

THE

DUOMAX<sup>twin</sup>

BIFACIAL DUAL GLASS 144 LAYOUT MODULE

## 144 LAYOUT

### MONOCRYSTALLINE MODULE

## 395-420W

### POWER OUTPUT RANGE

## 20.7%

### MAXIMUM EFFICIENCY

## 0~+5W

### POSITIVE POWER TOLERANCE

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

### Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
ISO45001: Occupation Health and Safety Management System

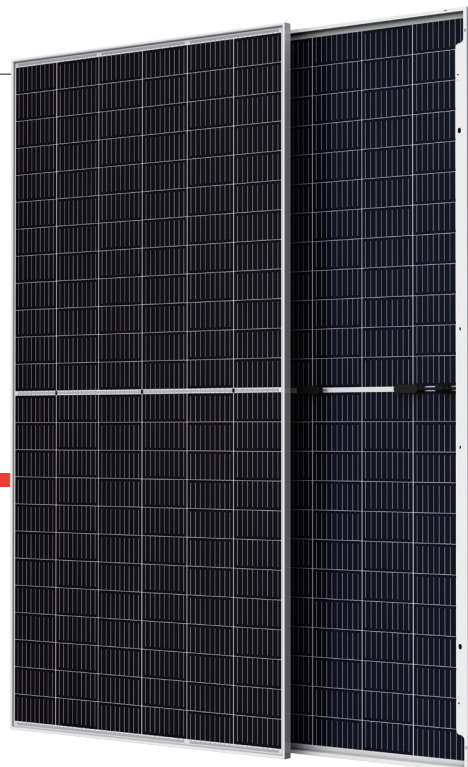


#### PRODUCTS

TSM-DEG15MC.20(II)

#### POWER RANGE

395-420W



### High power

- Up to 420W front power and 20.7% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Lower resistance of half-cut and good reflection effect of MBB ensure high power



### High reliability

- Ensured PID resistance through cell process and module material control
- Resistant to salt, acid and ammonia
- Proven to be reliable in high temperature and humidity areas
- Minimizes micro-crack and snail trails
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



### High energy generation

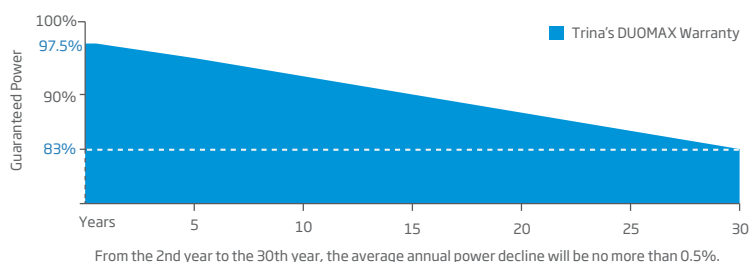
- Up to 25% additional power gain from back side depending on the albedo ;
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Better anti-shading performance and lower operating temperature



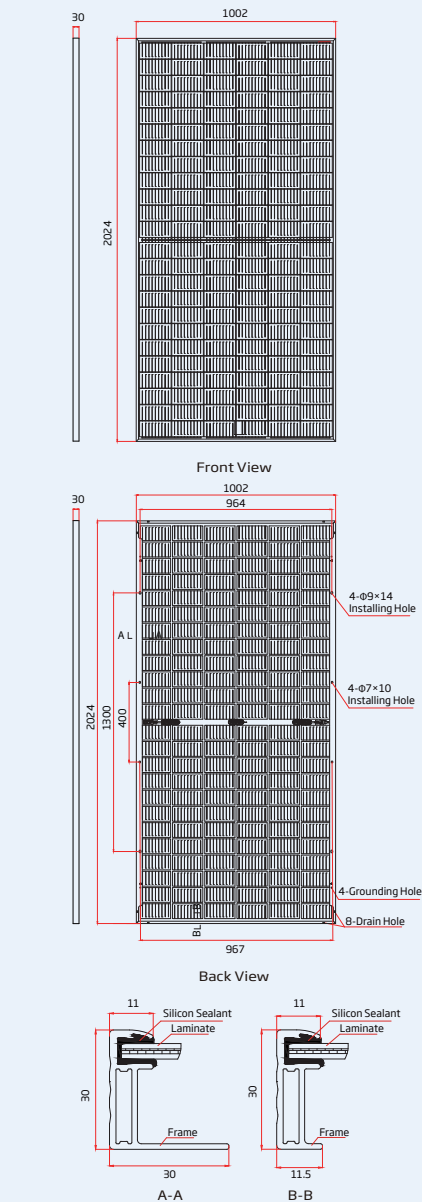
### Easy to install

- Frame design makes module compatible with all racking and installation methods
- Easy to handle and install as normal framed module during transportation

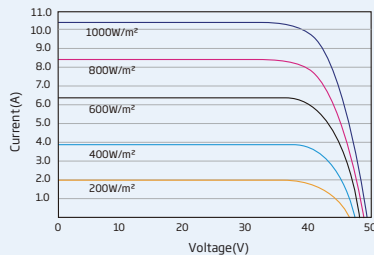
Trina Solar's DUOMAX Performance Warranty



