

Vertex N

N-type i-TOPCon bifacial dual glass
Monocrystalline module

PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W

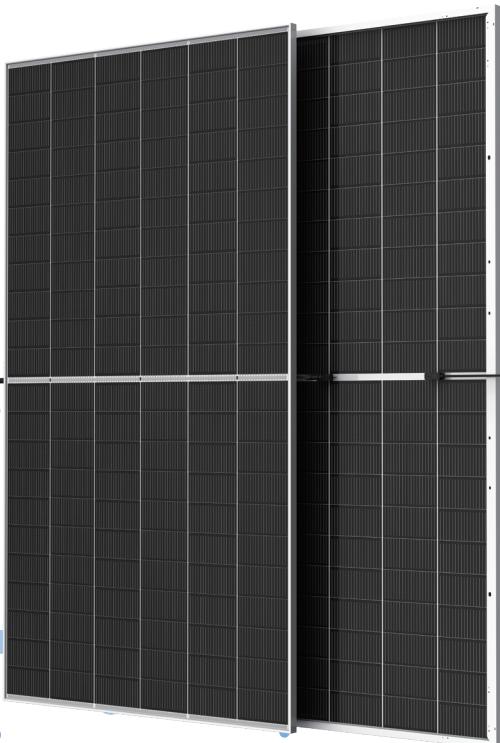
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

23.2%

MAXIMUM EFFICIENCY



High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE



High power up to 720W

- Up to 23.2% module efficiency , on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

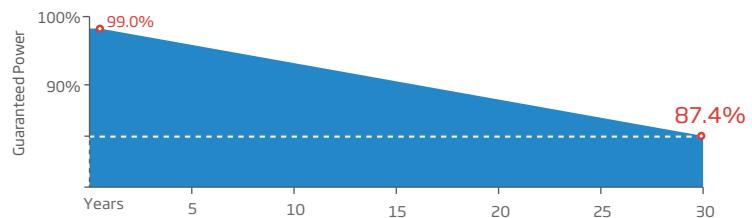
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



Comprehensive Products and System Certificates



IEC61215/IEC61730/IEC61701/IEC62716

ISO 9001: Quality Management System

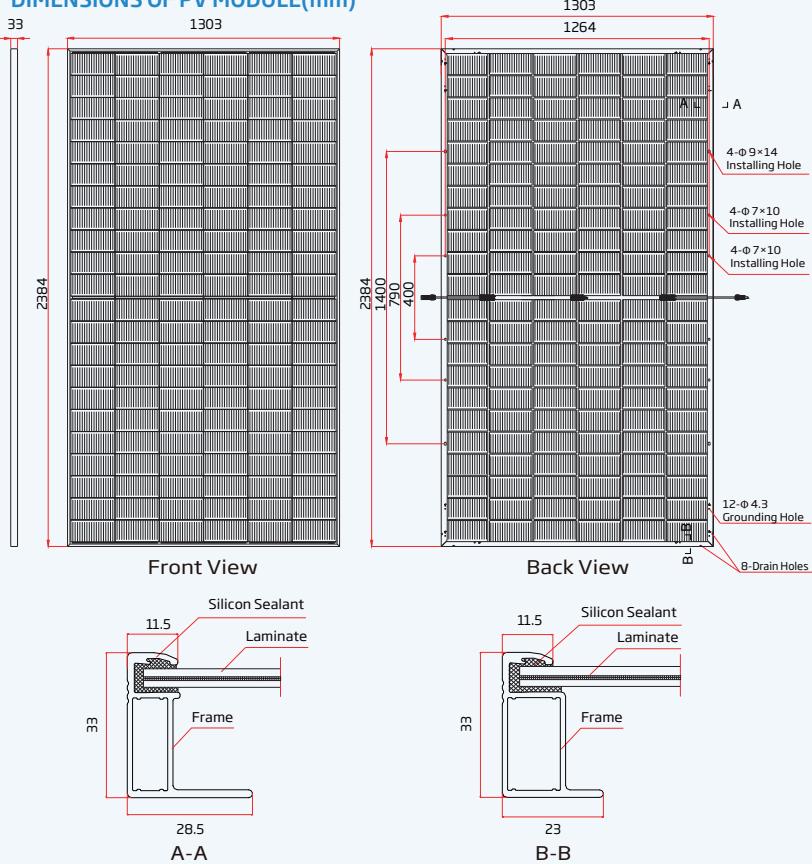
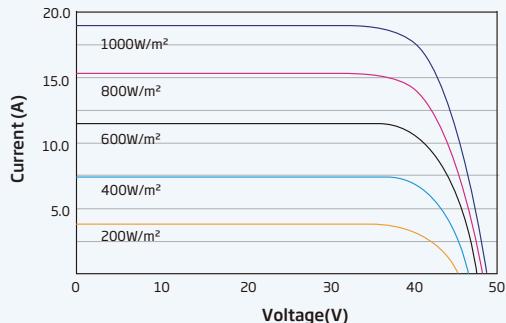
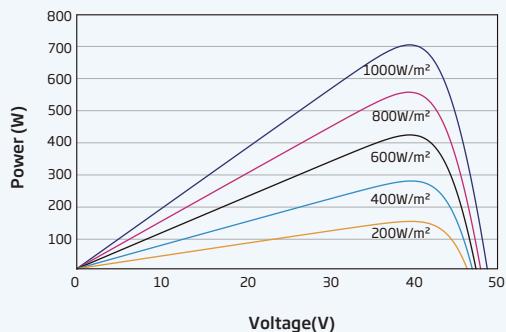
ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System

