						1221 kg / box					
						Modules per 40' HQ container						720 pcs					



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

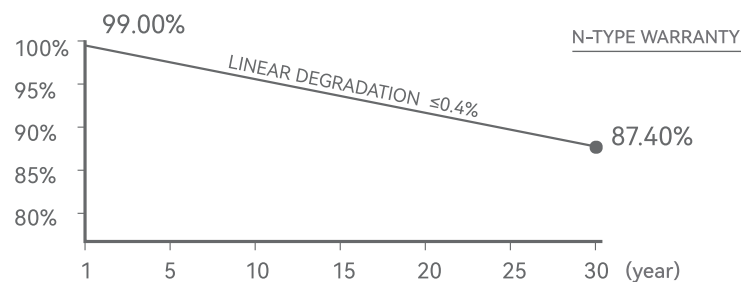
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15

Product
Workmanship
Warranty

30

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Monofacial Series HY-NT12/60H	640~660W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	640	645	650	655	660
Rated voltage (Vmpp/V)	36.50	36.70	36.90	37.10	37.30
Rated current (Impp/A)	17.54	17.58	17.62	17.66	17.70
Open circuit voltage (Voc/V)	44.15	44.35	44.55	44.75	44.95
Short-circuit current (Isc/A)	18.30	18.34	18.38	18.42	18.46
Module efficiency	22.6%	22.8%	23.0%	23.1%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

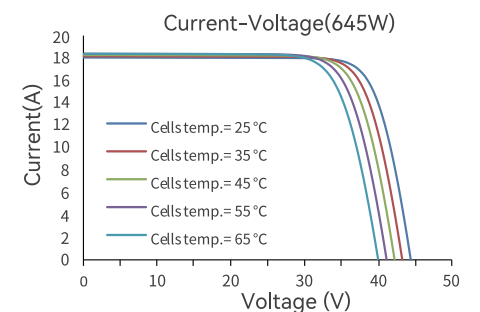
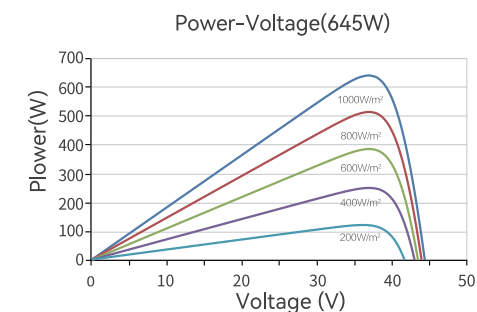
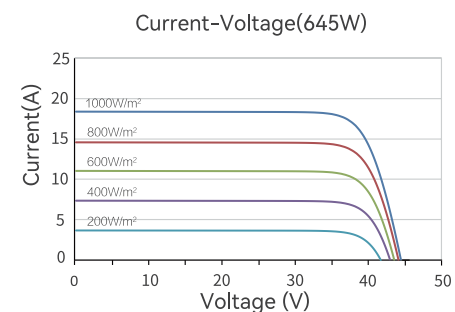
Rated output (Pmpp/Wp)	485.6	489.4	493.3	497.6	501.3
Rated voltage (Vmpp/V)	34.39	34.59	34.79	34.99	35.18
Rated current (Impp/A)	14.12	14.15	14.18	14.22	14.25
Open circuit voltage (Voc/V)	42.01	42.21	42.41	42.61	42.80
Short-circuit current (Isc/A)	14.79	14.83	14.87	14.91	14.94

TEMPERATURE COEFFICIENT

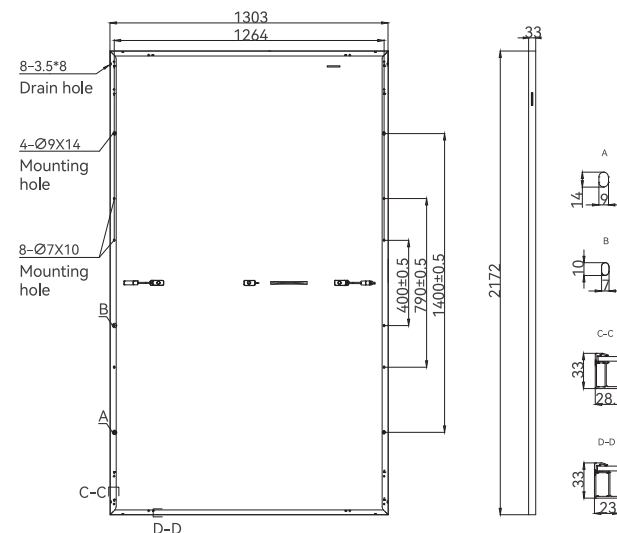
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C



