



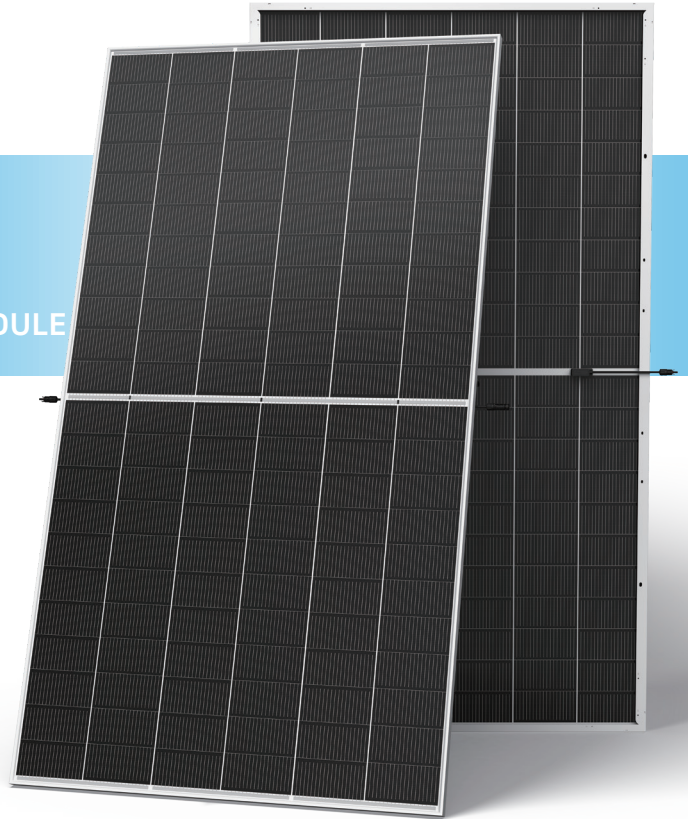
# N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG21C.20 715-740W

**740<sub>W</sub>** / MAXIMUM POWER OUTPUT

**23.8%** / MAXIMUM EFFICIENCY



## High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE



## High power up to 740W

- Up to 23.8% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



## High reliability

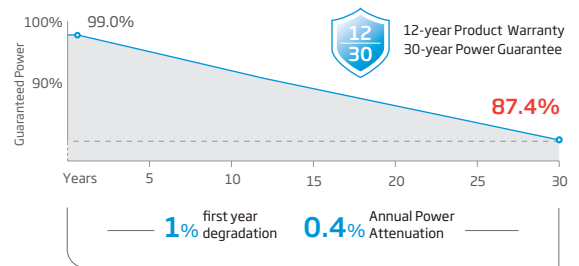
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



## High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

## Performance Warranty



\* Please refer to product warranty for details

## Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System

ISO14067: Product Carbon Footprint Limited Assurance



**ELECTRICAL DATA** (STC & NOCT & BNPI)

| Testing Condition                    | STC    | NOCT  | BNPI  | STC   | NOCT  | BNPI  | STC   | NOCT  | BNPI  | STC   | NOCT  | BNPI  | STC   | NOCT  | BNPI  | STC   | NOCT  | BNPI  |
|--------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}(W_p)^*$   | 715    | 547   | 792   | 720   | 551   | 798   | 725   | 555   | 801   | 730   | 559   | 809   | 735   | 563   | 814   | 740   | 566   | 820   |
| Power Selection (W)**                | 0 ~ +5 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Maximum Power Voltage- $V_{MPP}$ (V) | 41.10  | 38.70 | 41.10 | 41.30 | 38.80 | 41.30 | 41.50 | 39.00 | 41.50 | 41.70 | 39.30 | 41.70 | 41.90 | 39.50 | 41.90 | 42.10 | 39.70 | 42.10 |
| Maximum Power Current- $I_{MPP}$ (A) | 17.40  | 14.14 | 19.28 | 17.44 | 14.19 | 19.32 | 17.47 | 14.23 | 19.36 | 17.51 | 14.24 | 19.40 | 17.55 | 14.25 | 19.45 | 17.58 | 14.27 | 19.48 |
| Open Circuit Voltage- $V_{oc}$ (V)   | 49.20  | 46.70 | 49.20 | 49.40 | 46.90 | 49.40 | 49.60 | 47.10 | 49.60 | 49.90 | 47.20 | 49.90 | 50.10 | 47.50 | 50.10 | 50.30 | 47.70 | 50.30 |
| Short Circuit Current- $I_{sc}$ (A)  | 18.44  | 14.86 | 20.43 | 18.49 | 14.90 | 20.49 | 18.54 | 14.94 | 20.54 | 18.58 | 14.98 | 20.59 | 18.62 | 15.01 | 20.63 | 18.66 | 15.04 | 20.68 |
| Module Efficiency $\eta_m$ (%)       | 23.0   |       |       | 23.2  |       |       | 23.3  |       |       | 23.5  |       |       | 23.7  |       |       | 23.8  |       |       |

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s. BNPI: Irradiance: front 1000W/m<sup>2</sup>, rear 135W/m<sup>2</sup>, Temperature 25°C, Air Mass AM1.5  
 \*Measuring tolerance: ±3%. \*\*Power selection up to: +3%.

