

# THE TALLMAX<sup>M</sup>

## FRAMED 144 LAYOUT MODULE



**144 LAYOUT**  
MONOCRYSTALLINE MODULE

**390-415W**  
POWER OUTPUT RANGE

**20.7%**  
MAXIMUM EFFICIENCY

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

**PRODUCTS**

TSM-DE15M(II)

**POWER RANGE**

390-415W

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/UL1703  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupation Health and Safety Management System



**High power Mono Perc**

- Up to 415W 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
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load

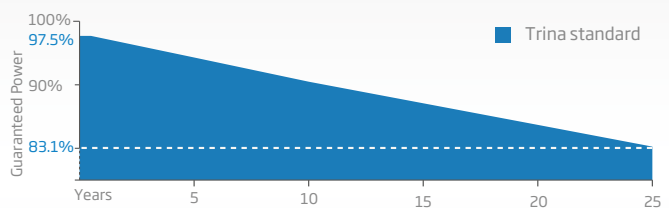


**High energy generation**

- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Lower temp coefficient (-0.36%) and NMOT bring more energy leading to lower LCOE
- Better anti-shading performance and lower operating temperature

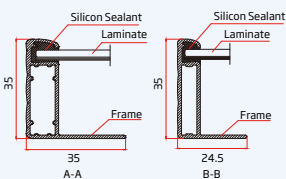
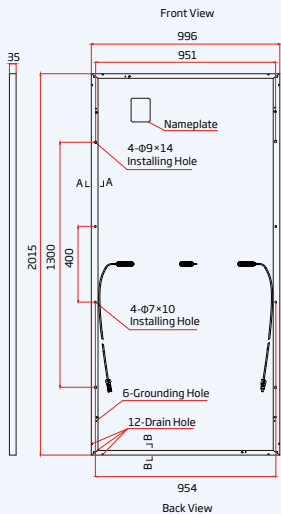
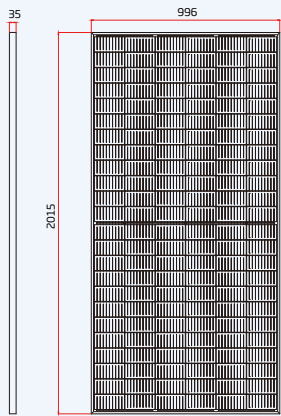
**PERFORMANCE WARRANTY**

12 Year Product Warranty · 25 Year Power Warranty

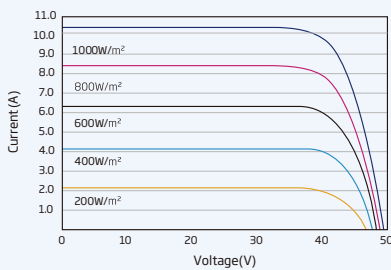


From the 2nd year to the 25th year, the average annual power decline will be no more than 0.6%.

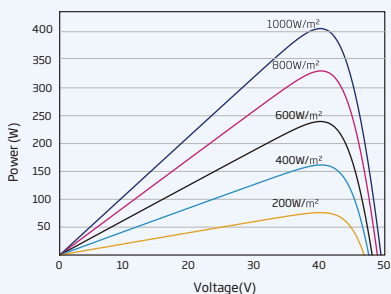
### DIMENSIONS OF PV MODULE(mm)



### 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 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  | 10.00 | 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 $\eta_m$ (%)       | 19.4   | 19.7  | 19.9  | 20.2  | 20.4  | 20.7  |

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  | 302  | 306  | 310  | 314  |
| Maximum Power Voltage- $V_{MPP}$ (V) | 37.6 | 37.8 | 38.0 | 38.2 | 38.4 | 38.6 |
| Maximum Power Current- $I_{MPP}$ (A) | 7.84 | 7.90 | 7.95 | 8.01 | 8.07 | 8.13 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 45.7 | 45.9 | 46.2 | 46.4 | 46.6 | 46.8 |
| Short Circuit Current- $I_{SC}$ (A)  | 8.30 | 8.35 | 8.42 | 8.47 | 8.53 | 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    | 2015 × 996 × 35 mm (79.33×39.21×1.38 inches)                                                                                                                                           |
| Weight               | 22.0 kg ( 48.5 lb)                                                                                                                                                                     |
| Glass                | 3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass                                                                                                             |
| Encapsulant Material | EVA                                                                                                                                                                                    |
| Backsheet            | White                                                                                                                                                                                  |
| Frame                | 35 mm (1.38 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 280mm/P 280mm(11.02/11.02inches)<br>Landscape: N 1400 mm /P 1400 mm (55.12/55.12 inches) |
| Connector            | TS4                                                                                                                                                                                    |

### TEMPERATURE RATINGS

|                                             |             |
|---------------------------------------------|-------------|
| NMOT (Nominal Module Operating Temperature) | 41 C (±3 C) |
| Temperature Coefficient of $P_{MAX}$        | - 0.36%/ C  |
| Temperature Coefficient of $V_{OC}$         | - 0.26%/ C  |
| Temperature Coefficient of $I_{SC}$         | 0.04%/ C    |

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

### MAXIMUM RATINGS

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

### WARRANTY

- 12 year Product Workmanship Warranty
- 25 year Power Warranty

(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

- Modules per box: 30 pieces
- Modules per 40' container: 660 pieces