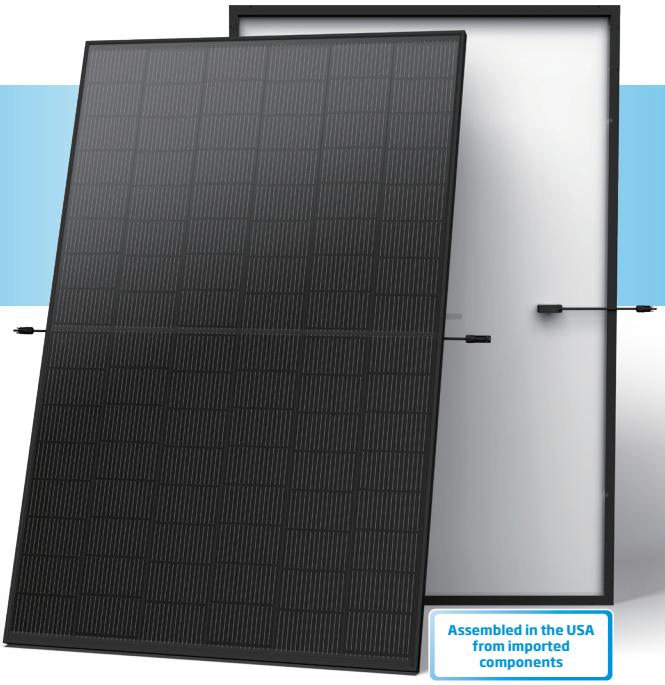
Preliminary

Vertex S+

N-type i-TOPCon

BACKSHEET MONOCRYSTALLINE MODULE



TSM-NE09RH.05 **420-445W**

445W / MAXIMUM POWER OUTPUT

22.3% / MAXIMUM EFFICIENCY

Small in size, bigger on power

- Up to 445W, 22.3% module efficiency with high density interconnect technology
- Reduce installation cost with higher power bin and efficiency
- Boost performance in warm weather with low temperature coefficient and operating temperature

High Reliability

- Innovative non-destructive cutting for improved mechanical resistance and strength
- Excellent fire rating, weather resistance, salt spray, sand dust, ammonia performance which is fully applicable in coastal, high temperature, humidity area and harsh environment

Ultra-low Degradation, higher output

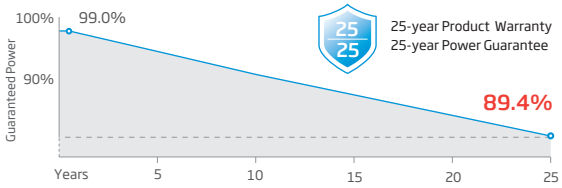
-First-year degradation 1% and annual degradation at 0.4%

-Up to 25 years product warranty and 25 years power warranty

Ideal for residential and C&I rooftops

- Easy for integration, designed for compatibility with existing mainstream inverters and diverse mounting systems
- Perfect size and low weight for handling and installation
- Most valuable solution on low load capacity rooftops (weight similar to backsheet version)
- Mechanical performance more than 5400 Pa positive load and up to 5400 Pa negative load

Performance Warranty



* Please refer to product warranty for details

Comprehensive Products and System Certificates

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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Vertex S+

N-type i-TOPCon BACKSHEET MONOCRYSTALLINE MODULE

ELECTRICAL DATA (STC)

Peak Power Watts-PMAX(Wp)*	420	425	430	435	440	445
Power Selection (W)**			0 ~ +5			
Maximum Power Voltage-VMPP (V)	28.3	28.5	28.8	29.1	29.3	29.5
Maximum Power Current-IMPP (A)	14.84	14.88	14.93	14.99	15.02	15.08
Open Circuit Voltage-VOC (V)	33.7	33.9	34.3	34.5	34.8	35.1
Short Circuit Current-ISC (A)	15.80	15.84	15.89	15.96	16.01	16.07
Module Efficiency η m (%)	21.0	21.3	21.5	21.8	22.0	22.3

STC: Irrdiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%. **Power selection up to: +3%.