**Electrical characteristics with different power bin** (reference to 5% & 10% backside power gain)

| Backside Power Gain                  | 5%    | 10%   | 5%    | 10%   | 5%    | 10%   | 5%    | 10%   | 5%    | 10%   | 5%    | 10%   |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}(W_p)$     | 751   | 787   | 756   | 792   | 761   | 798   | 767   | 803   | 772   | 809   | 777   | 814   |
| Maximum Power Voltage- $V_{MPP}$ (V) | 41.10 | 41.10 | 41.30 | 41.30 | 41.50 | 41.50 | 41.70 | 41.70 | 41.90 | 41.90 | 42.10 | 42.10 |
| Maximum Power Current- $I_{MPP}$ (A) | 18.27 | 19.14 | 18.31 | 19.18 | 18.34 | 19.22 | 18.39 | 19.26 | 18.43 | 19.31 | 18.46 | 19.34 |
| Open Circuit Voltage- $V_{oc}$ (V)   | 49.20 | 49.20 | 49.40 | 49.40 | 49.60 | 49.60 | 49.90 | 49.90 | 50.10 | 50.10 | 50.30 | 50.30 |
| Short Circuit Current- $I_{sc}$ (A)  | 19.36 | 20.28 | 19.41 | 20.34 | 19.47 | 20.39 | 19.51 | 20.44 | 19.55 | 20.48 | 19.59 | 20.53 |

Power Bifaciality: 80±5%.

**TEMPERATURE RATINGS**

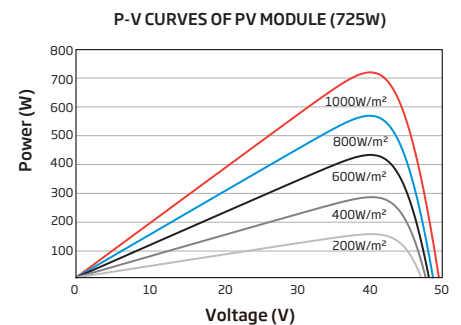
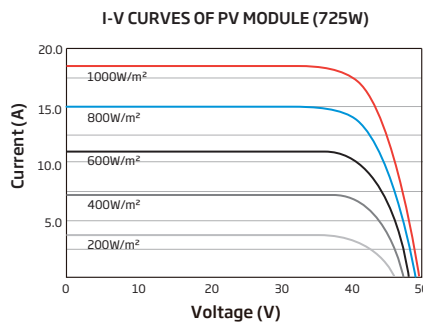
|   |             |
|---|-------------|
| NOCT (Nominal Operating Cell Temperature) | 43°C (±2°C) |
| Temperature Coefficient of $P_{MAX}$      | -0.29%/°C   |
| Temperature Coefficient of $V_{oc}$       | -0.24%/°C   |
| Temperature Coefficient of $I_{sc}$       | 0.04%/°C    |

Due to different testing methods, the actual performances might differ from the declared specifications.

**APPLICATION CONDITIONS**

|                        |                                 |
|------------------------|---------------------------------|
| Operating Temperature  | -40 ~ +70°C                     |
| Maximum System Voltage | 1500V DC (IEC)<br>1500V DC (UL) |
| Max Series Fuse Rating | 35A                             |

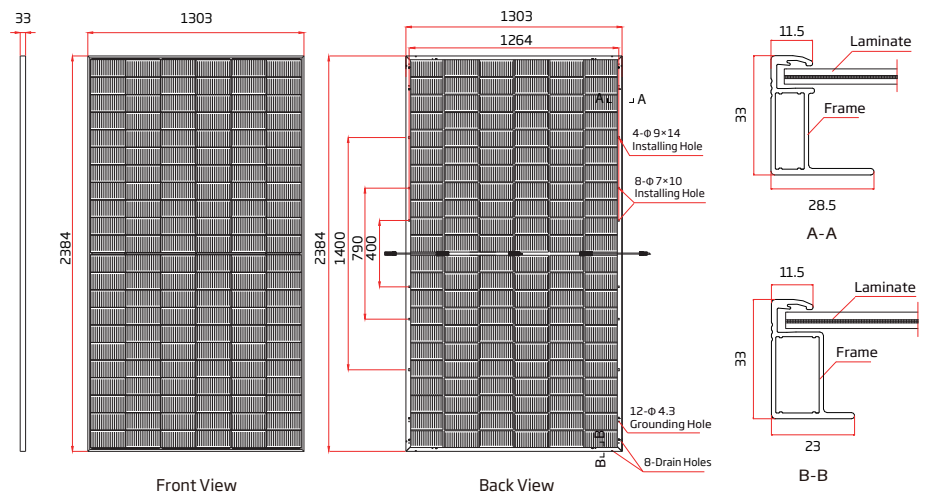
**CURVES OF PV MODULE**



**MECHANICAL DATA**

|                   |  |
|-------------------|--|
| Solar Cells       | N-type i-TOPCon Monocrystalline  |
| No. of cells      | 132 cells  |
| Module Dimensions | 2384×1303×33 mm<br>(93.86×51.30×1.30 inches)   |
| Weight            | 38.3 kg (84.4 lb)  |
| Front Glass       | 2.0 mm (0.08 inches),<br>AR Coating Heat Strengthened Glass  |
| Back Glass        | 2.0 mm (0.08 inches),<br>Heat Strengthened Glass   |
| Frame             | 33mm (1.30 inches)<br>Anodized Aluminium Alloy   |
| J-Box             | IP 68 rated  |
| Cables            | Photovoltaic Technology<br>Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> )<br>Portrait: 370/230 mm (14.57/9.06 inches)<br>Length can be customized |
| Connector         | TS4 / TS4 Plus / MC4 EV02*   |
| Packaging         | Modules per box: 33 pieces<br>Modules per 40' container: 594 pieces  |

\*The connector names listed are general names; specific types are subject to the certification documents.



CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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