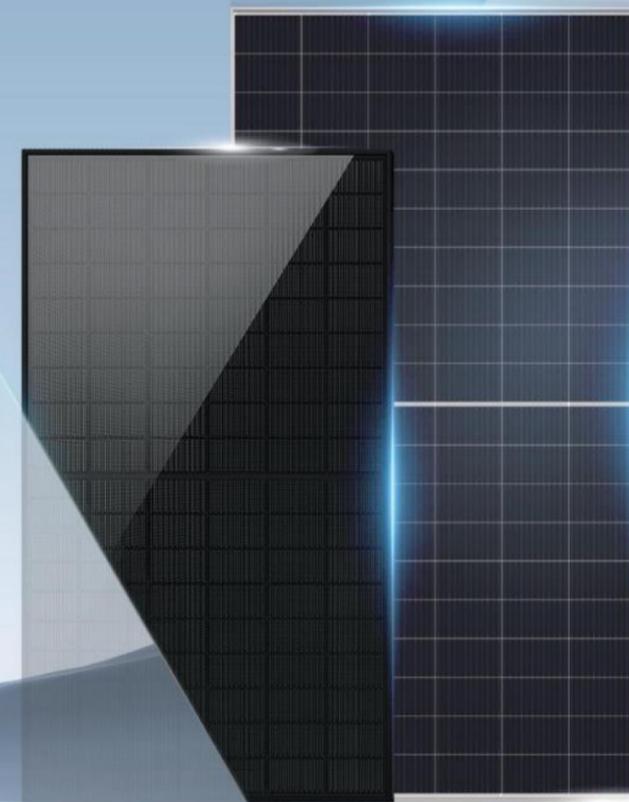


HY SOLAR

Stock Code | 603185



CONTACT US

Web: www.hysolar.com

E-mail: info@hysolar.com

Tel: +86 0510-85958787



Wechat



Wechat Channel



LinkedIn



YouTube

Product Handbook 2025

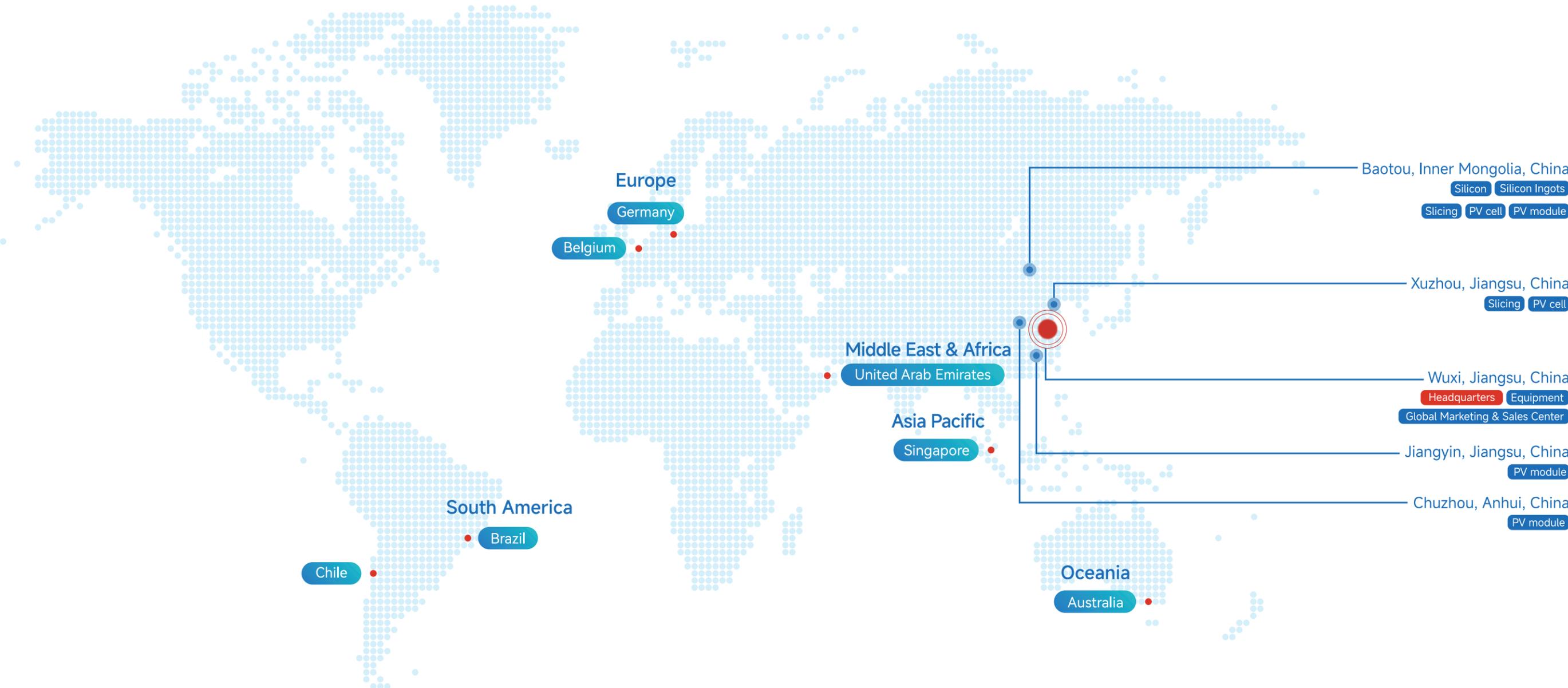
HY SOLAR PV Modules

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

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



Globalization



Headquarters
Wuxi, Jiangsu, China

Global Marketing & Sales Center
Wuxi, Jiangsu, China

Overseas Regional Headquarters

- Asia Pacific: Singapore
- Europe: Germany
- South America: Brazil
- Oceania: Australia
- Middle East & Africa: United Arab Emirates

Manufacturing Bases

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

Leading in N-Type Route

TOPCon

Cutting-edge PECVD tech

26.9%

PV cell mass production efficiency

LECO, +0.25%

More than +0.25% increase in efficiency

High Yield, +0.3%

+0.3% increase in yield of pv cells

+30^W

30W higher in efficiency compared with PERC modules

26^{GW}

TOPCon cell capacity



Leading in R&D

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

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



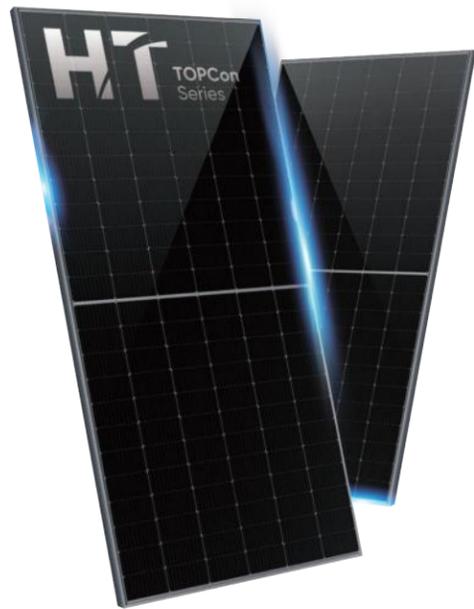
Honors

| | | | | |
|---|---|--|---|---|
| China Federation Of Commerce Sci-tech Award | China Machinery Industry Sci-tech Award | 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

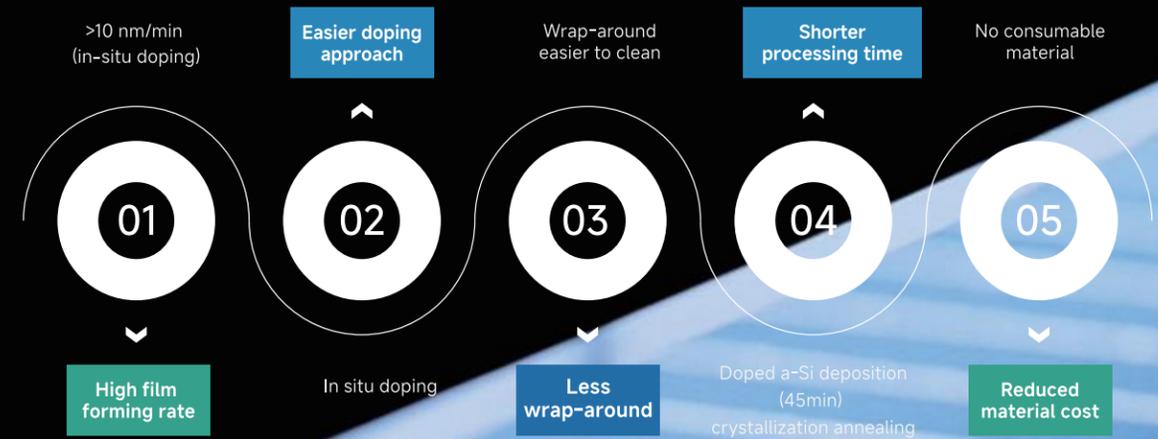


Champion of **Decathlon**
Choice of **Quality**

- | | |
|--|---|
|  HY SOLAR TOPCon cell technology |  Higher bifaciality |
|  Diverse module types |  Lower temperature coefficient |
|  SMBB & half-cell |  Better low-irradiance performance |
|  Non-destructive cutting |  Lower degradation |
|  High density cells encapsulating |  Lower LCOE |

HY SOLAR TOPCon Cell Tech

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



Lower Degradation Longer Warranty

Warranty for N-type TOPCon modules

15^y product workmanship warranty, 30^y power warranty for modules

within 2m² residential rooftops:

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

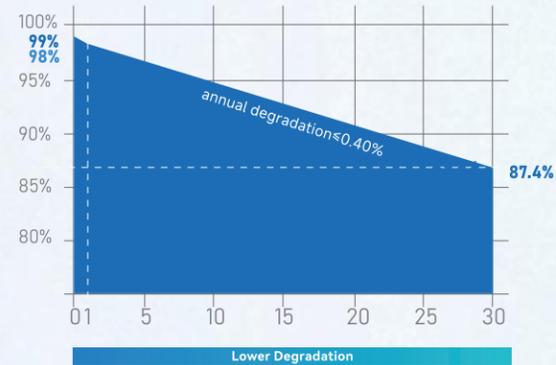
≤1% first year degradation, ≤0.4% of subsequent annual degradation

≥87.40% of the initial output after 30 years

30^y
Power Warranty

≤ 1% 1st year degradation

0.4% Linear degradation

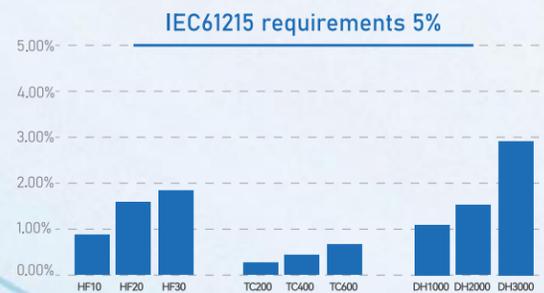


Stricter Testing Demonstrates Outstanding Performance

According to IEC61215 standard test,
Modules exhibit outstanding reliability performance

- IEC61215 Test
- IEC Test triple as demanding

Outstanding
Reliability
Performance



Process Control

Automatic Loading

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

Automatic Welding

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

Automatic Cell String Layup

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

Lamination & Cooling

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

Automatic Framing

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

Testing

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

Qualified Modules

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

IEC/TS 62941
PV module manufacturing quality system

ISO 14001
Environmental management systems

ISO 45001
Occupational health and safety management systems

Quality Assurance

Full Industrial Chain Traceability

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

Silicon

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

PV Wafer

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

PV Cell

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

PV Module

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

All-scenario Applications



Mountain PV Power Plants



Utility-Scale PV Power Plants



Commercial Distributed PV Power Plants



Residential Distributed PV Power Plants

Agri-PV Applications



PV + Desertification Control Applications



Freshwater Lake PV Applications



Offshore PV Applications



HY'S SOLAR

HY SOLAR Conventional Products TOPCon Modules

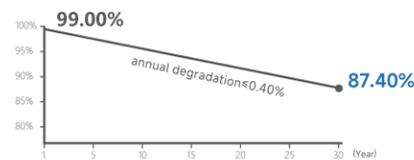
HT TOPCon Series Module Family

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

Comprehensive Products and System Certificates

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

30-Year Power Warranty



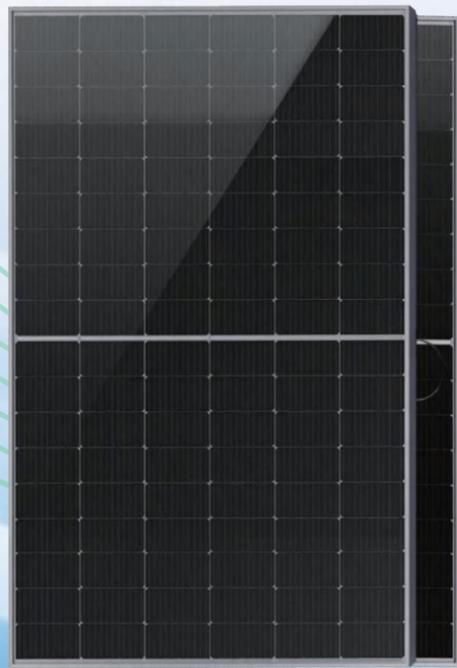
产品目录

| Cell | Module product | Number of cells | Application |
|------|-----------------------------|-----------------|--|
| 182 | NT10-54GDF(445-465W) | 54pcs | Residential Distributed Rooftop |
| | NT10-54GDF(445-465W)-1.6mm | | |
| | NT10-54BGDF(445-465W) | | |
| | NT10-54BGDF(445-465W)-1.6mm | | |
| | NT10-60GDF(495-515W) | 60pcs | Commercial / Residential Distributed Rooftop |
| | NT10-60BGDF(495-515W) | | |
| | NT10-72H(595-615W) | 72pcs | Commercial / Residential Distributed Rooftop |
| | NT10-72GDF(590-610W) | | Utility-Scale PV Power Plants Commercial Distributed Rooftop Freshwater Lake |
| | NT10-72GDF(590-610W) | | Marine Applications |
| | 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 | 60pcs | Commercial / Residential Distributed Rooftop |
| | NT11-60GDF(550-570W) | | |
| | NT11-66H(615-635W) | | |
| | 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 |

HT 182 TOPCon Bifacial Series

445~465W

HY-NT10/54GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

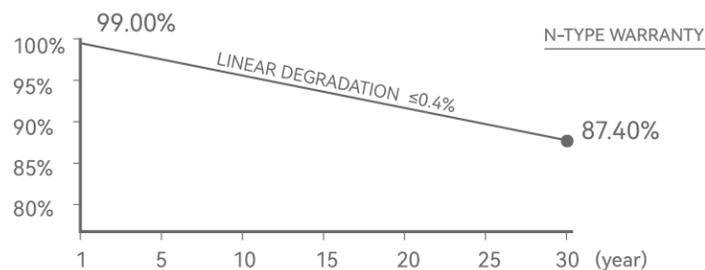
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

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

ELECTRICAL PERFORMANCE PARAMETERS

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

| Parameter | 445 | 450 | 455 | 460 | 465 |
|-------------------------------|-------|-------|-------|-------|-------|
| 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 (Imp/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

| Parameter | 336.1 | 339.8 | 343.5 | 347.2 | 351.1 |
|-------------------------------|-------|-------|-------|-------|-------|
| 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 (Imp/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)

