HYSOLAR

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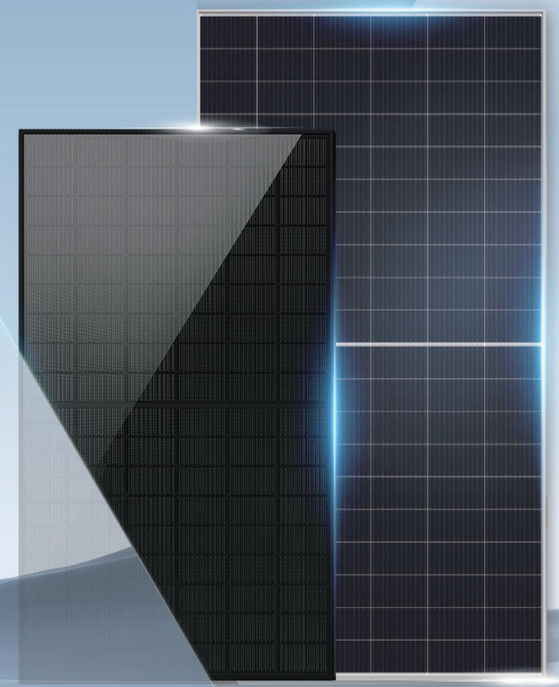

CONTACT US

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Wechat | Wechat Channel | LinkedIn | YouTube

Product Handbook 2025

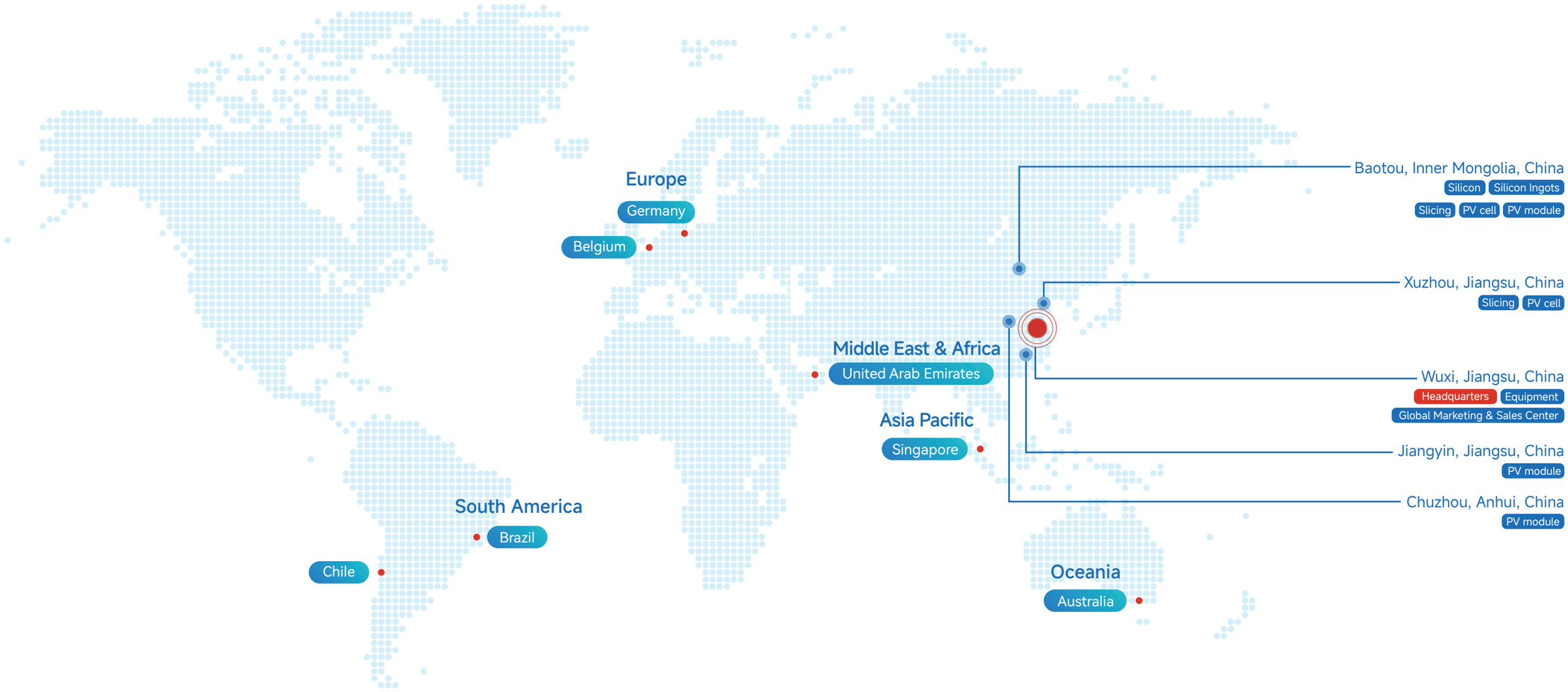
HY SOLAR PV Modules

V.202505

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

Content

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	Silicon	Baotou, Inner Mongolia, China	Silicon Ingots	Baotou, Inner Mongolia, China
Slicing	Baotou, Inner Mongolia, China	Slicing	Xuzhou, Jiangsu, China		
PV cell	Xuzhou, Jiangsu, China	PV cell	Baotou, Inner Mongolia, China		
PV module	Chuzhou, Anhui, China	PV module	Baotou, Inner Mongolia, China	PV module	Jiangyin, Jiangsu, China

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

+30W

30W higher in efficiency compared with PERC modules

26GW

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

TÜVRheinland®

IEC

CNAS

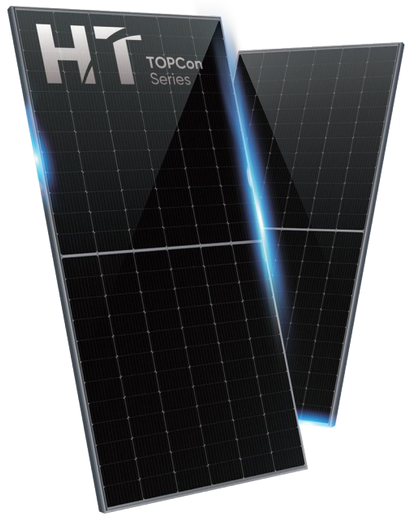
Honors

- China Federation Of Commerce Sci-tech Award
- China Machinery Industry Sci-tech Award
- CIUR — China industry research cooperation Innovation Achievement Award
- Forbes — Top 50 Forbes China Most Innovative Companies
- CCmvm. — Top 500 Listed Companies By Market Value in China
- PVBL — Top 100 Global PV Brands
- 胡润中国 — Top 100 Hurun China Private Energy Enterprise
- PVBL — Top 20 2024 Polysilicon and Wafer Brands
- China's Good PV Annual Top Ten PV Cell Brands
- Solar Energy Cup Most Influential PV Module Enterprise
- National High-tech Enterprise
- National SRDI Enterprise
- Major Sci-tech Undertaking Enterprise Of NDRC
- National Green Supply Chain Management Enterprise
- Five-Star Zero-Carbon Factory

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.

01	02	03	04	05
>10 nm/min (in-situ doping)	**Easier doping approach**	Wrap-around easier to clean	**Shorter processing time**	No consumable material
High film forming rate	In situ doping	**Less wrap-around**	Doped a-Si deposition (45min) crystallization annealing	**Reduced material cost**

Lower Degradation Longer Warranty

Warranty for N-type TOPCon modules

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

30Y product workmanship warranty, **30**Y power warranty

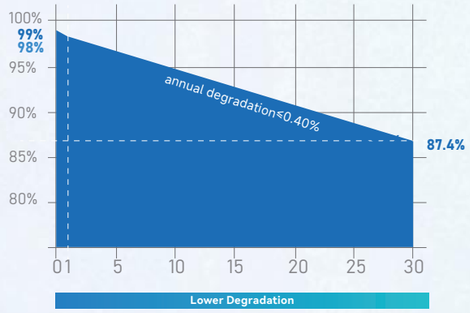
≤1% first year degradation, ≤0.4% of subsequent annual degradation

≥87.40% of the initial output after 30 years

30Y Power Warranty

≤ 1% 1st year degradation

0.4% Linear degradation

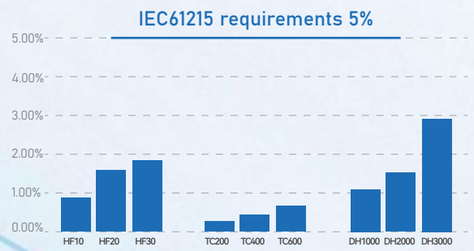


Stricter Testing Demonstrates Outstanding Performance

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

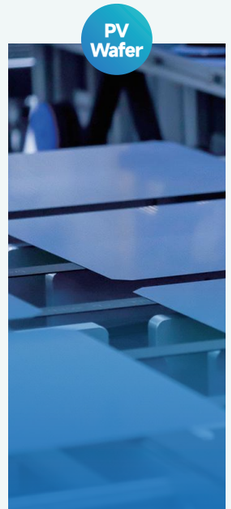
Munich RE

PV CYCLE

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.

