

PRODUCT: TSM-DEG9R.28

PRODUCT RANGE: 415-435W

435W

MAXIMUM POWER OUTPUT

0~+5W

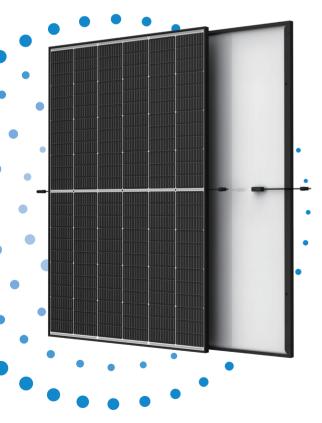
POSITIVE POWER TOLERANCE

21.8%

MAXIMUM EFFICIENCY



reddot winner 2022





Small in size, big on power

- Small form factor. Generate a huge amount of energy even in limited space. Up to 435W, 21.8% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection
- 15 years product warranty, 30 years power warranty, annual degradation -0.45%; Lower working temperature and excellent warranty bring more electrical power generation



Universal solution for residential and C&I rooftops

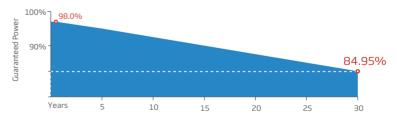
- Compatible with mainstream optimizers, inverters and mounting systems
- Smart size and low weight. Easy for handing. Economy for transporting
- Most valuable solution for roofs with low load capacity (weight similar to backsheet version)



High Reliability

- Minimized micro-cracks with innovative non-destructive cutting technology
- Fire Rating: Class A+C
- Ensured PID resistance through cell process and module material control
- Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity areas
- Mechanical performance up to 5400 Pa positive load and 4000 Pa negative load

Trina Solar's Vertex Dual Glass Performance Warranty



Comprehensive Products and System Certificates

IEC61215/IEC61730/IEC61701/IEC62716

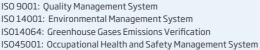






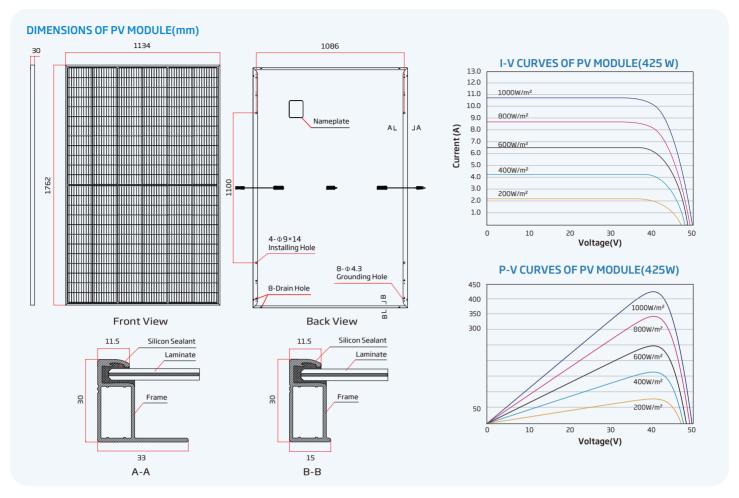












ELECTRICAL DATA (STC)

| Peak Power Watts-PMAX (Wp)* | 415 | 420 | 425 | 430 | 435 |
|--|-------|-------|--------|-------|-------|
| Power Tolerance-P _{MAX} (W) | | | 0 ~ +5 | | |
| Maximum Power Voltage-VMPP (V) | 41.0 | 41.3 | 41.5 | 41.8 | 42.0 |
| Maximum Power Current-IMPP (A) | 10.11 | 10.17 | 10.24 | 10.30 | 10.36 |
| Open Circuit Voltage-Voc (V) | 49.4 | 49.7 | 49.9 | 50.3 | 50.6 |
| Short Circuit Current-Isc (A) | 10.64 | 10.69 | 10.74 | 10.81 | 10.86 |
| Module Efficiency η m (%) | 20.8 | 21.0 | 21.3 | 21.5 | 21.8 |
| STC: Irrdiance 1000W/m2, Cell Temperature 25°C, Air Mass AM1.5. *Measuring tolerance: ±3%. | | | | | |

ELECTRICAL DATA (NOCT)

| Maximum Power-PMAX (Wp) | 313 | 317 | 320 | 325 | 328 |
|--|------|------|------|------|------|
| Maximum Power Voltage-V _{MPP} (V) | 38.5 | 38.7 | 39.0 | 39.3 | 39.5 |
| Maximum Power Current-Impp (A) | 8.13 | 8.17 | 8.21 | 8.27 | 8.30 |
| Open Circuit Voltage-Voc (V) | 46.5 | 46.8 | 46.9 | 47.3 | 47.6 |
| Short Circuit Current-Isc (A) | 8.58 | 8.61 | 8.65 | 8.71 | 8.75 |

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) |
| Front Glass | 1.6mm(0.06inches), High Transmission, AR Coated Heat Strengthened Glass |
| Encapsulant material | EVA/POE |
| Back Glass | 1.6 mm (0.06 inches), High Transmission, Heat Strengthened Glass |
| Frame | 30mm (1.18 inches) Anodized Aluminium Alloy, Black |
| J-Box | IP 68 rated |
| Cables | Photovoltaic Technology Cable 4.0mm² (0.006 inches²), Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized |
| Connector | MC4 EVO2 / TS4* |
| | |

^{*}Please refer to regional datasheet for specified connector.

TEMPERATURE RATINGS

| NOCT (Nominal Operating Cell Temperature) | 43°C (±2°C) | | |
|---|-------------|--|--|
| Temperature Coefficient of PMAX | - 0.34%/°C | | |
| Temperature Coefficient of Voc | - 0.25%/°C | | |
| Temperature Coefficient of Isc | በ በ4%/°ር | | |

MAXIMUMRATINGS

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

WARRANTY

15 year Product Workmanship Warranty 30 year Power Warranty 2% first year degradation 0.45% Annual Power Attenuation

(Please refer to product warranty for details)

PACKAGING CONFIGUREATION

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