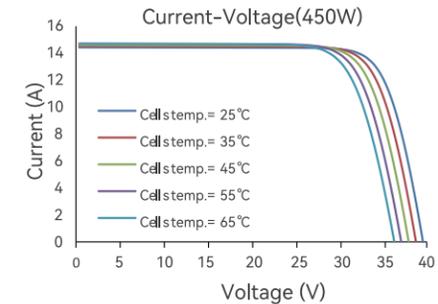
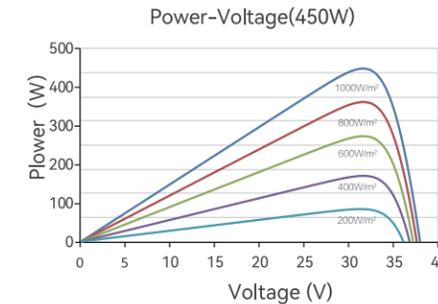
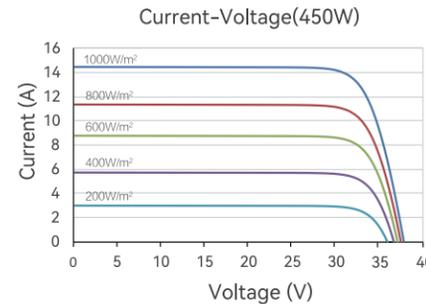
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 473 | 32.89 | 14.37 | 39.39 | 15.16 |
| 15% | 518 | 32.89 | 15.73 | 39.39 | 16.61 |
| 25% | 563 | 32.89 | 17.10 | 39.39 | 18.05 |

TEMPERATURE COEFFICIENT

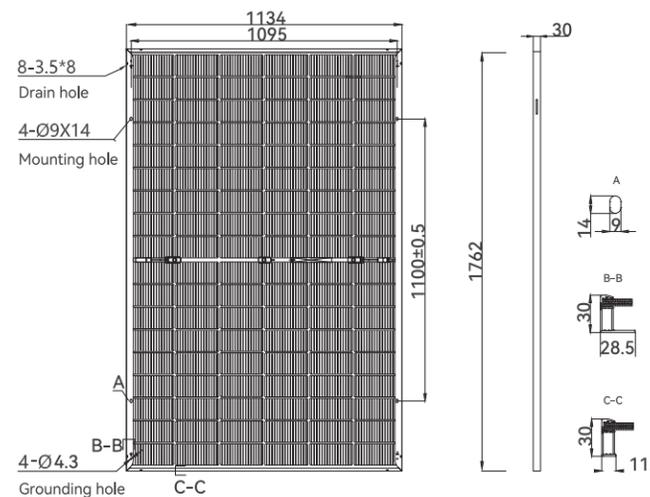
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS

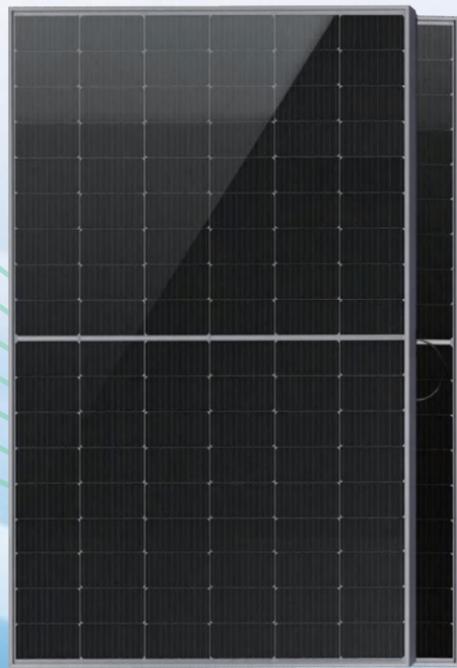


| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 1762 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 108 (6*18) |
| Frame Type | Aluminum, silver/black anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: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

HT 182 TOPCon Bifacial Series

445~465W

HY-NT10/54GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

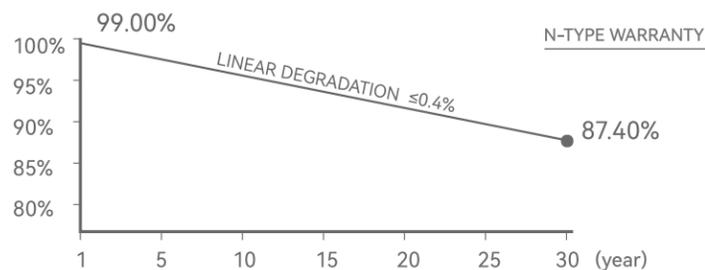
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

N-Type Bifacial Series HY-NT10/54GDF

445~465W
POWER RANGE

23.3%
EFFICIENCY

0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

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

| Parameter | 445 | 450 | 455 | 460 | 465 |
|-------------------------------|-------|-------|-------|-------|-------|
| 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 (Imp/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

| Parameter | 336.1 | 339.8 | 343.5 | 347.2 | 351.1 |
|-------------------------------|-------|-------|-------|-------|-------|
| 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 (Imp/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)

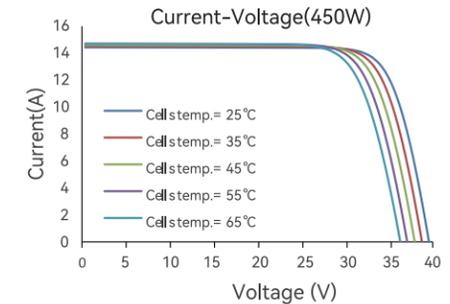
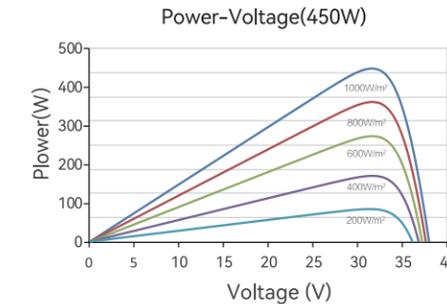
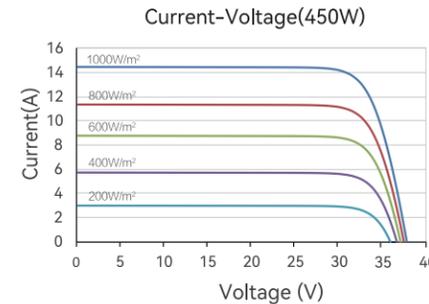
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 473 | 32.89 | 14.37 | 39.39 | 15.16 |
| 15% | 518 | 32.89 | 15.73 | 39.39 | 16.61 |
| 25% | 563 | 32.89 | 17.10 | 39.39 | 18.05 |

TEMPERATURE COEFFICIENT

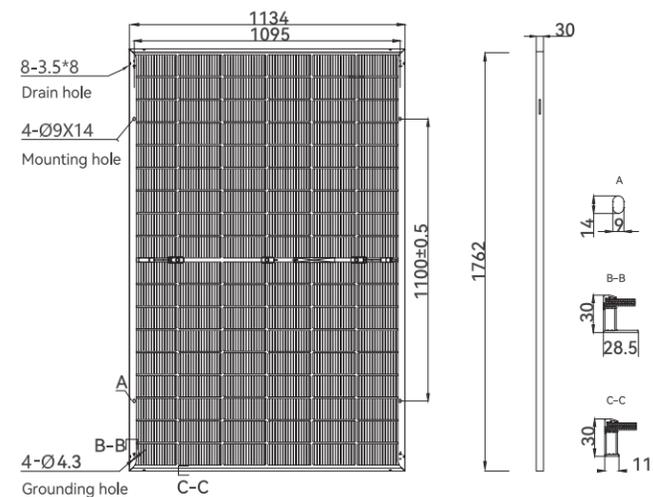
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



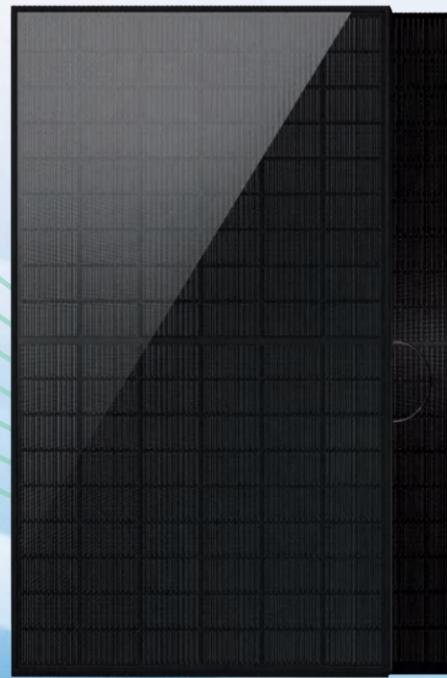
| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 1762 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 108 (6*18) |
| Frame Type | Aluminum, silver/black anodized |
| Glass thickness | 1.6+1.6 mm |
| Cable length (including connector) | Portrait: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

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

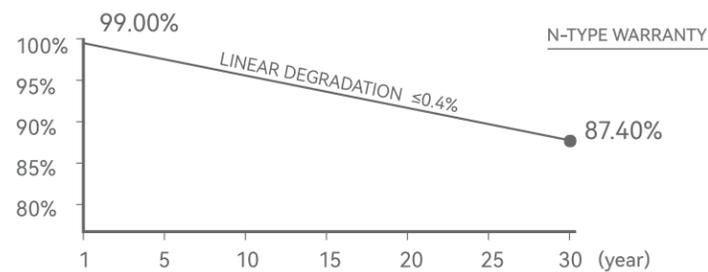
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

N-Type Bifacial Series 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

| Parameter | 445 | 450 | 455 | 460 | 465 |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 445 | 450 | 455 | 460 | 465 |
| Rated voltage (V _{mpp} /V) | 32.71 | 32.89 | 33.07 | 33.24 | 33.43 |
| Rated current (I _{mpp} /A) | 13.61 | 13.67 | 13.76 | 13.84 | 13.91 |
| Open circuit voltage (V _{oc} /V) | 39.19 | 39.39 | 39.57 | 39.77 | 39.95 |
| Short-circuit current (I _{sc} /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

| Parameter | 336.1 | 339.8 | 343.5 | 347.2 | 351.1 |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 336.1 | 339.8 | 343.5 | 347.2 | 351.1 |
| Rated voltage (V _{mpp} /V) | 30.75 | 30.92 | 31.09 | 31.25 | 31.43 |
| Rated current (I _{mpp} /A) | 10.93 | 10.99 | 11.05 | 11.11 | 11.17 |
| Open circuit voltage (V _{oc} /V) | 36.93 | 37.12 | 37.29 | 37.47 | 37.64 |
| Short-circuit current (I _{sc} /A) | 11.53 | 11.59 | 11.66 | 11.72 | 11.79 |

DIFFERENT REAR POWER GAINS (450W)

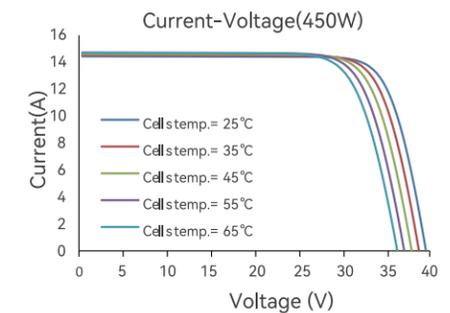
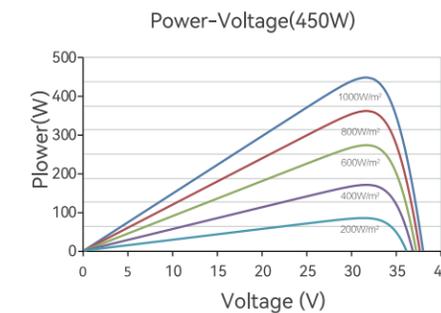
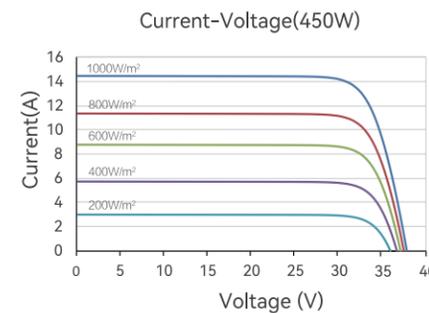
| Power gains | P _{mpp} /Wp | V _{mpp} /V | I _{mpp} /A | V _{oc} /V | I _{sc} /A |
|-------------|----------------------|---------------------|---------------------|--------------------|--------------------|
| 5% | 473 | 32.89 | 14.37 | 39.39 | 15.16 |
| 15% | 518 | 32.89 | 15.73 | 39.39 | 16.61 |
| 25% | 563 | 32.89 | 17.10 | 39.39 | 18.05 |

TEMPERATURE COEFFICIENT

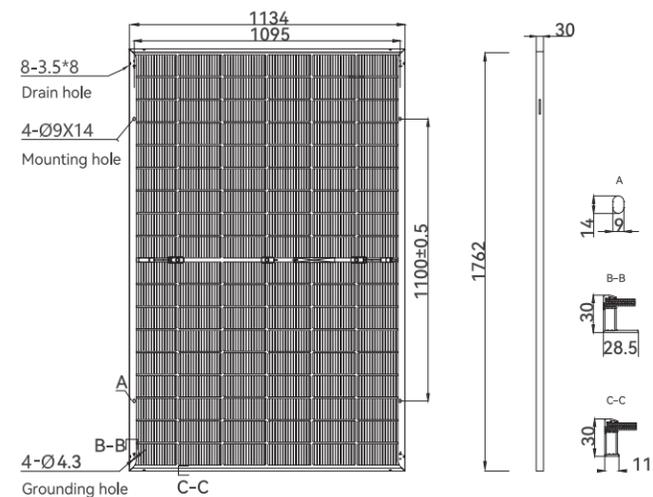
| | |
|---|------------|
| Temperature coefficient (P _{mpp}) | -0.29%/°C |
| Temperature coefficient (I _{sc}) | +0.043%/°C |
| Temperature coefficient (V _{oc}) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



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

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

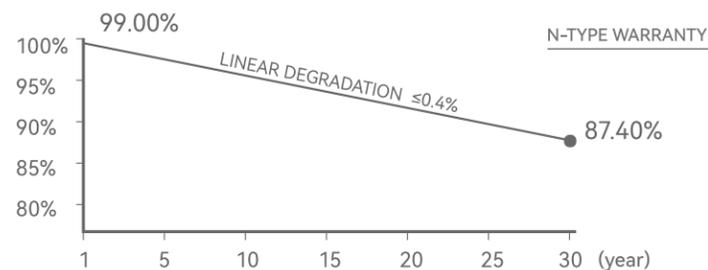
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

N-Type Bifacial Series 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 (Imp/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 (Imp/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)

