

Preliminary

Vertex S+

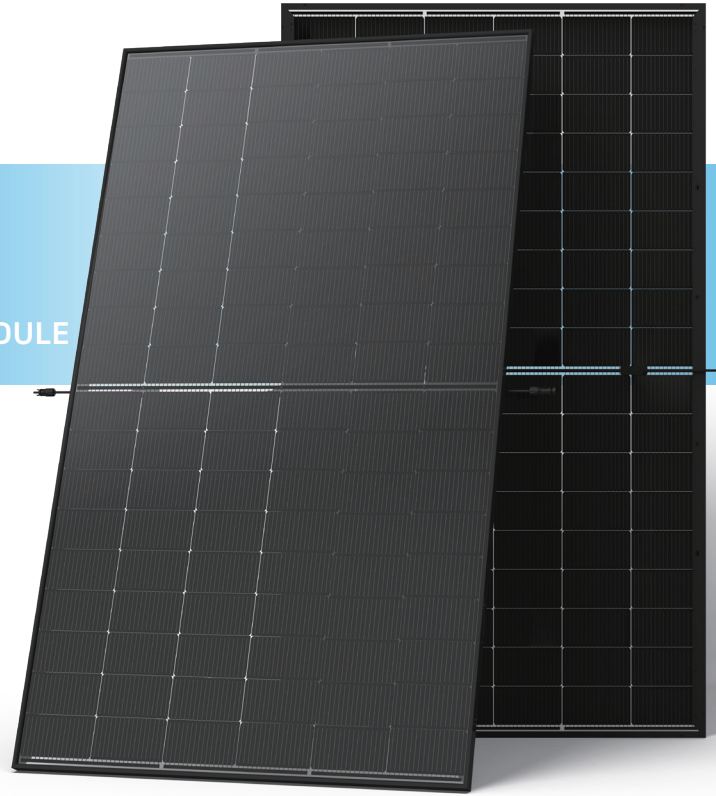
# N-type i-TOPCon

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

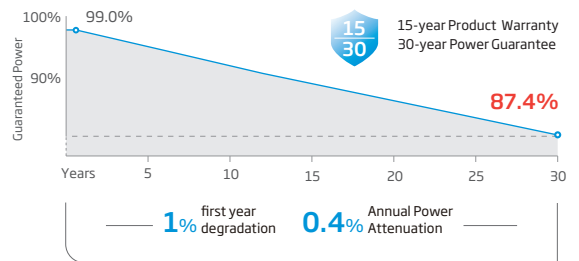
- Less prone to micro-cracks and scratches on the back during installation
- Applicable in harsh environments such as salt, ammonia, sand, high temperature and high humidity areas with excellent fire rating, weather resistance, salt spray, sand dust, ammonia performance
- Mechanical performance up to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



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

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**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 Tolerance- $P_{MAX}(W_p)^*$	0 ~ +3%									
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 $\eta_m$ (%)	21.8		22.0		22.3		22.5		22.7	

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m<sup>2</sup>, 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%
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%.

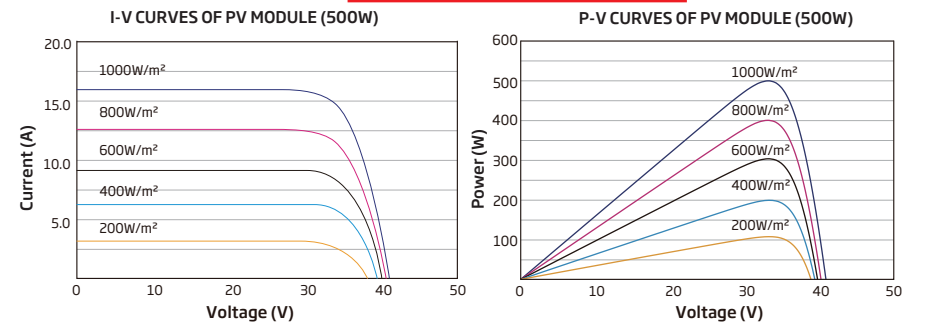
**TEMPERATURE RATINGS**

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

**MAXIMUM RATINGS**

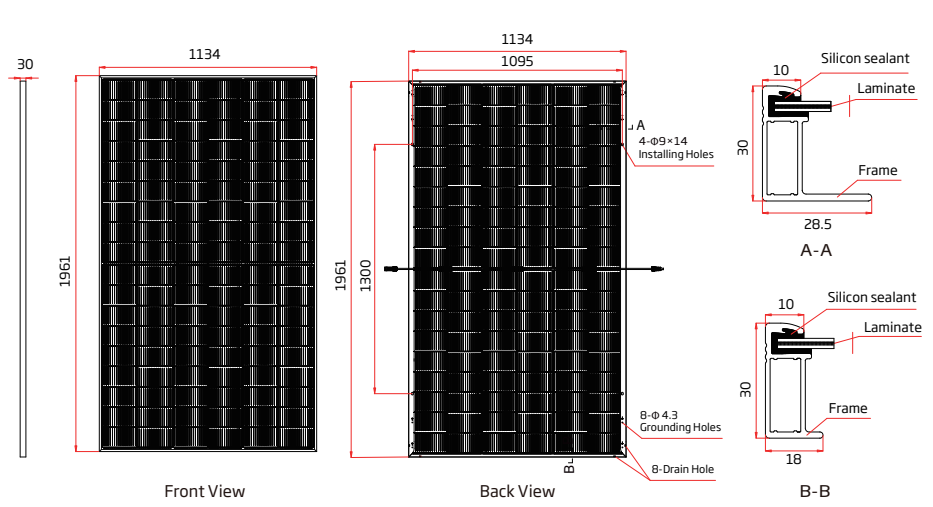
Operational Temperature	-40 ~ +85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	30A

**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	23.5 kg (51.8 lb)
Front Glass	1.6mm (0.06inches), High Transmission, AR Coated 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 <sup>2</sup> (0.006 inches <sup>2</sup> ) 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.

