

Vertex S

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE09.08
POWER RANGE: 390-410 W

410 W+

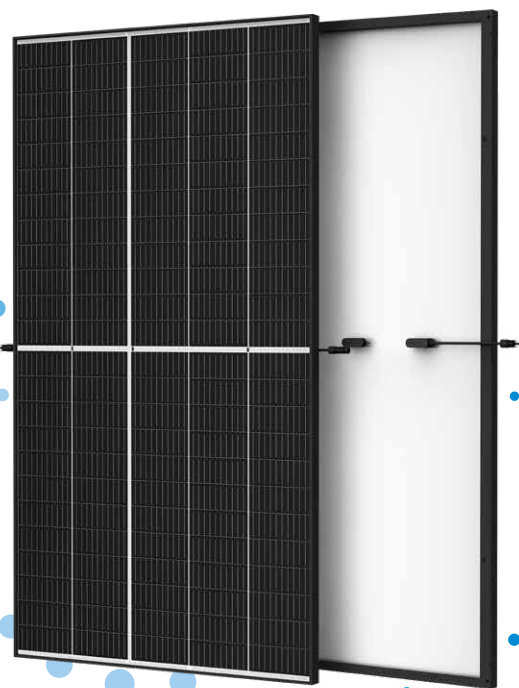
MAXIMUM POWER OUTPUT

0/+5 W

POSITIVE POWER TOLERANCE

21.3 %

MAXIMUM EFFICIENCY



Small in size, big on power

- Generates up to 410 W, 21.3 % 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

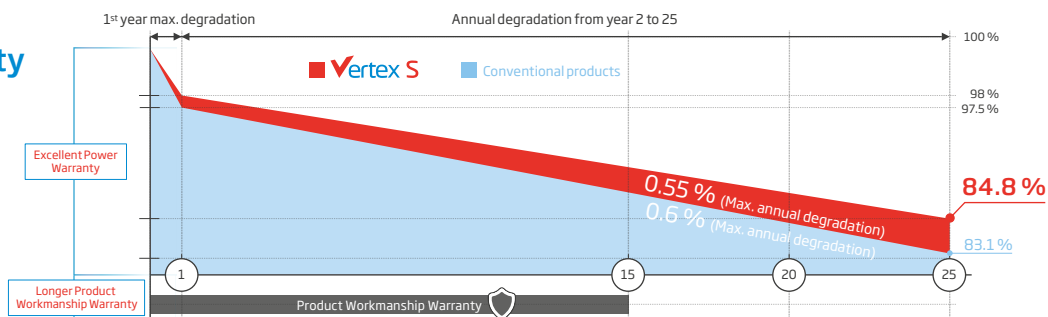
- 6,000 Pa snow load (test load)
- 4,000 Pa wind load (test load)

Extended Vertex S Warranty

2 %
1st year max. degradation

0.55 %
Max. annual degradation from year 2 to 25

15 Years
Product Workmanship Warranty



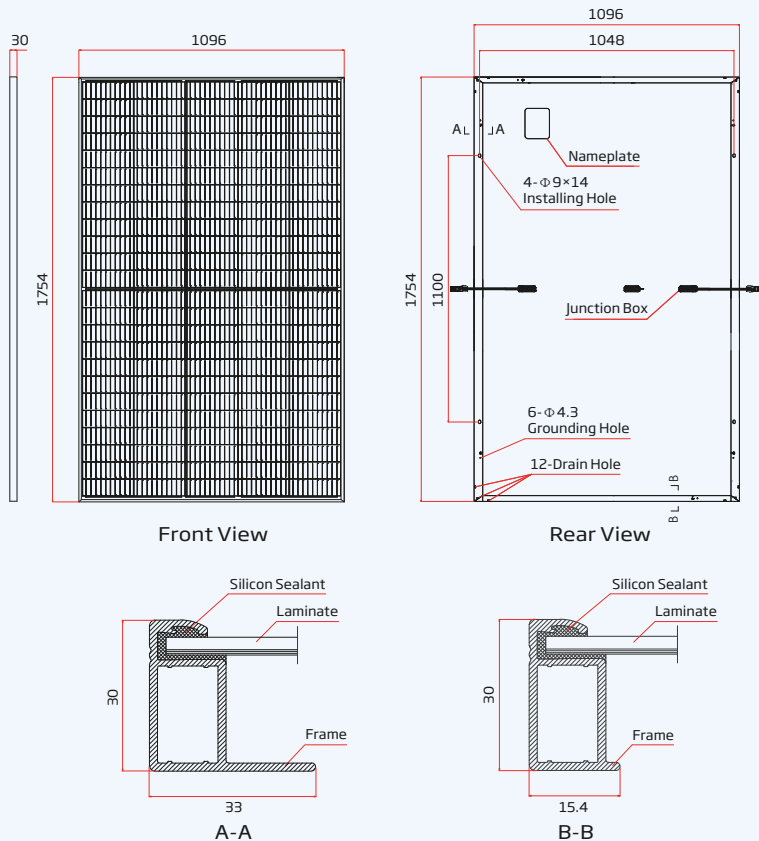
Comprehensive Product and System Certificates



