

Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-XXXDE09R.B5

PRODUCT RANGE: 405-430W

430W

MAXIMUM POWER OUTPUT

0~+5W

BINNING TOLERANCE

21.5%

MAXIMUM EFFICIENCY

25 Years **PRODUCT WARRANTY**
25 Years **POWER WARRANTY**



Outstanding Visual Appearance

- Designed with aesthetics in mind
- Excellent cell color control by dedicated cell blackening treatment and machine selection.
- Thinner wires that appear all black at a distance



Small in size, big on power Mono Perc

- Small form factor. Generate a huge amount of energy even in limited space.
- Up to 430W, 21.5% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection
- Reduce installation cost with higher power bin and efficiency
- Boost performance in warm weather lower temperature coefficient (-0.34%) and operating temperature



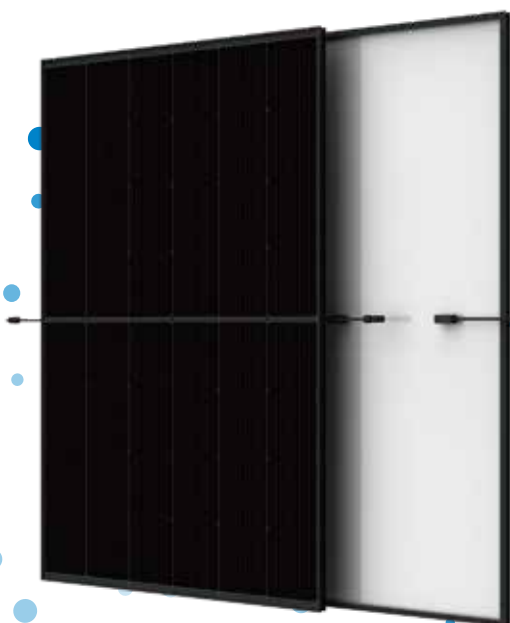
Universal solution for residential and C&I rooftops

- Designed for compatibility with existing mainstream optimizers, inverters and mounting systems
- Perfect size and low weight. Easy for handling. Economy for transporting
- Diverse installation solutions. Flexible for system deployment

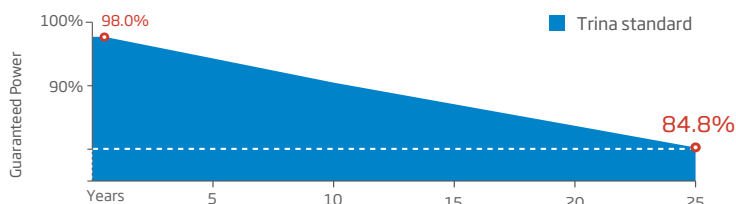


High Reliability

- 25 year product warranty
- 25 year performance warranty with lowest degradation;
- Minimized micro-cracks with innovative non-destructive cutting technology
- Mechanical performance up to 6000 Pa positive load and 4000 Pa negative load and fire class rating C



Trina Solar's Backsheet Performance Warranty



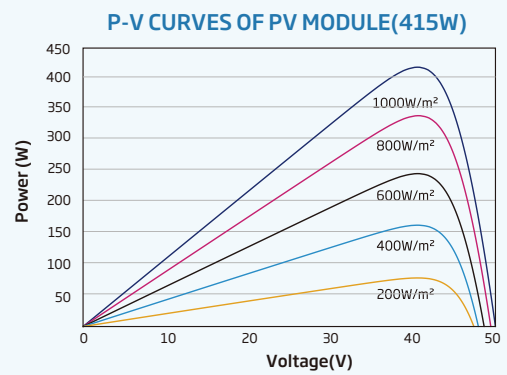
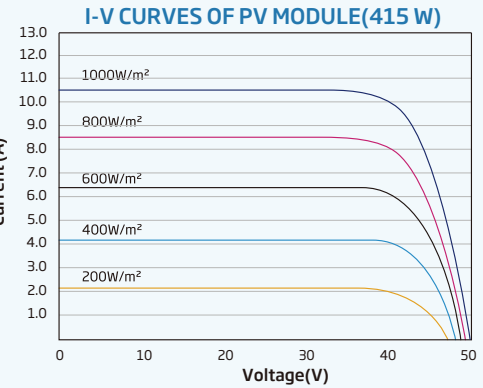
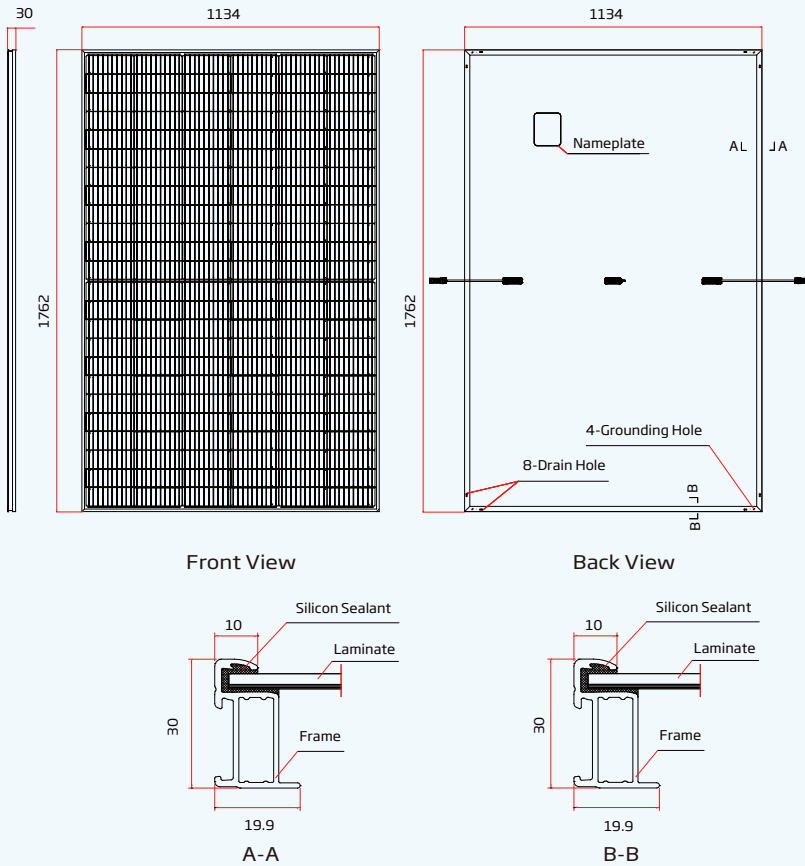
Comprehensive Products and System Certificates