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



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

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

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

All-scenario Applications

- Mountain PV Power Plants
- Agri-PV Applications

- Utility-Scale PV Power Plants
- PV + Desertification Control Applications

- Commercial Distributed PV Power Plants
- Freshwater Lake PV Applications

- Residential Distributed PV Power Plants
- Offshore PV Applications

HY SOLAR Conventional Products TOPCon Modules

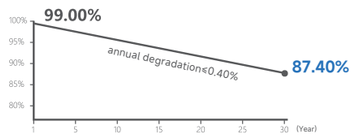
HT TOPCon Series Module Family

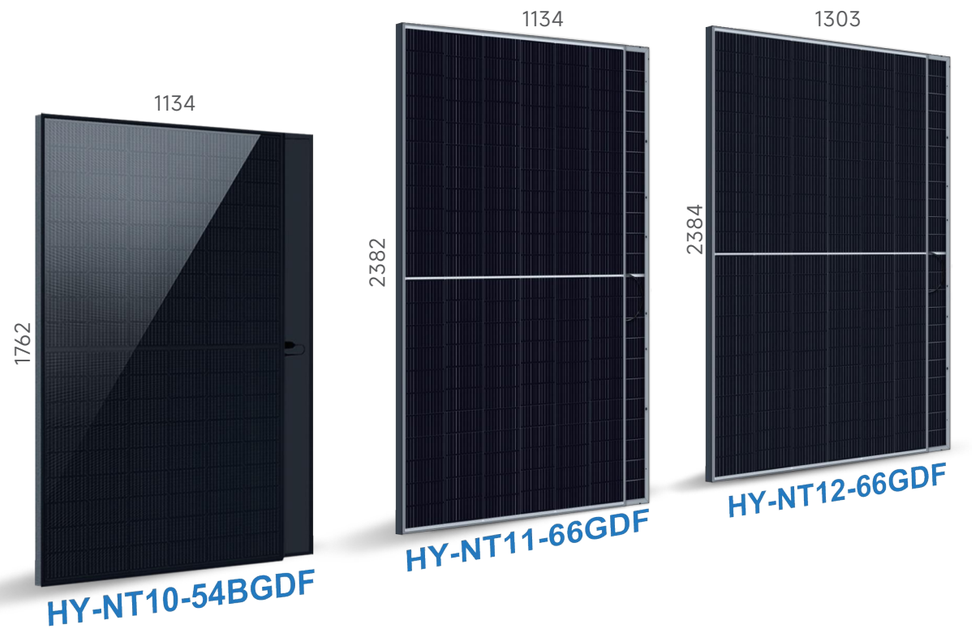
465W	515W	610W	655W	630W	725W
NT10-54pcs	NT10-60pcs	NT10-72pcs	NT10-78pcs	NT11-66pcs	NT12-66pcs
All Black Bifacial	All Black Bifacial	Bifacial	Bifacial	Bifacial	Bifacial

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
	NT10-78GDF(630-655W)	78pcs	Utility-Scale PV Power Plants Freshwater Lake
210R	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
	NT11-66GDF(610-630W)		
210	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

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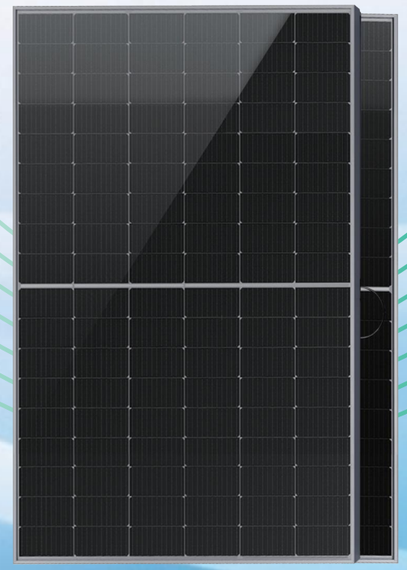
HT 182 TOPCon Bifacial Series

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

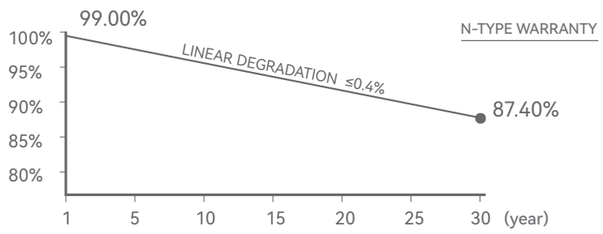
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/℃
- 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 Warrant

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

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)

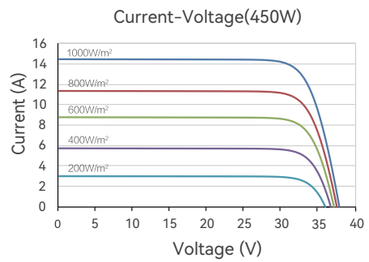
Power gains	Pmpp/Wp	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	473	32.89	14.37	39.39	15.16
15%	518	32.89	15.73	39.39	16.61
25%	563	32.89	17.10	39.39	18.05

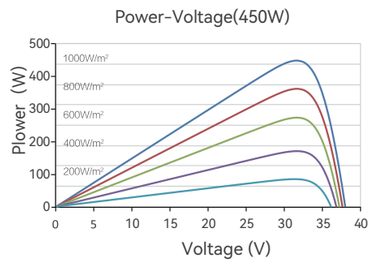
TEMPERATURE COEFFICIENT

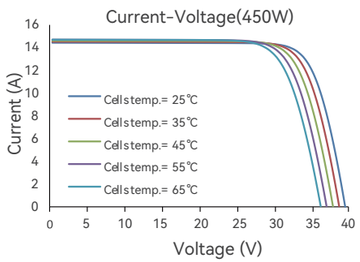
Temperature coefficient (Pmpp)	-0.29%/℃
Temperature coefficient (Isc)	+0.043%/℃
Temperature coefficient (Voc)	-0.24%/℃
Nominal module operating temperature (NMOT)	42±2℃

OPERATING PARAMETERS

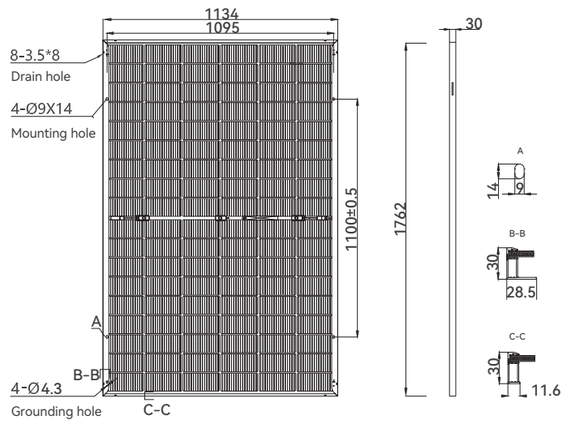
Max. system voltage (IEC)	1500VDC
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85℃
Bifaciality rate	80±5%







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 mm² / 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.

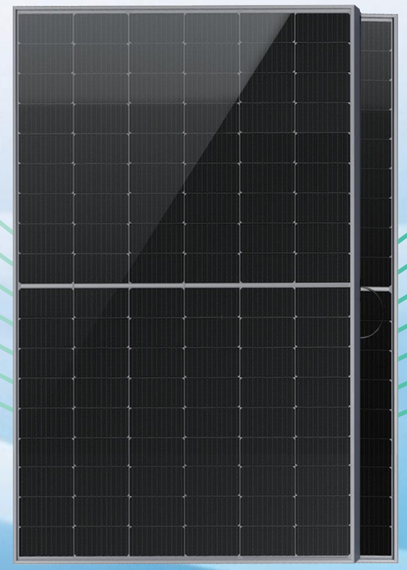
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 182 TOPCon Bifacial Series

445~465W

HY-NT10/54GDF



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- 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%

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- Low Temperature Coefficient: -0.29%/°C
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LOWER LEVELIZED COST OF ELECTRICITY
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- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
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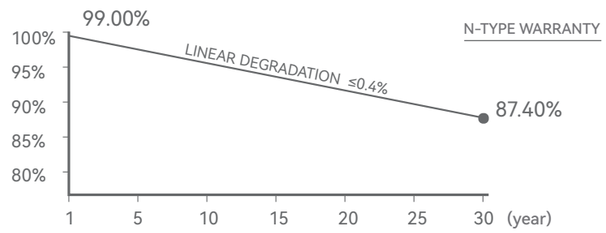

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30 YEAR Linear Power Warranty

≤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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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
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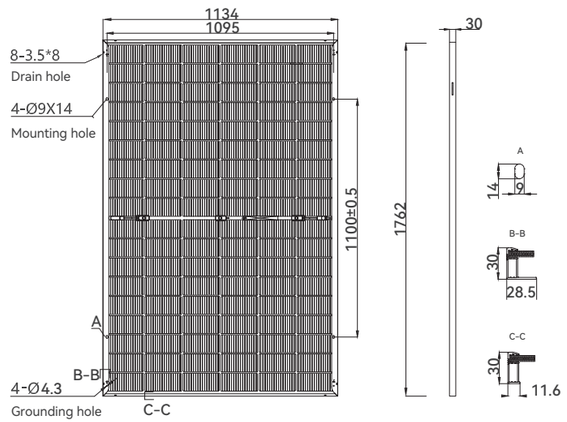
Max. series fuse rating	30A
Operational temperature	-40~+85℃
Bifaciality rate	80±5%

Current-Voltage(450W)

Power-Voltage(450W)

Current-Voltage(450W)

MECHANICAL PARAMETERS



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Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm² / 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.

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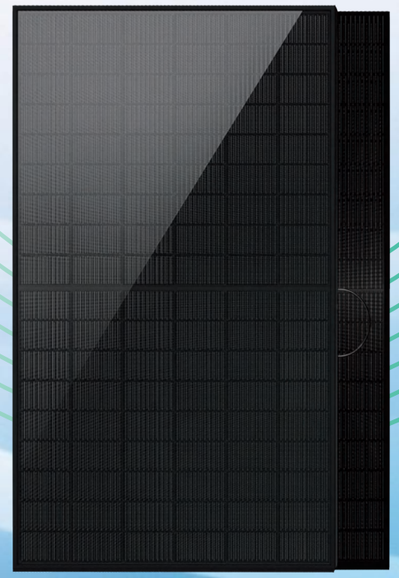
HYSOLAR

HT 182 TOPCon
Bifacial Series Full Black

445~465W

HY-NT10/54BGDF



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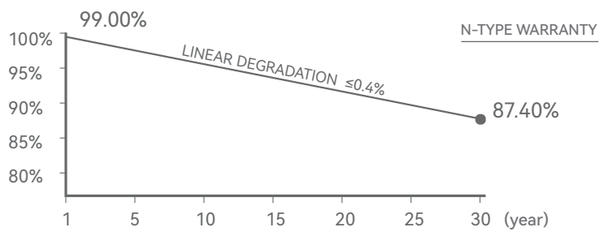

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N-Type Bifacial Series Full Black HY-NT10/54BGDF	445~465W POWER RANGE	23.3% EFFICIENCY	0~+5W POWER SORTING

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)	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

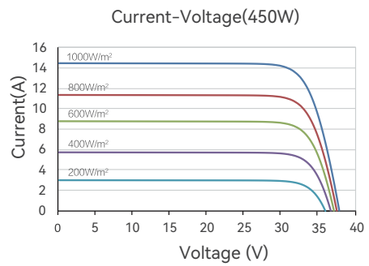
TEMPERATURE COEFFICIENT

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

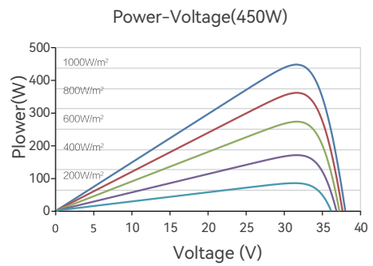
OPERATING PARAMETERS

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

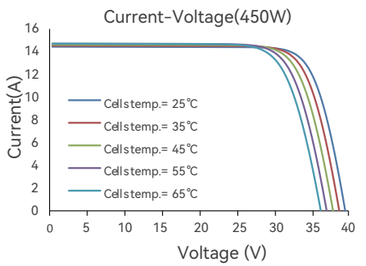
Current-Voltage(450W)



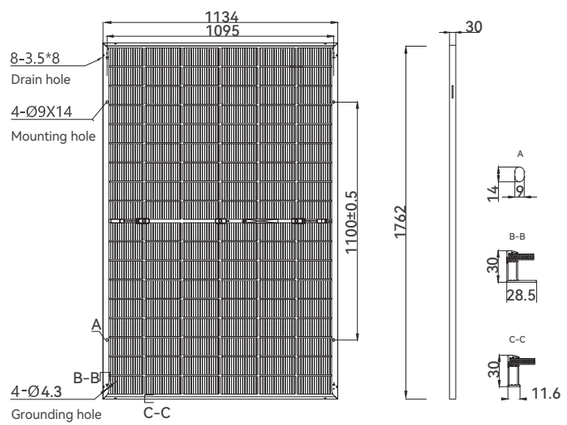
Power-Voltage(450W)



Current-Voltage(450W)



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 mm² / 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.

