

Vertex N

N-type i-TOPCon bifacial dual glass
Monocrystalline module

PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W

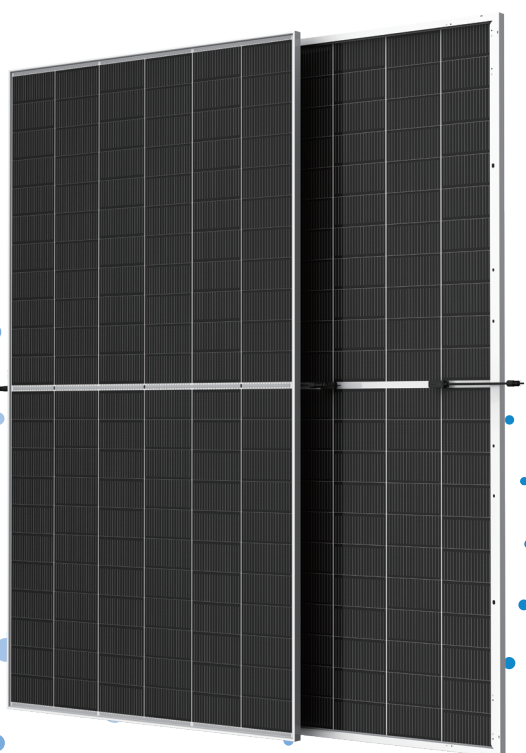
MAXIMUM POWER OUTPUT

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

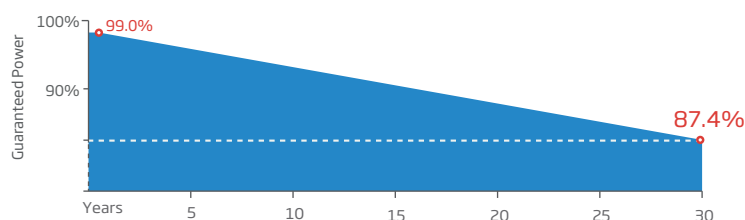
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



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



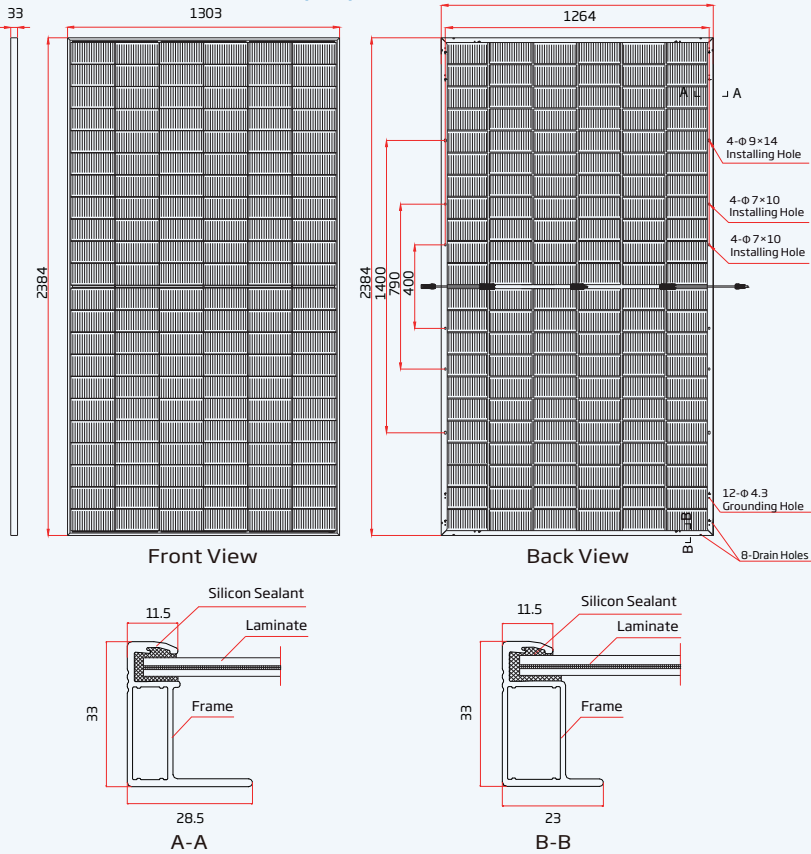
Comprehensive Products and System Certificates



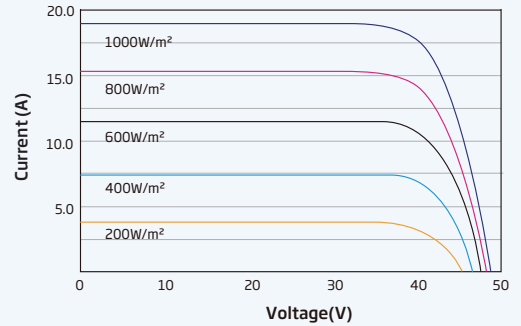
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
ISO14067: Product Carbon Footprint Limited Assurance

Trinasolar

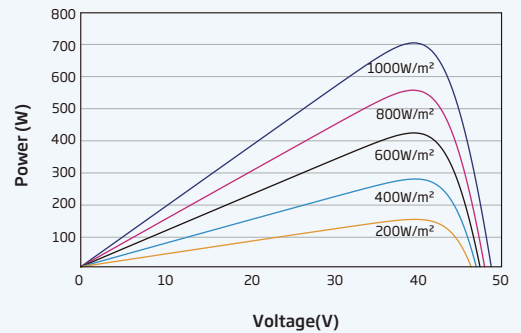
DIMENSIONS OF PV MODULE(mm)



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	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 4.0mm 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.

ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts -P _{MAX} (Wp)*	695	531	700	534	705	540	710	543	715	547	720	551
Power Tolerance-P _{MAX} (W)	0 ~ +5											
Maximum Power Voltage-V _{MPP} (V)	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5	41.1	38.7	41.3	38.8
Maximum Power Current-I _{MPP} (A)	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12	17.40	14.14	17.44	14.19
Open Circuit Voltage-V _{OC} (V)	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5	49.2	46.7	49.4	46.9
Short Circuit Current-I _{SC} (A)	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83	18.44	14.86	18.49	14.90
Module Efficiency η_m (%)	22.4		22.5		22.7		22.9		23.0		23.2	

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: $\pm$ 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 -P _{MAX} (Wp)	730	765	735	770	740	776	746	781	751	787	756	792
Maximum Power Voltage-V _{MPP} (V)	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9	41.1	41.1	41.3	41.3
Maximum Power Current-I _{MPP} (A)	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10	18.27	19.14	18.31	19.18
Open Circuit Voltage-V _{OC} (V)	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0	49.2	49.2	49.4	49.4
Short Circuit Current-I _{SC} (A)	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24	19.36	20.28	19.41	20.34

Power Bifaciality: 80 $\pm$ 5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C ($\pm$ 2°C)
Temperature Coefficient of P _{MAX}	-0.29%/°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: 33 pieces
Modules per 40' container: 594 pieces