IEC61215/IEC61730/IEC61701/IEC62716/UL61730
 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)



ELECTRICAL DATA (STC) TSM-XXXDE09R.B5(XXX=405-430)

| Peak Power Watts-P _{MAX} (Wp)* | 405 | 410 | 415 | 420 | 425 | 430 |
|--|--------|-------|-------|-------|-------|-------|
| Binning Tolerance-P _{MAX} (W) | 0 ~ +5 | | | | | |
| Maximum Power Voltage-V _{MPP} (V) | 41.3 | 41.5 | 41.7 | 42.0 | 42.2 | 42.3 |
| Maximum Power Current-I _{MPP} (A) | 9.82 | 9.87 | 9.94 | 10.01 | 10.08 | 10.17 |
| Open Circuit Voltage-V _{OC} (V) | 49.7 | 49.8 | 50.0 | 50.1 | 50.2 | 50.3 |
| Short Circuit Current-I _{SC} (A) | 10.50 | 10.53 | 10.55 | 10.58 | 10.61 | 10.64 |
| Module Efficiency η _m (%) | 20.3 | 20.5 | 20.8 | 21.0 | 21.3 | 21.5 |

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%.

ELECTRICAL DATA (NOCT)

| | | | | | | |
|--|------|------|------|------|------|------|
| Maximum Power-P _{MAX} (Wp) | 306 | 309 | 312 | 317 | 321 | 325 |
| Maximum Power Voltage-V _{MPP} (V) | 38.3 | 38.5 | 38.7 | 39.2 | 39.5 | 39.7 |
| Maximum Power Current-I _{MPP} (A) | 7.99 | 8.03 | 8.07 | 8.10 | 8.13 | 8.17 |
| Open Circuit Voltage-V _{OC} (V) | 46.8 | 46.9 | 47.1 | 47.1 | 47.2 | 47.4 |
| Short Circuit Current-I _{SC} (A) | 8.46 | 8.49 | 8.50 | 8.53 | 8.55 | 8.60 |

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

MECHANICAL DATA

| | |
|----------------------|--|
| Solar Cells | Monocrystalline |
| No. of cells | 144 cells |
| Module Dimensions | 1762×1134×30 mm (69.37×44.65×1.18 inches) |
| Weight | 21.8 kg (48.1 lb) |
| Glass | 3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass |
| Encapsulant material | EVA/POE |
| Backsheet | Black-White |
| Frame | 30mm(1.18 inches) Anodized Aluminium Alloy |
| J-Box | IP 68 rated |
| Cables | Photovoltaic Technology Cable 4.0mm ² (0.006 inches ²), Length: 1100mm/1100mm(43.3/43.3 inches) |
| Connector | Stabuli MC4 EVO2 / Trina Solar TS4 |

TEMPERATURE RATINGS

| | |
|---|-------------|
| NOCT(Nominal Operating Cell Temperature) | 43°C (±2°C) |
| Temperature Coefficient of P _{MAX} | -0.34%/°C |
| Temperature Coefficient of Voc | -0.25%/°C |
| Temperature Coefficient of Isc | 0.04%/°C |

MAXIMUM RATINGS

| | |
|-------------------------|---------------------------------|
| Operational Temperature | -40~+85°C |
| Maximum System Voltage | 1500V DC (IEC) 1500V DC (UL) |
| Max Series Fuse Rating* | 20A / 25A |

*Default 20A / 25A upon special request

WARRANTY

25 year Product Workmanship Warranty**
25 year Power Warranty
2% first year degradation
0.55% Annual Power Attenuation

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 936 pieces

(**Please refer to Limited Warranty Supplement that applies to the TSM-***DE09R.B5, TSM-***DE09R.BB.Products supplied after 1st Aug 2022 and installed within Australia & New Zealand residential rooftop market.)