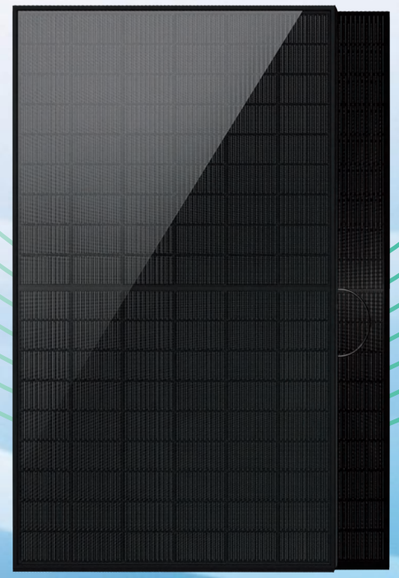
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 182 TOPCon
Bifacial Series Full Black

445~465W

HY-NT10/54BGDF



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

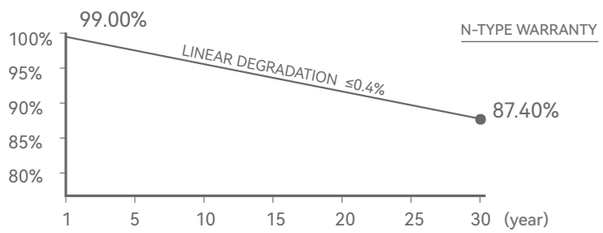
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series Full Black HY-NT10/54BGDF

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)	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

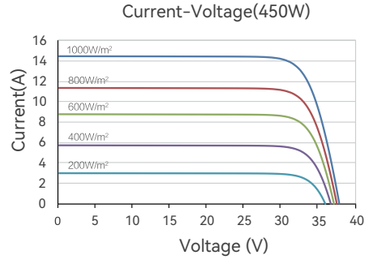
TEMPERATURE COEFFICIENT

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

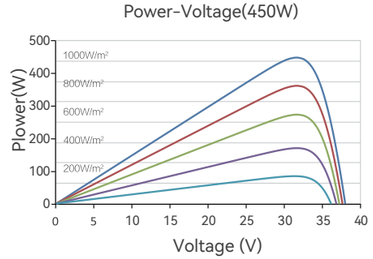
OPERATING PARAMETERS

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

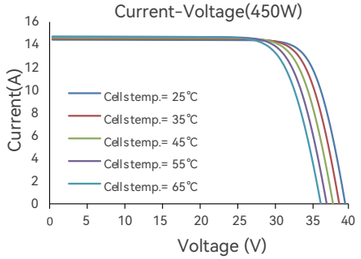
Current-Voltage(450W)



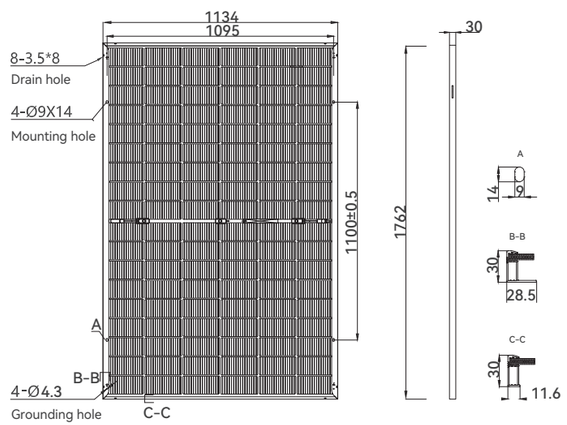
Power-Voltage(450W)



Current-Voltage(450W)



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 mm² / 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.

HYSOLAR

HT 182 TOPCon Bifacial Series

495~515W

HY-NT10/60GDF

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

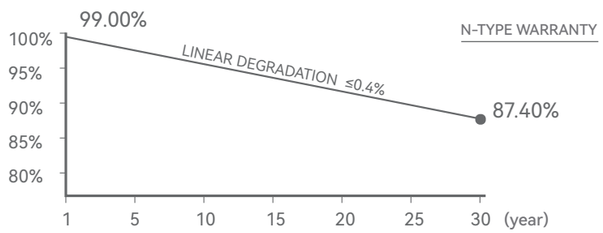
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series HY-NT10/60GDF	495~515W 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)	495	500	505	510	515
Rated voltage (Vmpp/V)	36.37	36.55	36.73	36.91	37.08
Rated current (Impp/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 (Impp/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	Impp/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

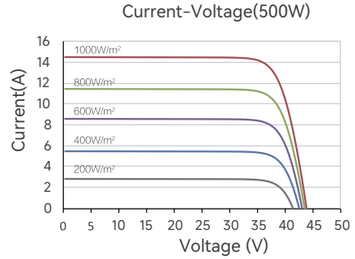
TEMPERATURE COEFFICIENT

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

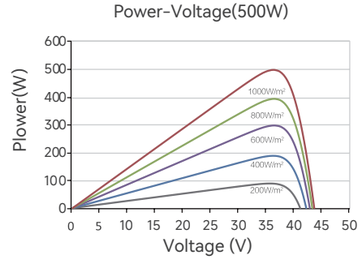
OPERATING PARAMETERS

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

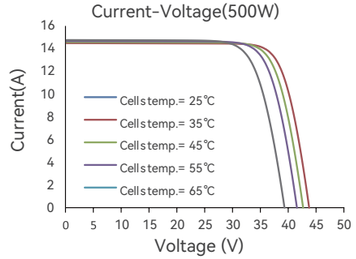
Current-Voltage(500W)



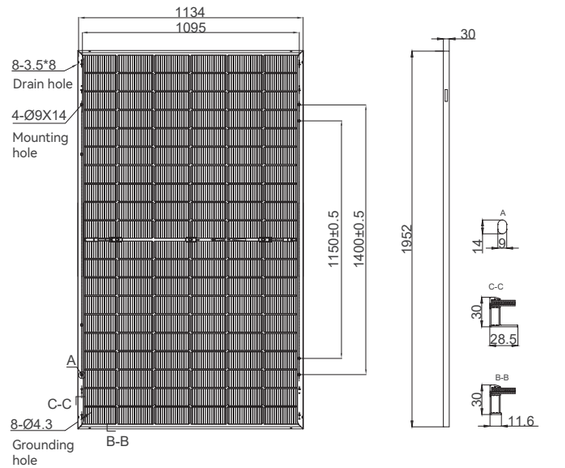
Power-Voltage(500W)



Current-Voltage(500W)



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 mm² / 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.

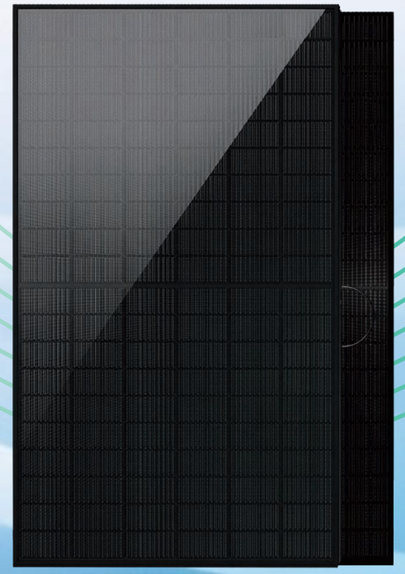
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 182 TOPCon
Bifacial Series Full Black

495~515W

HY-NT10/60BGDF



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

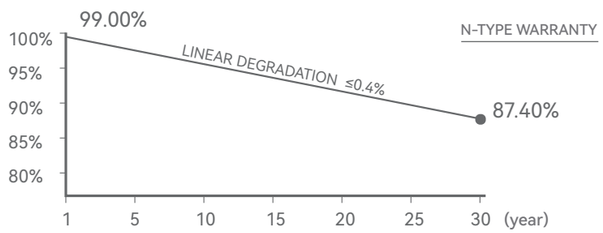
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series Full Black HY-NT10/60BGDF	495~515W 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)	495	500	505	510	515
Rated voltage (Vmpp/V)	36.37	36.55	36.73	36.91	37.08
Rated current (Impp/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 (Impp/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	Impp/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

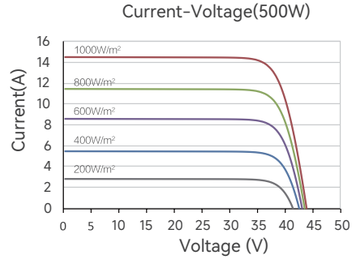
TEMPERATURE COEFFICIENT

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

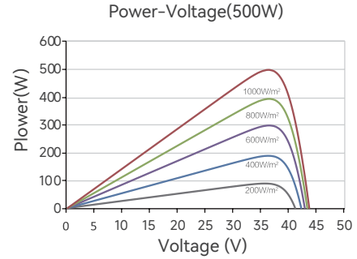
OPERATING PARAMETERS

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

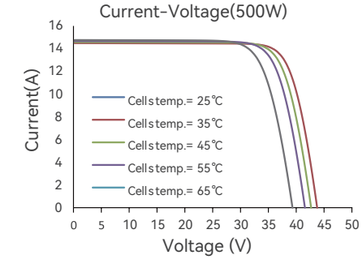
Current-Voltage(500W)



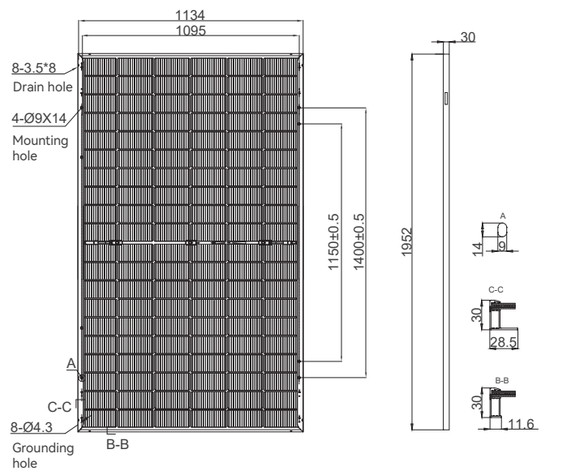
Power-Voltage(500W)



Current-Voltage(500W)



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 mm² / 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.

