

Vertex N

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

PRODUCT: TSM-NEG19RC.20

POWER RANGE: 580-605W

605W

MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

22.4%

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 605W

- Up to 22.4% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



High reliability

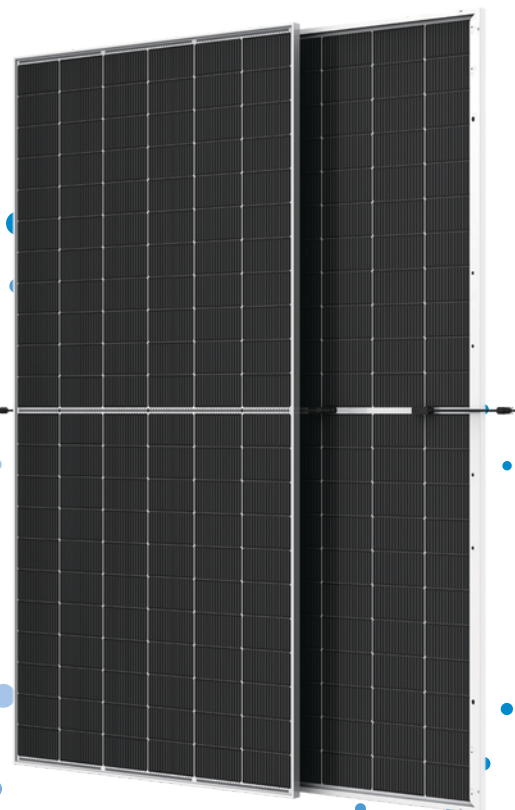
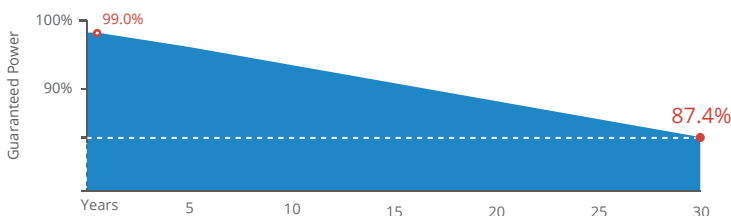
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive 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 (-0.30%) and operating temperature
- Up to 30% additional power gain from back side depending on albedo

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



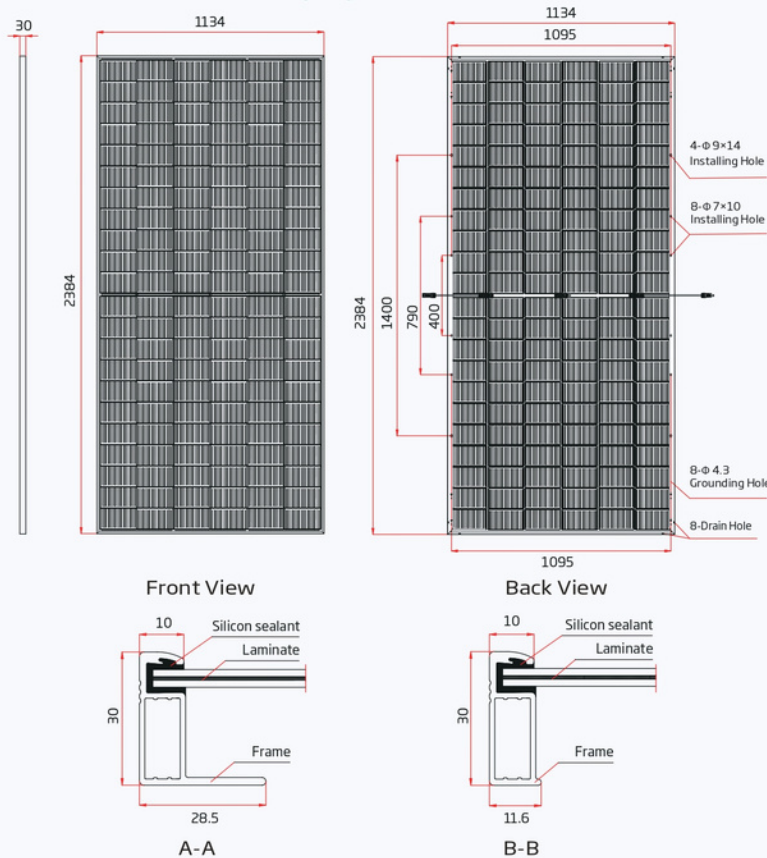
Comprehensive Products and System Certificates