MECHANICAL PARAMETERS

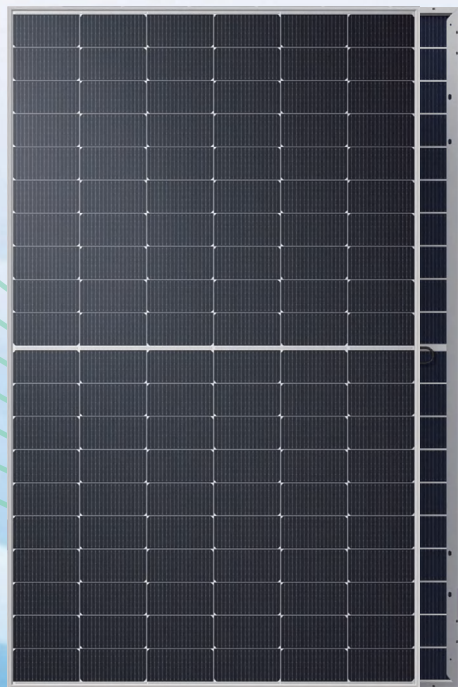


Outer dimensions (L x W x H)	2172 x 1303 x 33 mm
Cell	N type mono-crystalline
Number of cells	120 (6*20)
Frame Type	Aluminum, silver anodized
Glass thickness	3.2 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	30.6 kg
Packaging unit	33 pcs / box
Weight of packing unit	1070 kg / box
Modules per 40' HQ container	594 pcs

HT²¹⁰ TOPCon Bifacial Series

635~655W

HY-NT12/60GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.1%
- Bifaciality Rate Up to 80~85%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

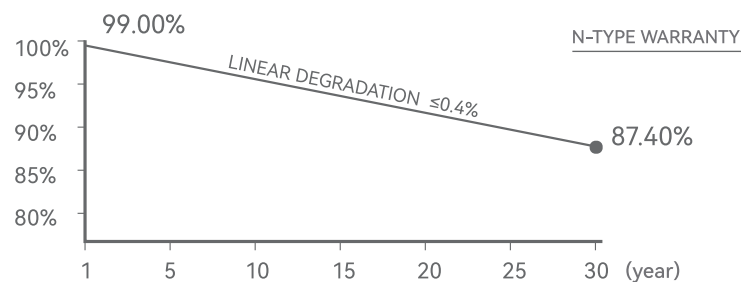


LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018

**15** YEARProduct
Workmanship
Warranty**30** YEARLinear Power
Warranty**≤1%**First - year
power
attenuation**≤0.4%**Linear power
attenuation

N-Type Bifacial Series HY-NT12/60GDF	635~655W POWER RANGE	23.1% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

***STC** : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	635	640	645	650	655
Rated voltage (Vmpp/V)	36.40	36.60	36.80	37.00	37.17
Rated current (Imp/A)	17.50	17.55	17.60	17.65	17.67
Open circuit voltage (Voc/V)	43.98	44.18	44.38	44.58	44.75
Short-circuit current (Isc/A)	18.22	18.26	18.30	18.34	18.37
Module efficiency	22.4%	22.6%	22.8%	23.0%	23.1%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	483.4	487.6	491.8	496.1	499.0
Rated voltage (Vmpp/V)	34.31	34.51	34.71	34.91	35.07
Rated current (Imp/A)	14.09	14.13	14.17	14.21	14.23
Open circuit voltage (Voc/V)	41.85	42.05	42.25	42.45	42.61
Short-circuit current (Isc/A)	14.74	14.78	14.82	14.86	14.88

DIFFERENT REAR POWER GAINS (645W)

