Vertex N

N-type i-TOPCon bifacial dual glass

Monocrystalline module

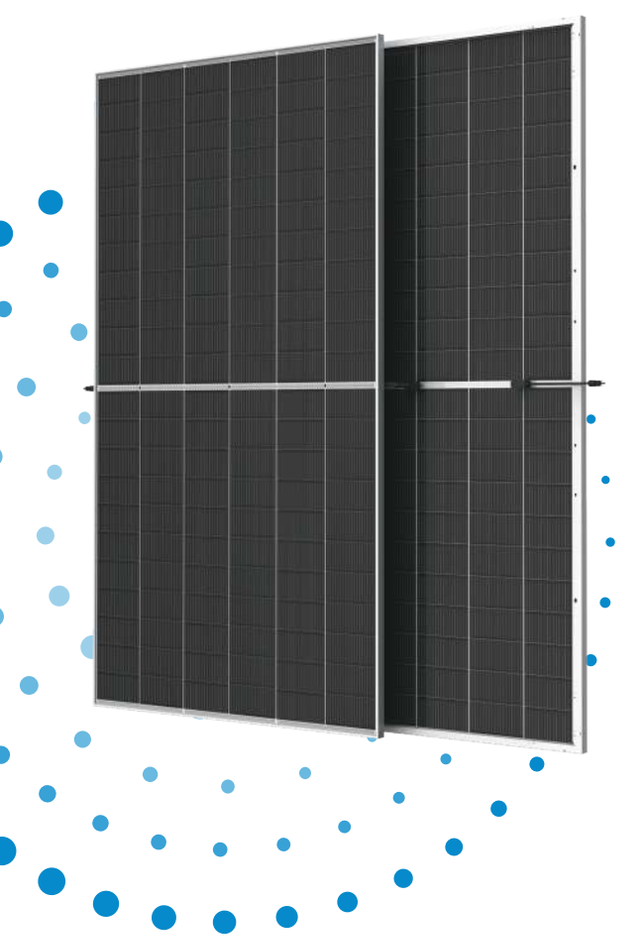
PRODUCT: TSM-NEG21C.20

PRODUCT RANGE: 685-710W

710W
MAXIMUM POWER OUTPUT

0~+5W
POSITIVE POWER TOLERANCE

22.9%
MAXIMUM EFFICIENCY



High customer value

- The star of LCOE (Levelized Cost Of Energy) .Higher string power feature effectively reduces BOS (Balance of System)and LCOE
- More energy harvest with cutting-edge N-type i-TOPCon technology
- Designed for compatibility with existing mainstream system components

High power up to 710W

- Up to 22.9% module efficiency with high density interconnect technology
- SMBB (Super multi-busbar) technology for better light trapping effect, lower series resistance and improved current collection

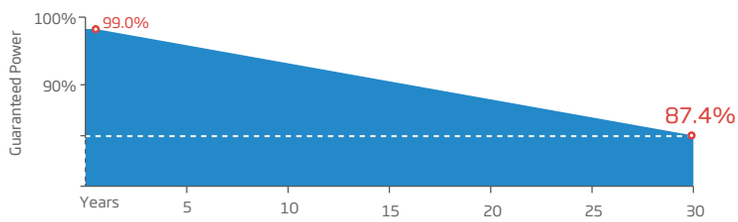
High reliability

- 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 product bifaciality and low irradiation performance, validated by 3rd party
- Lower degradation: 1% first year, 0.4% annually thereafter
- Lower temperature coefficient (-0.29%/°C)
- 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

