

520 W

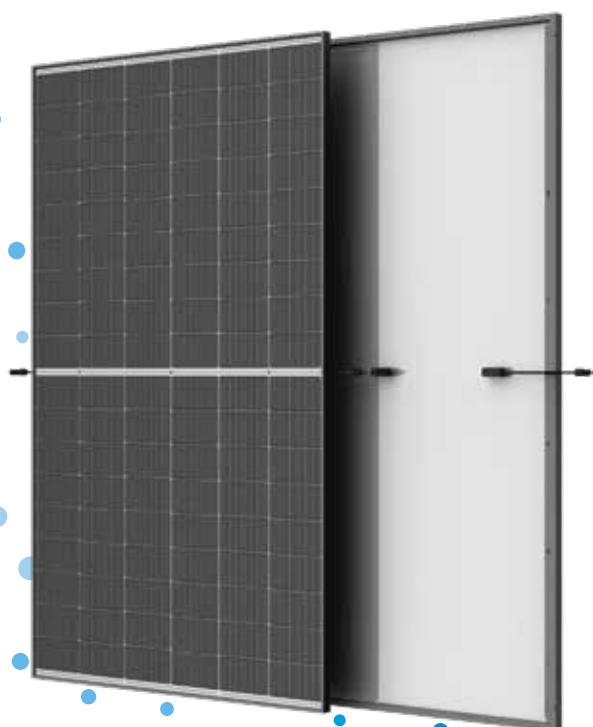
MAXIMUM POWER OUTPUT

0/+5 W

POSITIVE POWER TOLERANCE

23.4 %

MAXIMUM EFFICIENCY



Optimal Size for Commercial & Industrial Rooftops

- Compact module design with medium size for lower total system cost and shorter payback time
- Low voltage design for high string power



Lightweight Dual-glass Design, High Reliability

- Excellent fire resistance; durability in harsh environmental conditions and high temperature or high humidity areas
- Up to 5,400 Pa snow load and 2,400 Pa wind load (test loads)
- 25 years product warranty



Maximized Energy Harvest

- High module power: Up to 520 W, 23.4 % module efficiency with n type i-TOPCon technology
- Maximum 1 % first-year degradation and 0.4 % annual degradation
- 30 years power warranty



Universal Solution for Rooftop Systems

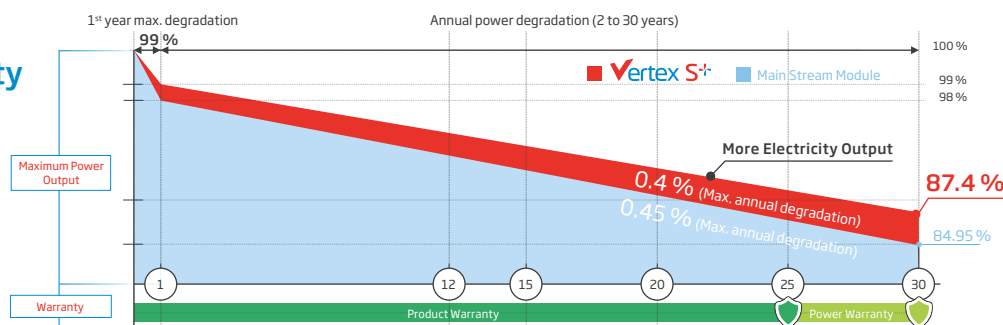
- Designed for compatibility with existing mainstream inverters, optimizers and mounting systems
- Easy to handle (length below 2 meters) and install on roofs with excellent size and light weight
- Flexible installation solutions for system deployment