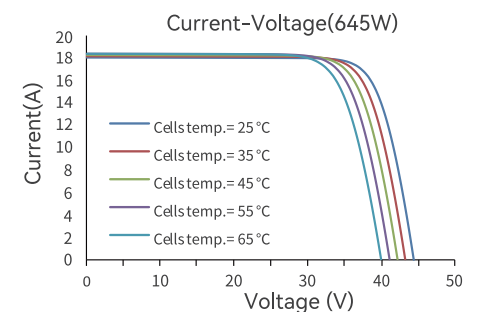
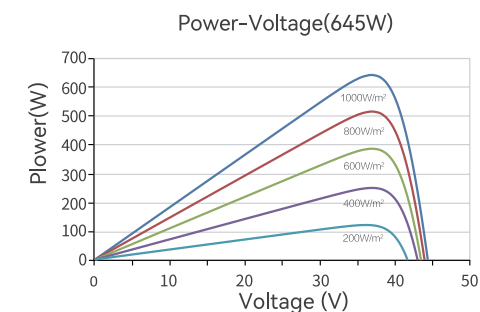
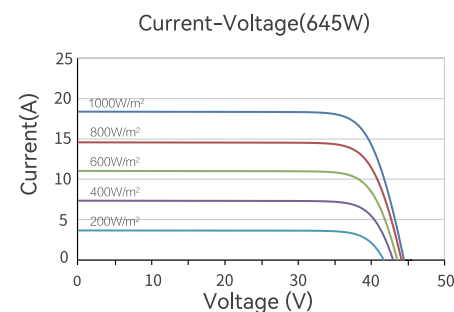
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	677	36.80	18.40	44.38	19.22
15%	742	36.80	20.16	44.38	21.05
25%	806	36.80	21.91	44.38	22.88

TEMPERATURE COEFFICIENT

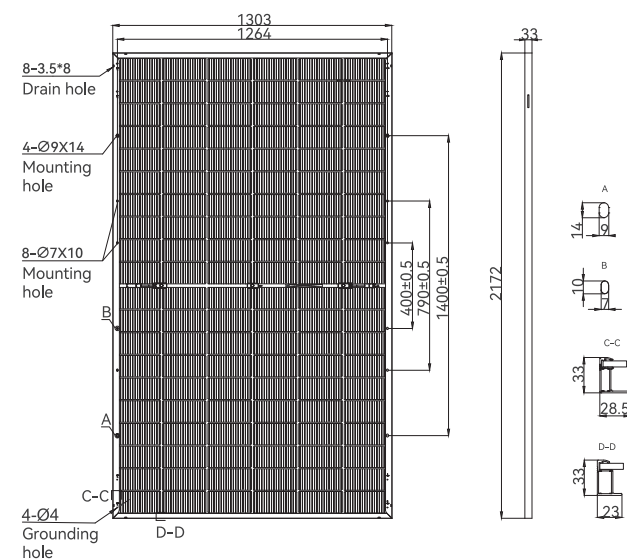
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

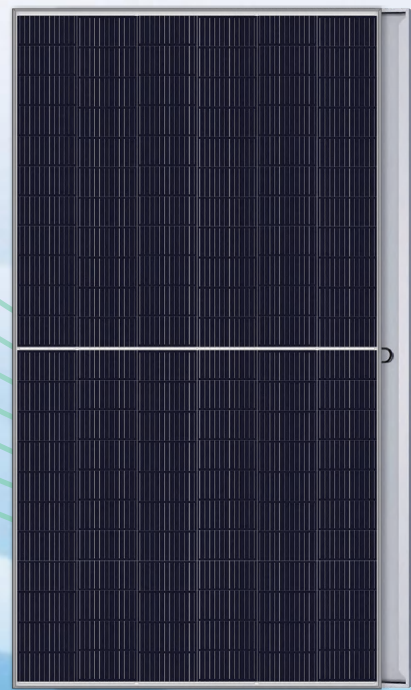
Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	35A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	2172 x 1303 x 33 mm
Cell	N type mono-crystalline
Number of cells	120 (6*20)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	34.9 kg
Packaging unit	33 pcs / box
Weight of packing unit	1212 kg / box
Modules per 40' HQ container	594 pcs



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.5%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

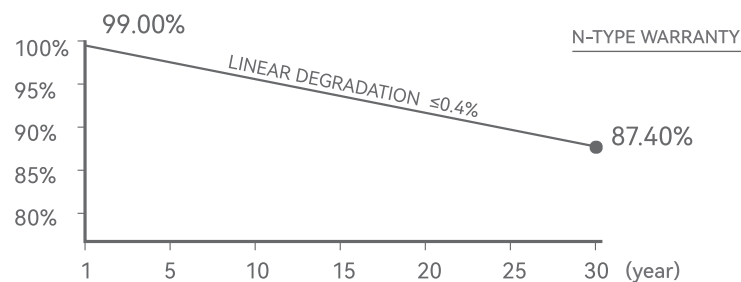
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15

