

# THE Vertex

## BACKSHEET MONOCRYSTALLINE MODULE



# 510W

MAXIMUM POWER OUTPUT

# 21.2%

MAXIMUM EFFICIENCY

# 0~+5W

BINNING TOLERANCE

PRODUCTS

TSM-DE18M(II)

POWER RANGE

485-510W



### High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance Of System) cost, shorter payback time
- Lower guaranteed first year and annual degradation
- Designed for compatibility with existing mainstream system components
- Higher return on Investment



### High power up to 510W

- Large area cells based on 210mm silicon wafers and 1/3-cut cell technology
- Up to 21.2% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



### High reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



### High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions

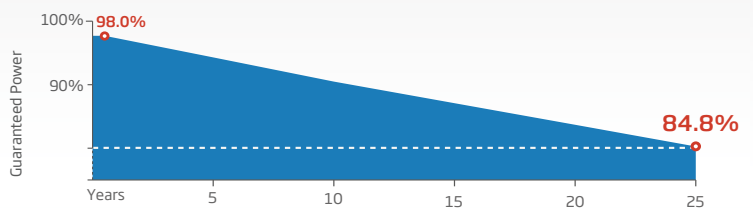
Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable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

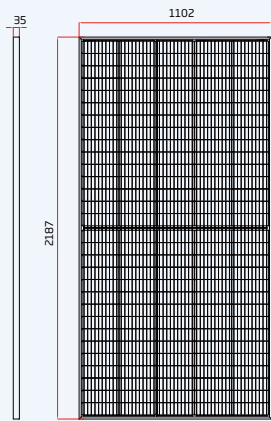
IEC61215/IEC61730/IEC61701/IEC62716  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System



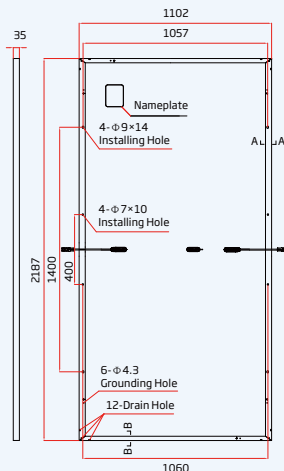
### Trina Solar's Vertex Backsheet Performance Warranty



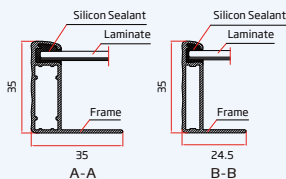
### DIMENSIONS OF PV MODULE(mm)



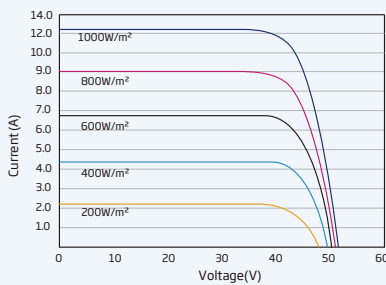
Front View



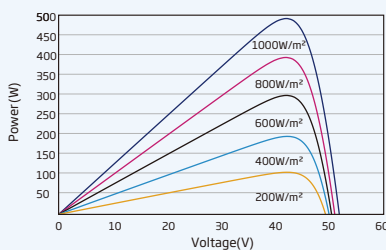
Back View



### I-V CURVES OF PV MODULE(495W)



### P-V CURVES OF PV MODULE(495W)



### ELECTRICAL DATA (STC)

|                                      |        |       |       |       |       |       |
|--------------------------------------|--------|-------|-------|-------|-------|-------|
| Peak Power Watts- $P_{MAX}$ (Wp)*    | 485    | 490   | 495   | 500   | 505   | 510   |
| Binning Tolerance- $P_{MAX}$ (W)     | 0 ~ +5 |       |       |       |       |       |
| Maximum Power Voltage- $V_{MPP}$ (V) | 42.2   | 42.4  | 42.6  | 42.8  | 43.0  | 43.2  |
| Maximum Power Current- $I_{MPP}$ (A) | 11.49  | 11.56 | 11.63 | 11.69 | 11.75 | 11.81 |
| Open Circuit Voltage- $V_{OC}$ (V)   | 51.1   | 51.3  | 51.5  | 51.7  | 51.9  | 52.1  |
| Short Circuit Current- $I_{SC}$ (A)  | 12.07  | 12.14 | 12.21 | 12.28 | 12.35 | 12.42 |
| Module Efficiency $\eta_m$ (%)       | 20.1   | 20.3  | 20.5  | 20.7  | 21.0  | 21.2  |

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

\*Measuring tolerance: ±3%.

### ELECTRICAL DATA (NOCT)

|                                      |      |      |      |      |      |       |
|--------------------------------------|------|------|------|------|------|-------|
| Maximum Power- $P_{MAX}$ (Wp)        | 365  | 369  | 373  | 377  | 381  | 385   |
| Maximum Power Voltage- $V_{MPP}$ (V) | 39.9 | 40.0 | 40.2 | 40.4 | 40.6 | 40.5  |
| Maximum Power Current- $I_{MPP}$ (A) | 9.17 | 9.22 | 9.28 | 9.33 | 9.38 | 9.50  |
| Open Circuit Voltage- $V_{OC}$ (V)   | 48.1 | 48.2 | 48.4 | 48.6 | 48.8 | 49.0  |
| Short Circuit Current- $I_{SC}$ (A)  | 9.73 | 9.78 | 9.84 | 9.90 | 9.95 | 10.01 |

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

### MECHANICAL DATA

|                      |  |
|----------------------|--|
| Solar Cells          | Monocrystalline  |
| Cell Orientation     | 150 cells  |
| Module Dimensions    | 2187×1102×35 mm (86.10×43.39×1.38 inches)  |
| Weight               | 26.5 kg (58.4 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            | MC4 EVO2 / TS4   |

### TEMPERATURE RATINGS

|   |             |
|---|-------------|
| NOCT (Nominal Operating Cell Temperature) | 43°C (±2°C) |
| Temperature Coefficient of $P_{MAX}$      | -0.34%/°C   |
| Temperature Coefficient of $V_{OC}$       | -0.25%/°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) |
| Max Series Fuse Rating  | 20A            |

### WARRANTY

|                                      |
|--------------------------------------|
| 12 year Product Workmanship Warranty |
| 25 year Power Warranty               |
| 2% first year degradation            |
| 0.55% Annual Power Attenuation       |

(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

|                                       |
|---------------------------------------|
| Modules per box: 31 pieces            |
| Modules per 40' container: 620 pieces |