

Preliminary

Vertex S+

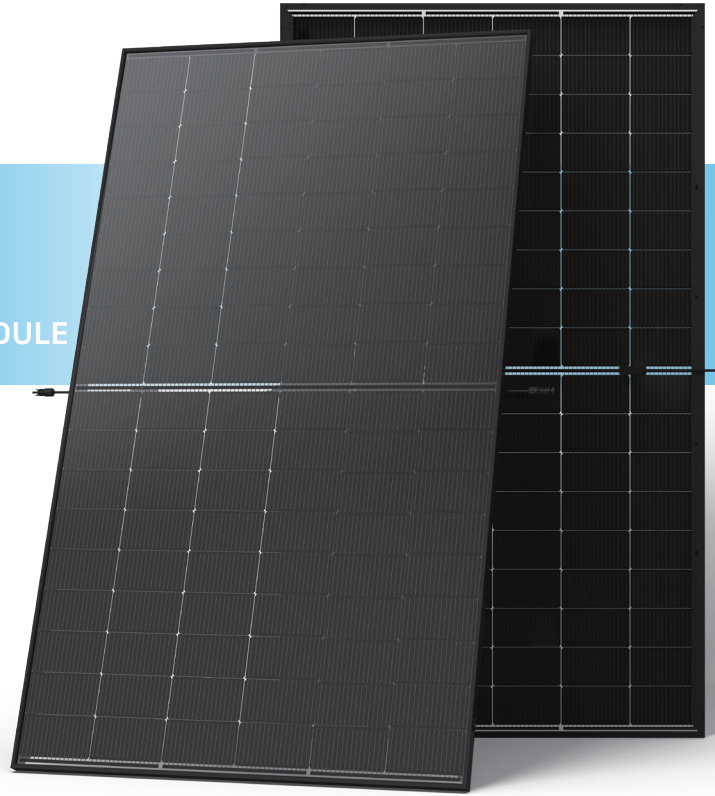
N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG18RC.27 485-505W

505W / 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
- Designed for compatibility with existing mainstream system components
- High module power, high string power and low voltage design
- Easy to handle and install on roofs with excellent size and light weight



High power up to 505W

- Up to 22.7% 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



Dual-glass design, high reliability

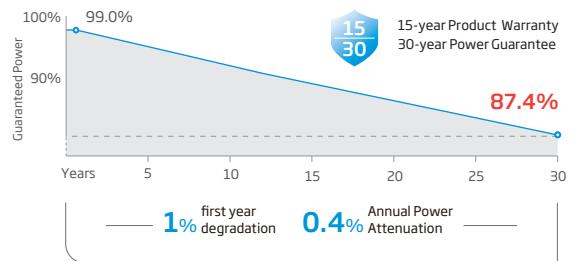
- Less prone to micro-cracks and scratches on the back during installation
- Applicable in harsh environments such as salt, ammonia, sand, high temperature and high humidity areas with excellent fire rating, weather resistance, salt spray, sand dust, ammonia performance
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C) and operating temperature

Performance Warranty



* Please refer to product warranty for details

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



ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts- $P_{MAX}(W_p)^*$	485	371	490	375	495	378	500	382	505	386
Power Selection (W)**	0 ~ +5									
Maximum Power Voltage- V_{MPP} (V)	32.7	30.8	32.9	31.0	33.1	31.3	33.3	31.5	33.5	31.8
Maximum Power Current- I_{MPP} (A)	14.84	12.02	14.91	12.06	14.97	12.08	15.03	12.11	15.09	12.15
Open Circuit Voltage- V_{oc} (V)	39.4	37.4	39.6	37.6	39.8	37.7	40.1	38.0	40.3	38.3
Short Circuit Current- I_{sc} (A)	15.76	12.70	15.80	12.74	15.83	12.76	15.86	12.78	15.89	12.81
Module Efficiency η_m (%)	21.8		22.0		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%
Peak Power Watts- $P_{MAX}(W_p)^*$	509	534	515	539	520	545	525	550	530	556
Maximum Power Voltage- V_{MPP} (V)	32.7	32.7	32.9	32.9	33.1	33.1	33.3	33.3	33.5	33.5
Maximum Power Current- I_{MPP} (A)	15.58	16.32	15.66	16.40	15.72	16.47	15.78	16.53	15.84	16.60
Open Circuit Voltage- V_{oc} (V)	39.4	39.4	39.6	39.6	39.8	39.8	40.1	40.1	40.3	40.3
Short Circuit Current- I_{sc} (A)	16.55	17.34	16.59	17.38	16.62	17.41	16.65	17.45	16.68	17.48

