

# Vertex

BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE19R  
POWER RANGE: 555-580 W

## 580 W

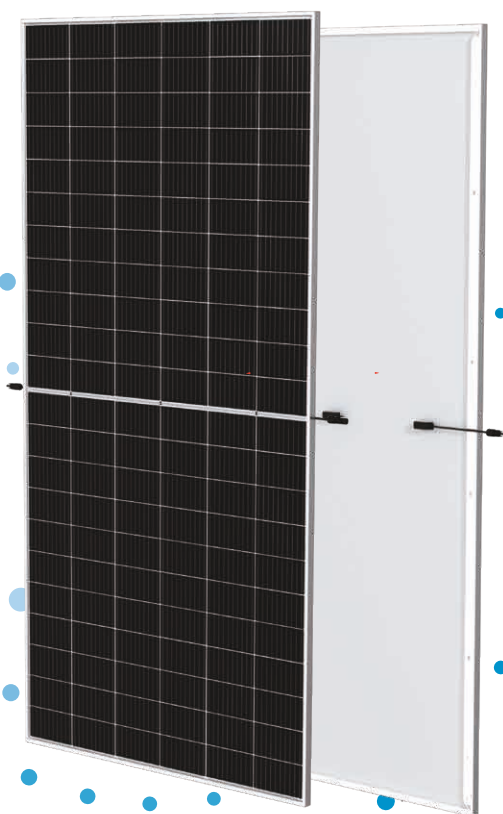
MAXIMUM POWER OUTPUT

## 0/+5 W

POSITIVE POWER TOLERANCE

## 21.5 %

MAXIMUM EFFICIENCY



### High power & efficiency

- Generates up to 580 W, 21.5 % module efficiency with high density interconnect technology
- Maximum energy harvest from rooftops



### Easy design & installation on C&I rooftops

- Designed for high compatibility with mainstream inverters
- Mainstream rooftop mounting methods approved



### Optimized system cost

- Lower cost of structure, cable and electrical equipment
- Reduced installation time and labor costs
- Shorter payback time



### High reliability

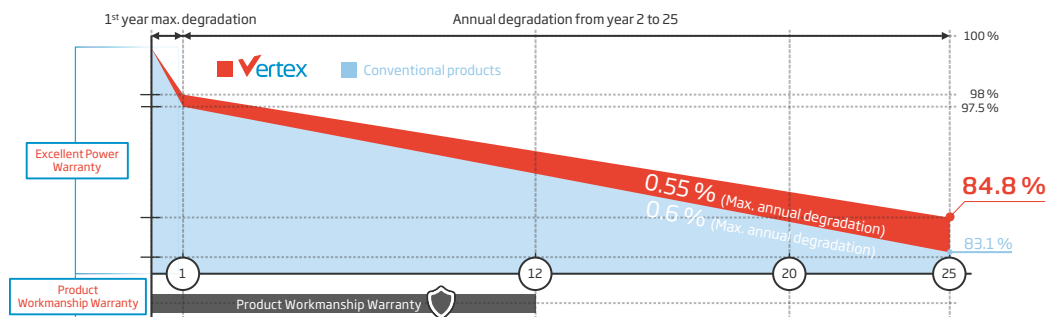
- Assembly in fully automated and state-of-the-art factories
- Beyond industry-standard hail test passed: 35 mm hail size
- Mechanical performance tested up to 5400 Pa positive load and 2400 Pa negative load