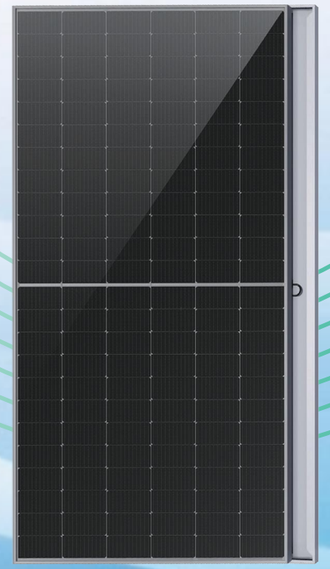
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 182 TOPCon Monofacial Series

595~615W

HY-NT10/72H



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

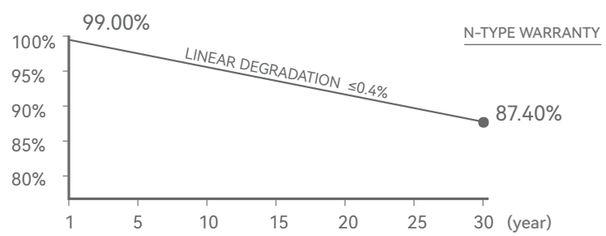
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.8%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/℃
- 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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

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

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

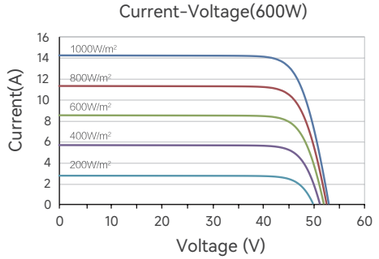
TEMPERATURE COEFFICIENT

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

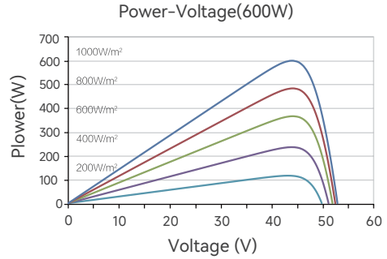
OPERATING PARAMETERS

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

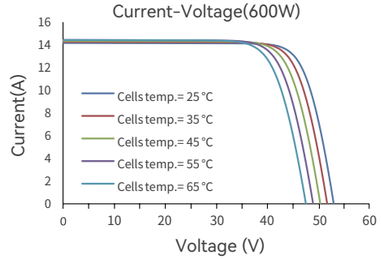
Current-Voltage(600W)



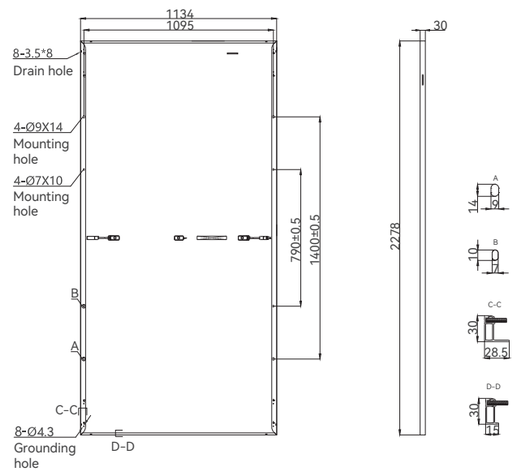
Power-Voltage(600W)



Current-Voltage(600W)



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 mm² / 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

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

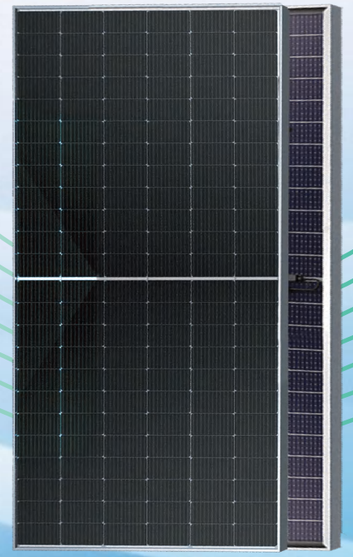
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

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

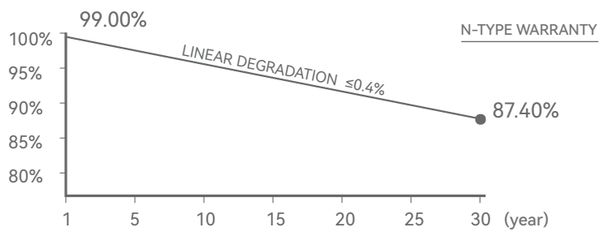
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.6%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤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 (Vmpp/V)	44.15	44.34	44.54	44.74	44.94
Rated current (Impp/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 (Impp/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	Impp/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

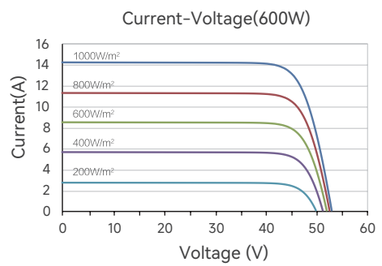
TEMPERATURE COEFFICIENT

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

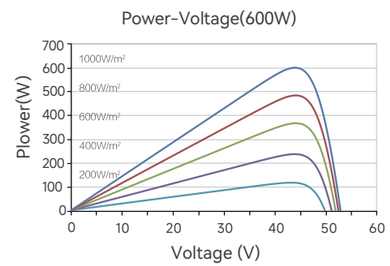
OPERATING PARAMETERS

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

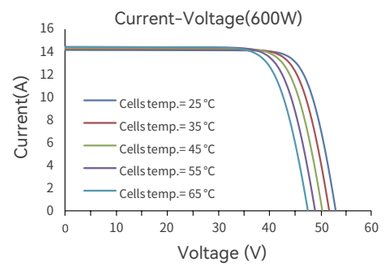
Current-Voltage(600W)



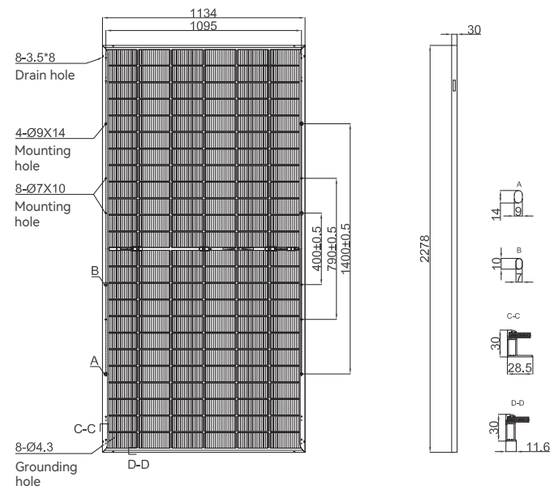
Power-Voltage(600W)



Current-Voltage(600W)



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 mm² / 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.

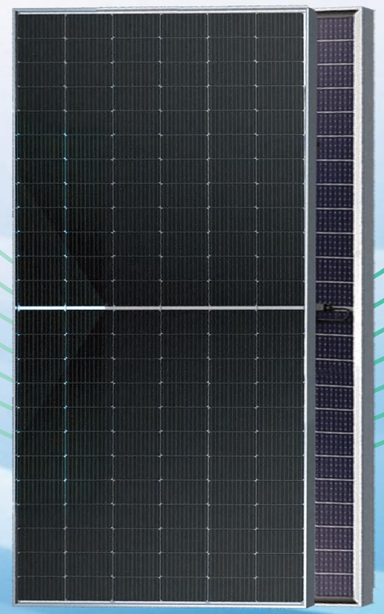
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 182 TOPCon Bifacial Series (For Marine Applications)

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

RESISTANT TO HARSH MARINE ENVIRONMENTS
- Strong Wind Resistance, Wave Impact Resistance, Salt Mist Resistance
- UV Aging Resistance, Superior Waterproofing & Light Transmission

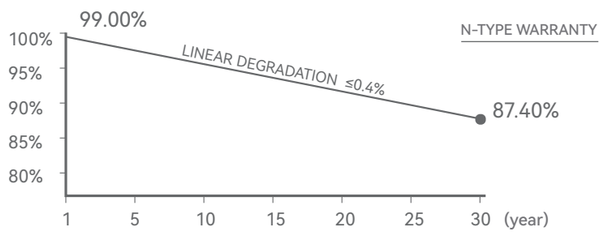
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.6%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series
HY-NT10/72GDF (For Marine Applications)

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 (Vmpp/V)	44.15	44.34	44.54	44.74	44.94
Rated current (Impp/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 (Impp/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	Impp/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

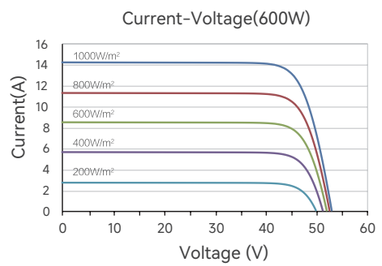
TEMPERATURE COEFFICIENT

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

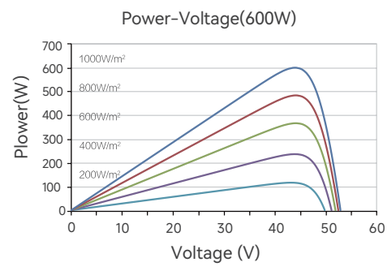
OPERATING PARAMETERS

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

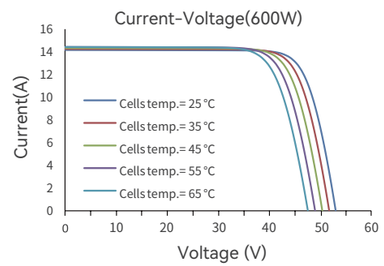
Current-Voltage(600W)



