

# Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE09.05

PRODUCT RANGE: 380-400W

## 400W

MAXIMUM POWER OUTPUT

## 0~+5W

POSITIVE POWER TOLERANCE

## 20.8%

MAXIMUM EFFICIENCY



### 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

- Small form factor. Generate a huge amount of energy even in limited space.
- Up to 400W, 20.8% 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

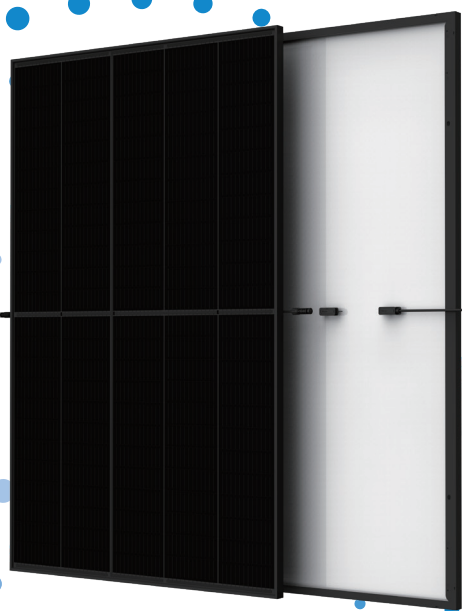
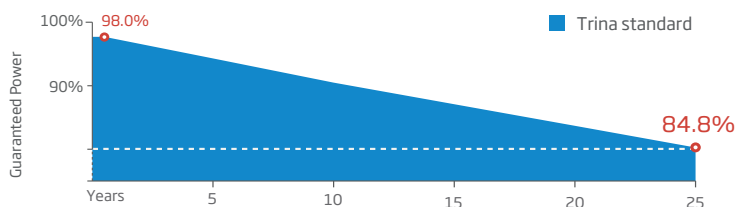
- Designed for compatibility with existing mainstream optimizers, inverters and mounting systems
- Perfect size and low weight. Easy for handling. Economy for transporting
- Diverse installation solutions. Flexible for system deployment



### High Reliability

- 25 year product warranty
- 25 year performance warranty with lowest degradation
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Mechanical performance up to 6000 Pa positive load and 4000 Pa negative load

### Trina Solar's Backsheet Performance Warranty



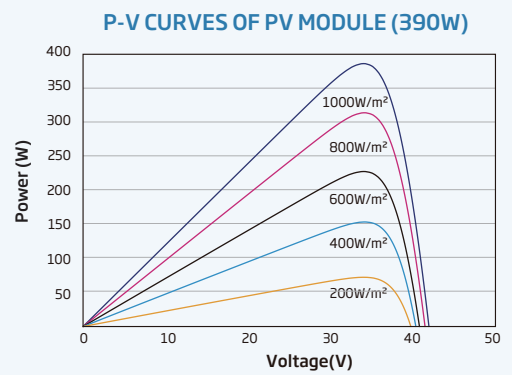
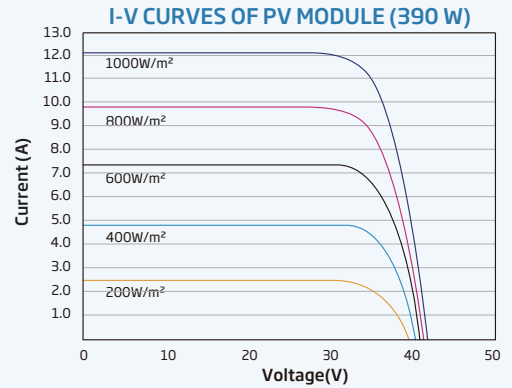
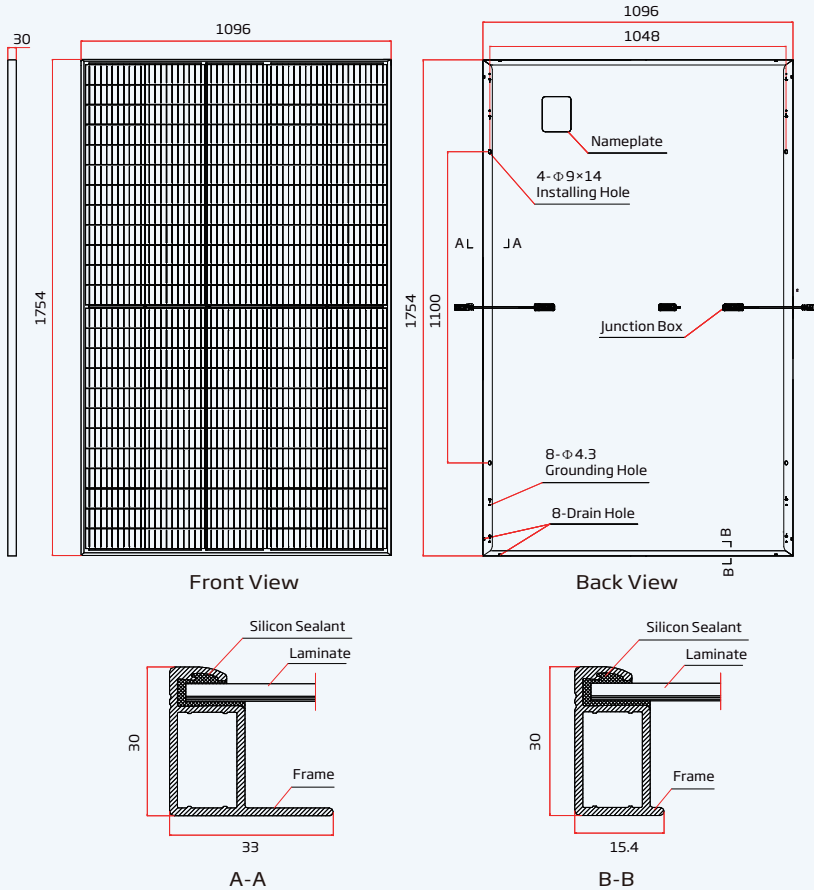
### Comprehensive Products and System Certificates