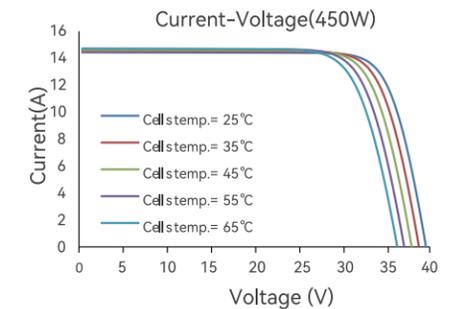
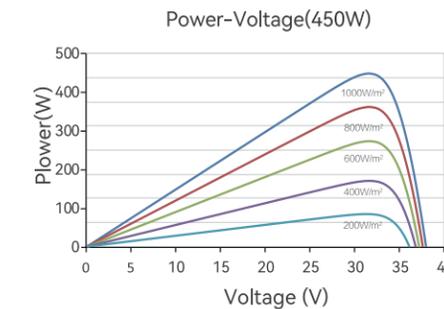
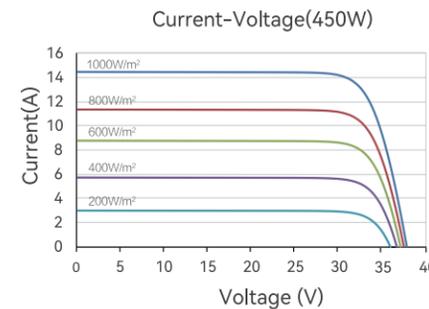
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 473 | 32.89 | 14.37 | 39.39 | 15.16 |
| 15% | 518 | 32.89 | 15.73 | 39.39 | 16.61 |
| 25% | 563 | 32.89 | 17.10 | 39.39 | 18.05 |

TEMPERATURE COEFFICIENT

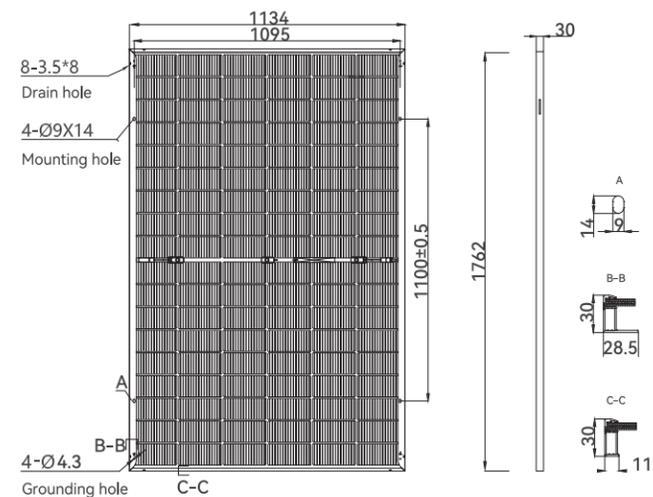
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



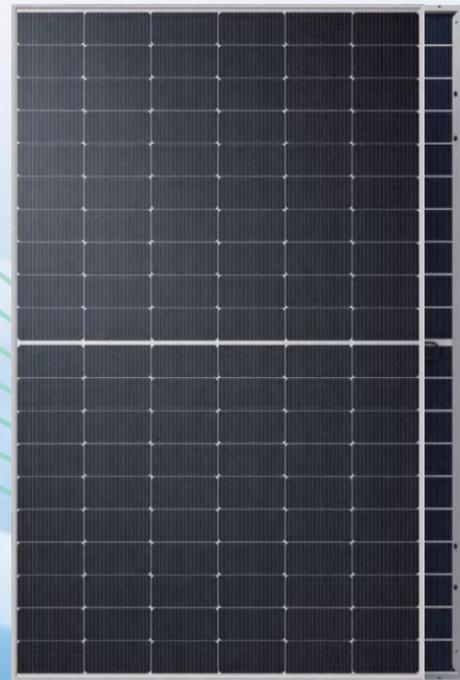
MECHANICAL PARAMETERS



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

HT 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

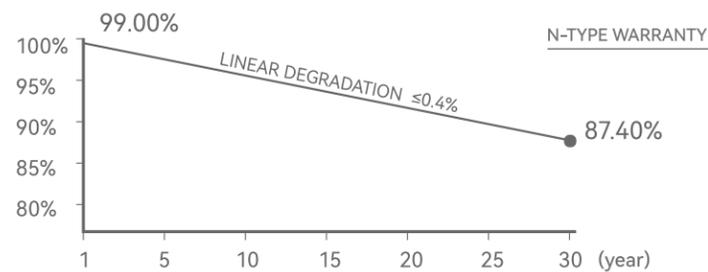
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

| | | | |
|---|---------------------------------|-----------------------------|--------------------------------|
| N-Type Bifacial Series HY-NT10/60GDF | 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

| Parameter | 495W | 500W | 505W | 510W | 515W |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 495 | 500 | 505 | 510 | 515 |
| Rated voltage (V _{mpp} /V) | 36.37 | 36.55 | 36.73 | 36.91 | 37.08 |
| Rated current (I _{mpp} /A) | 13.61 | 13.68 | 13.75 | 13.82 | 13.89 |
| Open circuit voltage (V _{oc} /V) | 43.52 | 43.72 | 43.92 | 44.12 | 44.32 |
| Short-circuit current (I _{sc} /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

| Parameter | 495W | 500W | 505W | 510W | 515W |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 371.7 | 375.2 | 378.8 | 382.4 | 386.3 |
| Rated voltage (V _{mpp} /V) | 34.13 | 34.30 | 34.47 | 34.64 | 34.80 |
| Rated current (I _{mpp} /A) | 10.89 | 10.94 | 10.99 | 11.04 | 11.10 |
| Open circuit voltage (V _{oc} /V) | 41.01 | 41.20 | 41.39 | 41.58 | 41.77 |
| Short-circuit current (I _{sc} /A) | 11.51 | 11.57 | 11.63 | 11.69 | 11.75 |

DIFFERENT REAR POWER GAINS (500W)

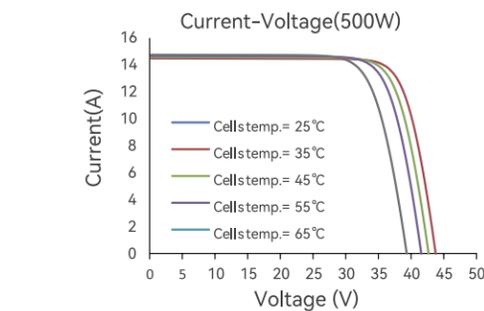
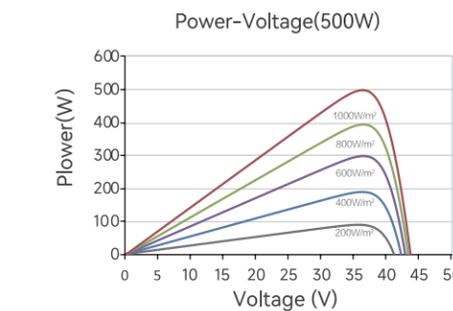
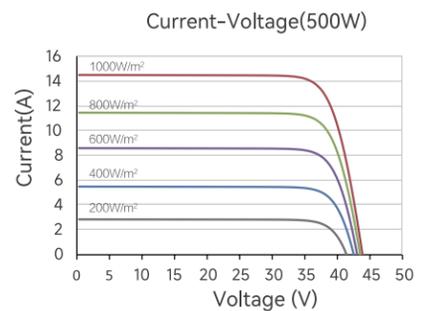
| Power gains | P _{mpp} /Wp | V _{mpp} /V | I _{mpp} /A | V _{oc} /V | I _{sc} /A |
|-------------|----------------------|---------------------|---------------------|--------------------|--------------------|
| 5% | 525 | 36.55 | 14.36 | 43.72 | 15.14 |
| 15% | 575 | 36.55 | 15.73 | 43.72 | 16.58 |
| 25% | 625 | 36.55 | 17.10 | 43.72 | 18.03 |

TEMPERATURE COEFFICIENT

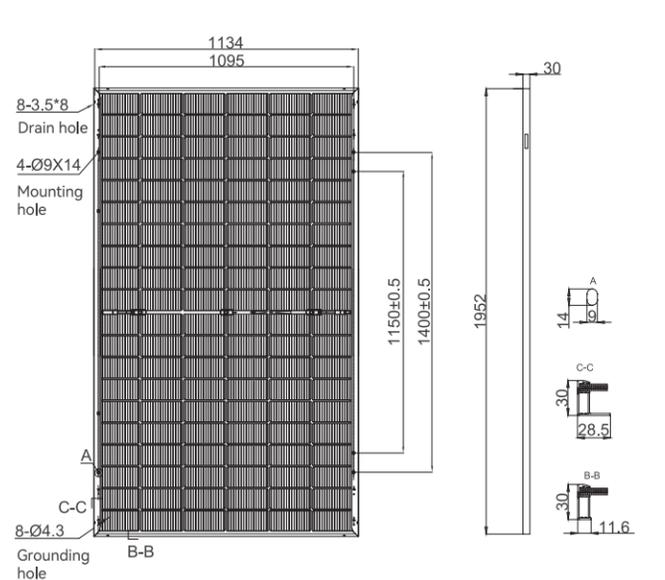
| | |
|---|------------|
| Temperature coefficient (P _{mpp}) | -0.29%/°C |
| Temperature coefficient (I _{sc}) | +0.043%/°C |
| Temperature coefficient (V _{oc}) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



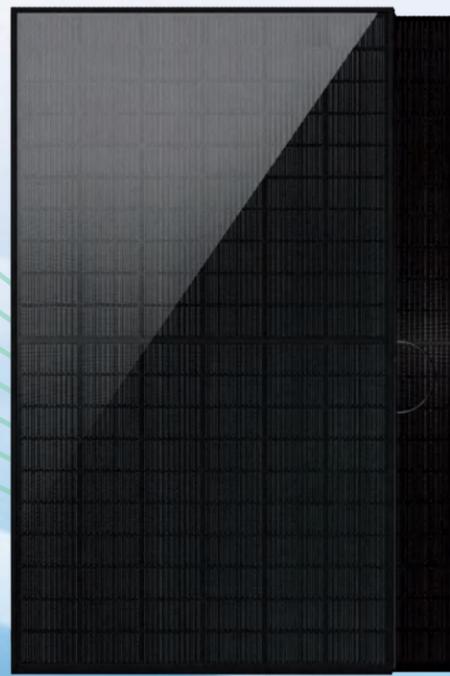
| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 1952 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 120 (6*20) |
| Frame Type | Aluminum, silver/black anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: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

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

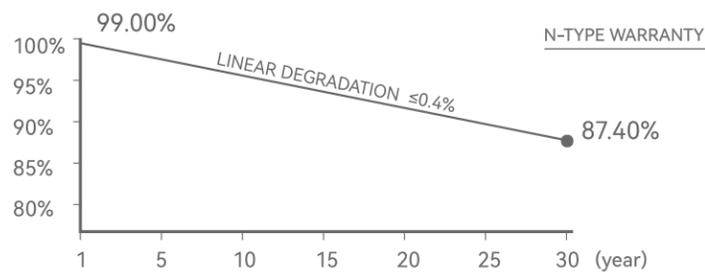
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR Product Workmanship Warranty

30 YEAR Linear Power Warranty

$\leq 1\%$ First-year power attenuation

$\leq 0.4\%$ Linear power attenuation

N-Type Bifacial Series 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 (Imp/A) | 13.61 | 13.68 | 13.75 | 13.82 | 13.89 |
| Open circuit voltage (Voc/V) | 43.52 | 43.72 | 43.92 | 44.12 | 44.32 |
| Short-circuit current (Isc/A) | 14.35 | 14.42 | 14.49 | 14.56 | 14.63 |
| Module efficiency | 22.4% | 22.6% | 22.8% | 23.0% | 23.3% |

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

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

DIFFERENT REAR POWER GAINS (500W)

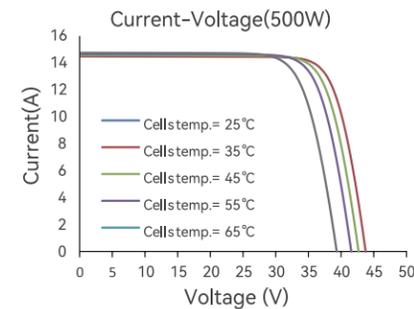
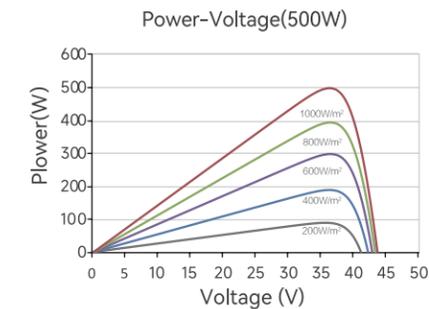
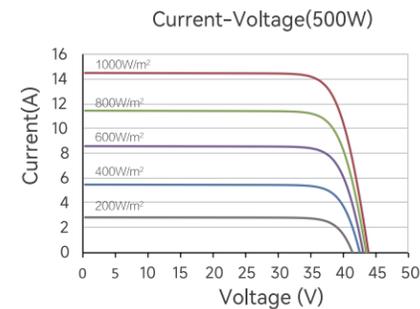
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 525 | 36.55 | 14.36 | 43.72 | 15.14 |
| 15% | 575 | 36.55 | 15.73 | 43.72 | 16.58 |
| 25% | 625 | 36.55 | 17.10 | 43.72 | 18.03 |

TEMPERATURE COEFFICIENT

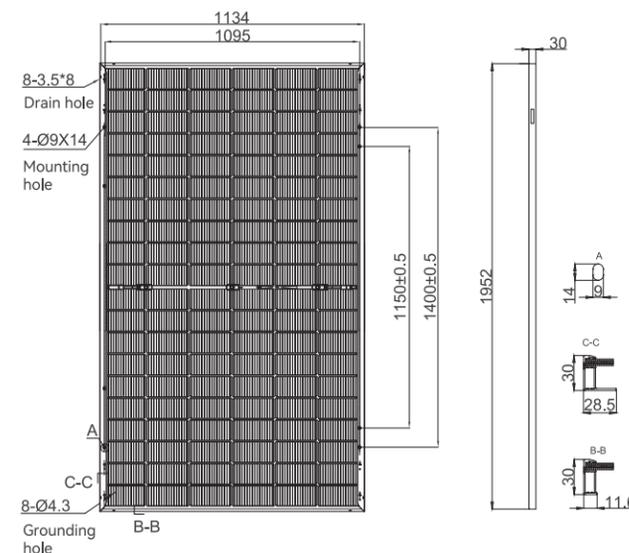
| | |
|---|-----------------------------|
| Temperature coefficient (Pmpp) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (Isc) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (Voc) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 30A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | $80\pm 5\%$ |



MECHANICAL PARAMETERS



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

HT 182 TOPCon Monofacial Series

595~615W

HY-NT10/72H

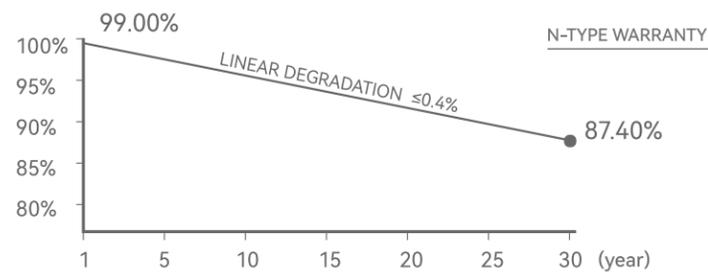


Main Features

- 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: $-0.29\%/^{\circ}\text{C}$
 - Lower Operating Temperature
- LOWER LEVELIZED COST OF ELECTRICITY**
 - Lower BOS and LCOE
 - Higher ROI