Extended Vertex S⁺ Warranty

1 %
1st year max. degradation

0.4 %
Max. annual degradation from year 2 to 30

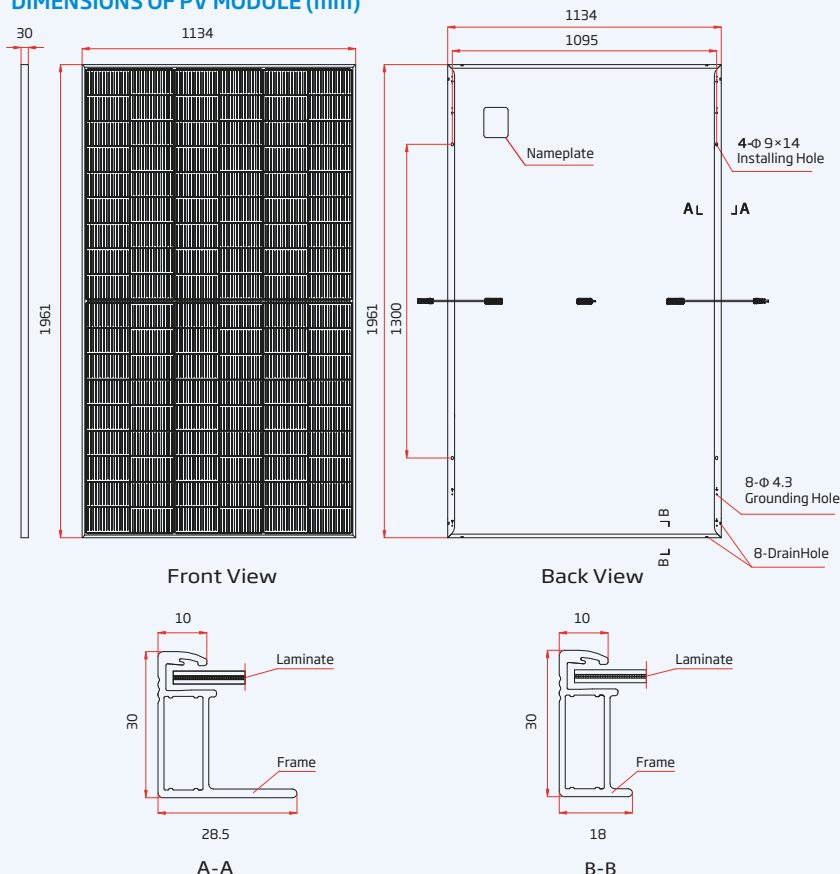
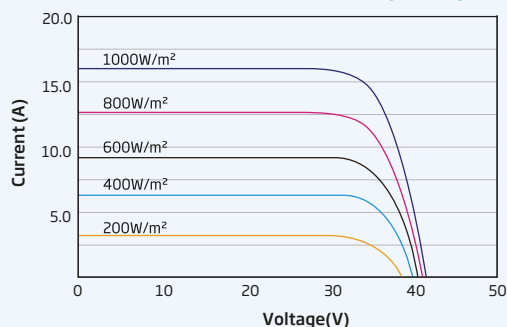
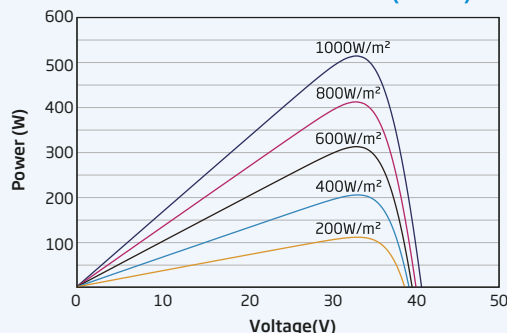
25 Years
Product Workmanship Warranty



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

DIMENSIONS OF PV MODULE (mm)

I-V CURVES OF PV MODULE (510 W)

P-V CURVES OF PV MODULE (510 W)

ELECTRICAL DATA (STC)

TSM-490 TSM-495 TSM-500 TSM-505 TSM-510 TSM-515 TSM-520
NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28

Peak Power Watts- P_{MAX} (Wp)*	490	495	500	505	510	515	520
Power Selection (W)**	0/+5						
Maximum Power Voltage- V_{MPP} (V)	32.9	33.1	33.3	33.5	33.7	33.9	34.1
Maximum Power Current- I_{MPP} (A)	14.91	14.97	15.03	15.09	15.14	15.20	15.25
Open Circuit Voltage- V_{OC} (V)	39.6	39.8	40.1	40.3	40.6	40.9	41.2
Short Circuit Current- I_{SC} (A)	15.80	15.83	15.86	15.89	15.93	15.96	15.99
Module Efficiency η_m (%)	22.0	22.3	22.5	22.7	22.9	23.2	23.4

STC: Irradiance 1000 W/m², Cell Temperature 25 °C, Air Mass AM 1.5.

*Measuring tolerance: ±3 %. **Power selection up to: +3%

ELECTRICAL DATA (NOCT)

TSM-490 TSM-495 TSM-500 TSM-505 TSM-510 TSM-515 TSM-520
NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28 NEG18R.28

Maximum Power- P_{MAX} (Wp)	375	378	382	386	390	394	396
Maximum Power Voltage- V_{MPP} (V)	31.0	31.3	31.5	31.8	31.9	32.2	32.3
Maximum Power Current- I_{MPP} (A)	12.06	12.08	12.11	12.15	12.21	12.23	12.26
Open Circuit Voltage- V_{OC} (V)	37.6	37.7	38.0	38.3	38.5	38.8	39.0
Short Circuit Current- I_{SC} (A)	12.74	12.76	12.78	12.81	12.84	12.86	12.89

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

MECHANICAL DATA

Solar Cells	N-type i-TOPCon monocrystalline
No. of cells	108 cells
Module Dimensions	1961×1134×30 mm
Weight	23.5 kg
Front Glass	1.6 mm, AR Coated Heat Strengthened Glass
Back Glass	1.6 mm, Heat Strengthened Glass
Frame	30 mm Anodized Aluminium Alloy, Black
J-Box	IP 68 rated, 3 bypass diodes
Cables	Photovoltaic Technology Cable 4.0 mm ² Portrait: 200/320 mm* Landscape: 1300/1300 mm
Connector	TS4 / TS4 Plus / MC4 EV02*

*Special order only.

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 to +70 °C
Maximum System Voltage	1500 V DC (IEC)
Max Series Fuse Rating	30 A

WARRANTY

25 year Product Workmanship Warranty
30 year Power Warranty
1 % first year degradation
0.4 % Annual Power Attenuation
(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box:	36 pieces
Modules per 40' container:	864 pieces

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

© 2025 Trina Solar Co., Ltd. All rights reserved. Specifications included in this datasheet are subject to change without notice. The right of final interpretation belongs to Trina Solar Co., Ltd.

Version number: TSM_EN_2025_B