ISO14067: Product Carbon Footprint Limited Assurance

Trinasolar

DIMENSIONS OF PV MODULE(mm)

I-V CURVES OF PV MODULE(705 W)

P-V CURVES OF PV MODULE(705 W)

MECHANICAL DATA

| | | |
|----------------------|--|--|
| Solar Cells | N-type i-TOPCon Monocrystalline | |
| No. of cells | 132 cells | |
| Module Dimensions | 2384x1303x33 mm (93.86x51.30x1.30 inches) | |
| Weight | 38.3 kg (84.4 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 | 33mm(1.30 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 | MC4 EVO2 / TS4 Plus / TS4* |

*Please refer to regional datasheet for specified connector.

ELECTRICAL DATA (STC & NOCT)

| Testing Condition | STC | NOCT |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Peak Power Watts-PMAX (Wp)* | 695 | 531 | 700 | 534 | 705 | 540 | 710 | 543 | 715 | 547 |
| Power Tolerance-PMAX (W) | | | | | | | | | | |
| Maximum Power Voltage-VMPPT (V) | 40.3 | 37.9 | 40.5 | 38.0 | 40.7 | 38.3 | 40.9 | 38.5 | 41.1 | 38.7 |
| Maximum Power Current-IMPPT (A) | 17.25 | 14.00 | 17.29 | 14.04 | 17.33 | 14.08 | 17.36 | 14.12 | 17.40 | 14.14 |
| Open Circuit Voltage-Voc(V) | 48.3 | 45.9 | 48.6 | 46.1 | 48.8 | 46.3 | 49.0 | 46.5 | 49.2 | 46.7 |
| Short Circuit Current-Isc(A) | 18.28 | 14.72 | 18.32 | 14.76 | 18.36 | 14.80 | 18.40 | 14.83 | 18.44 | 14.86 |
| Module Efficiency η m (%) | 22.4 | | 22.5 | | 22.7 | | 22.9 | | 23.0 | |

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

| Backside Power Gain | 5% | 10% | 5% | 10% | 5% | 10% | 5% | 10% | 5% | 10% |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total Equivalent power -PMAX (Wp) | 730 | 765 | 735 | 770 | 740 | 776 | 746 | 781 | 751 | 787 |
| Maximum Power Voltage-VMPPT (V) | 40.3 | 40.3 | 40.5 | 40.5 | 40.7 | 40.7 | 40.9 | 40.9 | 41.1 | 41.1 |
| Maximum Power Current-IMPPT (A) | 18.11 | 18.98 | 18.15 | 19.02 | 18.20 | 19.06 | 18.23 | 19.10 | 18.27 | 19.14 |
| Open Circuit Voltage-Voc (V) | 48.3 | 48.3 | 48.6 | 48.6 | 48.8 | 48.8 | 49.0 | 49.0 | 49.2 | 49.2 |
| Short Circuit Current-Isc (A) | 19.19 | 20.11 | 19.24 | 20.15 | 19.28 | 20.20 | 19.32 | 20.24 | 19.36 | 20.28 |

Power Bifaciality: 80±5%.

TEMPERATURE RATINGS

| | |
|---|-------------|
| NOCT (Nominal Operating Cell Temperature) | 43°C (±2°C) |
| Temperature Coefficient of Pmax | -0.29%/°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: 33 pieces |
| Modules per 40' container: 594 pieces |