



## BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

PRODUCT: TSM-DEG19C.20

PRODUCT RANGE: 525-550W

# 550W+

MAXIMUM POWER OUTPUT

# 0~+5W

POSITIVE POWER TOLERANCE

# 21.0%

MAXIMUM EFFICIENCY



### High customer value

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



### High power up to 550W

- Up to 21.0% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



### High reliability

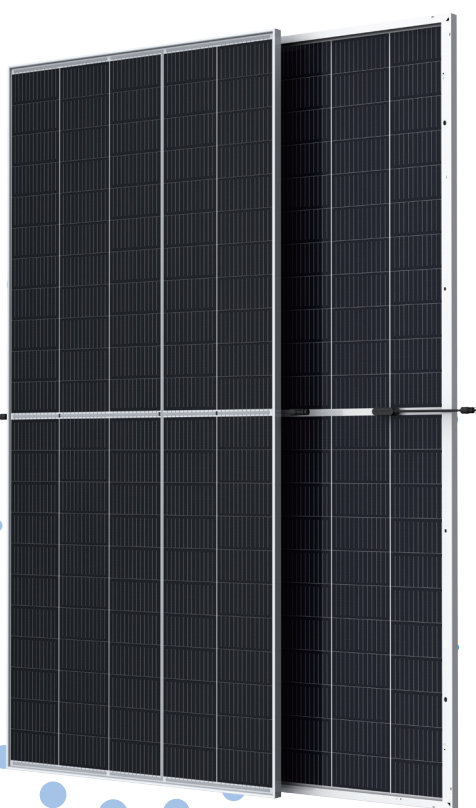
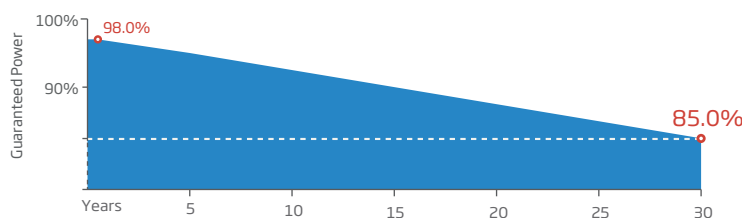
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive 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
- Lower temperature coefficient (-0.34%) and operating temperature
- Up to 25% additional power gain from back side depending on albedo

### Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



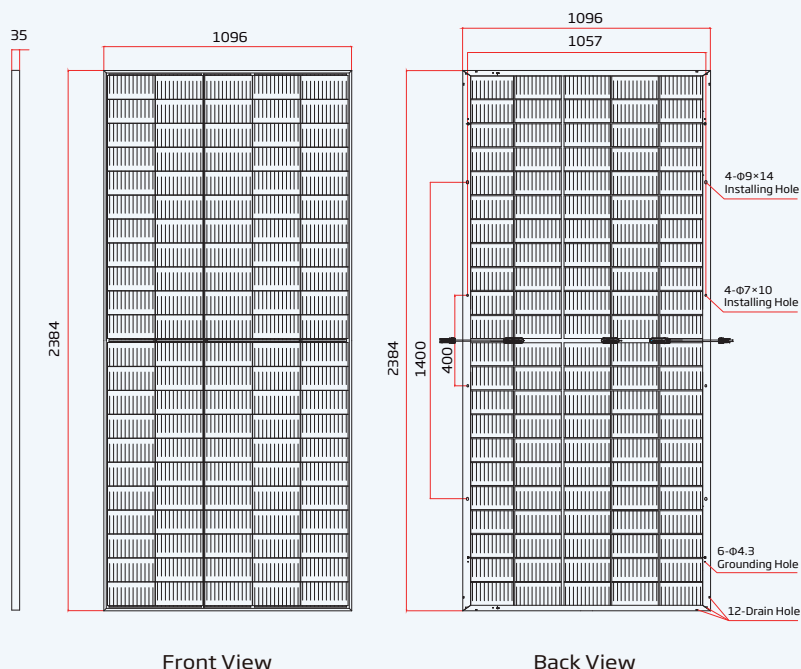
### Comprehensive Products and System Certificates



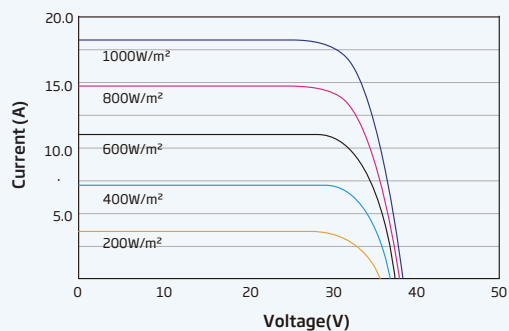
IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System



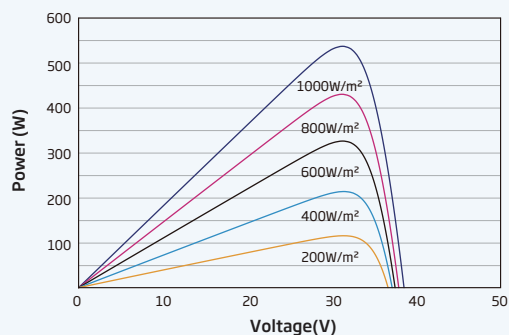
## DIMENSIONS OF PV MODULE(mm)



