

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



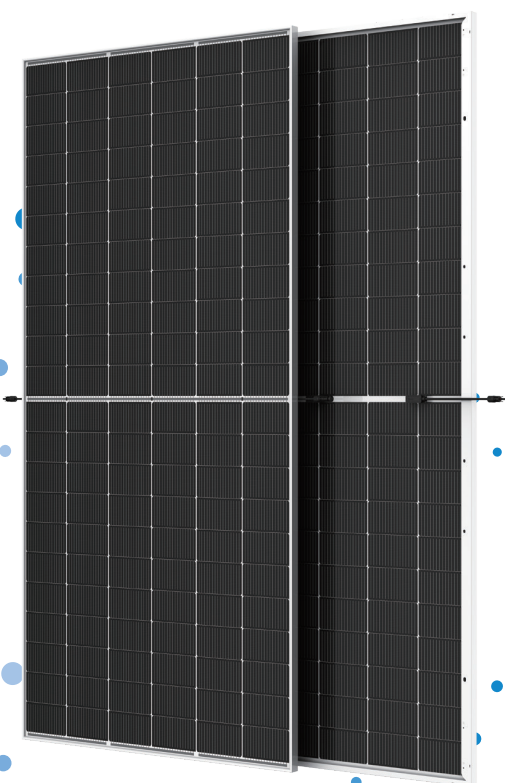
High reliability

- 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

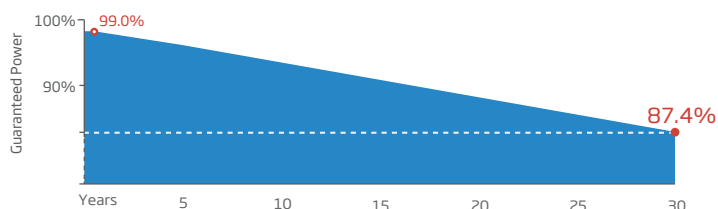


High energy yield

- 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



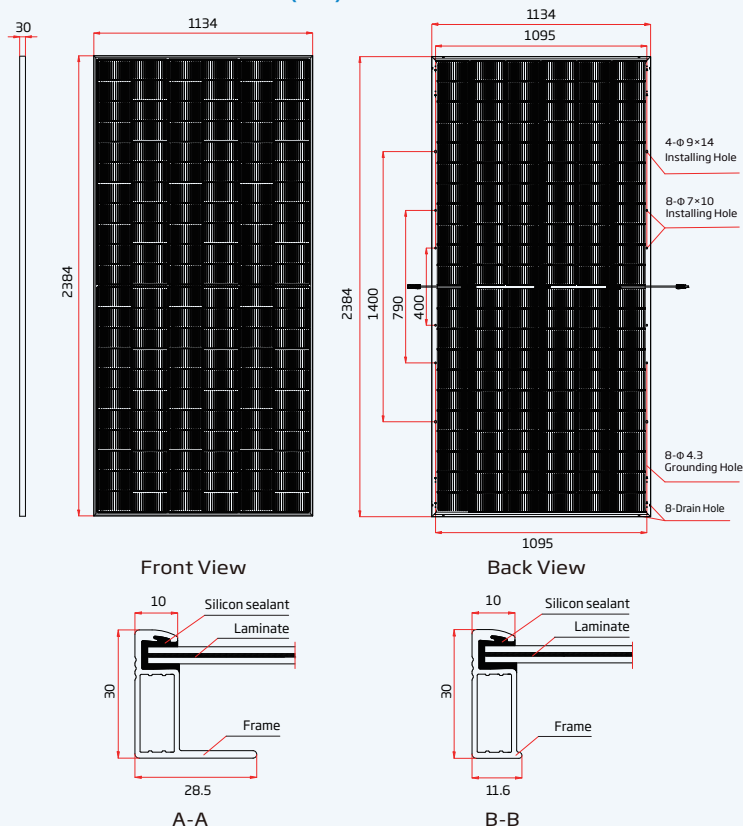
Comprehensive Products and System Certificates



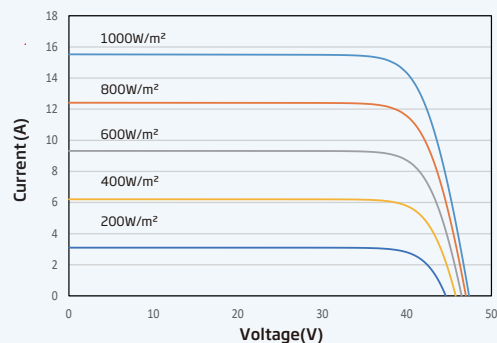
IEC61215/IEC61730/IEC61701/IEC62716/UL61730
 ISO 9001: Quality Management System
 ISO 14001: Environmental Management System
 ISO14064: Greenhouse Gases Emissions Verification
 ISO45001: Occupational Health and Safety Management System



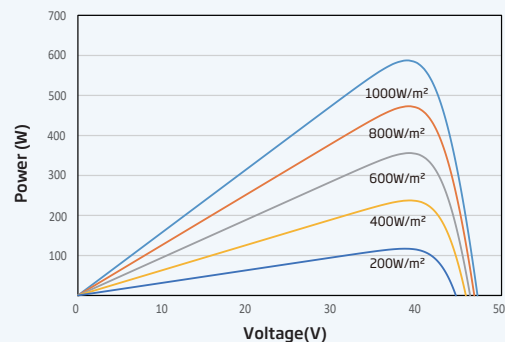
DIMENSIONS OF PV MODULE(mm)



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: ±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±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	2384×1134×30 mm (93.86×44.65×1.18 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 (±2°C)
Temperature Coefficient of P _{MAX}	-0.30%/°C
Temperature Coefficient of Voc	-0.24%/°C
Temperature Coefficient of Isc	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