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

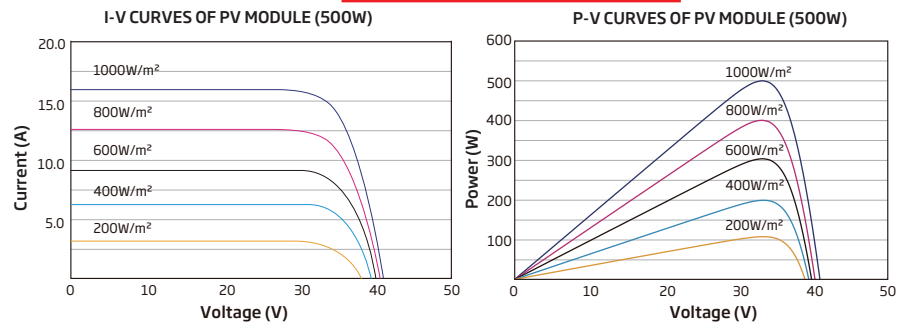
Due to different testing methods, the actual performances might differ from the declared specifications.

MAXIMUM RATINGS

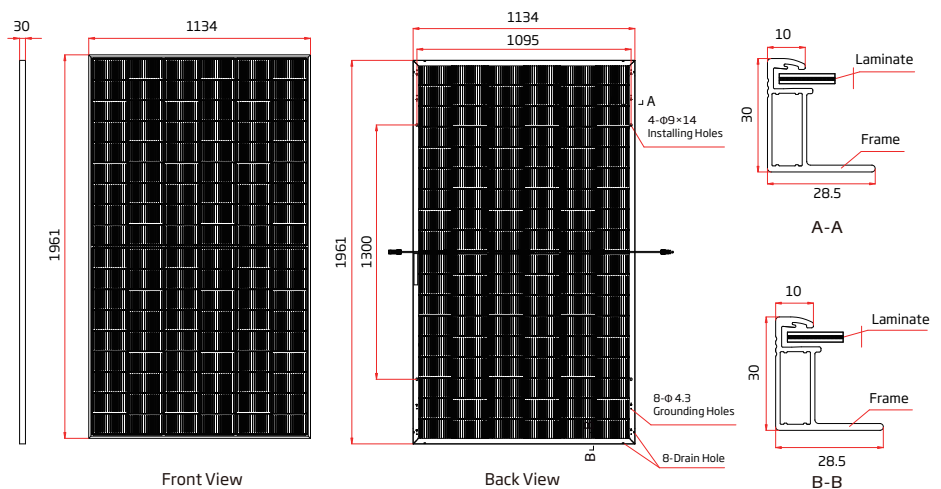
Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	30A

CURVES OF PV MODULE

Preliminary


MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	108 cells
Module Dimensions	1961×1134×30 mm (77.20×44.65×1.18 inches)
Weight	23.6 kg (52.0 lb)
Front Glass	1.6mm (0.06inches), AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06inches), Heat Strengthened Glass
Frame	30mm (1.18inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006inches ²) Portrait: 350/280 mm (13.78/11.02 inches) Length can be customized
Connector	MC4 EV02 / TS4 Plus / TS4*
Packaging	Modules per box: 36 pieces Modules per 40' container: 864 pieces



*Please refer to regional datasheet for specified connector.