## I-V CURVES OF PV MODULE(540 W)



## P-V CURVES OF PV MODULE(540 W)



## ELECTRICAL DATA (STC)

|                                            |        |       |       |       |       |       |
|--------------------------------------------|--------|-------|-------|-------|-------|-------|
| Peak Power Watts-P <sub>MAX</sub> (Wp)*    | 525    | 530   | 535   | 540   | 545   | 550   |
| Power Tolerance-P <sub>MAX</sub> (W)       | 0 ~ +5 |       |       |       |       |       |
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 30.8   | 31.0  | 31.2  | 31.4  | 31.6  | 31.8  |
| Maximum Power Current-I <sub>MPP</sub> (A) | 17.04  | 17.11 | 17.16 | 17.21 | 17.24 | 17.29 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 37.1   | 37.3  | 37.5  | 37.7  | 37.9  | 38.1  |
| Short Circuit Current-I <sub>SC</sub> (A)  | 18.14  | 18.19 | 18.24 | 18.30 | 18.35 | 18.39 |
| Module Efficiency $\eta_m$ (%)             | 20.1   | 20.3  | 20.5  | 20.7  | 20.9  | 21.0  |

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. \*Measuring tolerance:  $\pm 3\%$ .

## Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

|                                               |       |       |       |       |       |       |
|-----------------------------------------------|-------|-------|-------|-------|-------|-------|
| Total Equivalent power -P <sub>MAX</sub> (Wp) | 562   | 567   | 573   | 578   | 583   | 589   |
| Maximum Power Voltage-V <sub>MPP</sub> (V)    | 30.8  | 31.0  | 31.2  | 31.4  | 31.6  | 31.8  |
| Maximum Power Current-I <sub>MPP</sub> (A)    | 18.23 | 18.31 | 18.36 | 18.41 | 18.45 | 18.50 |
| Open Circuit Voltage-V <sub>OC</sub> (V)      | 37.1  | 37.3  | 37.5  | 37.7  | 37.9  | 38.1  |
| Short Circuit Current-I <sub>SC</sub> (A)     | 19.41 | 19.46 | 19.52 | 19.58 | 19.63 | 19.68 |
| Irradiance ratio (rear/front)                 | 10%   |       |       |       |       |       |

Power Bifaciality: 70 $\pm$ 5%.

## ELECTRICAL DATA (NOCT)

|                                            |       |       |       |       |       |       |
|--------------------------------------------|-------|-------|-------|-------|-------|-------|
| Maximum Power-P <sub>MAX</sub> (Wp)        | 398   | 401   | 405   | 409   | 413   | 416   |
| Maximum Power Voltage-V <sub>MPP</sub> (V) | 28.6  | 28.8  | 29.0  | 29.2  | 29.4  | 29.5  |
| Maximum Power Current-I <sub>MPP</sub> (A) | 13.88 | 13.93 | 13.97 | 14.02 | 14.08 | 14.10 |
| Open Circuit Voltage-V <sub>OC</sub> (V)   | 35.0  | 35.1  | 35.3  | 35.5  | 35.7  | 35.9  |
| Short Circuit Current-I <sub>SC</sub> (A)  | 14.62 | 14.66 | 14.70 | 14.75 | 14.79 | 14.82 |

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

## MECHANICAL DATA

|                      |                                                                                                                                                  |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Solar Cells          | Monocrystalline                                                                                                                                  |
| No. of cells         | 110 cells                                                                                                                                        |
| Module Dimensions    | 2384×1096×35 mm (93.86×43.15×1.38 inches)                                                                                                        |
| Weight               | 32.6 kg (71.9 lb)                                                                                                                                |
| Front Glass          | 2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass                                                                       |
| Encapsulant material | EVA/POE                                                                                                                                          |
| Back Glass           | 2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)                                                                                 |
| Frame                | 35mm(1.38 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: 1400/1400 mm(55.12/55.12 inches) |
| Connector            | MC4 EV02 / TS4*                                                                                                                                  |

\*Please refer to regional datasheet for specified connector.

## TEMPERATURE RATINGS

|                                             |                                |
|---------------------------------------------|--------------------------------|
| NOCT (Nominal Operating Cell Temperature)   | 43°C ( $\pm 2^\circ\text{C}$ ) |
| 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                       |

## MAXIMUM RATINGS

|                         |                                 |
|-------------------------|---------------------------------|
| Operational Temperature | -40~+85°C                       |
| Maximum System Voltage  | 1500V DC (IEC)<br>1500V DC (UL) |
| Max Series Fuse Rating  | 35A                             |

## WARRANTY

|                                      |
|--------------------------------------|
| 12 year Product Workmanship Warranty |
| 30 year Power Warranty               |
| 2% first year degradation            |
| 0.45% Annual Power Attenuation       |

(Please refer to product warranty for details)

## PACKAGING CONFIGURATION

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