Comprehensive Products and System Certificates

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



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

| | | | |
|---|---------------------------------|-----------------------------|--------------------------------|
| N-Type 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 (Imp/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

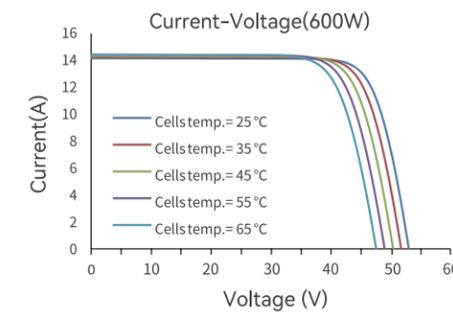
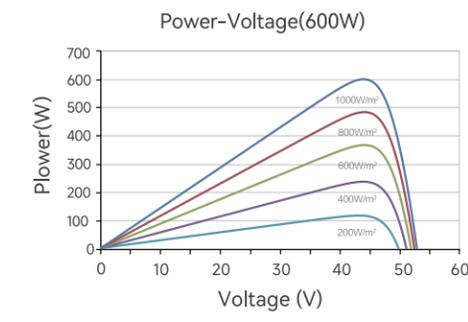
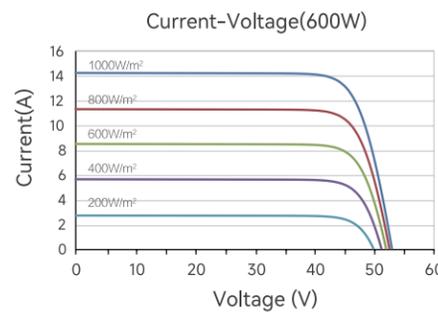
| | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|
| Rated output (Pmpp/Wp) | 449.1 | 452.9 | 456.8 | 460.6 | 464.2 |
| Rated voltage (Vmpp/V) | 41.51 | 41.70 | 41.87 | 42.06 | 42.24 |
| Rated current (Imp/A) | 10.82 | 10.86 | 10.91 | 10.95 | 10.99 |
| Open circuit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

TEMPERATURE COEFFICIENT

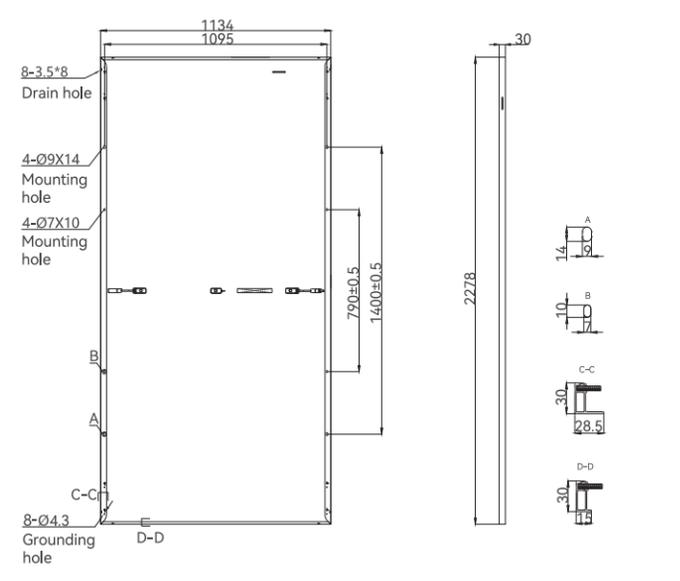
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



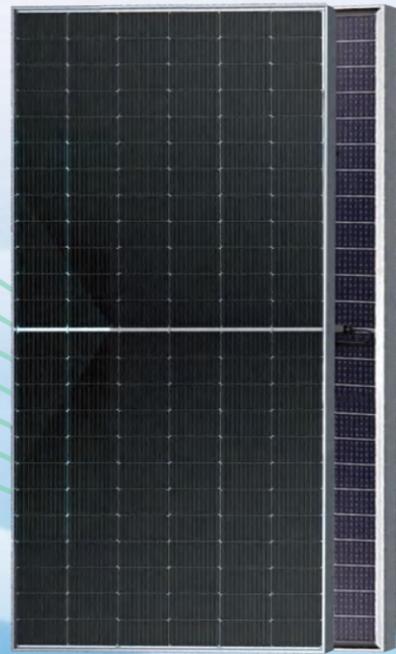
MECHANICAL PARAMETERS



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

HT 182 TOPCon Bifacial Series

590~610W HY-NT10/72GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

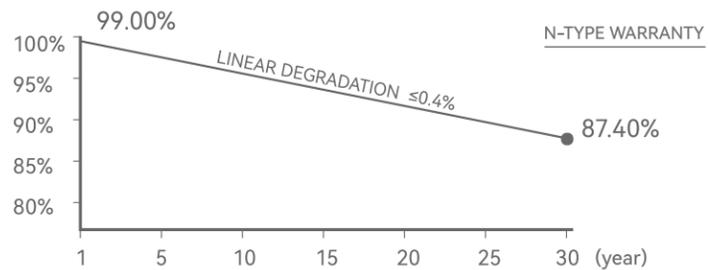
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

| | | | |
|---|-----------------------------|-------------------------|----------------------------|
| N-Type Bifacial Series HY-NT10/72GDF | 590~610W POWER RANGE | 23.6% EFFICIENCY | 0~+5W POWER SORTING |
|---|-----------------------------|-------------------------|----------------------------|

| | | | | | | |
|--|--|--|--|--|--|--|
| ELECTRICAL PERFORMANCE PARAMETERS | | | | | | DIFFERENT REAR POWER GAINS (600W) |
|--|--|--|--|--|--|--|

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

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

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

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

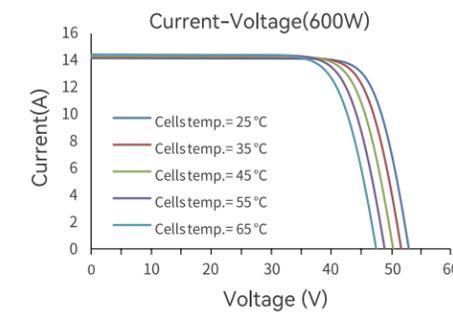
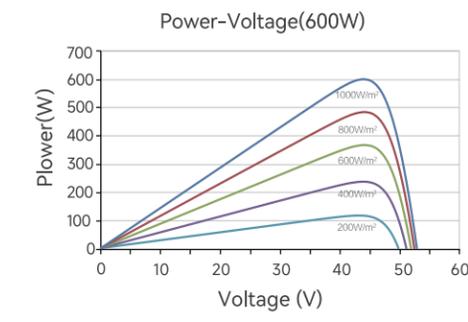
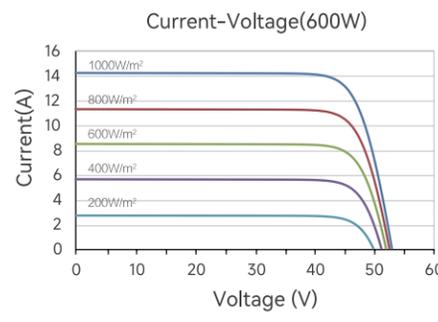
| | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|
| Rated output (Pmpp/Wp) | 444.9 | 449.5 | 453.4 | 457.6 | 461.9 |
| Rated voltage (Vmpp/V) | 41.50 | 41.70 | 41.90 | 42.10 | 42.30 |
| Rated current (Imp/A) | 10.72 | 10.78 | 10.82 | 10.87 | 10.92 |
| Open circuit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

TEMPERATURE COEFFICIENT

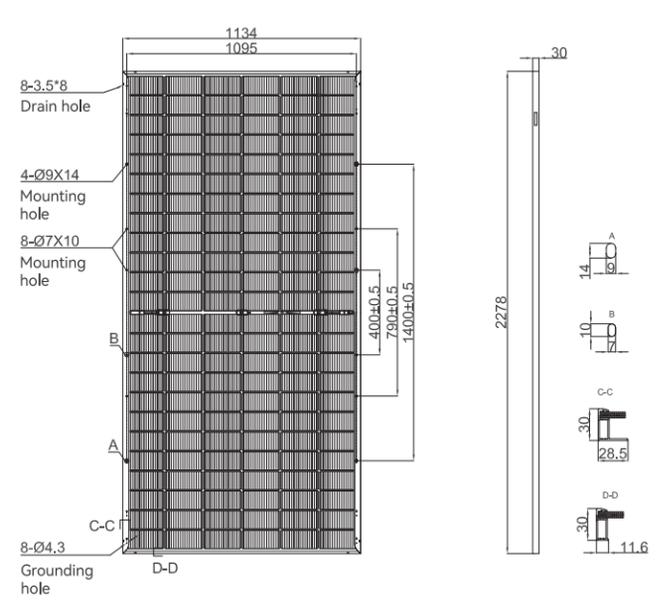
| | |
|---|-----------------------------|
| Temperature coefficient (Pmpp) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (Isc) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (Voc) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 30A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | $80\pm 5\%$ |



MECHANICAL PARAMETERS



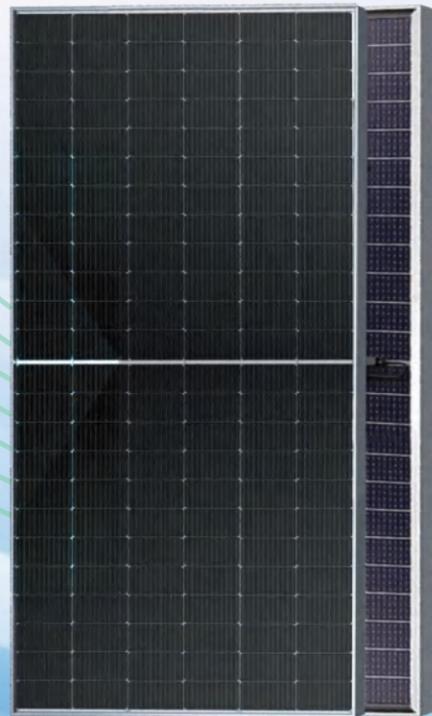
| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 2278 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 144 (6*24) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

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

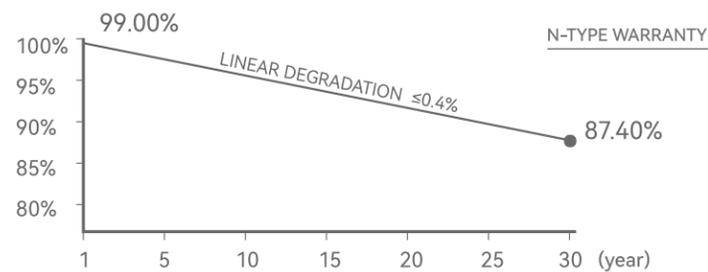
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

N-Type Bifacial Series
HY-NT10/72GDF (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

| Parameter | 590 | 595 | 600 | 605 | 610 |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 590 | 595 | 600 | 605 | 610 |
| Rated voltage (V _{mpp} /V) | 44.15 | 44.34 | 44.54 | 44.74 | 44.94 |
| Rated current (I _{mpp} /A) | 13.37 | 13.42 | 13.48 | 13.53 | 13.58 |
| Open circuit voltage (V _{oc} /V) | 52.20 | 52.35 | 52.55 | 52.75 | 52.95 |
| Short-circuit current (I _{sc} /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

| Parameter | 444.9 | 449.5 | 453.4 | 457.6 | 461.9 |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 444.9 | 449.5 | 453.4 | 457.6 | 461.9 |
| Rated voltage (V _{mpp} /V) | 41.50 | 41.70 | 41.90 | 42.10 | 42.30 |
| Rated current (I _{mpp} /A) | 10.72 | 10.78 | 10.82 | 10.87 | 10.92 |
| Open circuit voltage (V _{oc} /V) | 49.64 | 49.84 | 50.04 | 50.24 | 50.44 |
| Short-circuit current (I _{sc} /A) | 11.41 | 11.46 | 11.51 | 11.56 | 11.61 |

DIFFERENT REAR POWER GAINS (600W)

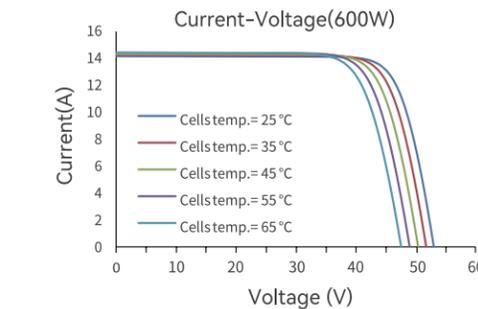
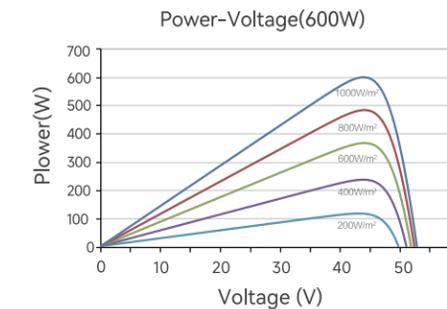
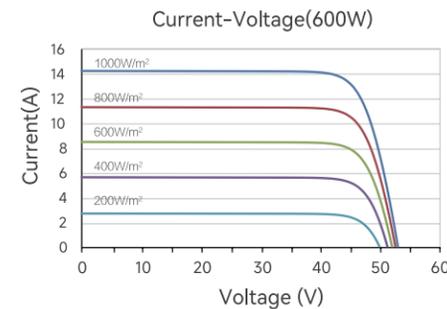
| Power gains | P _{mpp} /Wp | V _{mpp} /V | I _{mpp} /A | V _{oc} /V | I _{sc} /A |
|-------------|----------------------|---------------------|---------------------|--------------------|--------------------|
| 5% | 630 | 44.54 | 14.14 | 52.55 | 14.96 |
| 15% | 690 | 44.54 | 15.49 | 52.55 | 16.39 |
| 25% | 750 | 44.54 | 16.84 | 52.55 | 17.81 |

TEMPERATURE COEFFICIENT

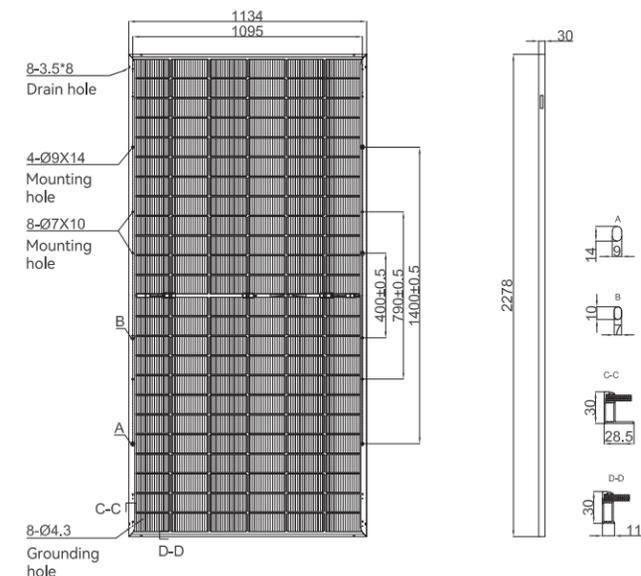
| | |
|---|-----------------------------|
| Temperature coefficient (P _{mpp}) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (I _{sc}) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (V _{oc}) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 30A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | 80±5% |