Product
Workmanship
Warranty

30

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Monofacial Series HY-NT12/66H	710~730W POWER RANGE	23.5% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	710	715	720	725	730
Rated voltage (Vmpp/V)	40.35	40.54	40.74	40.94	41.14
Rated current (Impp/A)	17.60	17.64	17.68	17.71	17.75
Open circuit voltage (Voc/V)	48.83	49.02	49.22	49.42	49.62
Short-circuit current (Isc/A)	18.41	18.45	18.49	18.52	18.56
Module efficiency	22.9%	23.0%	23.2%	23.3%	23.5%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

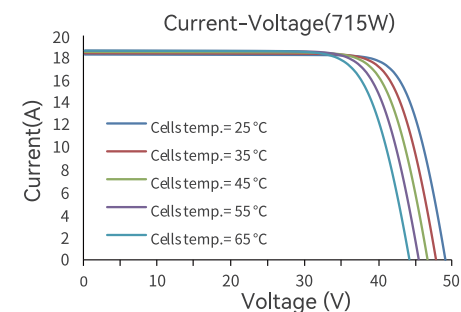
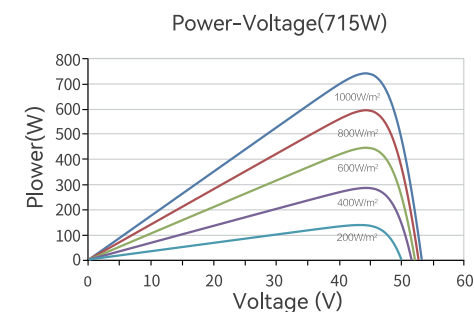
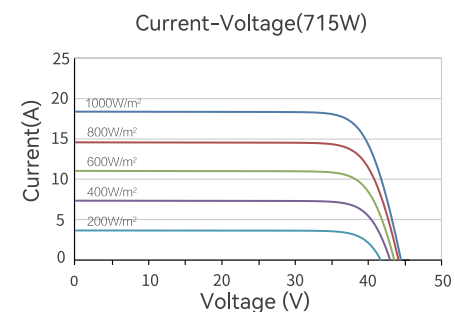
Rated output (Pmpp/Wp)	537.5	541.2	545.0	548.7	552.6
Rated voltage (Vmpp/V)	37.93	38.11	38.30	38.48	38.67
Rated current (Impp/A)	14.17	14.20	14.23	14.26	14.29
Open circuit voltage (Voc/V)	46.49	46.69	46.88	47.07	47.26
Short-circuit current (Isc/A)	14.80	14.83	14.86	14.89	14.92

TEMPERATURE COEFFICIENT

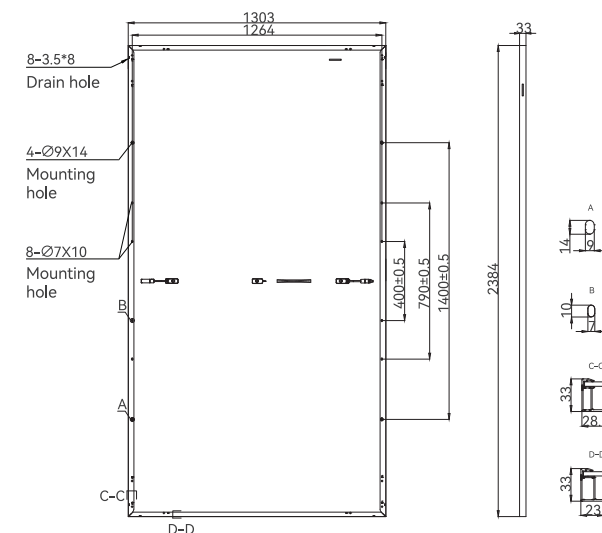
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