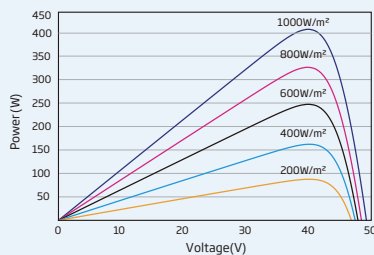
## DIMENSIONS OF PV MODULE(mm)



## I-V CURVES OF PV MODULE(405 W)



## P-V CURVES OF PV MODULE(405W)



## ELECTRICAL DATA (STC)

| Peak Power Watts-P <sub>MAX</sub> (Wp)*    | 395    | 400   | 405   | 410   | 415   | 420   |
|--------------------------------------------|--------|-------|-------|-------|-------|-------|
| Power Tolerance-P <sub>MAX</sub> (W)       | 0 ~ +5 |       |       |       |       |       |
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 40.5   | 40.8  | 41.1  | 41.4  | 41.5  | 41.6  |
| Maximum Power Current-I <sub>MPP</sub> (A) | 9.76   | 9.81  | 9.86  | 9.91  | 10.02 | 10.10 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 48.7   | 48.9  | 49.1  | 49.3  | 49.4  | 49.5  |
| Short Circuit Current-I <sub>SC</sub> (A)  | 10.29  | 10.33 | 10.37 | 10.41 | 10.52 | 10.60 |
| Module Efficiency η <sub>m</sub> (%)       | 19.5   | 19.7  | 20.0  | 20.2  | 20.5  | 20.7  |

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5.

\*Measuring tolerance: ±3%.

## Electrical characteristics with different rear side power gain (reference to 405 Wp front)

| Maximum Power-P <sub>MAX</sub> (Wp)        | 425   | 446   | 466   | 486   | 506   |
|--------------------------------------------|-------|-------|-------|-------|-------|
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 41.1  | 41.1  | 41.1  | 41.1  | 41.1  |
| Maximum Power Current-I <sub>MPP</sub> (A) | 10.35 | 10.85 | 11.34 | 11.83 | 12.33 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 49.2  | 49.3  | 49.4  | 49.5  | 49.6  |
| Short Circuit Current-I <sub>SC</sub> (A)  | 10.89 | 11.41 | 11.93 | 12.44 | 12.96 |
| Pmax gain                                  | 5%    | 10%   | 15%   | 20%   | 25%   |

Power Bifaciality: 70±5%.

## ELECTRICAL DATA (NOCT)

| Maximum Power-P <sub>MAX</sub> (Wp)        | 297  | 301  | 305  | 309  | 313  | 316  |
|--------------------------------------------|------|------|------|------|------|------|
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 37.9 | 38.2 | 38.4 | 38.7 | 38.8 | 38.9 |
| Maximum Power Current-I <sub>MPP</sub> (A) | 7.85 | 7.89 | 7.93 | 7.97 | 8.05 | 9.11 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 45.8 | 46.0 | 46.2 | 46.4 | 46.5 | 46.6 |
| Short Circuit Current-I <sub>SC</sub> (A)  | 8.29 | 8.32 | 8.36 | 8.39 | 8.48 | 8.54 |

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

## MECHANICAL DATA

|                      |                                                                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Solar Cells          | Monocrystalline                                                                                                                                   |
| Cell Orientation     | 144 cells (6 × 24)                                                                                                                                |
| Module Dimensions    | 2024 × 1002 × 30 mm (79.69 × 39.45 × 1.18 inches)                                                                                                 |
| Weight               | 26.0 kg (57.3 lb)                                                                                                                                 |
| Front Glass          | 2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass                                                                        |
| Encapsulant material | POE/EVA                                                                                                                                           |
| Back Glass           | 2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)                                                                                  |
| Frame                | 30mm(1.18 inches) Anodized Aluminium Alloy                                                                                                        |
| J-Box                | IP 68 rated                                                                                                                                       |
| Cables               | Photovoltaic Technology Cable 4.0mm² (0.006 inches²),<br>Portrait: 280/280 mm(11.02/11.02 inches),<br>Landscape: 1900/1900 mm(74.80/74.80 inches) |
| Connector            | MC4 EV02 / TS4*                                                                                                                                   |

\*Please refer to regional datasheet for specified connector.

## TEMPERATURE RATINGS

|                                             |             |
|---------------------------------------------|-------------|
| NOCT (Nominal Operating Cell Temperature)   | 43°C (±2°C) |
| Temperature Coefficient of P <sub>MAX</sub> | - 0.34%/°C  |
| Temperature Coefficient of V <sub>OC</sub>  | - 0.25%/°C  |
| Temperature Coefficient of I <sub>SC</sub>  | 0.04%/°C    |

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

## WARRANTY

|                                      |
|--------------------------------------|
| 12 year Product Workmanship Warranty |
| 30 year Power Warranty               |

(Please refer to product warranty for details)

## MAXIMUM RATINGS

|                         |                                 |
|-------------------------|---------------------------------|
| Operational Temperature | -40~+85°C                       |
| Maximum System Voltage  | 1500V DC (IEC)<br>1500V DC (UL) |
| Max Series Fuse Rating  | 20A                             |

## PACKAGING CONFIGURATION

|                                       |
|---------------------------------------|
| Modules per box: 36 pieces            |
| Modules per 40' container: 792 pieces |