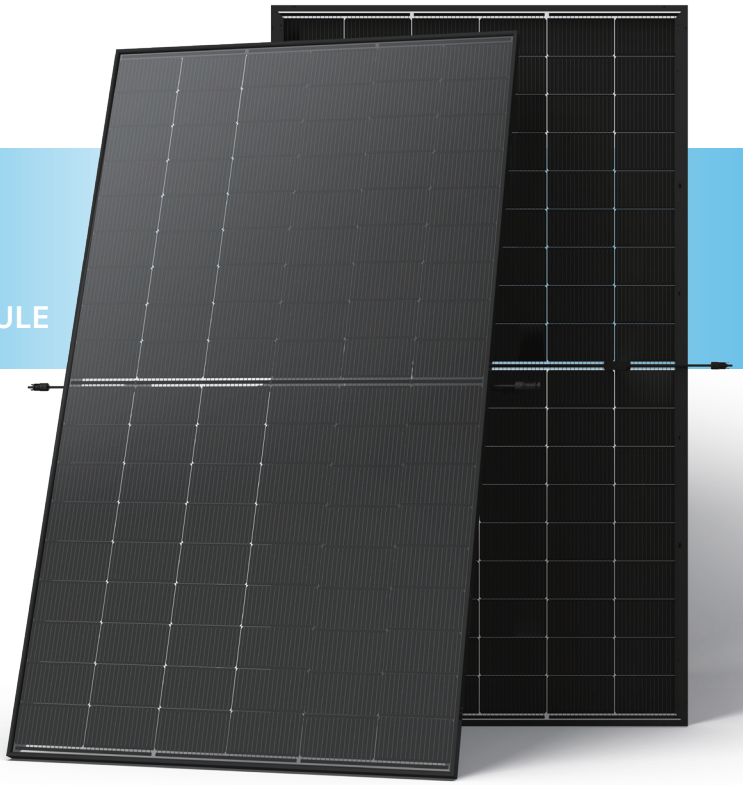
Preliminary

Vertex S+



N-type i-TOPCon

BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG18RC.27 **490-515W**

515W / MAXIMUM POWER OUTPUT

23.2% / 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 515W

- 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

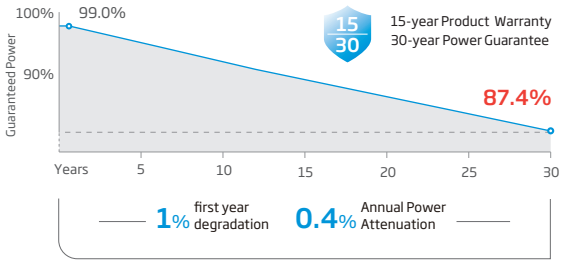
Dual-glass design, high reliability

- 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

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Trinasolar

Vertex S+

N-type i-TOPCon BIFACIAL DUAL GLASS MONOCRYSTALLINE MODULE

ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI	STC	NOCT	BNPI
Peak Power Watts-PMAX(Wp)*	490	375	542	495	378	548	500	382	554	505	386	559	510	390	565	515	394	570
Power Selection (W)**	0 ~ +5																	
Maximum Power Voltage-VMPP (V)	32.9	31.0	32.9	33.1	31.3	33.1	33.3	31.5	33.3	33.5	31.8	33.5	33.7	31.9	33.7	33.9	32.2	33.9
Maximum Power Current-IMPP (A)	14.91	12.06	16.47	14.97	12.08	16.55	15.03	12.11	16.63	15.09	12.15	16.68	15.14	12.21	16.78	15.2	12.23	16.83
Open Circuit Voltage-VOC (V)	39.6	37.6	39.6	39.8	37.7	39.8	40.1	38.0	40.1	40.3	38.3	40.3	40.6	38.5	40.6	40.9	38.8	40.9
Short Circuit Current-ISC (A)	15.80	12.74	17.51	15.83	12.76	17.57	15.86	12.78	17.61	15.89	12.81	17.65	15.93	12.84	17.65	15.96	12.86	17.68
Module Efficiency η m (%)	22.0			22.3			22.5			22.7			22.9			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. BNPI: Irradiance: front 1000W/m², rear 135W/m²,Temperature25°C, Air Mass AM1.5
*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-PMAX(Wp)	515	539	520	545	525	550	530	556	536	561	541	567
Maximum Power Voltage-VMPP (V)	32.9	32.9	33.1	33.1	33.3	33.3	33.5	33.5	33.7	33.7	33.9	33.9
Maximum Power Current-IMPP (A)	15.66	16.40	15.72	16.47	15.78	16.53	15.84	16.60	15.90	16.65	15.96	16.72
Open Circuit Voltage-VOC (V)	39.6	39.6	39.8	39.8	40.1	40.1	40.3	40.3	40.6	40.6	40.9	40.9
Short Circuit Current-ISC (A)	16.59	17.38	16.62	17.41	16.65	17.45	16.68	17.48	16.73	17.52	16.76	17.56