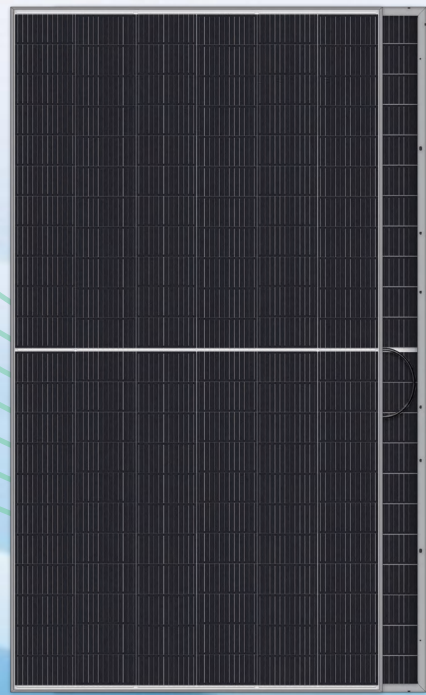
Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	2384 x 1303 x 33 mm
Cell	N type mono-crystalline
Number of cells	132 (6*22)
Frame Type	Aluminum, silver anodized
Glass thickness	3.2 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	33.3 kg
Packaging unit	33 pcs / box
Weight of packing unit	1159 kg / box
Modules per 40' HQ container	594 pcs



Main Features

N-TYPE
TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH
NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH
RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID

HIGH CONVERSION
EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80~85%

SUPERIOR POWER
GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED
COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

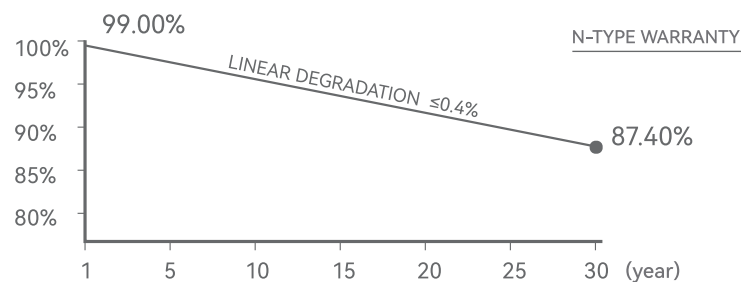
- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



15 YEAR

Product
Workmanship
Warranty

30 YEAR

Linear Power
Warranty $\leq 1\%$ First - year
power
attenuation $\leq 0.4\%$ Linear power
attenuation

N-Type Bifacial Series HY-NT12/66GDF	705~725W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING
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ELECTRICAL PERFORMANCE PARAMETERS

*STC : Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmpp/Wp)	705	710	715	720	725
Rated voltage (Vmpp/V)	40.27	40.47	40.67	40.87	41.07
Rated current (Imp/A)	17.51	17.55	17.59	17.62	17.66
Open circuit voltage (Voc/V)	48.66	48.86	49.06	49.26	49.46
Short-circuit current (Isc/A)	18.34	18.38	18.42	18.46	18.50
Module efficiency	22.7%	22.9%	23.0%	23.2%	23.3%

NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (Pmpp/Wp)	534.8	538.6	542.5	546.3	550.2
Rated voltage (Vmpp/V)	37.93	38.12	38.31	38.50	38.69
Rated current (Imp/A)	14.10	14.13	14.16	14.19	14.22
Open circuit voltage (Voc/V)	46.32	46.52	46.72	46.92	47.12
Short-circuit current (Isc/A)	14.76	14.79	14.82	14.85	14.88

DIFFERENT REAR POWER GAINS (715W)

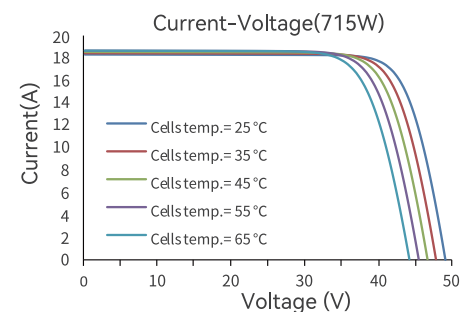
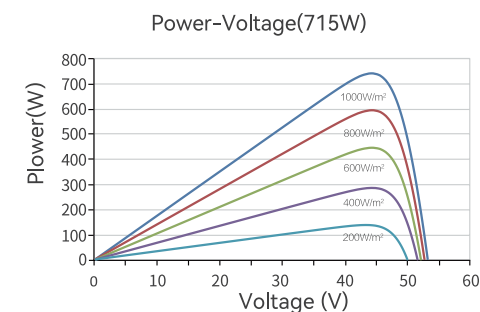
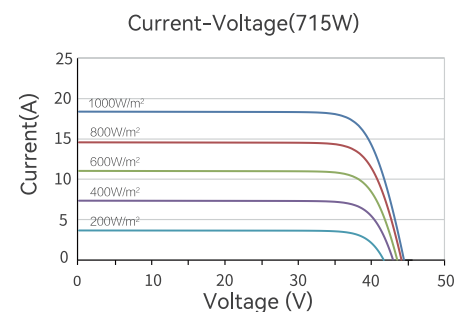
Power gains	Pmpp/Wp	Vmpp/V	Imp/A	Voc/V	Isc/A
5%	751	40.67	18.46	49.06	19.34
15%	822	40.67	20.22	49.06	21.18
25%	894	40.67	21.98	49.06	23.03

