

Vertex N

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

PRODUCT: TSM-NEG19RC.20

PRODUCT RANGE: 570-590W

590W

MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

21.8%

MAXIMUM EFFICIENCY



Increased Customer Value

- Lower LCOE, reduced BOS cost, faster ROI
- Lowest guaranteed first year and annual degradation
- Designed for compatibility with existing mainstream system components
- Higher return on investment



High Power up to 590W

- Up to 21.8% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



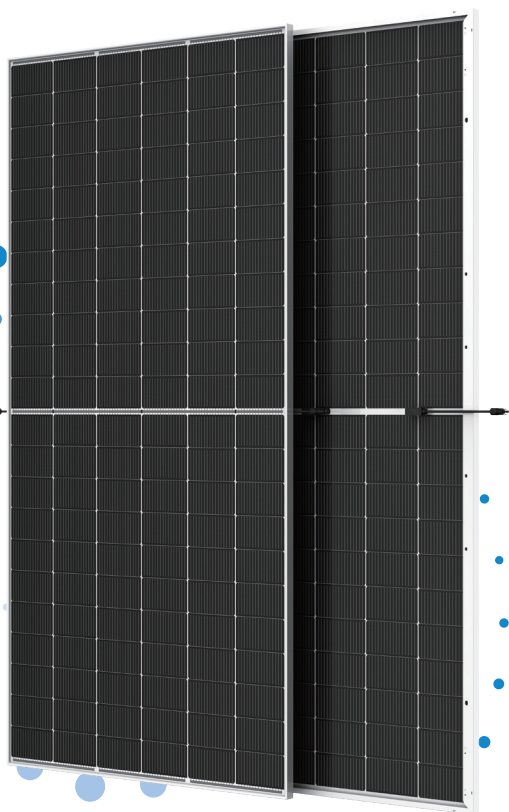
Improved Reliability

- 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

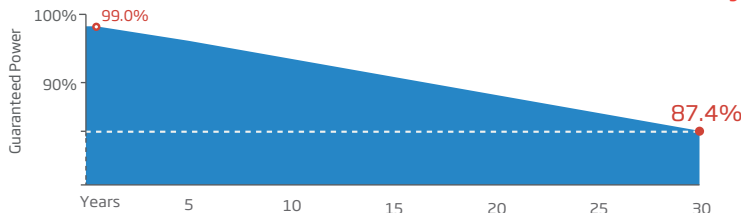


Better Energy Yield

- Excellent IAM and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.30%) and operating temperature
- Up to 30% 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

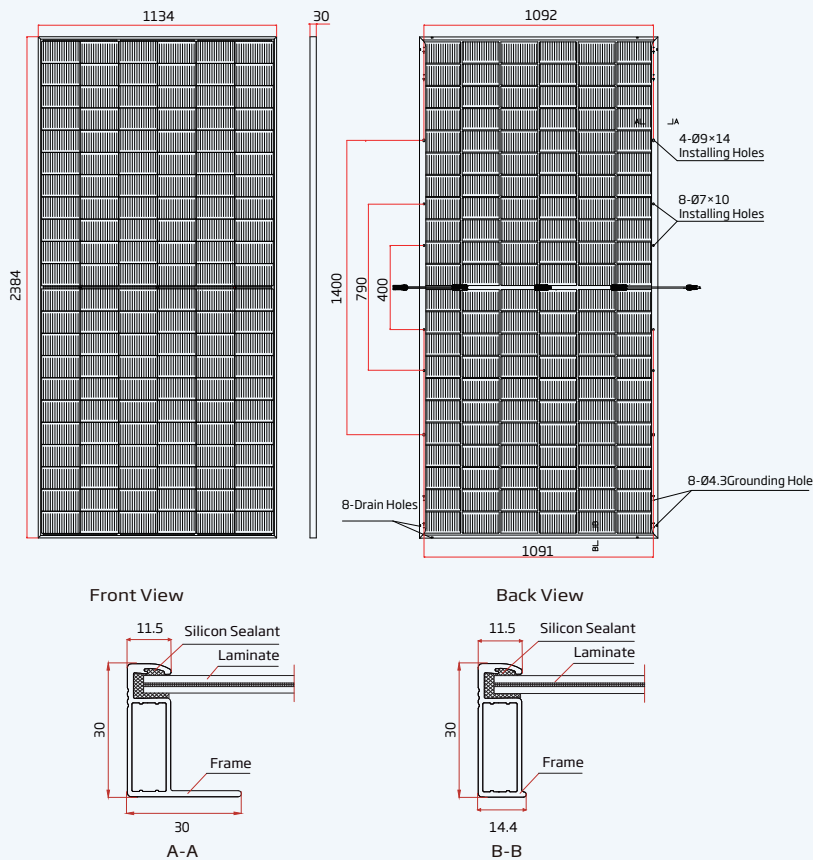
ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

