

THE

# DUOMAX<sup>M</sup>

DUAL GLASS 144 CELL MULTI BUSBAR MODULE



**144-Cell**  
MONOCRYSTALLINE MODULE

**390-415W**  
POWER OUTPUT RANGE

**20.2%**  
MAXIMUM EFFICIENCY

**0~+5W**  
POSITIVE POWER TOLERANCE

**PRODUCTS**

TSM-DEG15M.20(II)

**POWER RANGE**

390-415W



### High power output

- Up to 415W front power and 20.2% module efficiency with half-cut and MBB (Multi Busbar) technology enabling higher BOS savings
- Lower resistance of half-cut cells ensures higher power



### Certified to perform in highly challenging environments

- High PID resistance through cell process and module material control
- Resistant to salt, acid, sand, and ammonia
- Proven to be reliable in high temperature and humidity areas
- Certified to the best fire class A
- Minimizes micro-crack and snail trails
- Certified to 5400 Pa positive load and 2400 Pa negative load



### High energy generation, low LCOE

- Excellent 3rd party validated IAM and low light performance with cell process and module material optimization
- Low temp coefficient (-0.35%) and NMOT increases energy production
- Better anti-shading performance and lower operating temperature
- Higher power from same installation footprint as standard modules



### Easy to install, wide application

- Frame design enables compatibility with standard installation methods
- Deployable for ground mounted utility, carports, and agricultural projects
- Safe and easy to transport, handle, and install like normal framed modules

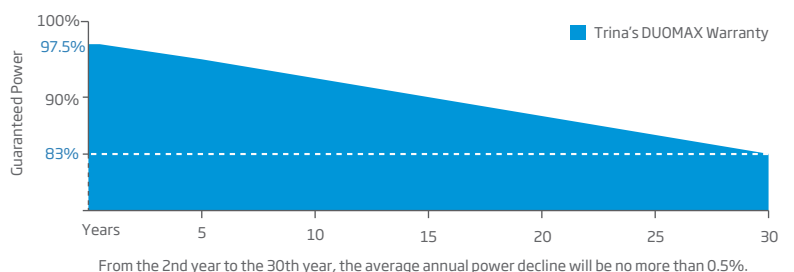
Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable 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

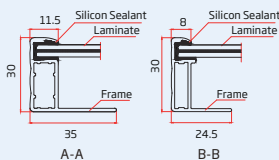
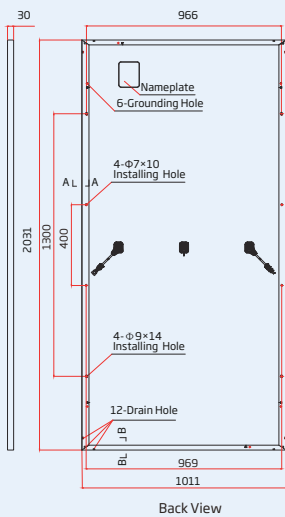
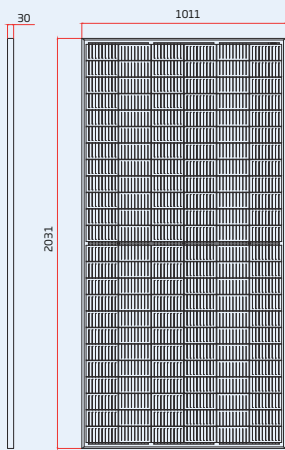
IEC61215/IEC61730/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 OHSAS 18001: Occupation Health and Safety Management System



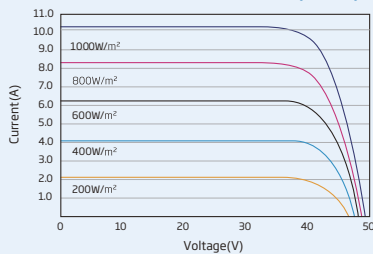
Trina Solar's DUOMAX Performance Warranty