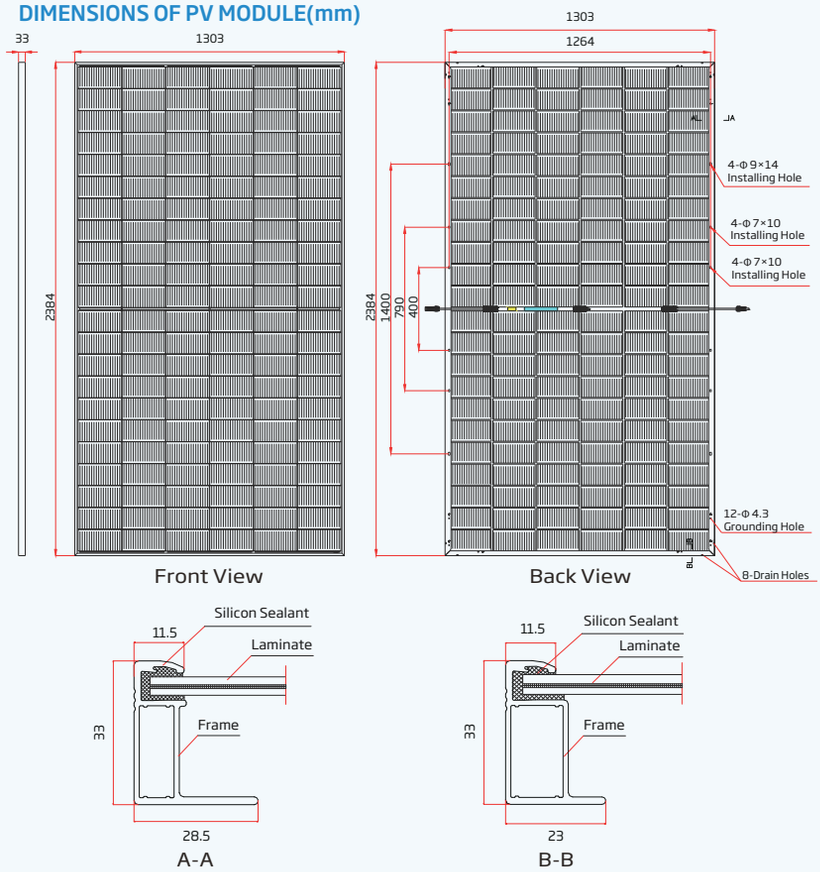
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System

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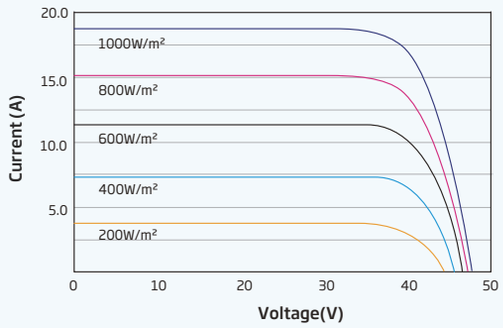
Vertex N

N-type i-TOPCon bifacial dual glass Monocrystalline module

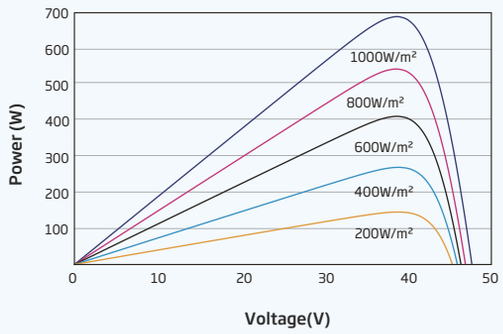
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(695W)



P-V CURVES OF PV MODULE(695 W)



MECHANICAL DATA

Solar Cells	N-type Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 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	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts-PMAX (Wp)*	685	522	690	526	695	531	700	534	705	540	710	543
Power Tolerance-PMAX (W)	0 ~ +5											
Maximum Power Voltage-VMPP (V)	39.8	37.4	40.1	37.7	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5
Maximum Power Current-IMPP (A)	17.19	13.93	17.23	13.95	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12
Open Circuit Voltage-VOC (V)	47.7	45.3	47.9	45.4	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5
Short Circuit Current-ISC (A)	18.21	14.67	18.25	14.71	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83
Module Efficiency η m (%)	22.1		22.2		22.4		22.5		22.7		22.9	

STC: Irrdiance 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%	5%	10%
Total Equivalent power -PMAX (Wp)	719	754	725	759	730	765	735	770	740	776	746	781
Maximum Power Voltage-VMPP (V)	39.8	39.8	40.1	40.1	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9
Maximum Power Current-IMPP (A)	18.05	18.91	18.09	18.95	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10
Open Circuit Voltage-VOC (V)	47.7	47.7	47.9	47.9	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0
Short Circuit Current-ISC (A)	19.12	20.03	19.16	20.08	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24

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

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CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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