TEMPERATURE COEFFICIENT

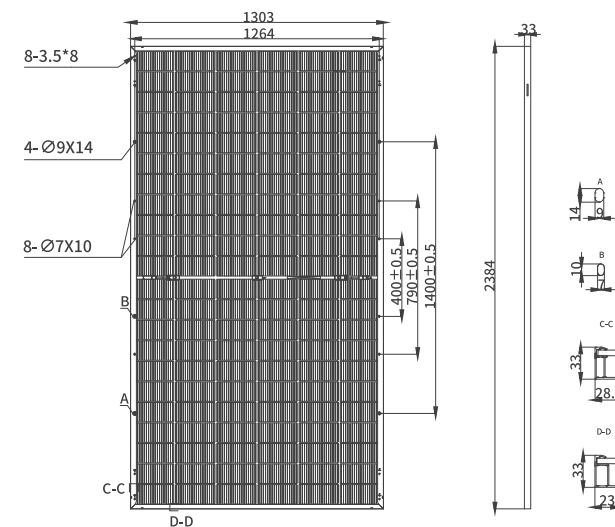
Temperature coefficient (Pmpp)	-0.29%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	35A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	2384 x 1303 x 33 mm
Cell	N type mono-crystalline
Number of cells	132 (6*22)
Frame Type	Aluminum, silver anodized
Glass thickness	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	38.3kg
Packaging unit	33 pcs / box
Weight of packing unit	1334 kg / box
Modules per 40' HQ container	594 pcs

HY SOLAR Six Manufacturing Bases

HY SOLAR was founded in 2002 and was listed on the Shanghai Stock Exchange in 2018, with a total investment of over 60 billion yuan and nearly 20,000 employees. As a national-level specialized and innovative enterprise with an N-type photovoltaic full industry chain, HY SOLAR is committed to becoming a Global Green Energy Industry Eco-integrator.

HY SOLAR Global Headquarters

Located in Binhu District, Wuxi City, Jiangsu Province, it occupies 17,400 square meters of land. The architecture adopts a twin tower structure with a total area of 93,800 square meters. The HY SOLAR Global Headquarters Base project was officially launched with the signing ceremony on 23 October 2023. The project is expected to be operational by 2026.



High-purity Industrial Silicon Manufacturing Base

The base is located in Guyang County, Baotou City, Inner Mongolia. It covers an area of 380,000 square meters, with a total investment of 2.3 billion yuan and a high-purity industrial silicon production capacity of 150,000 tons.



Polycrystalline Silicon Manufacturing Base

The base is located in Guyang County, Baotou City, Inner Mongolia. It covers an area of 790,000 square meters, with a total investment of 9.5 billion yuan and a polysilicon production capacity of 100,000 tons. It adopts the advanced improved Siemens process route, and the engineering technology is mature and reliable.



Silicon Wafer Manufacturing Base

The base is located in Qingshan District, Baotou City, Inner Mongolia. It covers an area of 810,000 square meters, with a total investment of 25.3 billion yuan and a mass production capacity of monocrystalline silicon wafers reaching 55GW.



PV Cell Manufacturing Base

The base is located in the Economic and Technological Development Zone of Xuzhou City, Jiangsu Province. Covering an area of 730,000 square meters with a total investment of 15.2 billion yuan, it is a major industrial project in Jiangsu Province. At present, it can mass-produce 26GW of solar cells.



PV Module Manufacturing Bases

The bases are located in Jiangyin City, Jiangsu Province and Chuzhou City, Anhui Province. The Jiangyin base covers an area of 330,000 square meters with a total investment of 5 billion yuan. At present, the overall module production capacity reaches 13GW.