MECHANICAL PARAMETERS

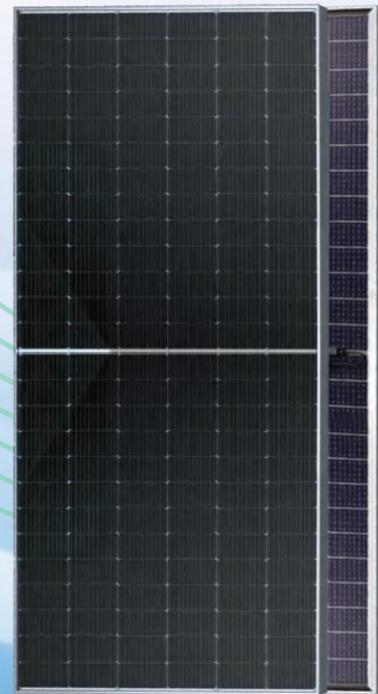


| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 2278x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 144 (6*24) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

HT 182 TOPCon Bifacial Series

630~655W

HY-NT10/78GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

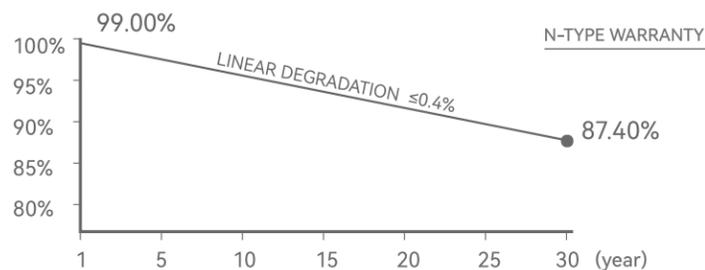
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
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

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

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

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

DIFFERENT REAR POWER GAINS (635W)

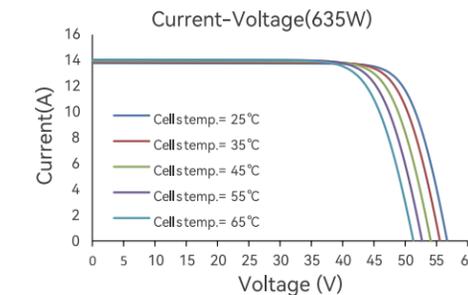
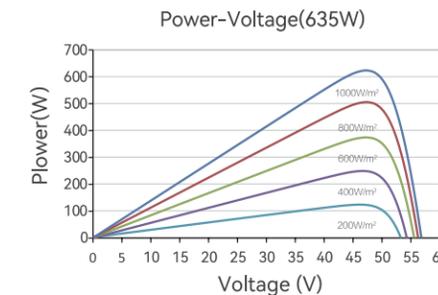
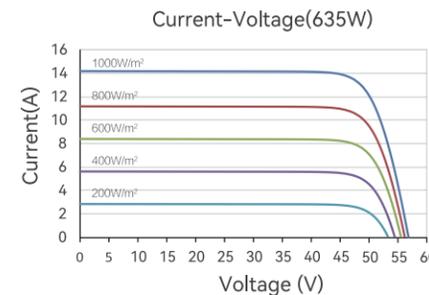
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 667 | 46.75 | 14.26 | 56.61 | 14.88 |
| 15% | 730 | 46.75 | 15.62 | 56.61 | 16.30 |
| 25% | 794 | 46.75 | 16.98 | 56.61 | 17.71 |

TEMPERATURE COEFFICIENT

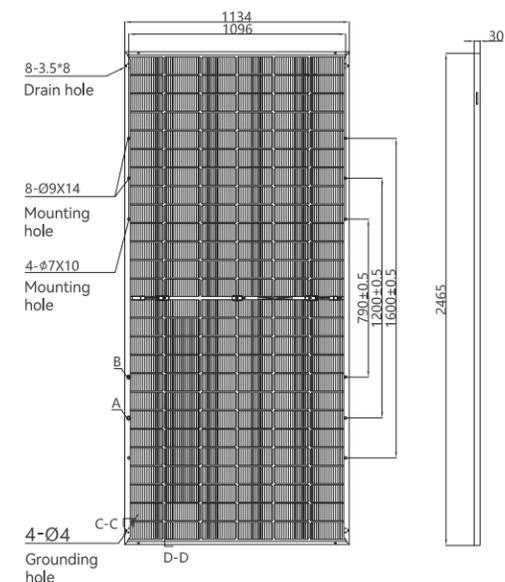
| | |
|---|-----------------------------|
| Temperature coefficient (Pmpp) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (Isc) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (Voc) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 30A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | 80±5% |



MECHANICAL PARAMETERS

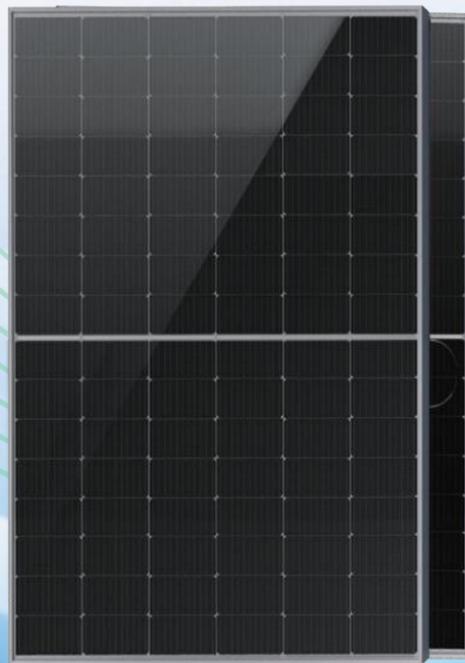


| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 2465 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 156 (6*26) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

HT 210R TOPCon Bifacial Series

445~465W

HY-NT11/48GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

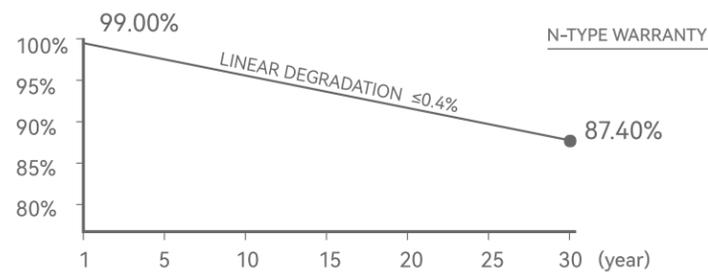
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

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

ELECTRICAL PERFORMANCE PARAMETERS

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

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

DIFFERENT REAR POWER GAINS (455W)

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

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

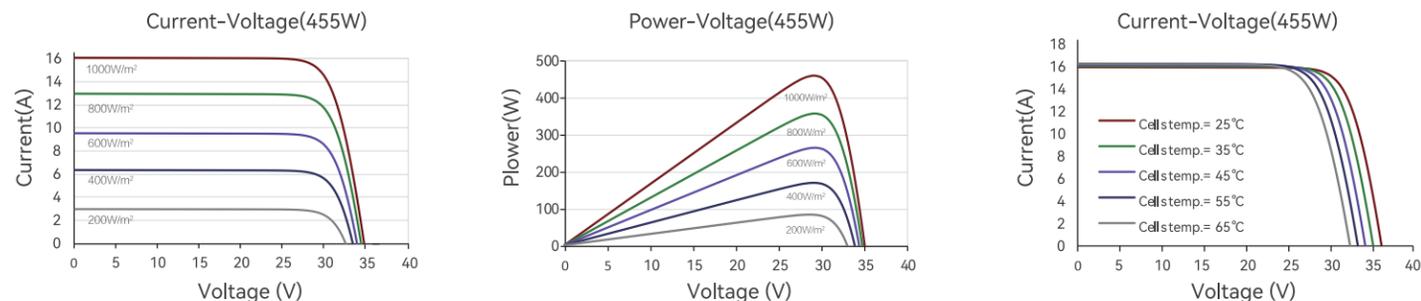
| | | | | | |
|-------------|---------|--------|-------|-------|-------|
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
| 5% | 478 | 30.06 | 15.89 | 35.64 | 16.82 |
| 15% | 523 | 30.06 | 17.41 | 35.64 | 18.42 |
| 25% | 569 | 30.06 | 18.92 | 35.64 | 20.03 |

TEMPERATURE COEFFICIENT

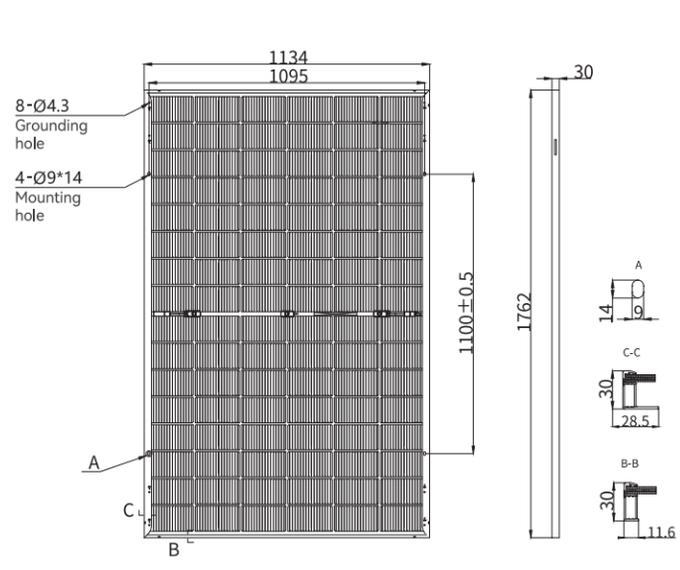
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS

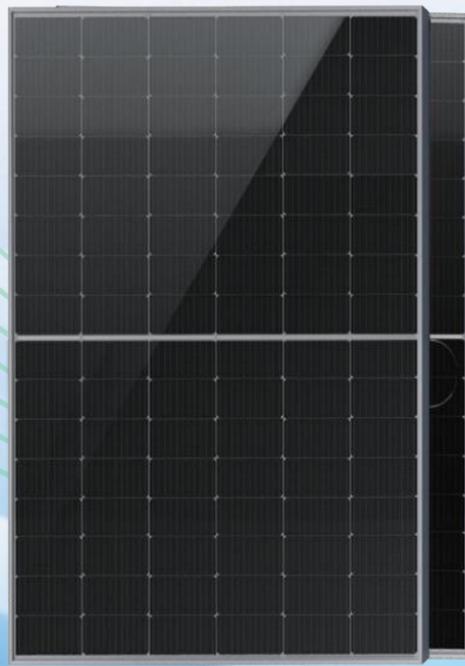


| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 1762 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 96 (6*16) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

HT 210R TOPCon Bifacial Series

445~465W

HY-NT11/48GDF

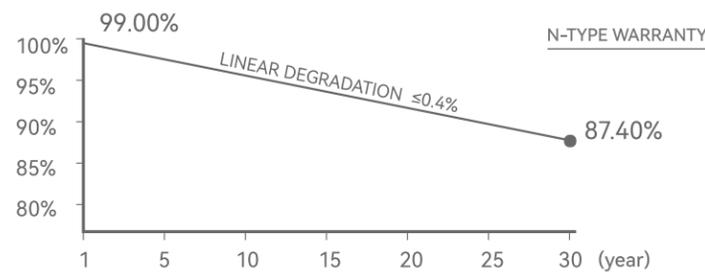


Main Features

- N-TYPE TOPCON TECH**
 - Lower LID
 - Excellent Low Irradiance Performance
- SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING**
 - Reduced Internal Current Loss
 - Minimized Micro-Crack Impact
- HIGH RELIABILITY**
 - Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
 - Anti-PID
- HIGH CONVERSION EFFICIENCY**
 - Module Conversion Efficiency Up to 23.3%
 - Bifaciality Rate Up to 80-85%
- SUPERIOR POWER GENERATION PERFORMANCE**
 - Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
 - Lower Operating Temperature
- LOWER LEVELIZED COST OF ELECTRICITY**
 - Lower BOS and LCOE
 - Higher ROI

Comprehensive Products and System Certificates

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



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

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

ELECTRICAL PERFORMANCE PARAMETERS

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

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

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

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

DIFFERENT REAR POWER GAINS (455W)

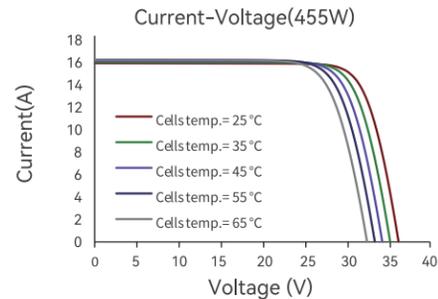
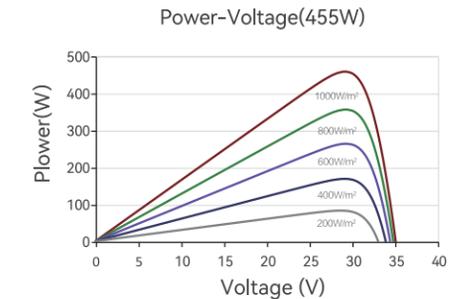
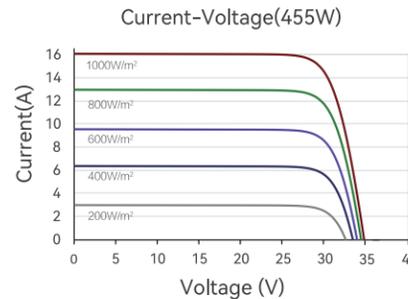
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 478 | 30.06 | 15.89 | 35.64 | 16.82 |
| 15% | 523 | 30.06 | 17.41 | 35.64 | 18.42 |
| 25% | 569 | 30.06 | 18.92 | 35.64 | 20.03 |

TEMPERATURE COEFFICIENT

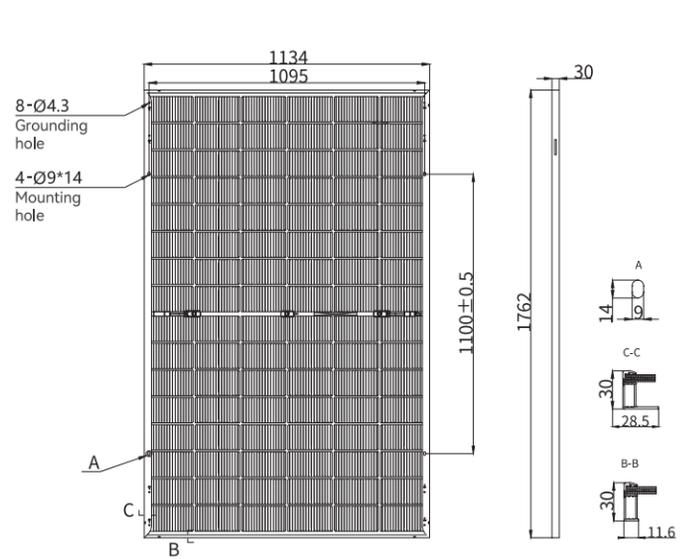
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



