

THE Vertex

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

510W

MAXIMUM POWER OUTPUT

21.2%

MAXIMUM EFFICIENCY

0~+5W

BINNING TOLERANCE

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

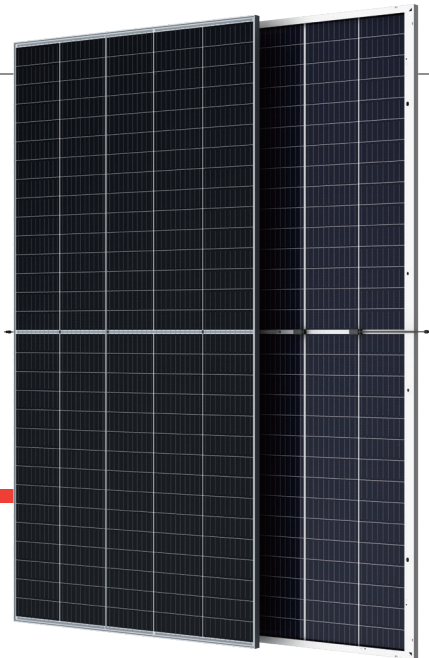


PRODUCTS

TSM-XXXDEG18MC.20(II)

POWER RANGE

490-510W



High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- Lower first year and annual degradation; extended 30-year warranty
- Designed for compatibility with existing mainstream system components
- Higher return on Investment



High power Mono Perc 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

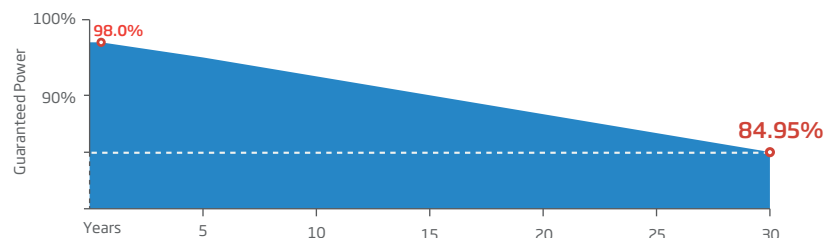
- Minimized micro-cracks with innovative non-destructive cutting technology
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas and fire class rating C
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



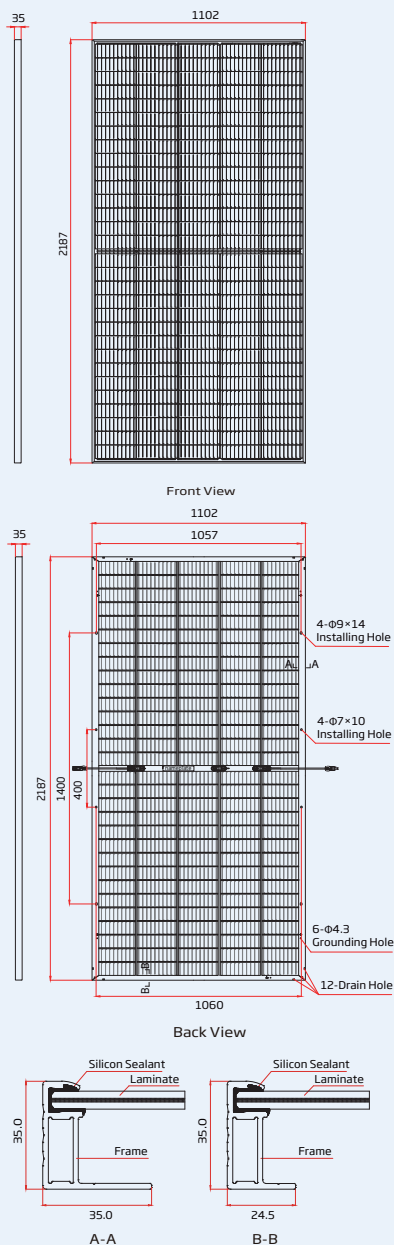
High energy yield

- 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
- Up to 25% additional power gain from back side depending on albedo

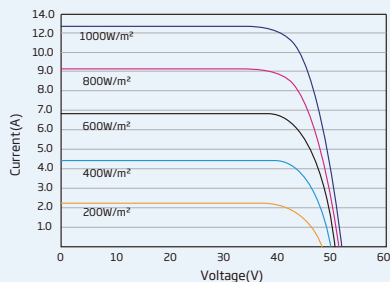
Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



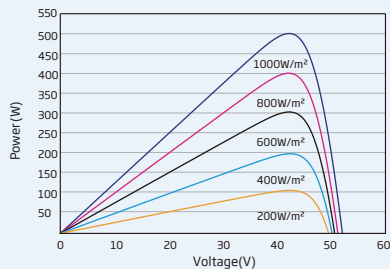
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(500 W)



P-V CURVES OF PV MODULE(500W)



ELECTRICAL DATA (STC) TSM-XXXDEG18MC.20(II) (XXX=490-510)

Peak Power Watts- P_{MAX} (Wp)*	490	495	500	505	510
Binning Tolerance- P_{MAX} (W)	0 ~ +5				
Maximum Power Voltage- V_{MPP} (V)	42.8	43.1	43.4	43.7	43.9
Maximum Power Current- I_{MPP} (A)	11.45	11.49	11.53	11.56	11.62
Open Circuit Voltage- V_{OC} (V)	51.1	51.3	51.5	51.7	51.9
Short Circuit Current- I_{SC} (A)	12.05	12.09	12.13	12.17	12.21
Module Efficiency η_m (%)	20.3	20.5	20.7	21.0	21.2

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

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

Total Equivalent power - P_{MAX} (Wp)	524	530	535	540	546
Maximum Power Voltage- V_{MPP} (V)	42.8	43.1	43.4	43.6	43.9
Maximum Power Current- I_{MPP} (A)	12.24	12.29	12.34	12.39	12.43
Open Circuit Voltage- V_{OC} (V)	51.1	51.3	51.5	51.7	51.9
Short Circuit Current- I_{SC} (A)	12.89	12.94	12.98	13.02	13.06
Irradiance ratio (rear/front)	10%				

Power Bifaciality: 70±5%.

ELECTRICAL DATA (NOCT)

Maximum Power- P_{MAX} (Wp)	369	373	377	381	384
Maximum Power Voltage- V_{MPP} (V)	40.2	40.5	40.7	41.0	41.2
Maximum Power Current- I_{MPP} (A)	9.18	9.22	9.26	9.29	9.33
Open Circuit Voltage- V_{OC} (V)	48.0	48.2	48.4	48.5	48.7
Short Circuit Current- I_{SC} (A)	9.71	9.74	9.78	9.81	9.84

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

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	150 cells
Module Dimensions	2187×1102×35 mm (86.10×43.39×1.38 inches)
Weight	30.1 kg (66.4 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), Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	Stabuli MC4 EV02 / Trina Solar TS4 Plus / Trina Solar 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

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)

MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
	1500V DC (UL)
Max Series Fuse Rating	25A

PACKAGING CONFIGURATION

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