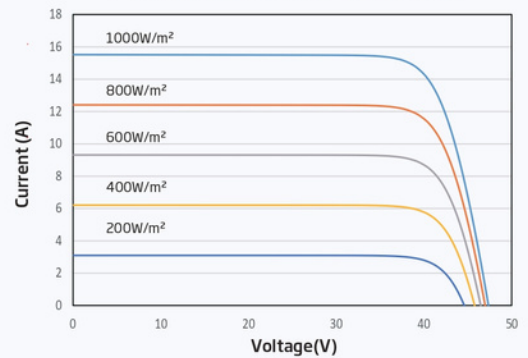
IEC61215/IEC61730/IEC61701/IEC62716/UL61730
 ISO 9001: Quality Management System
 ISO 14001: Environmental Management System
 ISO14064: Greenhouse Gases Emissions Verification
 ISO45001: Occupational Health and Safety Management System



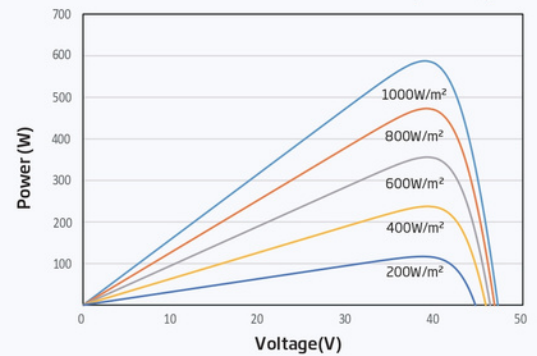
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(595 W)



P-V CURVES OF PV MODULE(595 W)



ELECTRICAL DATA (STC)

Peak Power Watts- P_{MAX} (Wp)*	580	585	590	595	600	605
Power Tolerance- P_{MAX} (W)	0 ~ +5					
Maximum Power Voltage- V_{MPP} (V)	39.2	39.5	39.7	40.0	40.3	40.5
Maximum Power Current- I_{MPP} (A)	14.79	14.82	14.86	14.89	14.91	14.94
Open Circuit Voltage- V_{OC} (V)	47.2	47.5	47.8	48.1	48.4	48.7
Short Circuit Current- I_{SC} (A)	15.65	15.68	15.72	15.76	15.80	15.83
Module Efficiency η_m (%)	21.5	21.6	21.8	22.0	22.2	22.4

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_{MAX} (Wp)	626	632	637	643	648	653
Maximum Power Voltage- V_{MPP} (V)	39.2	39.5	39.7	40.0	40.3	40.5
Maximum Power Current- I_{MPP} (A)	15.97	16.01	16.05	16.08	16.10	16.14
Open Circuit Voltage- V_{OC} (V)	47.2	47.5	47.8	48.1	48.4	48.7
Short Circuit Current- I_{SC} (A)	16.90	16.93	16.98	17.02	17.06	17.10
Irradiance ratio (rear/front)	10%					

Power Bifaciality: 80 \pm 5%.

ELECTRICAL DATA (NOCT)

Maximum Power- P_{MAX} (Wp)	442	446	450	454	458	461
Maximum Power Voltage- V_{MPP} (V)	36.8	37.1	37.3	37.6	37.8	38.0
Maximum Power Current- I_{MPP} (A)	12.00	12.02	12.05	12.08	12.12	12.14
Open Circuit Voltage- V_{OC} (V)	44.7	45.0	45.3	45.6	45.9	46.1
Short Circuit Current- I_{SC} (A)	12.61	12.64	12.67	12.70	12.73	12.76

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

MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384x1134x30 mm (93.86x44.65x1.18 inches)
Weight	33.7kg (74.3 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
Frame	30mm(1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 PLUS / 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}	-0.30%/°C
Temperature Coefficient of V_{OC}	-0.24%/°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
- 1% first year degradation
- 0.40% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGURATION

- Modules per box: 36 pieces
- Modules per 40' container: 720 pieces

Comprehensive Products and System Certificates