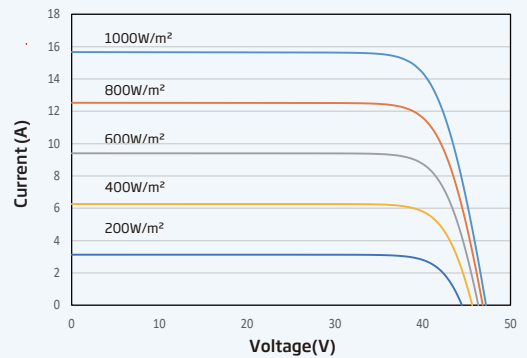
ISO45001: Occupational Health and Safety Management System



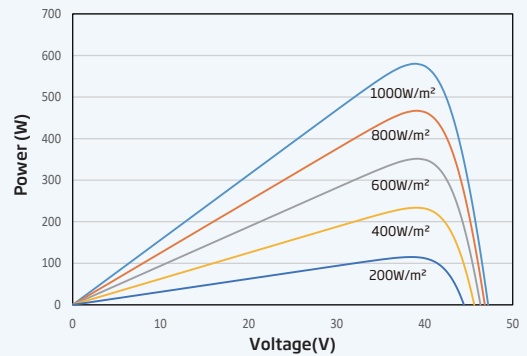
DIMENSIONS OF PV MODULE (mm)



I-V CURVES OF PV MODULE (580W)



P-V CURVES OF PV MODULE (580W)



ELECTRICAL DATA (STC)

Peak Power Watts -P _{MAX} (Wp)*	570	575	580	585	590
Power Tolerance-P _{MAX} (W)			0 ~ +5		
Maximum Power Voltage -V _{MPP} (V)	38.6	38.9	39.2	39.5	39.7
Maximum Power Current -I _{MPP} (A)	14.75	14.78	14.79	14.82	14.86
Open Circuit Voltage -V _{OC} (V)	46.6	46.9	47.2	47.5	47.8
Short Circuit Current -I _{SC} (A)	15.61	15.63	15.65	15.68	15.72
Module Efficiency η _m (%)	21.1	21.3	21.5	21.6	21.8

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

ELECTRICAL CHARACTERISTICS with BIFACIAL GAINS (10% Irradiance Ratio)

Total Equivalent power -P _{MAX} (Wp)	616	621	626	632	637
Maximum Power Voltage -V _{MPP} (V)	38.6	38.9	39.2	39.5	39.7
Maximum Power Current -I _{MPP} (A)	15.93	15.96	15.97	16.01	16.05
Open Circuit Voltage -V _{OC} (V)	46.6	46.9	47.2	47.5	47.8
Short Circuit Current -I _{SC} (A)	16.86	16.88	16.90	16.93	16.98
Irradiance ratio (rear/front)			10%		

Power Bifaciality: 80±5%.

ELECTRICAL DATA (NOCT)

Maximum Power -P _{MAX} (Wp)	434	438	442	446	450
Maximum Power Voltage -V _{MPP} (V)	36.3	36.5	36.8	37.1	37.3
Maximum Power Current -I _{MPP} (A)	11.97	11.99	12.00	12.02	12.05
Open Circuit Voltage -V _{OC} (V)	44.2	44.5	44.7	45.0	45.3
Short Circuit Current -I _{SC} (A)	12.58	12.59	12.61	12.64	12.67

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

MECHANICAL DATA

Solar Cells	Monocrystalline 210Rmm N-type
No. of cells	132 cells
Module Dimensions	2384×1134×30 mm (93.86×44.65×1.18 in)
Weight	33.1kg (72.97lb)
Front Glass	2.0 mm (0.08 in), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Back Glass	2.0 mm (0.08 in), Heat Strengthened Glass (White Grid Glass)
Frame	30mm (1.18 in) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 in ²) Portrait: 350/280 mm (13.78/11.02 in)* Landscape: 1400 mm (55.12 in)*
Connector	MC4 EVO2 or TS4

*Lengths can be customized

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P _{MAX}	-0.30%/°C
Temperature Coefficient of V _{OC}	-0.24%/°C
Temperature Coefficient of I _{SC}	0.04%/°C

*Recommended

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.40% 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	30A*

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 504 pieces
Pallets per 40' container: 14