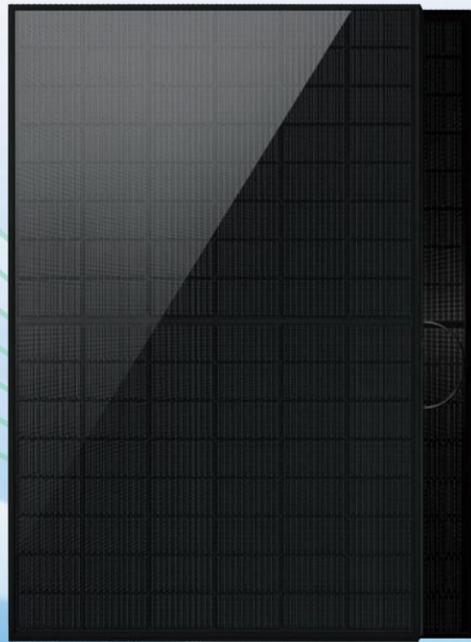
| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 1762 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 96 (6*16) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 1.6+1.6 mm |
| Cable length (including connector) | Portrait: (+)300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

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

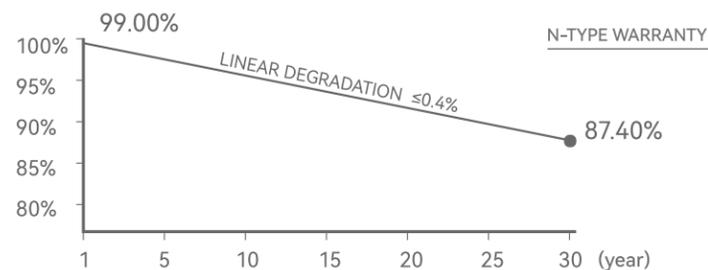
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

N-Type Bifacial Series 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

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

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

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

DIFFERENT REAR POWER GAINS (455W)

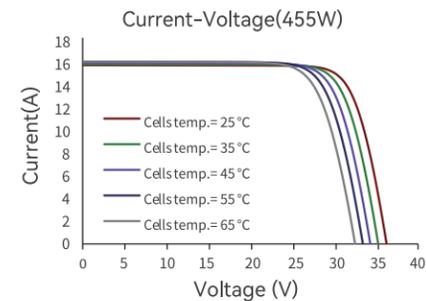
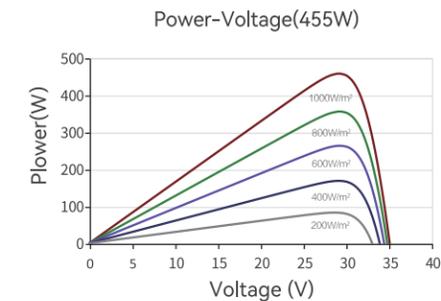
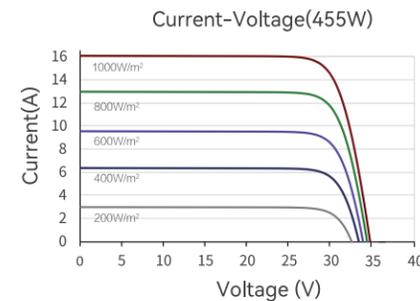
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 478 | 30.06 | 15.89 | 35.64 | 16.82 |
| 15% | 523 | 30.06 | 17.41 | 35.64 | 18.42 |
| 25% | 569 | 30.06 | 18.92 | 35.64 | 20.03 |

TEMPERATURE COEFFICIENT

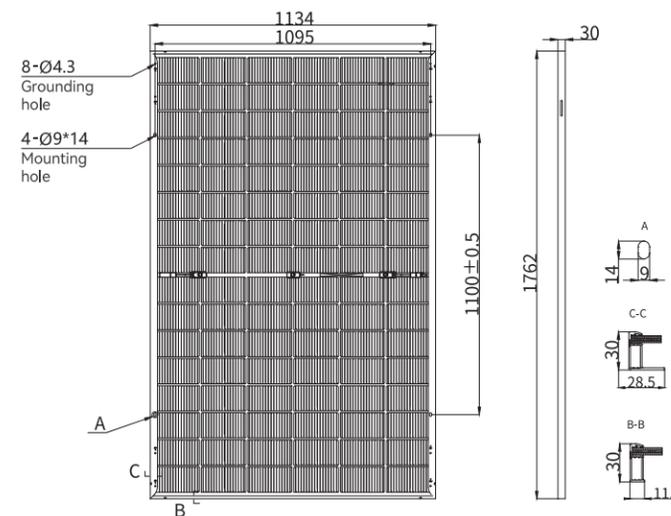
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



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

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

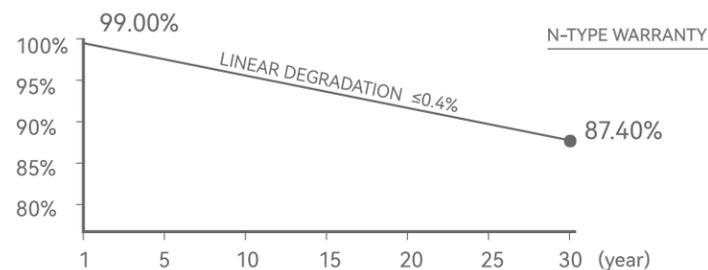
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



30 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

N-Type Bifacial Series 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 (Imp/A) | 15.01 | 15.08 | 15.14 | 15.21 | 15.27 |
| Open circuit voltage (Voc/V) | 35.24 | 35.44 | 35.64 | 35.84 | 36.04 |
| Short-circuit current (Isc/A) | 15.90 | 15.97 | 16.02 | 16.09 | 16.15 |
| Module efficiency | 22.3% | 22.5% | 22.8% | 23.0% | 23.3% |

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

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

DIFFERENT REAR POWER GAINS (455W)

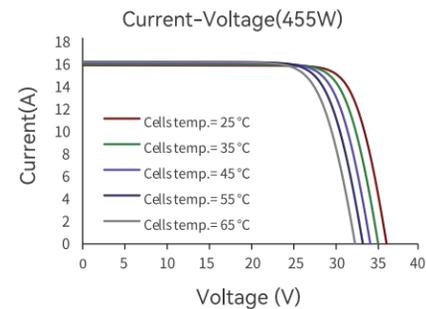
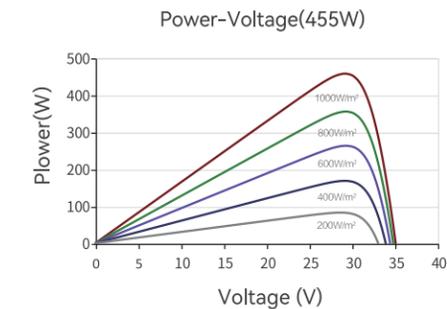
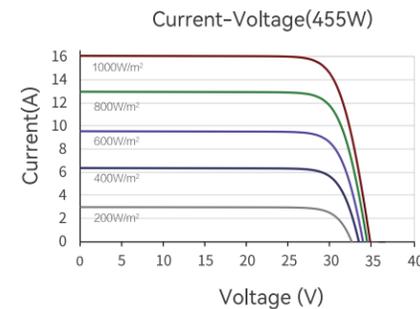
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 478 | 30.06 | 15.89 | 35.64 | 16.82 |
| 15% | 523 | 30.06 | 17.41 | 35.64 | 18.42 |
| 25% | 569 | 30.06 | 18.92 | 35.64 | 20.03 |

TEMPERATURE COEFFICIENT

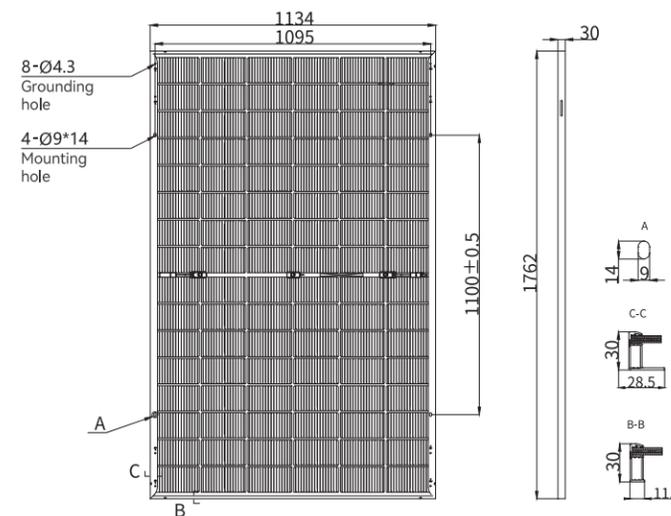
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



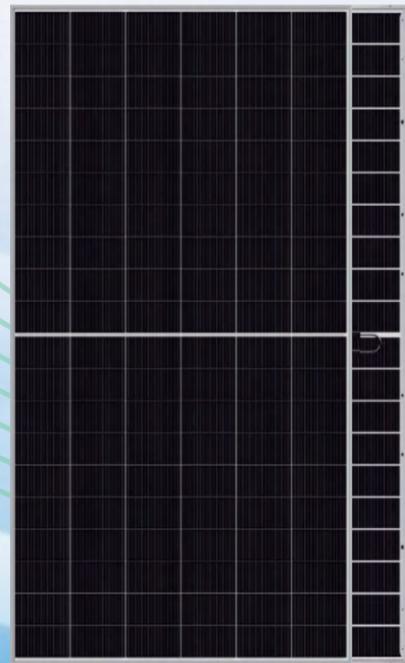
MECHANICAL PARAMETERS



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

HT 210R TOPCon Bifacial Series

550~570W HY-NT11/60GDF



Main Features

N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance

SMBB + HALF-CELL TECH NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact

HIGH RELIABILITY

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

HIGH CONVERSION EFFICIENCY

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

SUPERIOR POWER GENERATION PERFORMANCE

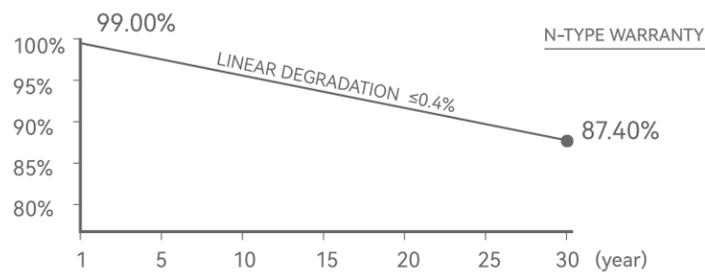
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

| N-Type Bifacial Series HY-NT11/60GDF | 550~570W POWER RANGE | 23.1% EFFICIENCY | 0~+5W POWER SORTING |
|---|-------------------------|---------------------|------------------------|
|---|-------------------------|---------------------|------------------------|

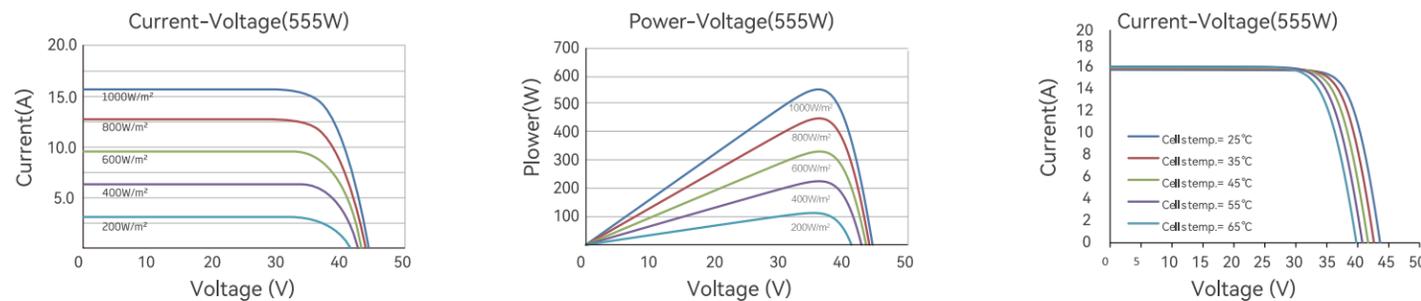
| ELECTRICAL PERFORMANCE PARAMETERS | | | | | | DIFFERENT REAR POWER GAINS (555W) | | | | | |
|-----------------------------------|--|--|--|--|--|-------------------------------------|--|--|--|--|--|
|-----------------------------------|--|--|--|--|--|-------------------------------------|--|--|--|--|--|

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

| Parameter | 550 | 555 | 560 | 565 | 570 | Power gains | Pmpp/Wp | Vmpp/V | Ipp/A | Voc/V | Isc/A |
|-------------------------------|-------|-------|-------|-------|-------|-------------|---------|--------|-------|-------|-------|
| Rated output (Pmpp/Wp) | 550 | 555 | 560 | 565 | 570 | 5% | 583 | 36.90 | 15.79 | 44.00 | 16.64 |
| Rated voltage (Vmpp/V) | 36.70 | 36.90 | 37.10 | 37.30 | 37.50 | 15% | 638 | 36.90 | 17.30 | 44.00 | 18.23 |
| Rated current (Imp/A) | 14.99 | 15.05 | 15.10 | 15.15 | 15.20 | 25% | 694 | 36.90 | 18.80 | 44.00 | 19.81 |
| 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

| Parameter | 420.4 | 424.6 | 428.8 | 433.0 | 437.2 | TEMPERATURE COEFFICIENT | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|---|--|--|--|--|--|------------|
| Rated output (Pmpp/Wp) | 420.4 | 424.6 | 428.8 | 433.0 | 437.2 | Temperature coefficient (Pmpp) | | | | | | -0.29%/°C |
| Rated voltage (Vmpp/V) | 34.43 | 34.63 | 34.83 | 35.03 | 35.23 | Temperature coefficient (Isc) | | | | | | +0.043%/°C |
| Rated current (Imp/A) | 12.21 | 12.26 | 12.31 | 12.36 | 12.41 | Temperature coefficient (Voc) | | | | | | -0.24%/°C |
| Open circuit voltage (Voc/V) | 41.41 | 41.61 | 41.81 | 42.01 | 42.21 | Nominal module operating temperature (NMOT) | | | | | | 42±2°C |
| Short-circuit current (Isc/A) | 12.83 | 12.88 | 12.93 | 12.98 | 13.03 | OPERATING PARAMETERS | | | | | | |
| | | | | | | Max. system voltage (IEC) | | | | | | 1500Vdc |
| | | | | | | Number of diodes | | | | | | 3 |
| | | | | | | Junction box protection rating | | | | | | IP 68 |
| | | | | | | Max. series fuse rating | | | | | | 30A |
| | | | | | | Operational temperature | | | | | | -40~+85°C |
| | | | | | | Bifaciality rate | | | | | | 80±5% |



MECHANICAL PARAMETERS

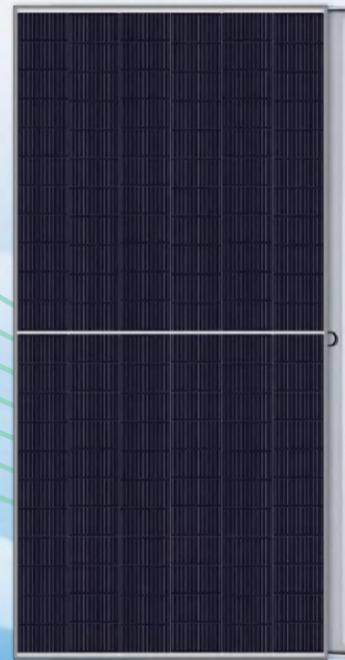
| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 2172 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 120 (6*20) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

