

Preliminary

Vertex N

2000V

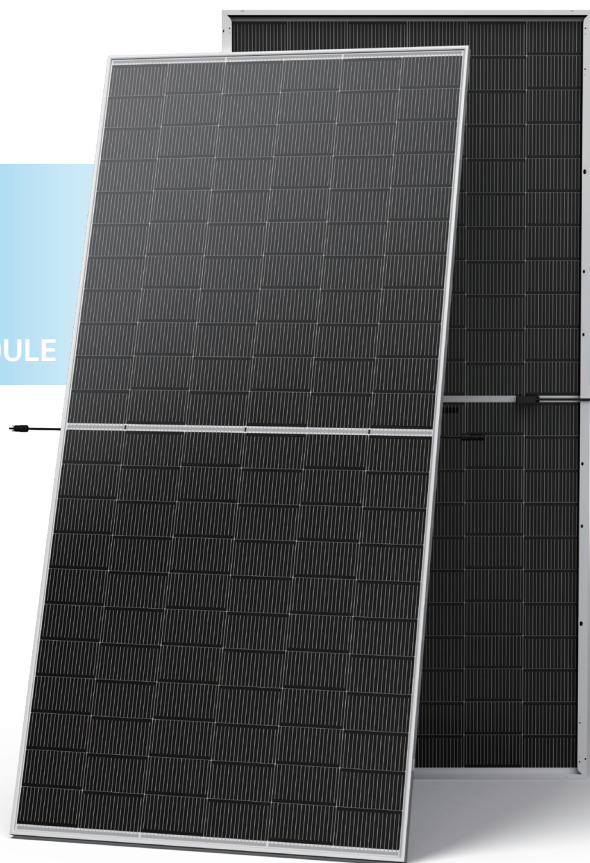
N-type TOPCon

2000V BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NFG19RC.20 600-620W

620_W / MAXIMUM
POWER OUTPUT

22.7% / 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 TOPCon technology
- Designed for compatibility with existing mainstream system components
- Higher container space utilization effectively reduces the freight cost
- Maximum system voltage of 2000V



High power up to 620W

- Up to 22.7% 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

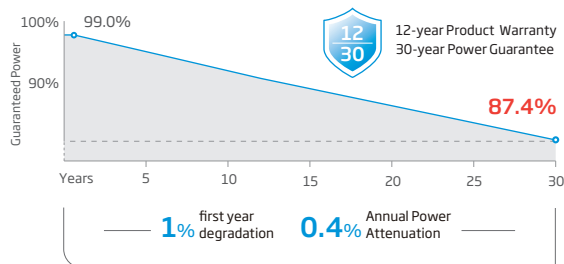
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas



High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- Lower degradation with 1% first year and 0.4% annually years after
- Lower temperature coefficient (-0.29%/°C)
- Reliable dual-glass structure with 30-year power guarantee

Performance Warranty



* Please refer to product warranty for details

Comprehensive Products and System Certificates

UL61730

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

ISO45001: Occupational Health and Safety Management System



ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts- $P_{MAX}(W_p)^*$	595	454	600	458	605	462	610	465	615	469	620	473
Power Selection (W)**	0 ~ +5											
Maximum Power Voltage- V_{MPP} (V)	39.28	37.10	39.43	37.30	39.57	37.40	39.79	37.60	39.97	37.80	40.24	37.90
Maximum Power Current- I_{MPP} (A)	15.15	12.24	15.22	12.29	15.29	12.33	15.33	12.38	15.39	12.43	15.41	12.47
Open Circuit Voltage- V_{oc} (V)	47.49	45.10	47.69	45.30	47.89	45.50	48.09	45.70	48.29	45.90	48.50	46.10
Short Circuit Current- I_{sc} (A)	15.96	12.86	16.02	12.91	16.08	12.96	16.14	13.00	16.20	13.05	16.26	13.10
Module Efficiency η_m (%)	21.8		22.0		22.2		22.3		22.5		22.7	