Power Bifaciality:80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of PMAX	- 0.29% /°C
Temperature Coefficient of VOC	- 0.24% /°C
Temperature Coefficient of ISC	0.04% /°C

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

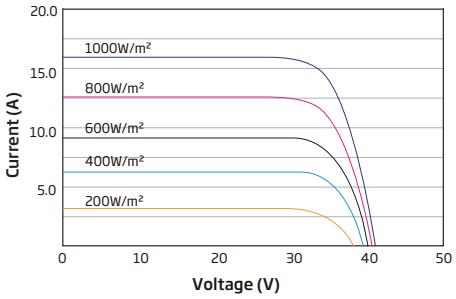
MAXIMUM RATINGS

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

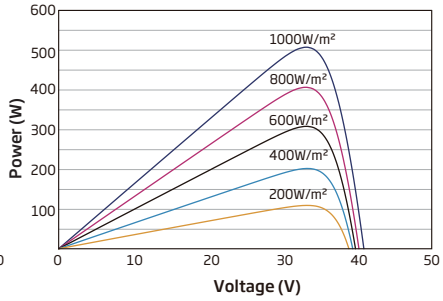
CURVES OF PV MODULE

Preliminary

I-V CURVES OF PV MODULE (505W)



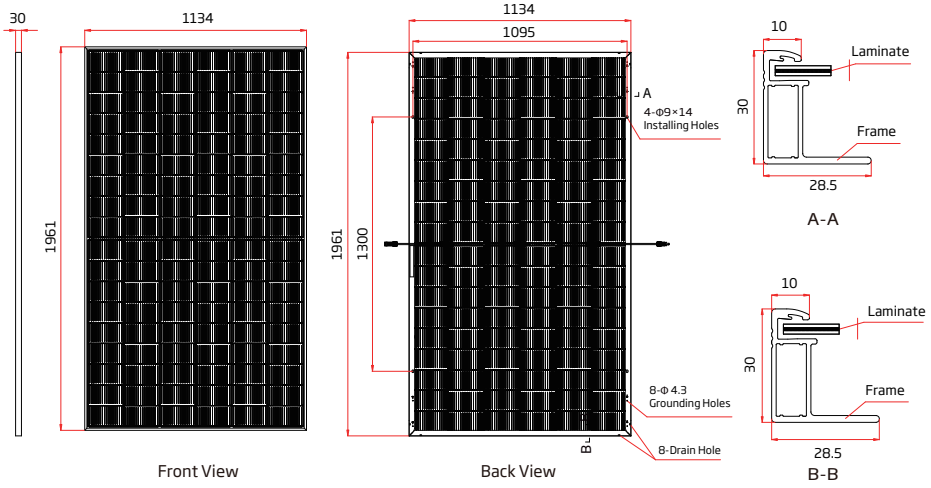
P-V CURVES OF PV MODULE (505W)



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), AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06 inches), Heat Strengthened Glass
Frame	30mm(1.18 inches) Anodized Aluminium Alloy, Black
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*
Packaging	Modules per box: 36 pieces Modules per 40' container: 864 pieces

*Please refer to regional datasheet for specified connector.



Version number: TSM_EN_2025_PA4

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