## Vertex Warranty

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

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

**12 Years**  
Product Workmanship Warranty

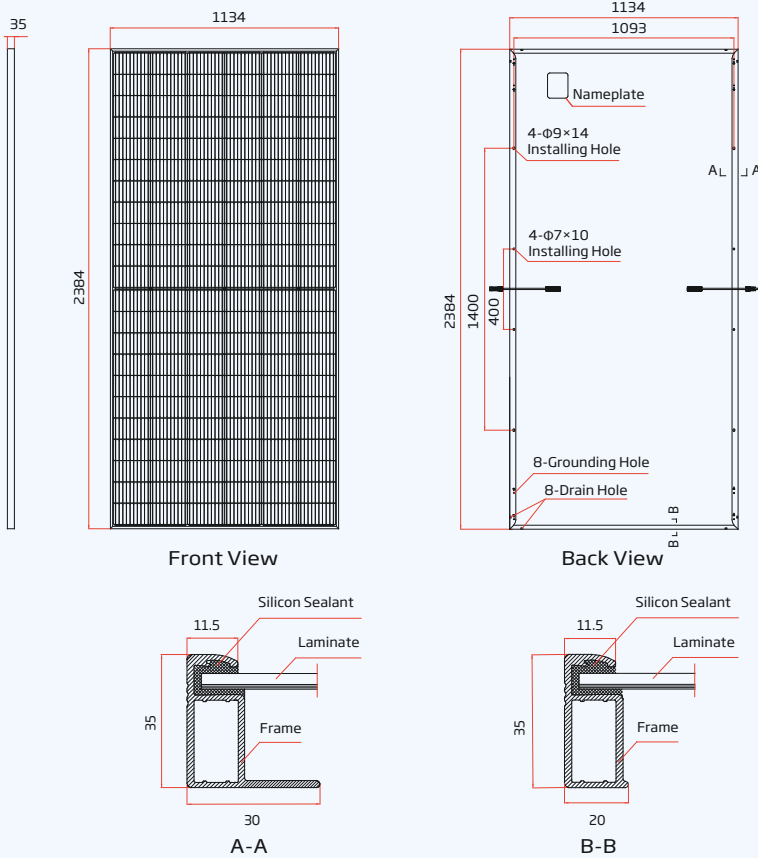


## Comprehensive Product and System Certificates

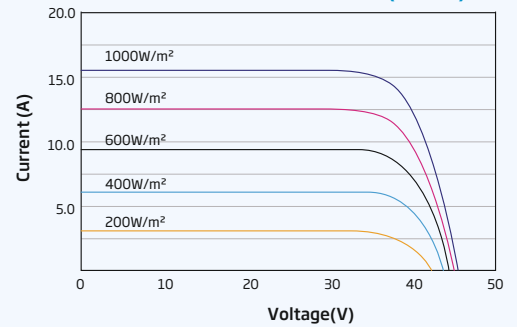


IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
ISO 9001: Quality Management System  
ISO 14001: Environmental Management System  
ISO14064: Greenhouse Gases Emissions Verification  
ISO45001: Occupational Health and Safety Management System

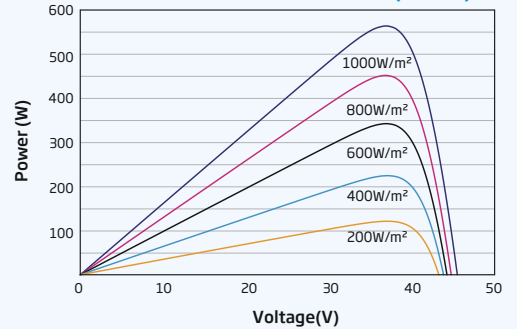
## DIMENSIONS OF PV MODULE (mm)



## I-V CURVES OF PV MODULE (565 W)



## P-V CURVES OF PV MODULE (565 W)



### ELECTRICAL DATA (STC)

	TSM-555 DE19R	TSM-560 DE19R	TSM-565 DE19R	TSM-570 DE19R	TSM-575 DE19R	TSM-580 DE19R
Peak Power Watts-P <sub>MAX</sub> (Wp)*	555	560	565	570	575	580
Power Tolerance-P <sub>MAX</sub> (W)	0/+5	0/+5	0/+5	0/+5	0/+5	0/+5
Maximum Power Voltage-V <sub>MPP</sub> (V)	37.2	37.4	37.7	37.9	38.2	38.4
Maximum Power Current-I <sub>MPP</sub> (A)	14.92	14.96	14.99	15.03	15.07	15.10
Open Circuit Voltage-V <sub>OC</sub> (V)	44.8	45.0	45.2	45.5	45.7	46.0
Short Circuit Current-I <sub>SC</sub> (A)	15.91	15.95	16.00	16.05	16.08	16.11
Module Efficiency-η <sub>m</sub> (%)	20.5	20.7	20.9	21.1	21.3	21.5

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

### ELECTRICAL DATA (NOCT)

	TSM-555 DE19R	TSM-560 DE19R	TSM-565 DE19R	TSM-570 DE19R	TSM-575 DE19R	TSM-580 DE19R
Maximum Power-P <sub>MAX</sub> (Wp)	419	423	427	431	435	438
Maximum Power Voltage-V <sub>MPP</sub> (V)	34.5	34.7	34.9	35.1	35.4	35.6
Maximum Power Current-I <sub>MPP</sub> (A)	12.14	12.18	12.23	12.26	12.30	12.32
Open Circuit Voltage-V <sub>OC</sub> (V)	42.2	42.4	42.6	42.8	43.0	43.3
Short Circuit Current-I <sub>SC</sub> (A)	12.82	12.85	12.89	12.93	12.96	12.98

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

### MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384 x 1134 x 35 mm
Weight	29.6 kg
Glass	3.2 mm, High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	White
Frame	35mm Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0 mm <sup>2</sup> , Landscape: 1400/1400 mm Portrait: 280/350 mm*
Connector	TS4 / MC4 EV02*

\*Special order only.

### TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43 °C (±2 K)
Temperature Coefficient of P <sub>MAX</sub>	-0.34%/K
Temperature Coefficient of V <sub>OC</sub>	-0.25%/K
Temperature Coefficient of I <sub>SC</sub>	0.04%/K

### MAXIMUM RATINGS

Operational Temperature	-40 to +85 °C
Maximum System Voltage	1500 V DC (IEC)
Max Series Fuse Rating	30 A

### WARRANTY

12 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: 31 pieces  
Modules per 40' container: 620 pieces