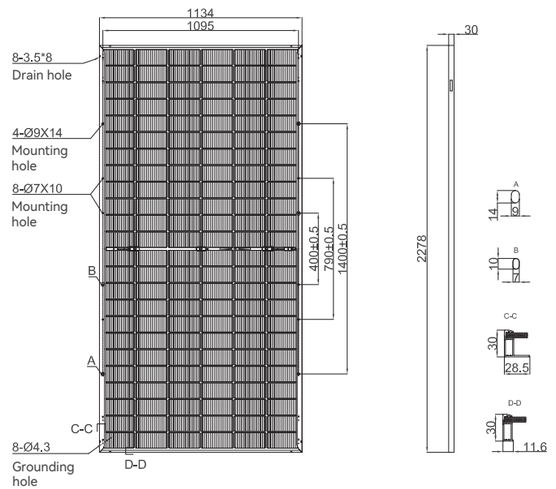
Power-Voltage(600W)



Current-Voltage(600W)



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 mm² / 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

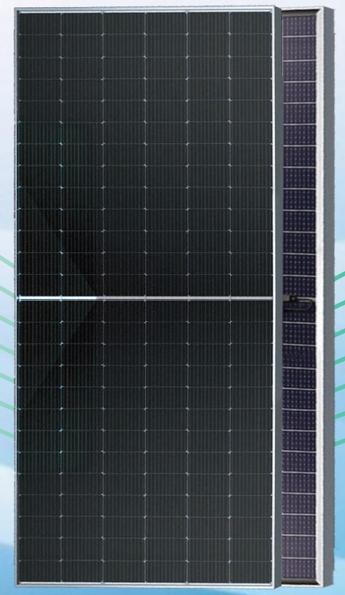
① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

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

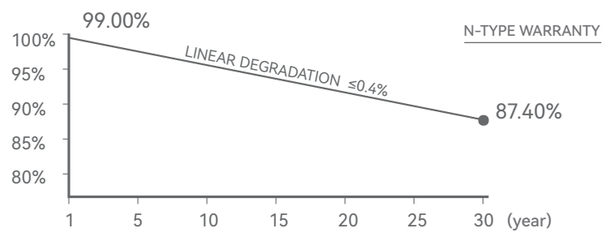
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.4%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

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

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 (Impp/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 (Impp/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	Impp/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

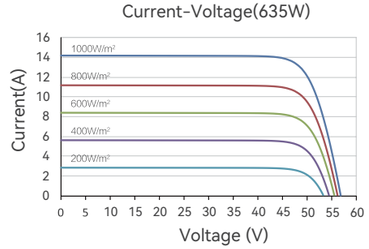
TEMPERATURE COEFFICIENT

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

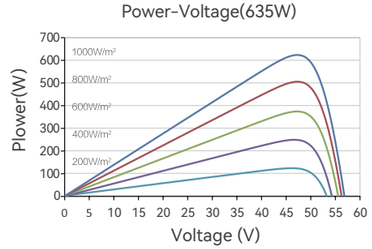
OPERATING PARAMETERS

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

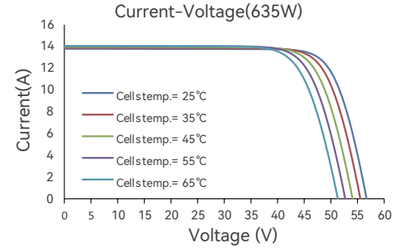
Current-Voltage(635W)



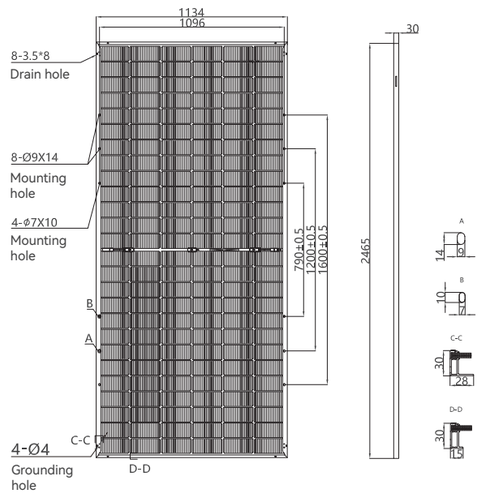
Power-Voltage(635W)



Current-Voltage(635W)



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 mm² / 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

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

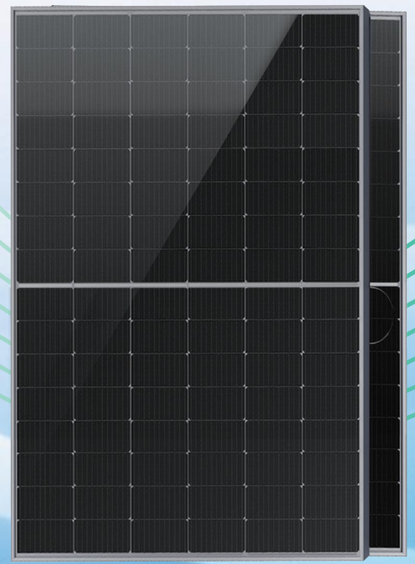
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210R TOPCon Bifacial Series

445~465W

HY-NT11/48GDF

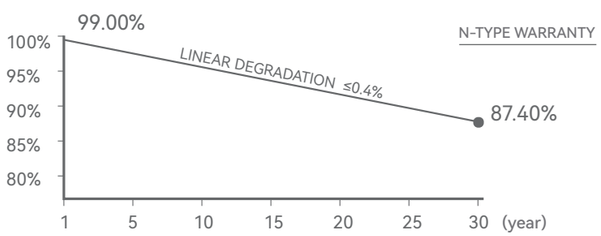


Main Features

- **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%/℃
  - 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 Warrant

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 (Impp/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 (Impp/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	Impp/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

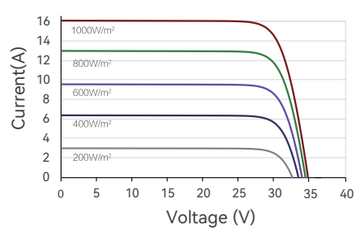
TEMPERATURE COEFFICIENT

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

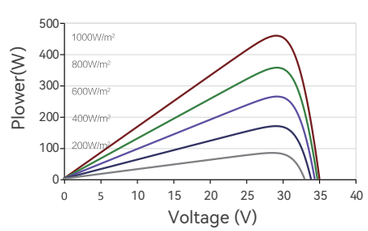
OPERATING PARAMETERS

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

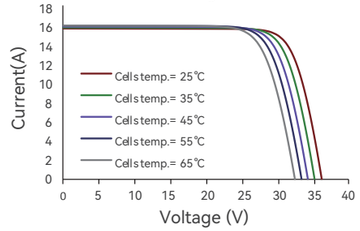
Current-Voltage(455W)



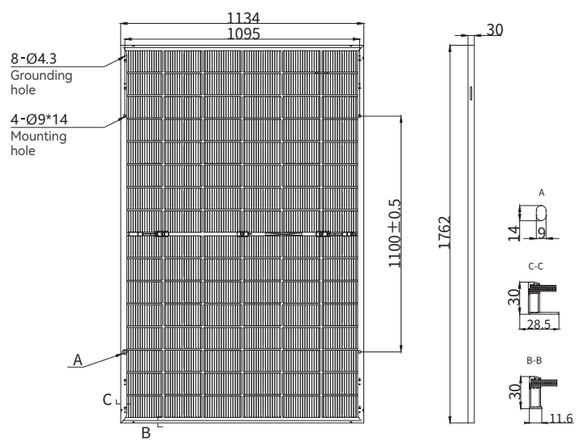
Power-Voltage(455W)



Current-Voltage(455W)



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 mm² / 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.

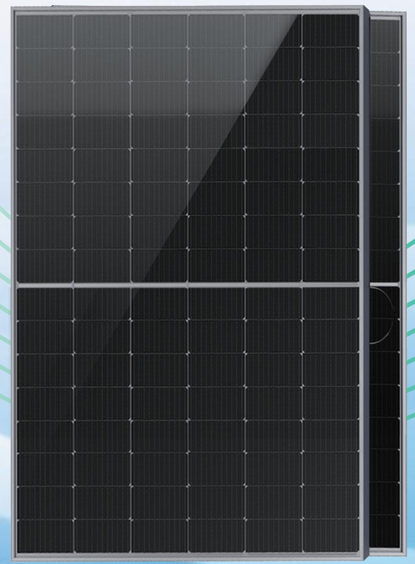
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

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

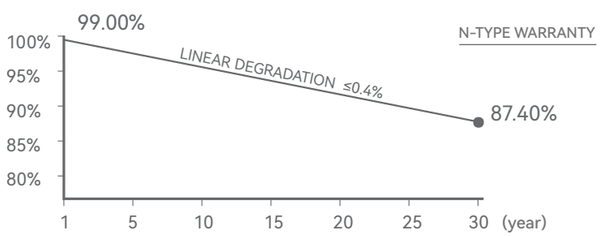
HIGH CONVERSION EFFICIENTY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

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
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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

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DIFFERENT REAR POWER GAINS (455W)

Power gains	Pmpp/Wp	Vmpp/V	Impp/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

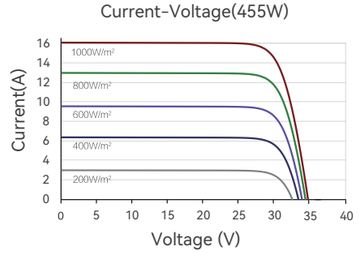
TEMPERATURE COEFFICIENT

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

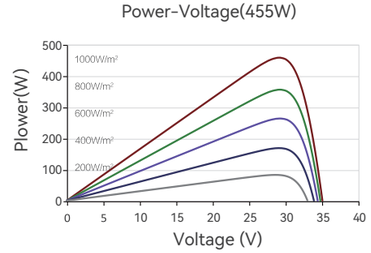
OPERATING PARAMETERS

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

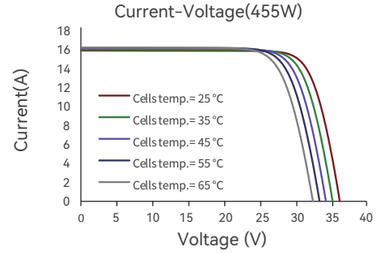
Current-Voltage(455W)



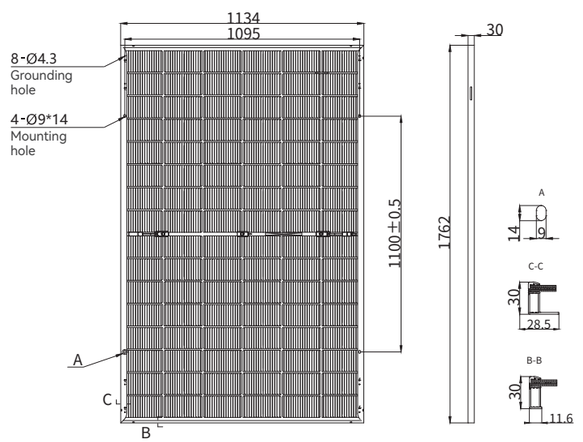
Power-Voltage(455W)



Current-Voltage(455W)



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 mm² / 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.

