Strong Wind Protection

Severe Hail Protection

Heavy Snow Protection

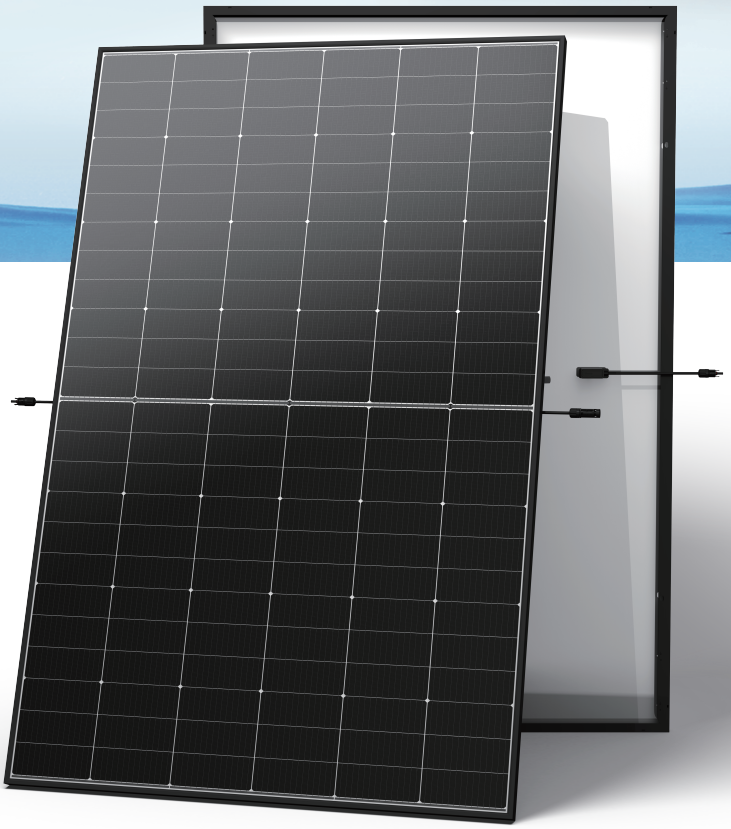
Superior Fire Protection

Vertex S+

— i-TOPCon Ultra —

Shield

TSM-NED9R.28
450-475W



Key Features

- VKF HW4 Hail Test
- Standard load capacity: +7000/-5000 Pa
- Fire rating (IEC 61730-2): Class A+A

High costumer value

- Suitable for residential and C&I rooftop
- Perfect size for handling and installation
- Compatible with mainstream inverters and diverse mounting systems

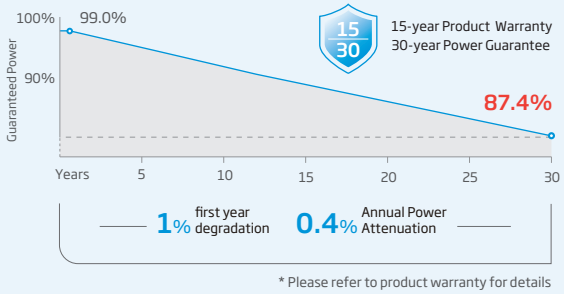
High power up to 475W

- Up to 23.8% module eciency, on 210 innovative platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reaction enhancement and edge quality repairment

High reliability with double glass

- Less prone to micro-cracks and scratches on the back side
- Excellent fire rating, weather resistance, sustainable in harsh environments and extreme weather conditions
- Up to 25 years product warranty and 30 years power warranty

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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Trinasolar 天合光能

Vertex S+

N-type i-TOPCon Ultra DUAL GLASS MONOCRYSTALLINE MODULE

ELECTRICAL DATA (STC)

Peak Power Watts-PMAX(Wp)*	450	455	460	465	470	475
Power Selection (W)**			0 ~ +5			
Maximum Power Voltage-VMPP (V)	44.60	45.00	45.40	45.80	46.10	46.40
Maximum Power Current-IMPP (A)	10.09	10.11	10.14	10.16	10.20	10.24
Open Circuit Voltage-VOC (V)	52.90	53.40	53.80	54.20	54.60	55.00
Short Circuit Current-ISC (A)	10.74	10.77	10.81	10.85	10.89	10.93
Module Efficiency η m (%)	22.5	22.8	23.0	23.3	23.5	23.8