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%. **Power selection up to: +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%
Peak Power Watts- $P_{MAX}(W_p)$	625	655	630	660	635	666	641	671	646	677	651	682
Maximum Power Voltage- V_{MPP} (V)	39.28	39.28	39.43	39.43	39.57	39.57	39.79	39.79	39.97	39.97	40.24	40.24
Maximum Power Current- I_{MPP} (A)	15.91	16.67	15.98	16.74	16.05	16.82	16.10	16.86	16.16	16.93	16.18	16.95
Open Circuit Voltage- V_{oc} (V)	47.49	47.49	47.69	47.69	47.89	47.89	48.09	48.09	48.29	48.29	48.50	48.50
Short Circuit Current- I_{sc} (A)	16.76	17.56	16.82	17.62	16.88	17.69	16.95	17.75	17.01	17.82	17.07	17.89

Power Bifaciality: 80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature) 43°C (±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

Due to different testing methods, the actual performances might differ from the declared specifications.

MAXIMUM RATINGS

Operational Temperature -40~+85°C

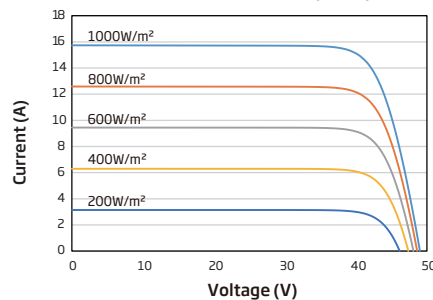
Maximum System Voltage 2000V DC (UL)

Max Series Fuse Rating 35A

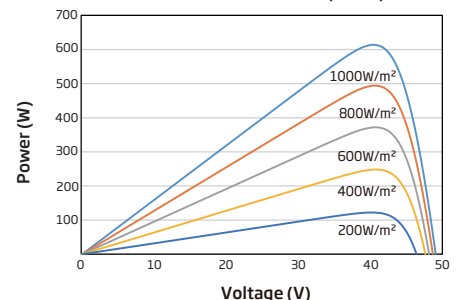
CURVES OF PV MODULE

Preliminary

I-V CURVES OF PV MODULE (610W)



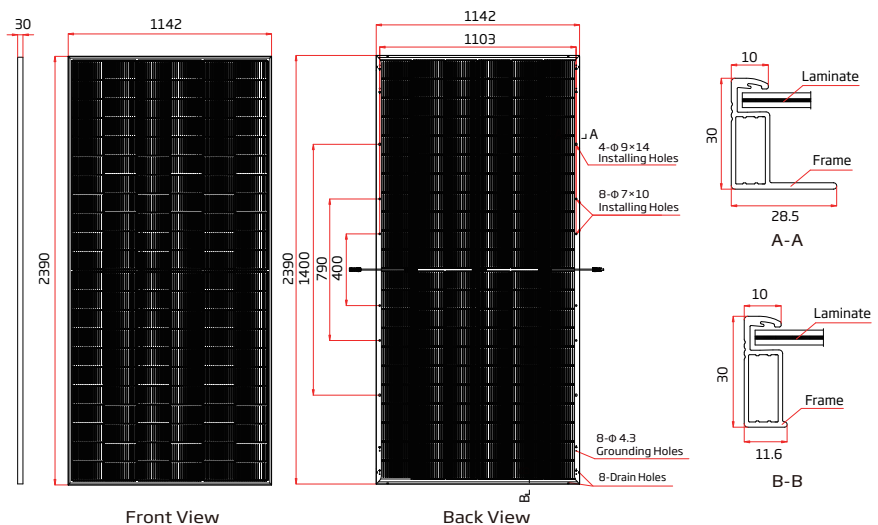
P-V CURVES OF PV MODULE (610W)



MECHANICAL DATA

Solar Cells	N-type TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2390×1142×30 mm (94.09×44.96×1.18 inches)
Weight	33.3 kg (73.41 lb)
Front Glass	2.0 mm (0.08 inches), AR Coating Heat Strengthened Glass
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass
Frame	30mm (1.18 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm ² (0.006 inches ²) Portrait: 350/280 mm (13.78/11.02 inches) Length can be customized
Connector	TS4 Plus*
Fire Type	Type 29
Packaging	Modules per box: 36 pieces Modules per 40'/53' container: 540 pieces

*Please refer to regional datasheet for specified connector.



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