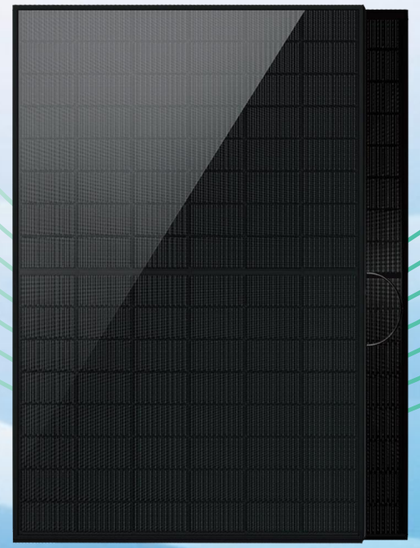
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210R TOPCon
Bifacial Series Full Black

445~465W

HY-NT11/48BGDF

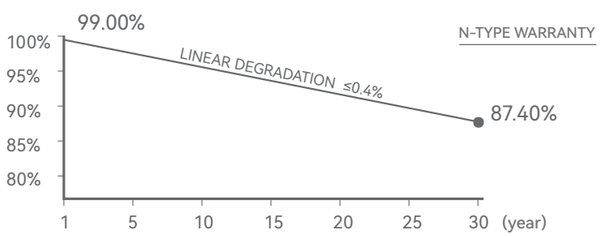


Main Features

- **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%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series Full Black HY-NT11/48BGDF	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 (Impp/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
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DIFFERENT REAR POWER GAINS (455W)

Power gains	Pmpp/Wp	Vmpp/V	Impp/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

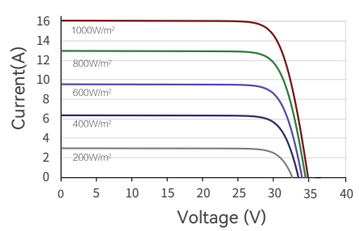
TEMPERATURE COEFFICIENT

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

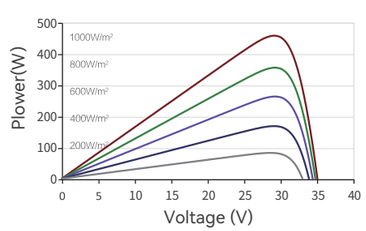
OPERATING PARAMETERS

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

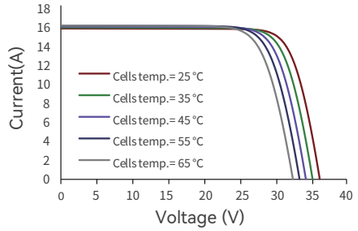
Current-Voltage(455W)



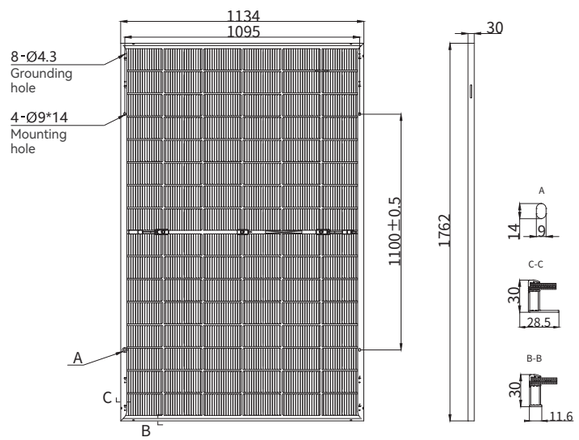
Power-Voltage(455W)



Current-Voltage(455W)



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 mm² / 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

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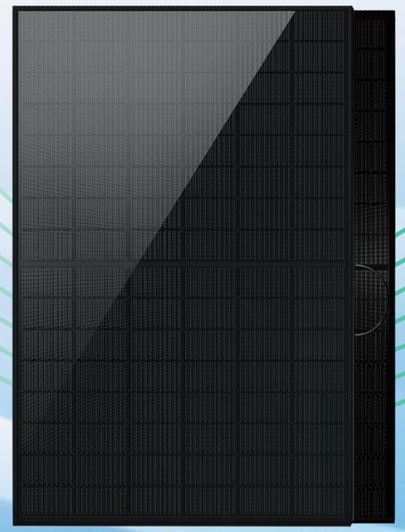
HYSOLAR

HT 210R TOPCon
Bifacial Series Full Black

445~465W

HY-NT11/48BGDF



Main Features

N-TYPE TOPCON TECH
- Lower LID
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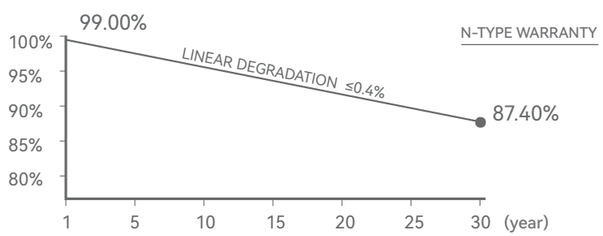

30 YEAR Product Workmanship Warrant

30 YEAR Linear Power Warranty

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N-Type Bifacial Series Full Black HY-NT11/48BGDF	445~465W POWER RANGE	23.3% EFFICIENTY	0~+5W POWER SORTING

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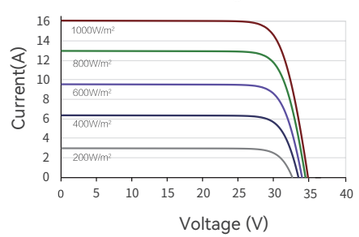
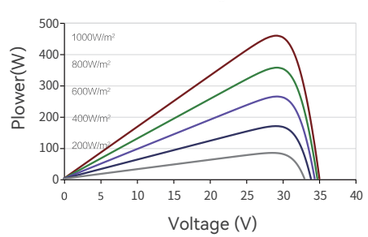
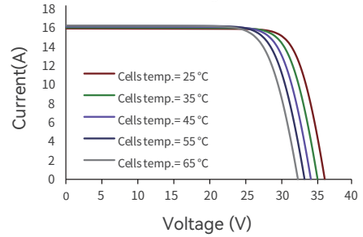
Current-Voltage(455W)



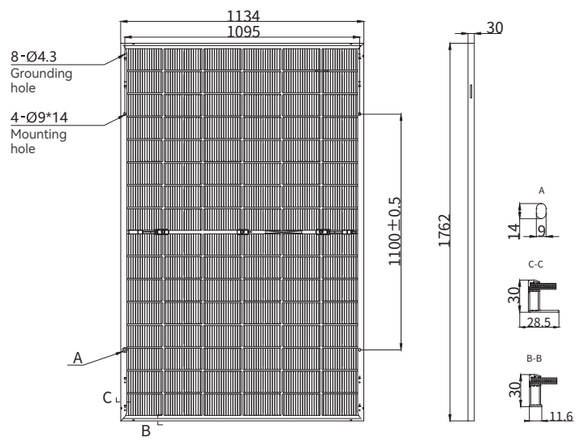
Power-Voltage(455W)



Current-Voltage(455W)



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 mm² / 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.

HYSOLAR

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

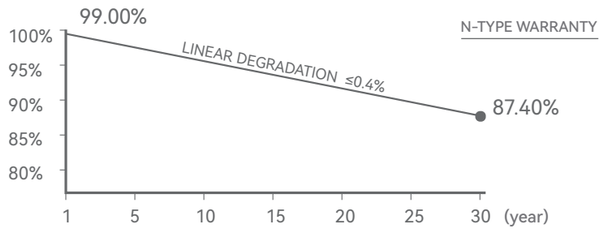
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.1%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear 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 (Vmpp/V)	36.70	36.90	37.10	37.30	37.50
Rated current (Impp/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 (Vmpp/V)	34.43	34.63	34.83	35.03	35.23
Rated current (Impp/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	Vmpp/V	Impp/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

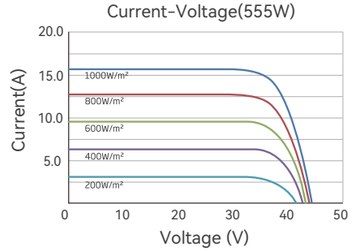
TEMPERATURE COEFFICIENT

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

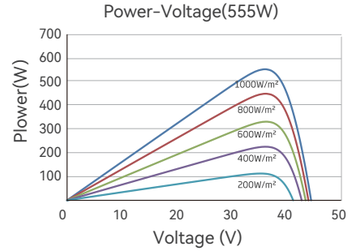
OPERATING PARAMETERS

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

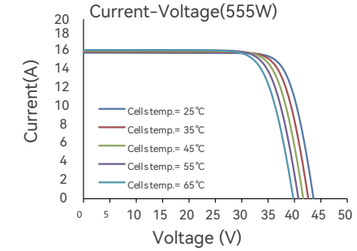
Current-Voltage(555W)



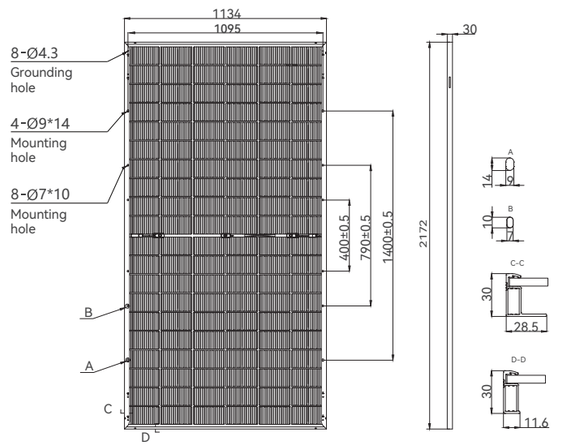
Power-Voltage(555W)