ELECTRICAL DATA (NOCT)

Peak Power Watts-PMAX(Wp)	321	324	329	334	337	340
Maximum Power Voltage-VMPP (V)	26.6	26.8	27.1	27.4	27.5	27.7
Maximum Power Current-IMPP (A)	12.07	12.10	12.14	12.20	12.23	12.27
Open Circuit Voltage-VOC (V)	32.1	32.3	32.6	33.0	33.2	33.5
Short Circuit Current-ISC (A)	12.71	12.74	12.78	12.84	12.87	12.92

NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s.

TEMPERATURE RATINGS

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

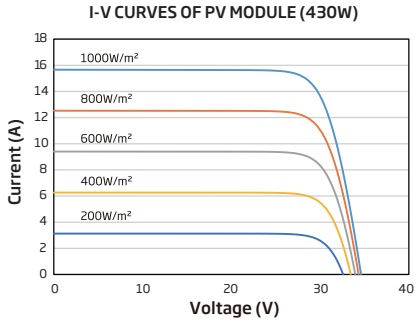
Due to different testing methods, the actual performances might differ from the declared specifications.

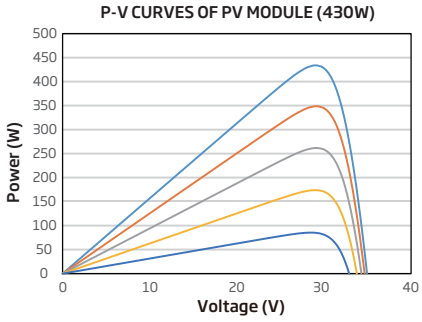
MAXIMUM RATINGS

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

CURVES OF PV MODULE

Preliminary

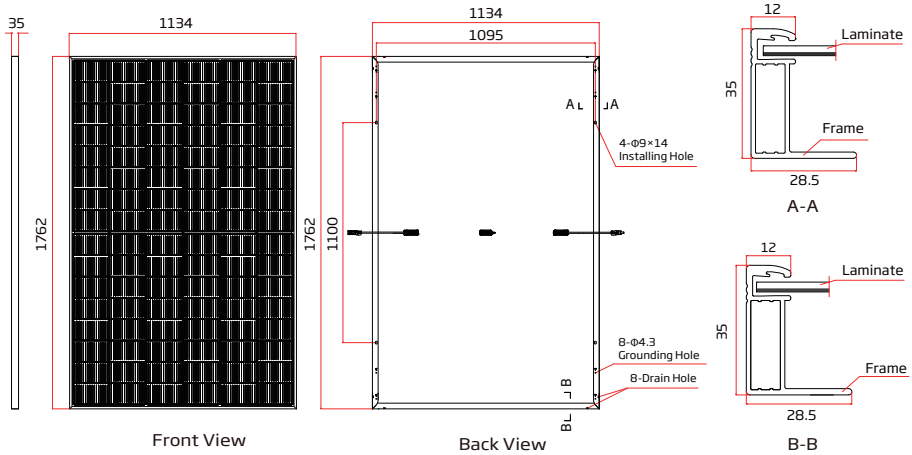




MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	96 cells
Module Dimensions	1762×1134×35 mm (69.37×44.65×1.38 inches)
Weight	21.5 kg (47.40 lb)
Front Glass	3.2mm (0.13inches), AR Coating Tempered Glass
Backsheet	White-black Opaque Backsheet
Frame	35mm(1.38 inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Landscape: 1100 mm/ 1100 mm (43.31/43.31 inches)
Connector	MC4 EVO2
Packaging	Modules per box: 31 pieces Modules per 53' container: 868 pieces
Fire Type	Type 1 or Type 2

*Please refer to regional datasheet for specified connector.



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