



**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



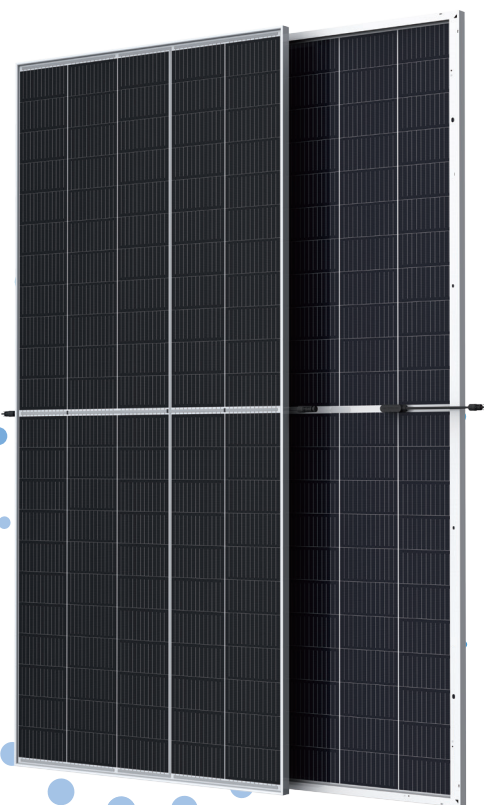
**High reliability**

- 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

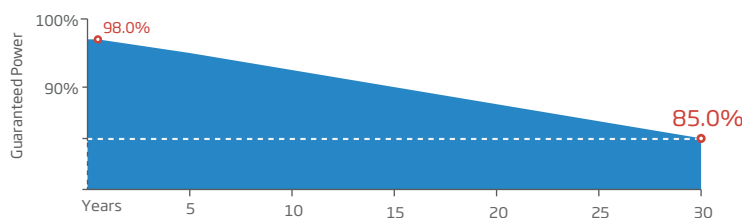


**High energy yield**

- 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**



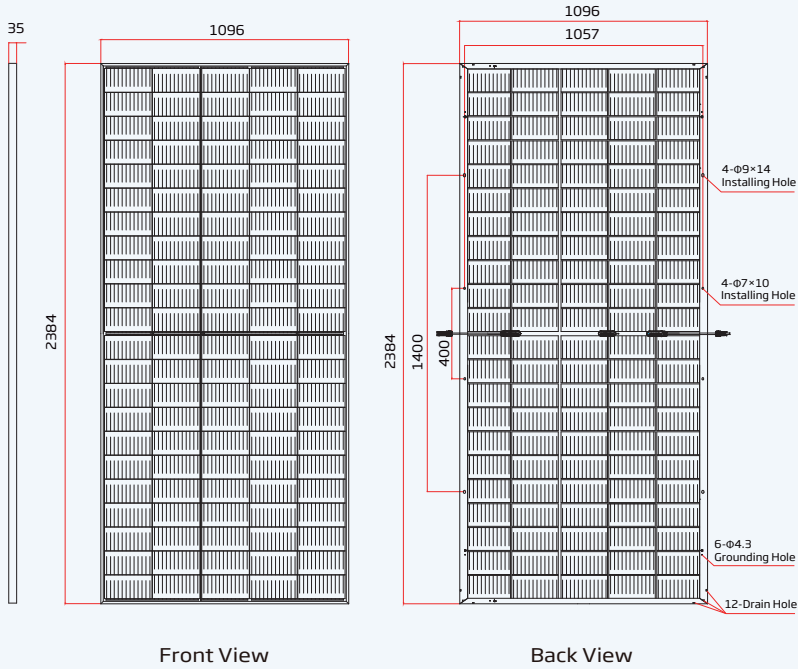
**Comprehensive Products and System Certificates**



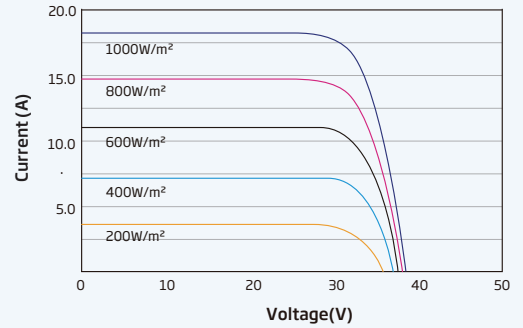
IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System



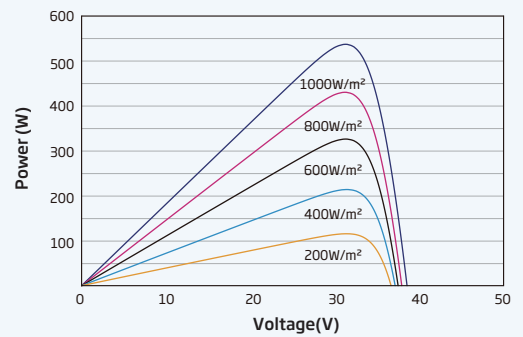
### DIMENSIONS OF PV MODULE(mm)



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



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



### ELECTRICAL DATA (STC)

Peak Power Watts - $P_{MAX}$ (Wp)*	525	530	535	540	545	550
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5					
Maximum Power Voltage - $V_{MPP}$ (V)	30.8	31.0	31.2	31.4	31.6	31.8
Maximum Power Current - $I_{MPP}$ (A)	17.04	17.11	17.16	17.21	17.24	17.29
Open Circuit Voltage - $V_{OC}$ (V)	37.1	37.3	37.5	37.7	37.9	38.1
Short Circuit Current - $I_{SC}$ (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/m<sup>2</sup>, 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 - $P_{MAX}$ (Wp)	567	573	578	583	589
Maximum Power Voltage - $V_{MPP}$ (V)	31.0	31.2	31.4	31.6	31.8
Maximum Power Current - $I_{MPP}$ (A)	18.31	18.36	18.41	18.45	18.50
Open Circuit Voltage - $V_{OC}$ (V)	37.3	37.5	37.7	37.9	38.1
Short Circuit Current - $I_{SC}$ (A)	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 - $P_{MAX}$ (Wp)	398	401	405	409	413	416
Maximum Power Voltage - $V_{MPP}$ (V)	28.6	28.8	29.0	29.2	29.4	29.5
Maximum Power Current - $I_{MPP}$ (A)	13.88	13.93	13.97	14.02	14.08	14.10
Open Circuit Voltage - $V_{OC}$ (V)	35.0	35.1	35.3	35.5	35.7	35.9
Short Circuit Current - $I_{SC}$ (A)	14.62	14.66	14.70	14.75	14.79	14.82

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

### MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	110 cells
Module Dimensions	2384 $\times$ 1096 $\times$ 35 mm (93.86 $\times$ 43.15 $\times$ 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 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), Portrait: 280/280 mm(11.02/11.02 inches) 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°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

### MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC) 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