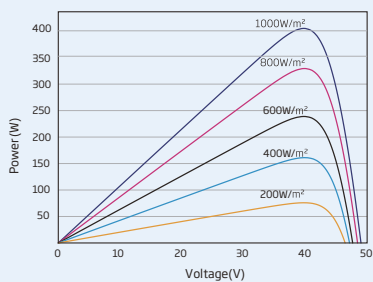
## DIMENSIONS OF PV MODULE (mm)



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



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



## ELECTRICAL DATA (STC)

|                                       |        |       |       |       |       |       |
|---------------------------------------|--------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}$ (Wp)*     | 390    | 395   | 400   | 405   | 410   | 415   |
| Power Output Tolerance- $P_{MAX}$ (W) | 0 ~ +5 |       |       |       |       |       |
| Maximum Power Voltage- $V_{MPP}$ (V)  | 40.0   | 40.1  | 40.3  | 40.5  | 40.7  | 40.9  |
| Maximum Power Current- $I_{MPP}$ (A)  | 9.75   | 9.86  | 9.92  | 10.0  | 10.07 | 10.15 |
| Open Circuit Voltage- $V_{OC}$ (V)    | 48.5   | 48.7  | 49.0  | 49.2  | 49.4  | 49.6  |
| Short Circuit Current- $I_{SC}$ (A)   | 10.30  | 10.37 | 10.45 | 10.52 | 10.59 | 10.66 |
| Module Efficiency $\eta_m$ (%)        | 19.0   | 19.2  | 19.5  | 19.7  | 20.0  | 20.2  |

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5.

\*Measuring tolerance: ±3%.

## ELECTRICAL DATA (NMOT)

|                                      |      |      |      |      |      |      |
|--------------------------------------|------|------|------|------|------|------|
| Maximum Power- $P_{MAX}$ (Wp)        | 295  | 299  | 303  | 307  | 310  | 314  |
| Maximum Power Voltage- $V_{MPP}$ (V) | 37.7 | 37.9 | 38.1 | 38.3 | 38.5 | 38.7 |
| Maximum Power Current- $I_{MPP}$ (A) | 7.83 | 7.89 | 7.95 | 8.01 | 8.06 | 8.12 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 45.8 | 46.0 | 46.3 | 46.5 | 46.6 | 46.8 |
| Short Circuit Current- $I_{SC}$ (A)  | 8.29 | 8.35 | 8.41 | 8.47 | 8.52 | 8.58 |

NMOT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

## MECHANICAL DATA

|                      |   |
|----------------------|---|
| Solar Cells          | Monocrystalline   |
| Cell Orientation     | 144 cells (6 × 24)  |
| Module Dimensions    | 2031 × 1011 × 30 mm (79.96 × 39.80 × 1.18 inches)   |
| Weight               | 26.8 kg (59.1 lb)   |
| Front Glass          | 2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass  |
| Encapsulant Material | EVA   |
| Back Glass           | 2.0 mm (0.08 inches), Heat Strengthened Glass   |
| Frame                | 30 mm (1.18 inches) Anodized Aluminium Alloy  |
| J-Box                | IP 68 rated   |
| Cables               | Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> )<br>Portrait: N 140mm/P 285mm (5.51/11.22 inches)<br>Landscape: N 1400mm/P 1400mm (55.12/55.12 inches) |
| Connector            | Trina TS4   |

## TEMPERATURE RATINGS

|   |             |
|---|-------------|
| NMOT (Nominal Module Operating Temperature) | 41°C (±3°C) |
| Temperature Coefficient of $P_{MAX}$        | -0.35%/°C   |
| Temperature Coefficient of $V_{OC}$         | -0.25%/°C   |
| Temperature Coefficient of $I_{SC}$         | 0.04%/°C    |

## MAXIMUM RATINGS

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

(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)

## PACKAGING CONFIGURATION

Modules per box: 32 pieces

Modules per 40' container: 704 pieces