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)

Parameter	380	385	390	395	400
Peak Power Watts- $P_{MAX}$ (Wp)*					
Power Tolerance- $P_{MAX}$ (W)			0 ~ +5		
Maximum Power Voltage- $V_{MPP}$ (V)	33.4	33.6	33.8	34.0	34.2
Maximum Power Current- $I_{MPP}$ (A)	11.38	11.46	11.54	11.62	11.70
Open Circuit Voltage- $V_{OC}$ (V)	40.4	40.6	40.8	41.0	41.2
Short Circuit Current- $I_{SC}$ (A)	12.00	12.07	12.14	12.21	12.28
Module Efficiency $\eta_m$ (%)	19.8	20.0	20.3	20.5	20.8

STC: Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Air Mass AM1.5. \*Measuring tolerance: ±3%.

## ELECTRICAL DATA (NOCT)

Parameter	286	290	294	298	302
Maximum Power- $P_{MAX}$ (Wp)					
Maximum Power Voltage- $V_{MPP}$ (V)	31.4	31.6	31.8	31.9	32.1
Maximum Power Current- $I_{MPP}$ (A)	9.12	9.18	9.24	9.32	9.38
Open Circuit Voltage- $V_{OC}$ (V)	38.0	38.2	38.4	38.6	38.8
Short Circuit Current- $I_{SC}$ (A)	9.67	9.73	9.78	9.84	9.90

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.

## MECHANICAL DATA

Solar Cells	Monocrystalline 210mm PERC
No. of cells	120 cells
Module Dimensions	1754×1096×30 mm (69.06×43.15×1.18 inches)
Weight	21.0 kg (46.3 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 <sup>2</sup> (0.006 inches <sup>2</sup> ), Length 1100/1100 mm (43.31/43.31 inches)
Connector	MC4 EVO2
Fire Type	Type 1 or Type 2

## TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.34%/°C
Temperature Coefficient of $V_{OC}$	-0.25%/°C
Temperature Coefficient of $I_{SC}$	0.04%/°C

## MAXIMUM RATINGS

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

## WARRANTY

25 year Product Workmanship Warranty  
25 year Power Warranty  
2% First Year Degradation  
0.55% Annual Power Attenuation

(Please refer to product warranty for details)

## PACKAGING CONFIGURATION

Modules per box: 36 pieces  
Modules per 40' container: 828 pieces