Current-Voltage(555W)



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 mm² / 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

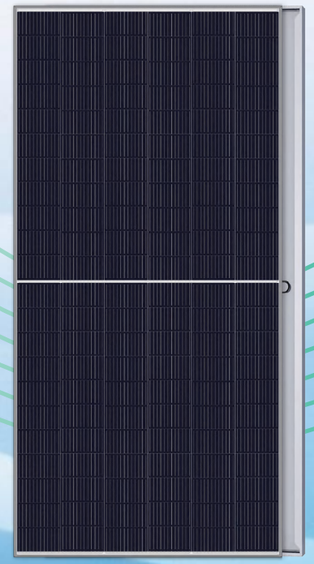
① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210R TOPCon Monofacial Series

615~635W

HY-NT11/66H



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

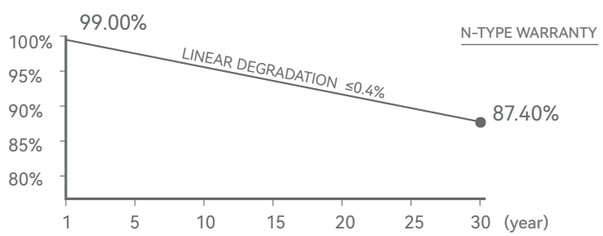
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.5%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤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

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

Rated output (Pmpp/Wp)	615	620	625	630	635
Rated voltage (Vmpp/V)	40.65	40.85	41.05	41.25	41.44
Rated current (Impp/A)	15.13	15.18	15.23	15.28	15.33
Open circuit voltage (Voc/V)	48.66	48.86	49.06	49.26	49.45
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/m², 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
Rated voltage (Vmpp/V)	38.15	38.35	38.55	38.74	38.92
Rated current (Impp/A)	12.30	12.34	12.38	12.42	12.46
Open circuit voltage (Voc/V)	46.02	46.22	46.42	46.61	46.79
Short-circuit current (Isc/A)	12.91	12.95	12.99	13.02	13.05

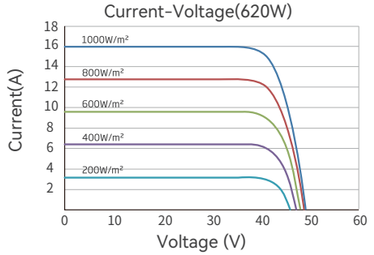
TEMPERATURE COEFFICIENT

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

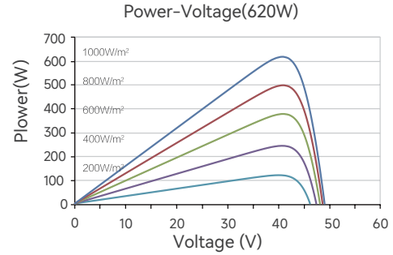
OPERATING PARAMETERS

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

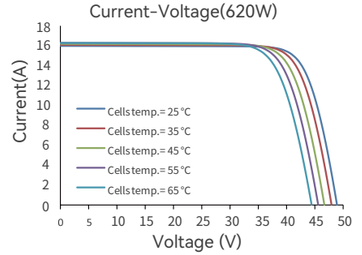
Current-Voltage(620W)



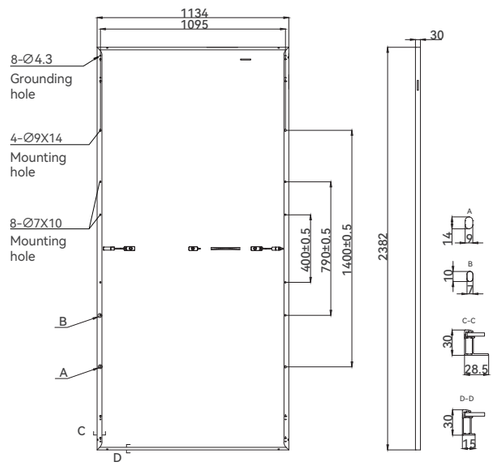
Power-Voltage(620W)



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 mm² / 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.

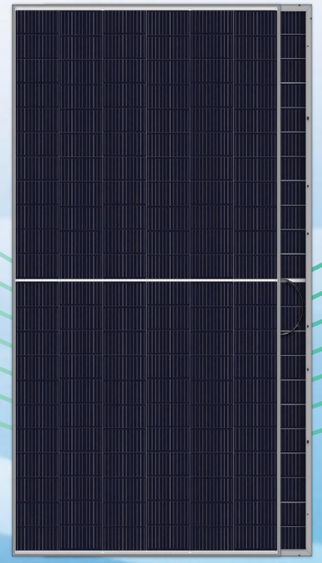
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210R TOPCon Bifacial Series

610~630W

HY-NT11/66GDF



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

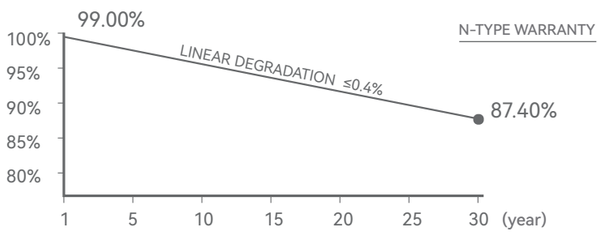
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤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

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

Rated output (Pmpp/Wp)	610	615	620	625	630
Rated voltage (Vmpp/V)	40.50	40.70	40.90	41.10	41.30
Rated current (Impp/A)	15.07	15.12	15.16	15.21	15.26
Open circuit voltage (Voc/V)	48.50	48.70	48.90	49.10	49.30
Short-circuit current (Isc/A)	15.88	15.92	15.96	16.00	16.04
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)	465.1	469.1	473.1	477.1	481.1
Rated voltage (Vmpp/V)	38.00	38.20	38.40	38.60	38.80
Rated current (Impp/A)	12.24	12.28	12.32	12.36	12.40
Open circuit voltage (Voc/V)	45.90	46.10	46.30	46.50	46.70
Short-circuit current (Isc/A)	12.85	12.89	12.93	12.97	13.01

DIFFERENT REAR POWER GAINS (620W)

Power gains	Pmpp/Wp	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	651	40.90	15.92	48.90	16.76
15%	713	40.90	17.43	48.90	18.35
25%	775	40.90	18.95	48.90	19.95

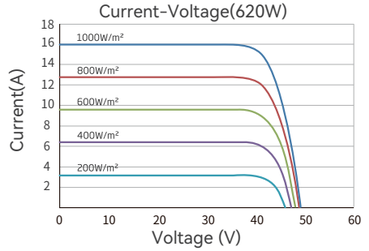
TEMPERATURE COEFFICIENT

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

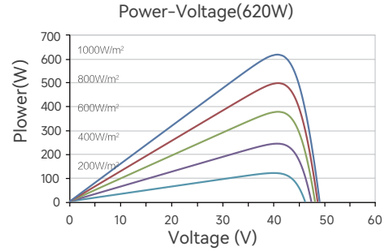
OPERATING PARAMETERS

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

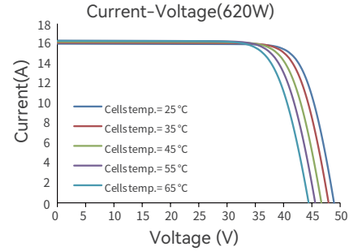
Current-Voltage(620W)



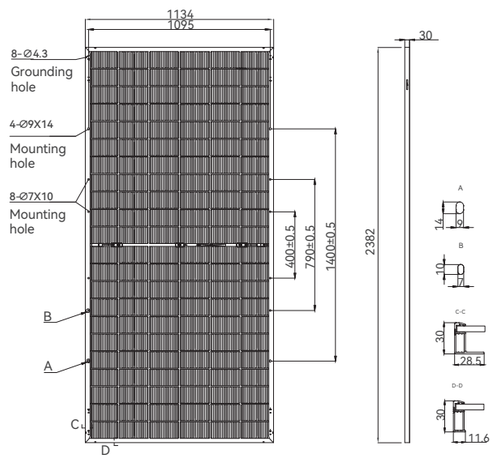
Power-Voltage(620W)



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	2.0+2.0 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm² / 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

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

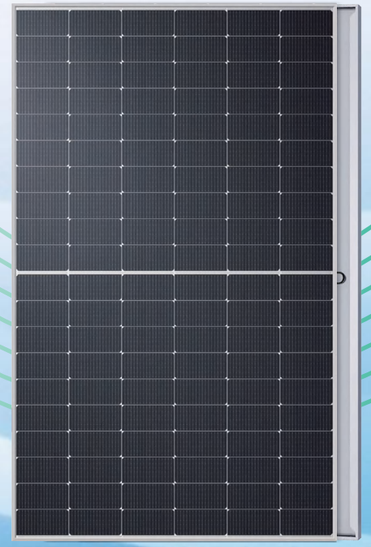
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210 TOPCon Monofacial Series

640~660W

HY-NT12/60H



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

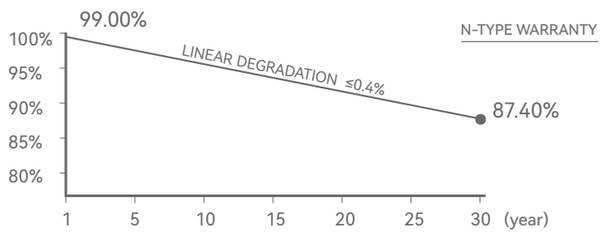
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Monofacial Series HY-NT12/60H	640~660W 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)	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

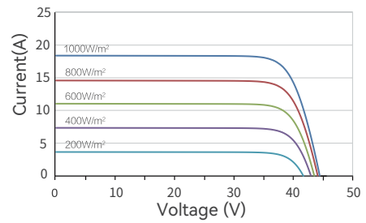
TEMPERATURE COEFFICIENT

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

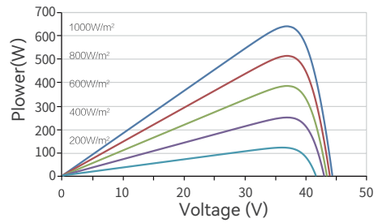
OPERATING PARAMETERS

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

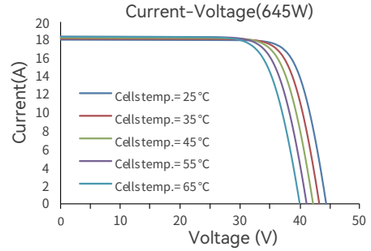
Current-Voltage(645W)



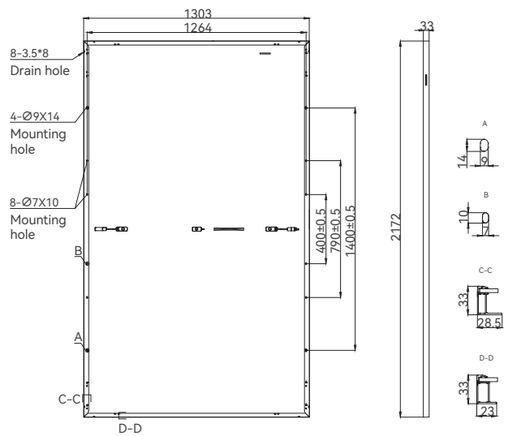
Power-Voltage(645W)



Current-Voltage(645W)



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 mm² / 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

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.