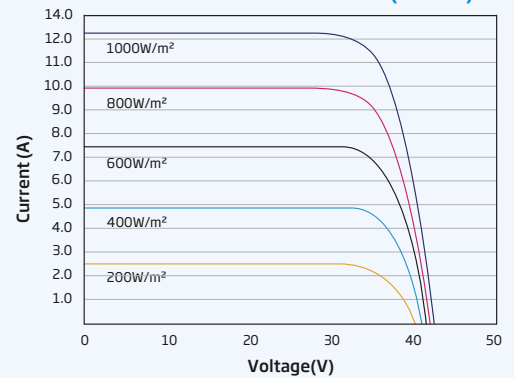
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System

Trinasolar

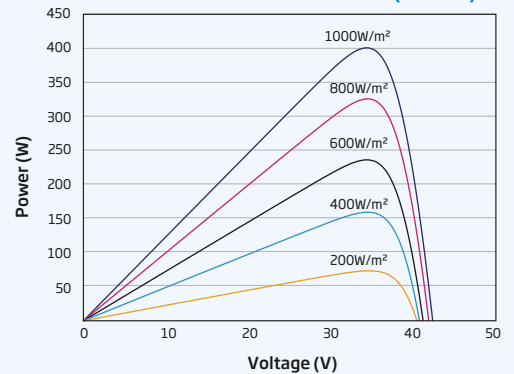
DIMENSIONS OF PV MODULE (mm)



I-V CURVES OF PV MODULE (400 W)



P-V CURVES OF PV MODULE (400 W)



ELECTRICAL DATA (STC)

	TSM-390 DE09.08	TSM-395 DE09.08	TSM-400 DE09.08	TSM-405 DE09.08	TSM-410 DE09.08
Peak Power Watts- P_{MAX} (Wp)*	390	395	400	405	410
Power Tolerance- P_{MAX} (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Maximum Power Voltage- V_{MPP} (V)	33.8	34.0	34.2	34.4	34.6
Maximum Power Current- I_{MPP} (A)	11.54	11.62	11.70	11.77	11.85
Open Circuit Voltage- V_{OC} (V)	40.8	41.0	41.2	41.4	41.6
Short Circuit Current- I_{SC} (A)	12.14	12.21	12.28	12.34	12.40
Module Efficiency η_m (%)	20.3	20.5	20.8	21.1	21.3

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

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 ² Landscape: 1100/1100 mm Portrait: 280/280 mm*
Connector	TS4/MC4 EV02*

*Special order only

ELECTRICAL DATA (NOCT)

	TSM-390 DE09.08	TSM-395 DE09.08	TSM-400 DE09.08	TSM-405 DE09.08	TSM-410 DE09.08
Maximum Power- P_{MAX} (Wp)	295	298	302	306	310
Maximum Power Voltage- V_{MPP} (V)	31.8	32.0	32.2	32.5	32.8
Maximum Power Current- I_{MPP} (A)	9.26	9.32	9.38	9.41	9.46
Open Circuit Voltage- V_{OC} (V)	38.4	38.6	38.8	38.9	39.1
Short Circuit Current- I_{SC} (A)	9.78	9.84	9.90	9.95	9.99

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