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

HT 210R TOPCon Monofacial Series

615~635W

HY-NT11/66H

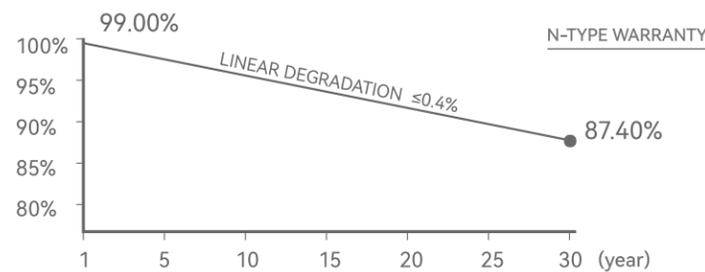


Main Features

- 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: $-0.29\%/^{\circ}\text{C}$
 - Lower Operating Temperature
- LOWER LEVELIZED COST OF ELECTRICITY**
 - Lower BOS and LCOE
 - Higher ROI

Comprehensive Products and System Certificates

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



- 15 YEAR** Product Workmanship Warranty
- 30 YEAR** Linear Power Warranty
- $\leq 1\%$** First-year power attenuation
- $\leq 0.4\%$** Linear power attenuation

| N-Type 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

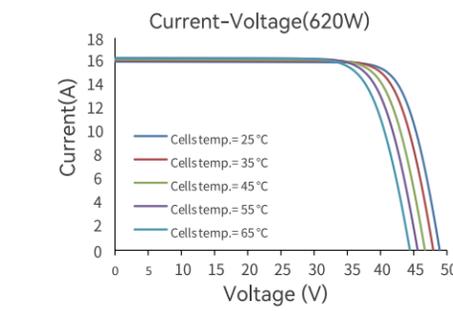
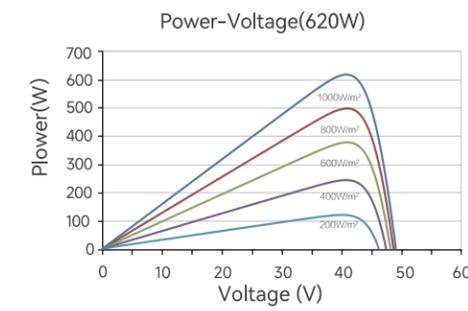
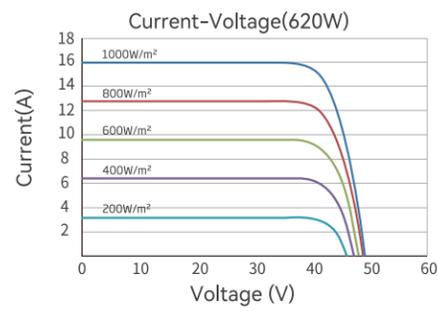
| | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|
| Rated output (Pmpp/Wp) | 469.2 | 473.2 | 477.2 | 481.2 | 484.9 |
| Rated voltage (Vmpp/V) | 38.15 | 38.35 | 38.55 | 38.74 | 38.92 |
| Rated current (Impp/A) | 12.30 | 12.34 | 12.38 | 12.42 | 12.46 |
| Open circuit 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

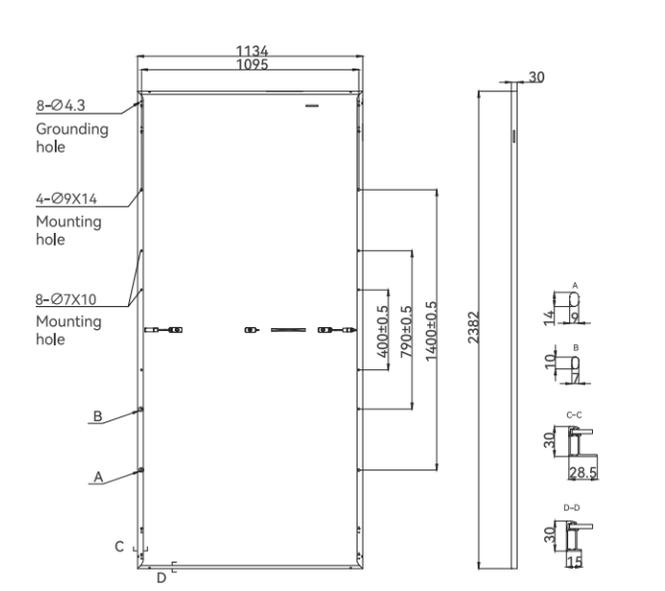
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS

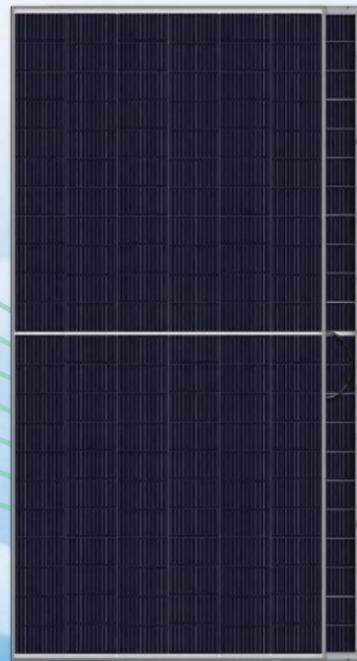


| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 2382 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 132 (6*22) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 3.2 mm |
| Cable length (including connector) | Portrait: (+)300 mm,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

HT 210R TOPCon Bifacial Series

610~630W

HY-NT11/66GDF

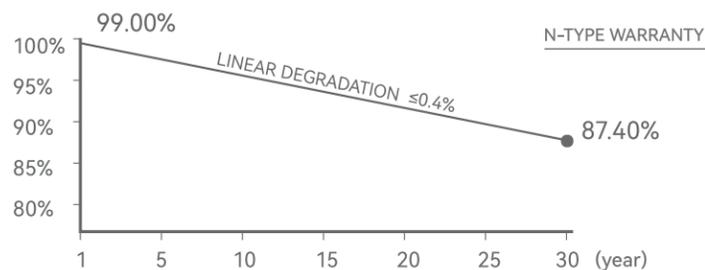


Main Features

- 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: $-0.29\%/^{\circ}\text{C}$
 - Lower Operating Temperature
- LOWER LEVELIZED COST OF ELECTRICITY**
 - Lower BOS and LCOE
 - Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR Product Workmanship Warranty

30 YEAR Linear Power Warranty

$\leq 1\%$ First-year power attenuation

$\leq 0.4\%$ Linear power attenuation

| | | | |
|---|-----------------------------|-------------------------|----------------------------|
| N-Type Bifacial Series HY-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 (Imp/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 (Imp/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)

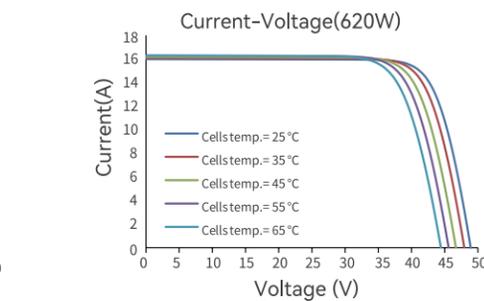
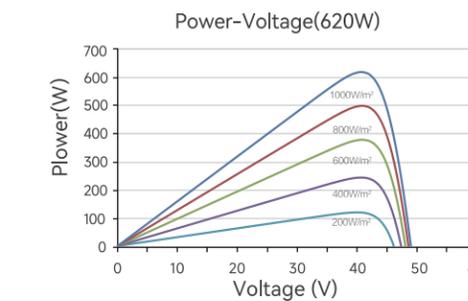
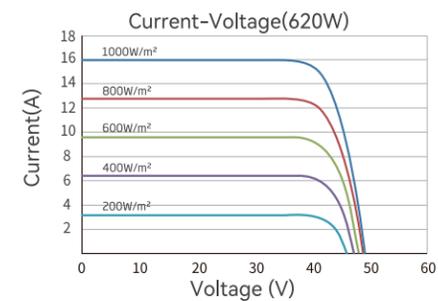
| | | | | | |
|-------------|---------|--------|-------|-------|-------|
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
| 5% | 651 | 40.90 | 15.92 | 48.90 | 16.76 |
| 15% | 713 | 40.90 | 17.43 | 48.90 | 18.35 |
| 25% | 775 | 40.90 | 18.95 | 48.90 | 19.95 |

TEMPERATURE COEFFICIENT

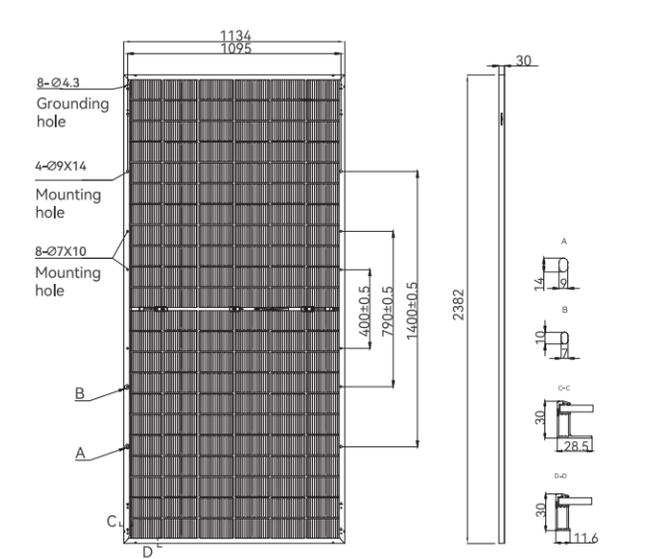
| | |
|---|-----------------------------|
| Temperature coefficient (Pmpp) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (Isc) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (Voc) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 30A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | 80±5% |



MECHANICAL PARAMETERS



| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 2382 x 1134 x 30 mm |
| Cell | N type mono-crystalline |
| Number of cells | 132 (6*22) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300 mm,(-)300 mm; Customized length |
| Cable cross-sectional area (IEC) | 4 mm ² / 12 AWG |
| ① Maximum test mechanical load | 5400Pa (front) /2400Pa(rear) |
| Connector type (IEC) | PV-HYC11xyz(standard)/MC4 EVO2(optional) |
| Module weight | 32.4 kg |
| Packaging unit | 36 pcs / box |
| Weight of packing unit | 1221 kg / box |
| Modules per 40' HQ container | 720 pcs |

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

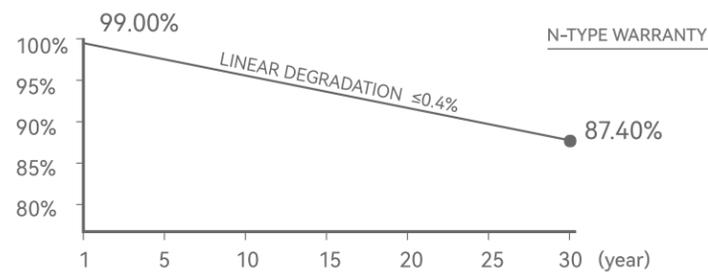
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

≤1%
First-year power attenuation

≤0.4%
Linear power attenuation

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

| ELECTRICAL PERFORMANCE PARAMETERS | | | | | TEMPERATURE COEFFICIENT | |
|-----------------------------------|--|--|--|--|-------------------------|--|
|-----------------------------------|--|--|--|--|-------------------------|--|

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

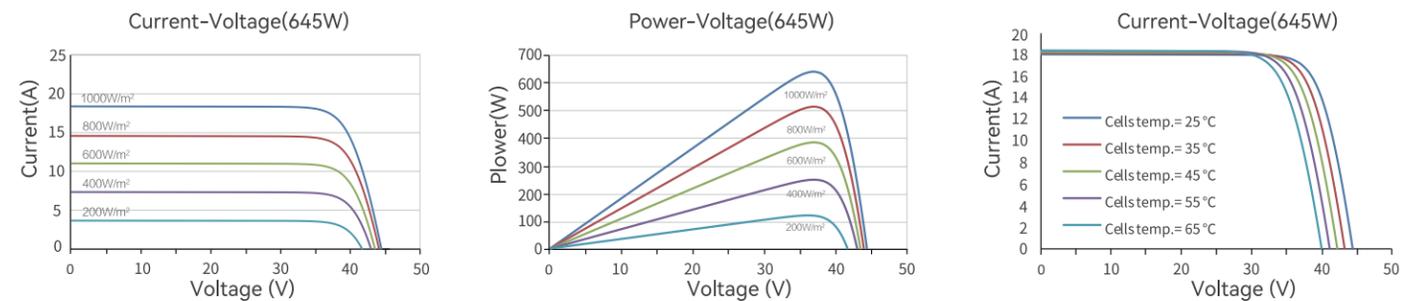
| | | | | | |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 640 | 645 | 650 | 655 | 660 |
| Rated voltage (V _{mpp} /V) | 36.50 | 36.70 | 36.90 | 37.10 | 37.30 |
| Rated current (I _{mpp} /A) | 17.54 | 17.58 | 17.62 | 17.66 | 17.70 |
| Open circuit voltage (V _{oc} /V) | 44.15 | 44.35 | 44.55 | 44.75 | 44.95 |
| Short-circuit current (I _{sc} /A) | 18.30 | 18.34 | 18.38 | 18.42 | 18.46 |
| Module efficiency | 22.6% | 22.8% | 23.0% | 23.1% | 23.3% |

| | |
|---|------------|
| Temperature coefficient (P _{mpp}) | -0.29%/°C |
| Temperature coefficient (I _{sc}) | +0.043%/°C |
| Temperature coefficient (V _{oc}) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

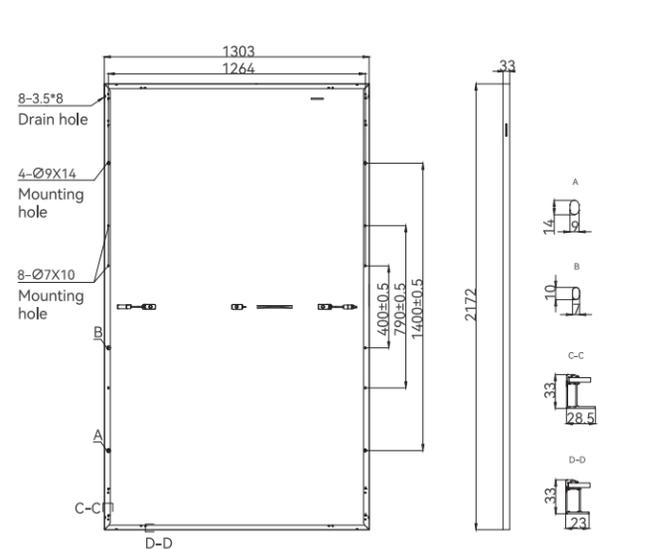
NMOT : Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

| | | | | | |
|--|-------|-------|-------|-------|-------|
| Rated output (P _{mpp} /Wp) | 485.6 | 489.4 | 493.3 | 497.6 | 501.3 |
| Rated voltage (V _{mpp} /V) | 34.39 | 34.59 | 34.79 | 34.99 | 35.18 |
| Rated current (I _{mpp} /A) | 14.12 | 14.15 | 14.18 | 14.22 | 14.25 |
| Open circuit voltage (V _{oc} /V) | 42.01 | 42.21 | 42.41 | 42.61 | 42.80 |
| Short-circuit current (I _{sc} /A) | 14.79 | 14.83 | 14.87 | 14.91 | 14.94 |

