

# Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE09.08  
POWER RANGE: 390-405 W

**405 W+**

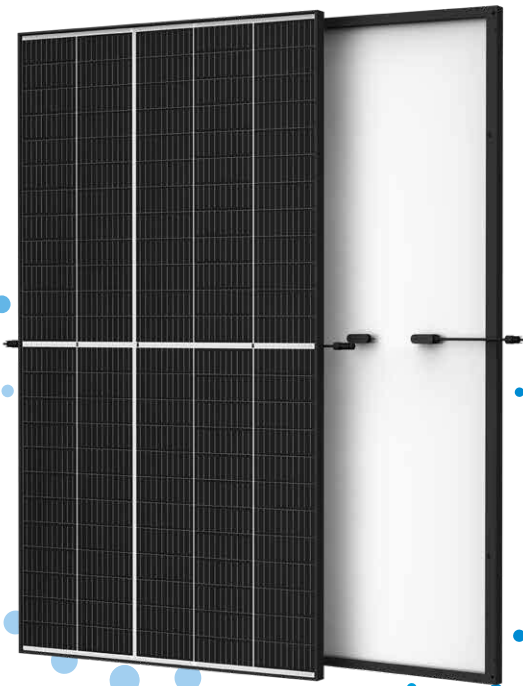
MAXIMUM POWER OUTPUT

**0/+5 W**

POSITIVE POWER TOLERANCE

**21.1 %**

MAXIMUM EFFICIENCY



### Small in size, big on power

- Generates up to 405 W, 21.1 % module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping, lower series resistance, improved current collection and enhanced reliability
- Excellent low light performance (IAM) with cell process and module material optimization



### Universal solution for residential and C&I rooftops

- Designed for compatibility with existing mainstream inverters, optimizers and mounting systems
- Perfect size and low weight for easy handling. Optimized transportation cost
- Reduces installation cost with higher power bin and efficiency
- Flexible installation solutions for system deployment



### High Reliability

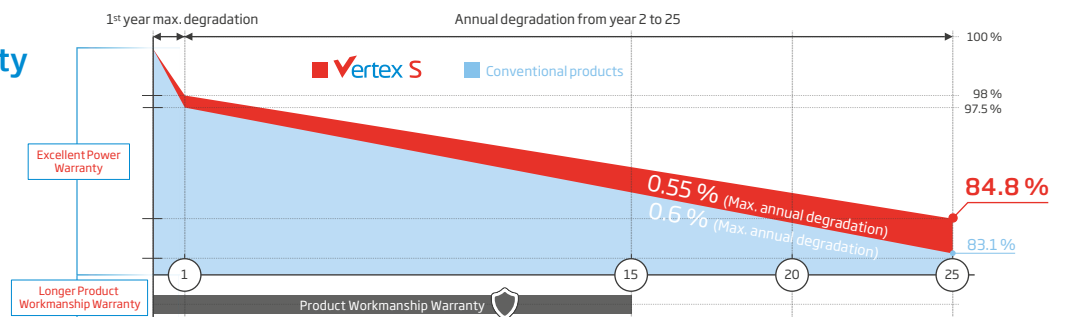
- 6,000 Pa snow load (test load)
- 4,000 Pa wind load (test load)

## Extended Vertex S Warranty

**2 %**  
1<sup>st</sup> year max. degradation

**0.55 %**  
Max. annual degradation from year 2 to 25

**15 Years**  
Product Workmanship Warranty



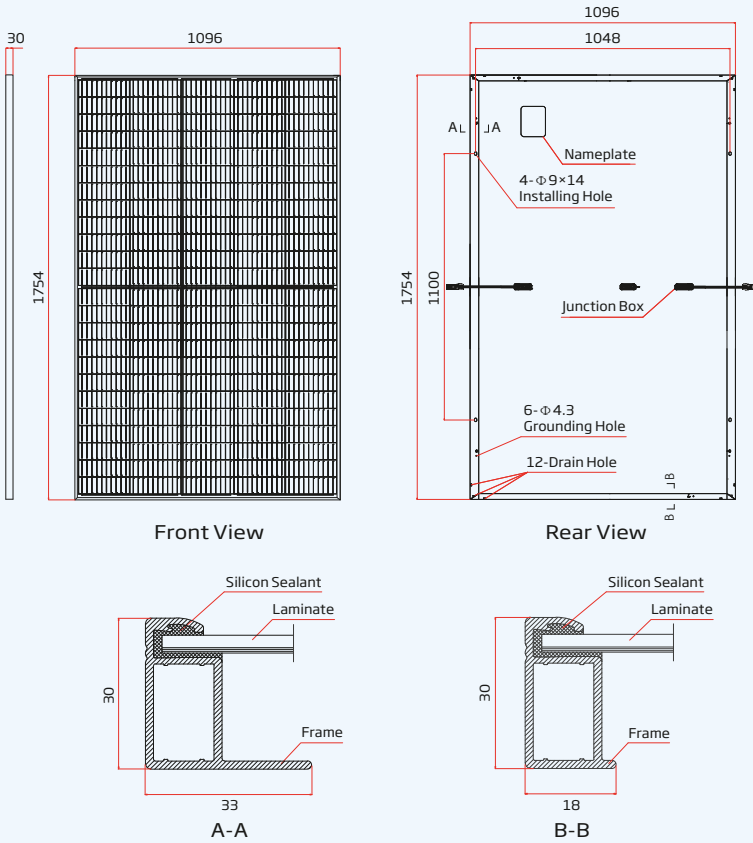
## Comprehensive Product and System Certificates