HYSOLAR

HT 210 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

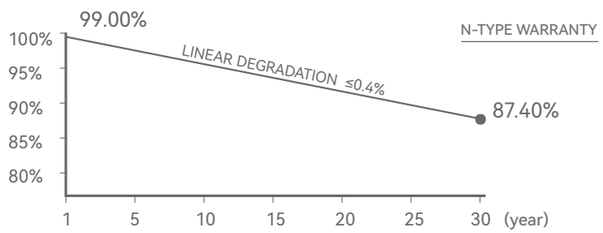
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.1%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear 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

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 (Impp/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 (Impp/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	Impp/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

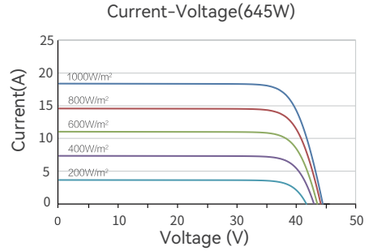
TEMPERATURE COEFFICIENT

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

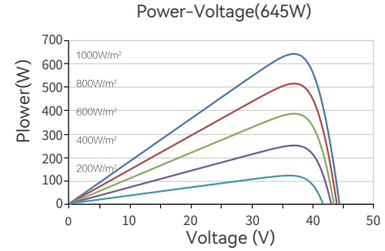
OPERATING PARAMETERS

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

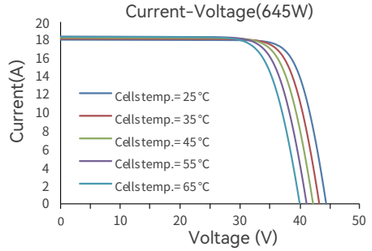
Current-Voltage(645W)



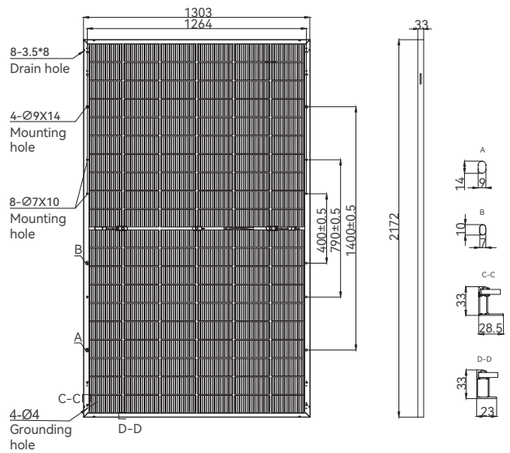
Power-Voltage(645W)



Current-Voltage(645W)



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 mm² / 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

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

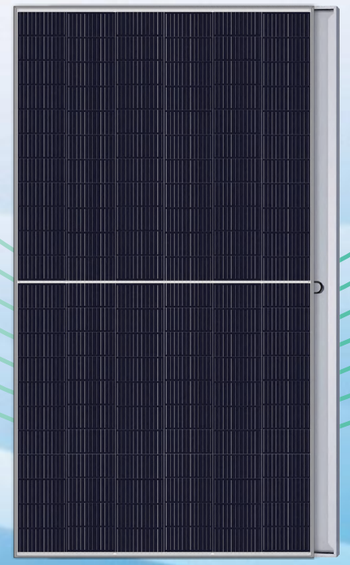
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210 TOPCon Monofacial Series

710~730W

HY-NT12/66H



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

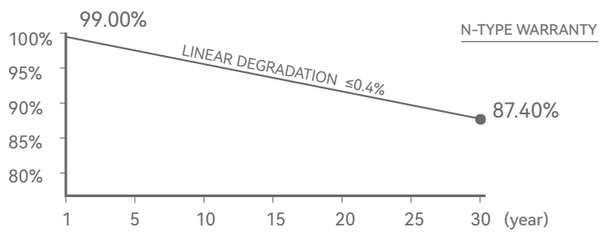
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.5%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

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

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

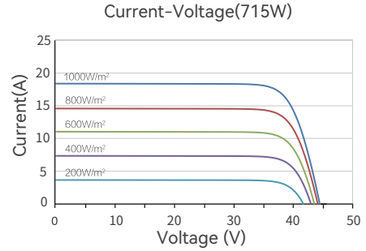
TEMPERATURE COEFFICIENT

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

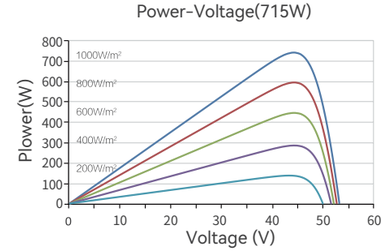
OPERATING PARAMETERS

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

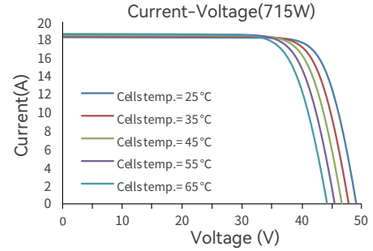
Current-Voltage(715W)



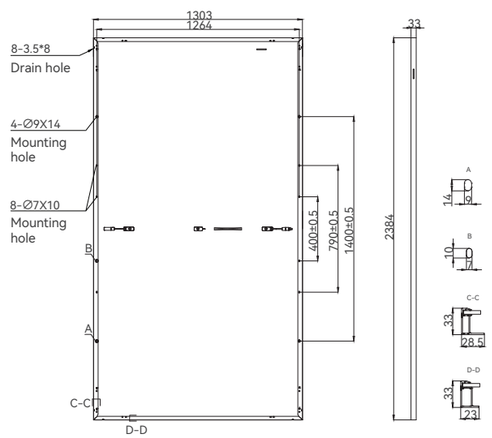
Power-Voltage(715W)



Current-Voltage(715W)



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 mm² / 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

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

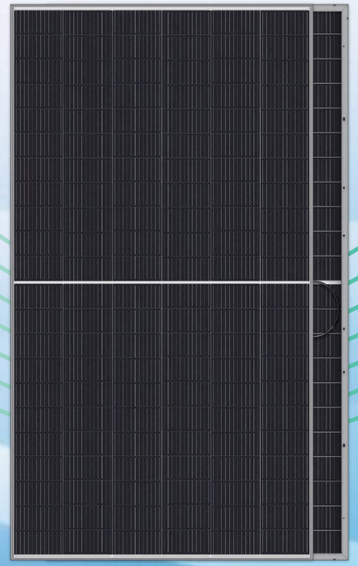
*The data above is for reference only and the actual data is in accordance with the pratical testing. Power Measurement Tolerance ±3% under STC standard.

HYSOLAR

HT 210 TOPCon Bifacial Series

705~725W

HY-NT12/66GDF



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

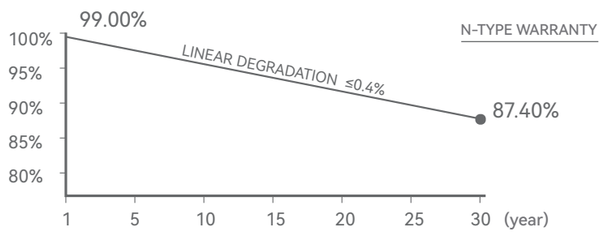
HIGH CONVERSION EFFICIENCY
- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80-85%

SUPERIOR POWER GENERATION PERFORMANCE
- Low Temperature Coefficient: -0.29%/°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 Warrant

30 YEAR Linear Power Warranty

≤1% First - year power attenuation

≤0.4% Linear power attenuation

N-Type Bifacial Series HY-NT12/66GDF	705~725W 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)	705	710	715	720	725
Rated voltage (Vmpp/V)	40.27	40.47	40.67	40.87	41.07
Rated current (Impp/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 (Impp/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	Impp/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

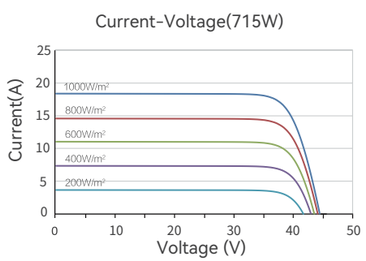
TEMPERATURE COEFFICIENT

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

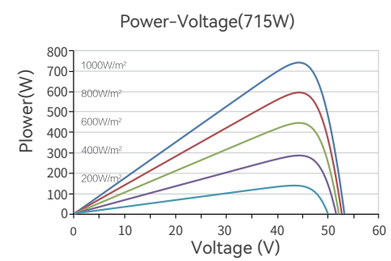
OPERATING PARAMETERS

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

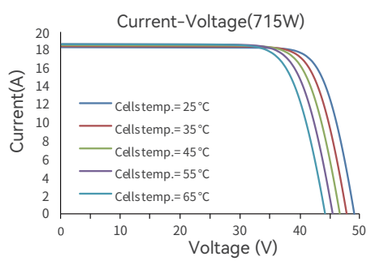
Current-Voltage(715W)



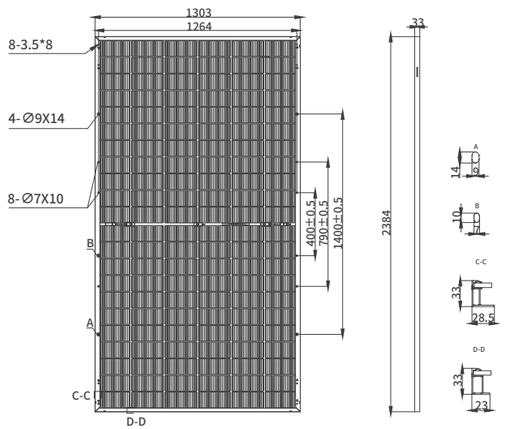
Power-Voltage(715W)



Current-Voltage(715W)



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 mm² / 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

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.

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.