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



MECHANICAL PARAMETERS

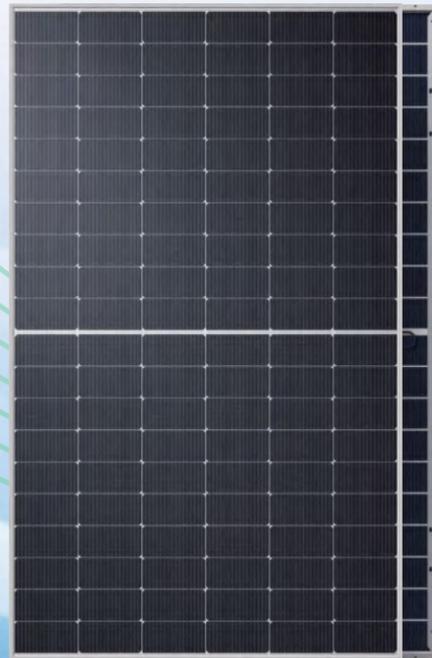


| | |
|------------------------------------|--|
| Outer dimensions (L x W x H) | 2172 x 1303 x 33 mm |
| Cell | N type mono-crystalline |
| Number of cells | 120 (6*20) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 3.2 mm |
| Cable length (including connector) | Portrait: (+)300 mm,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

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

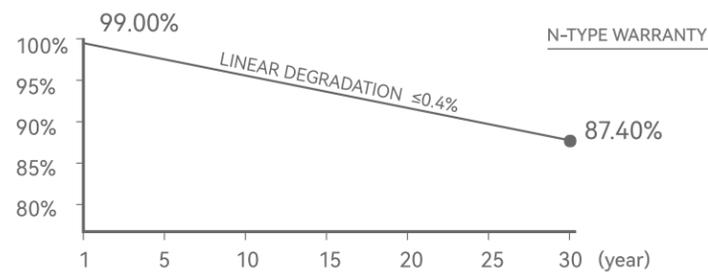
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

N-Type Bifacial Series HY-NT12/60GDF 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

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

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

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

DIFFERENT REAR POWER GAINS (645W)

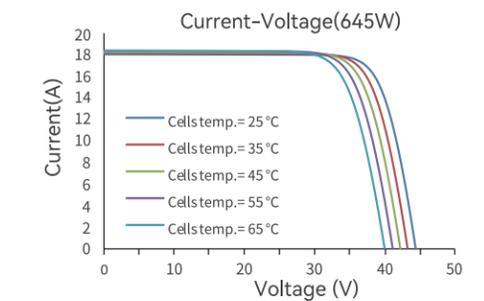
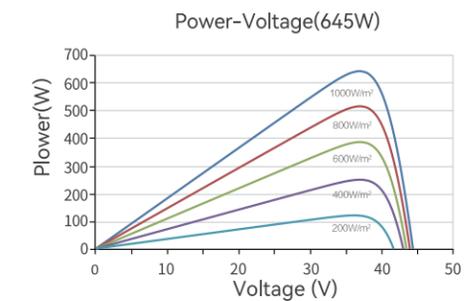
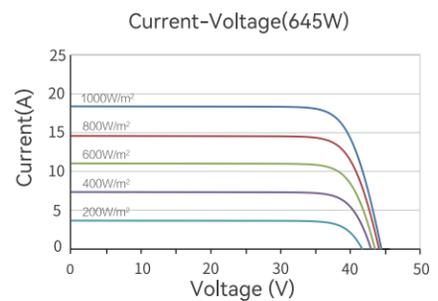
| Power gains | Pmp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|--------|--------|-------|-------|-------|
| 5% | 677 | 36.80 | 18.40 | 44.38 | 19.22 |
| 15% | 742 | 36.80 | 20.16 | 44.38 | 21.05 |
| 25% | 806 | 36.80 | 21.91 | 44.38 | 22.88 |

TEMPERATURE COEFFICIENT

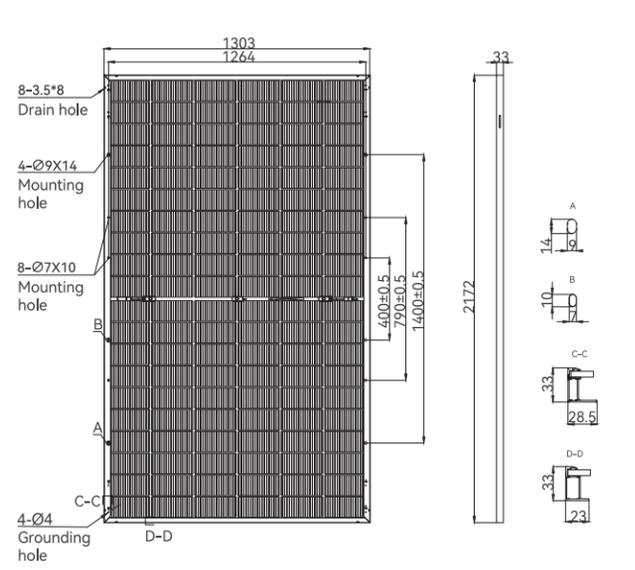
| | |
|---|-----------------------------|
| Temperature coefficient (Pmp) | $-0.29\%/^{\circ}\text{C}$ |
| Temperature coefficient (Isc) | $+0.043\%/^{\circ}\text{C}$ |
| Temperature coefficient (Voc) | $-0.24\%/^{\circ}\text{C}$ |
| Nominal module operating temperature (NMOT) | $42\pm 2^{\circ}\text{C}$ |

OPERATING PARAMETERS

| | |
|--------------------------------|-------------------------------|
| Max. system voltage (IEC) | 1500Vdc |
| Number of diodes | 3 |
| Junction box protection rating | IP 68 |
| Max. series fuse rating | 35A |
| Operational temperature | $-40\sim +85^{\circ}\text{C}$ |
| Bifaciality rate | $80\pm 5\%$ |



MECHANICAL PARAMETERS

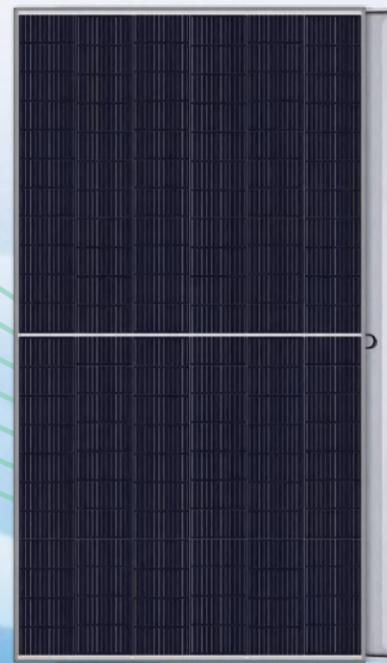


| | |
|------------------------------------|---|
| Outer dimensions (L x W x H) | 2172 x 1303 x 33 mm |
| Cell | N type mono-crystalline |
| Number of cells | 120 (6*20) |
| Frame Type | Aluminum, silver anodized |
| Glass thickness | 2.0+2.0 mm |
| Cable length (including connector) | Portrait: (+)300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

HT 210 TOPCon Monofacial Series

710~730W

HY-NT12/66H

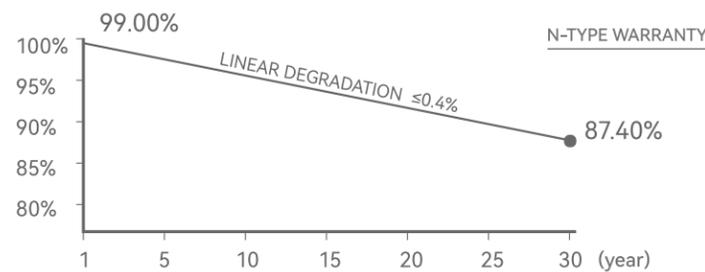


Main Features

- 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: $-0.29\%/^{\circ}\text{C}$
 - Lower Operating Temperature
- LOWER LEVELIZED COST OF ELECTRICITY**
 - Lower BOS and LCOE
 - Higher ROI

Comprehensive Products and System Certificates

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



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

| N-Type 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

| | 710 | 715 | 720 | 725 | 730 |
|-------------------------------|-------|-------|-------|-------|-------|
| 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 (Imp/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

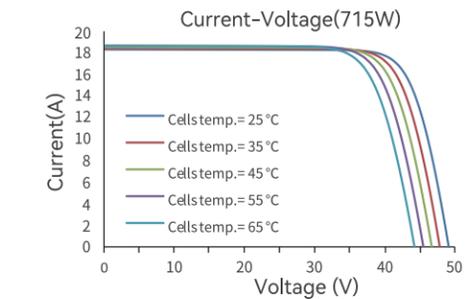
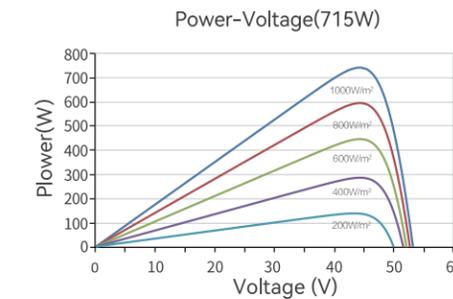
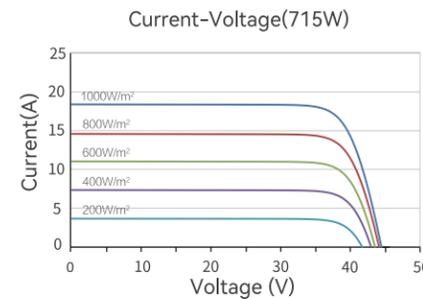
| | 537.5 | 541.2 | 545.0 | 548.7 | 552.6 |
|-------------------------------|-------|-------|-------|-------|-------|
| Rated output (Pmpp/Wp) | 537.5 | 541.2 | 545.0 | 548.7 | 552.6 |
| Rated voltage (Vmpp/V) | 37.93 | 38.11 | 38.30 | 38.48 | 38.67 |
| Rated current (Imp/A) | 14.17 | 14.20 | 14.23 |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

TEMPERATURE COEFFICIENT

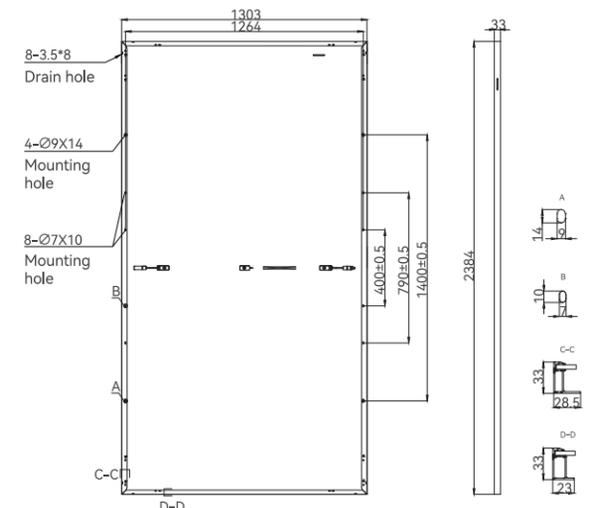
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



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

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

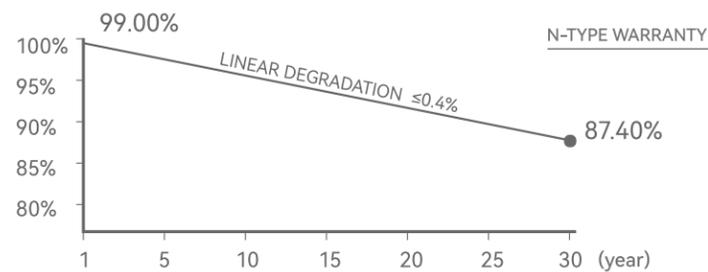
- Low Temperature Coefficient: $-0.29\%/^{\circ}\text{C}$
- Lower Operating Temperature

LOWER LEVELIZED COST OF ELECTRICITY

- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

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



15 YEAR
Product Workmanship Warranty

30 YEAR
Linear Power Warranty

$\leq 1\%$
First-year power attenuation

$\leq 0.4\%$
Linear power attenuation

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

ELECTRICAL PERFORMANCE PARAMETERS

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

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

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

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

DIFFERENT REAR POWER GAINS (715W)

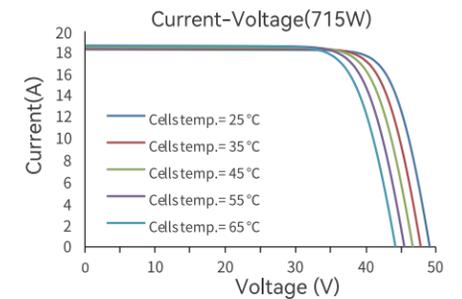
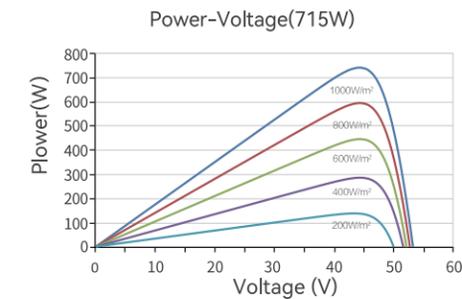
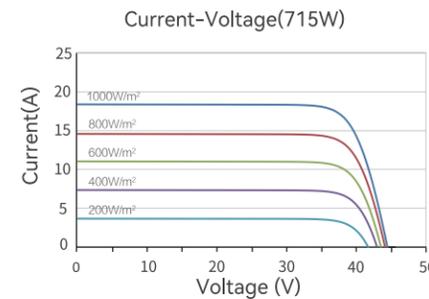
| Power gains | Pmpp/Wp | Vmpp/V | Imp/A | Voc/V | Isc/A |
|-------------|---------|--------|-------|-------|-------|
| 5% | 751 | 40.67 | 18.46 | 49.06 | 19.34 |
| 15% | 822 | 40.67 | 20.22 | 49.06 | 21.18 |
| 25% | 894 | 40.67 | 21.98 | 49.06 | 23.03 |

TEMPERATURE COEFFICIENT

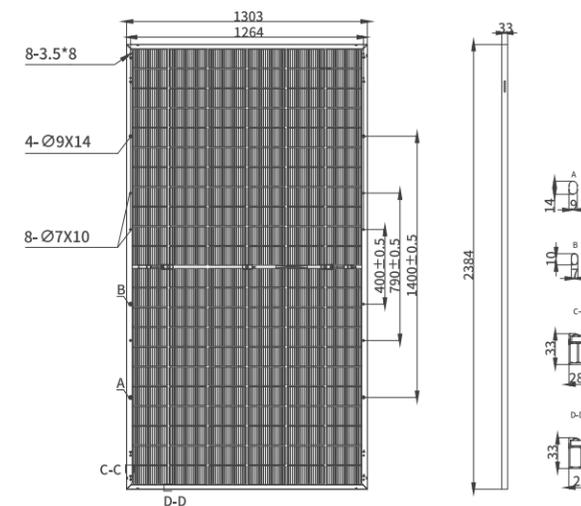
| | |
|---|------------|
| Temperature coefficient (Pmpp) | -0.29%/°C |
| Temperature coefficient (Isc) | +0.043%/°C |
| Temperature coefficient (Voc) | -0.24%/°C |
| Nominal module operating temperature (NMOT) | 42±2°C |

OPERATING PARAMETERS

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



MECHANICAL PARAMETERS



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

HY SOLAR Six Manufacturing Bases

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

HY SOLAR Global Headquarters

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



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.



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.



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.



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.



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.