STC: Irradiance 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)	344	348	352	355	358	362
Maximum Power Voltage-VMPP (V)	42.00	42.30	42.70	42.80	43.10	43.40
Maximum Power Current-IMPP (A)	8.19	8.22	8.25	8.28	8.31	8.35
Open Circuit Voltage-VOC (V)	50.20	50.60	51.00	51.40	51.80	52.10
Short Circuit Current-ISC (A)	8.66	8.68	8.71	8.74	8.76	8.79

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% /℃

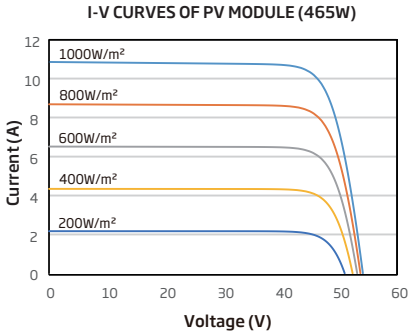
Due to different testing methods, the actual performances might differ from the declared specifications.

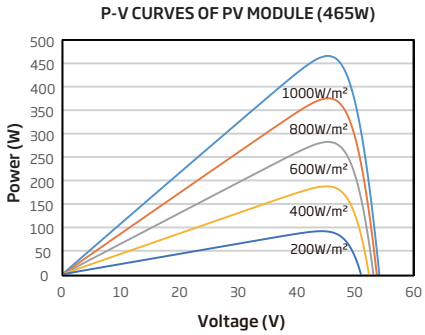
APPLICATION CONDITIONS

Operating Temperature*	-40~+70℃
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	25A

*PV module 98th percentile operating temperature: 70℃.

CURVES OF PV MODULE

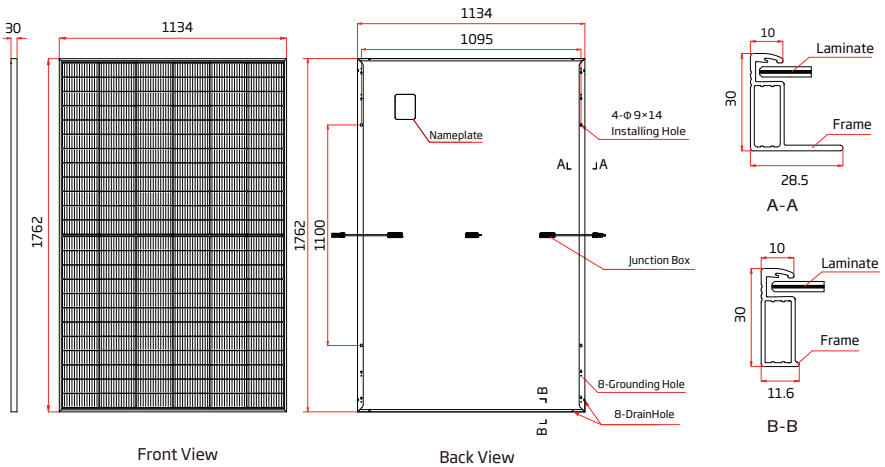




MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	144 cells
Module Dimensions	1762×1134×30 mm (69.37×44.65×1.18 inches)
Weight	27 kg (59.52lb)
Front Glass	2.5mm (0.10inches), AR Coating Heat Strengthened Glass
Back Glass	2.0mm (0.08inches), Heat Strengthened Glass
Frame	30mm(1.18 inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0/6.0mm² (0.006/0.009 inches²) Portrait: 200/320 mm(13.78/11.02 inches) Length can be customized
Connector	TS4 Plus / TS4 / MC4 EVO2*
Packaging	Modules per box: 36 pieces Modules per 40' container: 828pieces

*The connector names listed are general names; specific types are subject to the certification documents.



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