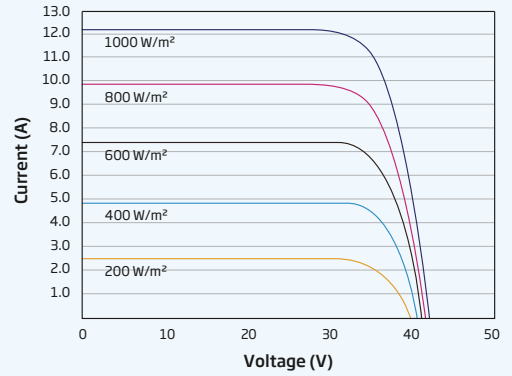
IEC61215/IEC61730/IEC61701/IEC62716  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
ISO45001: Occupational Health and Safety Management System

**Trinasolar**

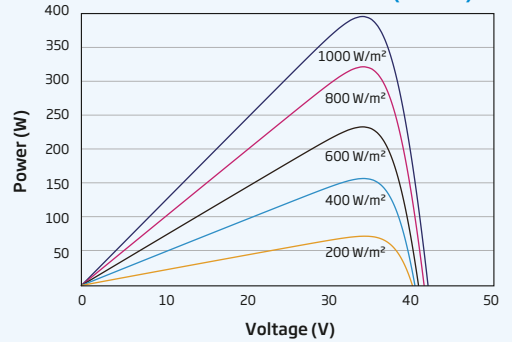
## DIMENSIONS OF PV MODULE (mm)



## I-V CURVES OF PV MODULE (395 W)



## P-V CURVES OF PV MODULE (395 W)



## ELECTRICAL DATA (STC)

	TSM-390 DE09.08	TSM-395 DE09.08	TSM-400 DE09.08	TSM-405 DE09.08
Peak Power Watts- $P_{MAX}$ (Wp)*	390	395	400	405
Power Tolerance- $P_{MAX}$ (W)	0/+5	0/+5	0/+5	0/+5
Maximum Power Voltage- $V_{MPP}$ (V)	33.8	34.0	34.2	34.4
Maximum Power Current- $I_{MPP}$ (A)	11.54	11.62	11.70	11.77
Open Circuit Voltage- $V_{oc}$ (V)	40.8	41.0	41.2	41.4
Short Circuit Current- $I_{sc}$ (A)	12.14	12.21	12.28	12.34
Module Efficiency $\eta$ m (%)	20.3	20.5	20.8	21.1

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

## MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	120 cells
Module Dimensions	1754×1096×30 mm
Weight	21.0 kg
Glass	3.2 mm, High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	White
Frame	30 mm Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm <sup>2</sup> Landscape: 1100/1100 mm Portrait: 280/280 mm*
Connector	TS4/MC4 EVO2*

\*Special order only

## ELECTRICAL DATA (NOCT)

	TSM-390 DE09.08	TSM-395 DE09.08	TSM-400 DE09.08	TSM-405 DE09.08
Maximum Power- $P_{MAX}$ (Wp)	295	298	302	306
Maximum Power Voltage- $V_{MPP}$ (V)	31.8	32.0	32.2	32.5
Maximum Power Current- $I_{MPP}$ (A)	9.26	9.32	9.38	9.41
Open Circuit Voltage- $V_{oc}$ (V)	38.4	38.6	38.8	38.9
Short Circuit Current- $I_{sc}$ (A)	9.78	9.84	9.90	9.95

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

## TEMPERATURE RATINGS

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

## MAXIMUM RATINGS

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

## WARRANTY

15 year Product Workmanship Warranty  
25 year Power Warranty  
2% first year Degradation  
0.55 % Annual Power Degradation

(Please refer to the applicable limited warranty for details)

## PACKAGING CONFIGURATION

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