

N-type i-TOPCon bifacial dual glass

Monocrystalline module

PRODUCT: TSM-NEG19RC.20

POWER RANGE: 585-610W

610W

MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

22.6%

MAXIMUM EFFICIENCY



High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- More energy harvest with cutting-edge N-type i-TOPCon technology
- Designed for compatibility with existing mainstream system components
- Higher container space utilization effectively reduces the freight cost



High power up to 610 W

- •Up to 22.6% 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

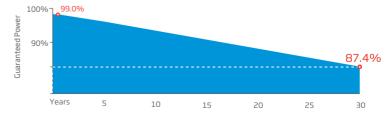
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- Lower degradation: 1% first year, 0.4% annually thereafter
- Lower temperature coefficient (-0.30%)
- 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

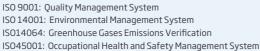




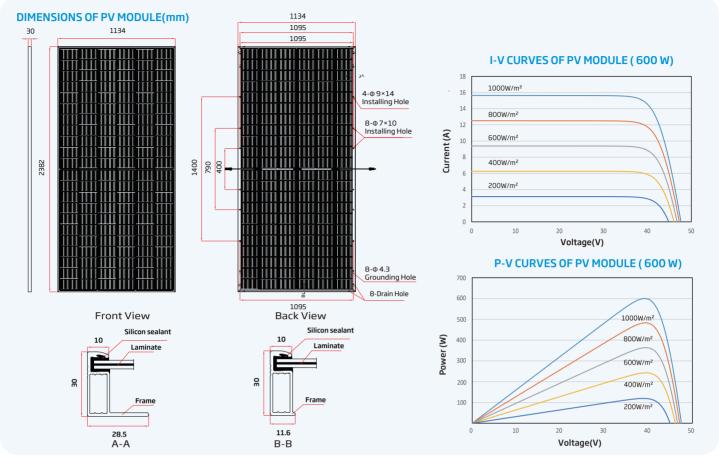












MECHANICAL DATA

Solar Cells	N-type Monocrystalline
No. of cells	132 cells
Module Dimensions	2382×1134×30 mm (93.78×44.65×1.18 inches)
Weight	33.7kg (74.3 lb)
Front Glass	$2.0\ mm\ (0.08\ in ches), {\it High Transmission, AR Coated Heat Strengthened Glass}$
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 4.0mm² (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.

${\tt ELECTRICAL\,DATA\,(STC\,\&\,NOCT\,)}$

Testing Condition	STC	NOCT										
Peak Power Watts-PMAX (Wp)*	585	446	590	450	595	454	600	458	605	461	610	465
Power Tolerance-PMAX (W)						0	~ +5					
Maximum Power Voltage-VMPP (V)	39.5	37.1	39.7	37.3	40.0	37.6	40.3	37.8	40.5	38.0	40.8	38.3
Maximum Power Current-Impp (A)	14.82	12.02	14.86	12.05	14.89	12.08	14.91	12.12	14.94	12.14	14.96	12.16
Open Circuit Voltage-Voc (V)	47.5	45.0	47.8	45.3	48.1	45.6	48.4	45.9	48.7	46.1	49.0	46.4
Short Circuit Current-Isc (A)	15.68	12.64	15.72	12.67	15.76	12.70	15.80	12.73	15.83	12.76	15.86	12.78
Module Efficiency η m (%)	21	.7	21	L.8	2	2.0	2	2.2	2	2.4	22	.6

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)	614 644	620 649	625 655	630 660	635 666	641 671
Maximum Power Voltage-VMPP (V)	39.5 39.5	39.7 39.7	40.0 40.0	40.3 40.3	40.5 40.5	40.8 40.8
Maximum Power Current-IMPP (A)	15.56 16.30	15.60 16.35	15.63 16.38	15.66 16.40	15.69 16.43	15.71 16.46
Open Circuit Voltage-Voc (V)	47.5 47.5	47.8 47.8	48.1 48.1	48.4 48.4	48.7 48.7	49.0 49.0
Short Circuit Current-Isc (A)	16.46 17.25	16.51 17.29	16.55 17.34	16.59 17.38	16.62 17.41	16.65 17.45
Power Bifaciality:80±5%.						

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of PMAX	- 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	354

NARRANTY

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

