

## N-type i-TOPCon Ultra

DUAL GLASS MONOCRYSTALLINE MODULE

TSM-NEG9RP.25Z 460-480W

**480W** MAXIMUM POWER OUTPUT

**24.0%** MAXIMUM EFFICIENCY



### Premium full black aesthetic

- Uniform, all-black, full-screen high density interconnection for a seamless design with no cell gaps



### High power & efficiency

- Up to 480 W and 24% efficiency with low-voltage, high-current architecture for more power on limited roof space



### Optimised performance

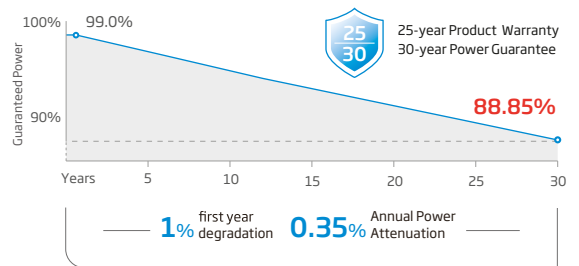
- Lower temperature coefficient and strong low-irradiance performance maximises power generation on rooftops



### Long-term value for residential homes

- Low annual degradation backed by up to 30 year power warranty and 25 year product warranty

### Performance Warranty



\* Please refer to product warranty for details

### Comprehensive Products and System Certificates

- ISO 9001: Quality Management System
- ISO 14001: Environmental Management System
- ISO14064: Greenhouse Gases Emissions Verification
- ISO45001: Occupational Health and Safety Management System



\*For ground-mounted installation, please consult Trinasolar sales team.

**ELECTRICAL DATA (STC)**

Peak Power Watts- $P_{MAX}(W_p)^*$	460	465	470	475	480
Power Selection (W)**	0 ~ +5				
Maximum Power Voltage- $V_{MPP}(V)$	30.90	31.20	31.50	31.80	32.00
Maximum Power Current- $I_{MPP}(A)$	14.89	14.91	14.93	14.96	15.00
Open Circuit Voltage- $V_{oc}(V)$	36.90	37.10	37.30	37.50	37.70
Short Circuit Current- $I_{sc}(A)$	15.93	15.96	15.99	16.02	16.05
Module Efficiency $\eta_m(\%)$	23.0	23.3	23.5	23.8	24.0

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

**ELECTRICAL DATA (NOCT)**

Peak Power Watts- $P_{MAX}(W_p)$	349	353	357	361	364
Maximum Power Voltage- $V_{MPP}(V)$	29.00	29.20	29.40	29.60	29.80
Maximum Power Current- $I_{MPP}(A)$	12.06	12.11	12.16	12.20	12.23
Open Circuit Voltage- $V_{oc}(V)$	35.00	35.20	35.40	35.60	35.80
Short Circuit Current- $I_{sc}(A)$	12.80	12.83	12.85	12.88	12.90

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

**TEMPERATURE RATINGS**

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.26% /°C
Temperature Coefficient of $V_{oc}$	-0.24% /°C
Temperature Coefficient of $I_{sc}$	0.04% /°C

Due to different testing methods, the actual performances might differ from the declared specifications.

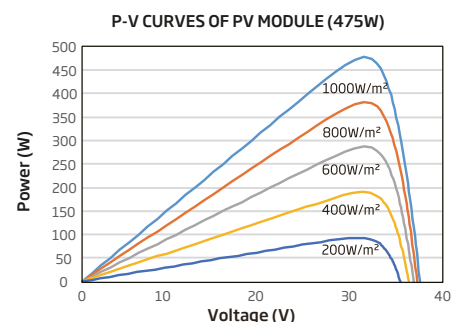
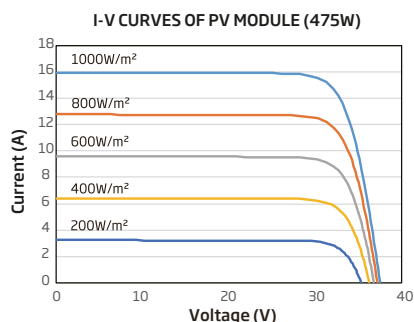
**APPLICATION CONDITIONS**

Operating Temperature	-40~+70°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	30A

\*PV module 98th percentile operating temperature: 70°C

**CURVES OF PV MODULE**

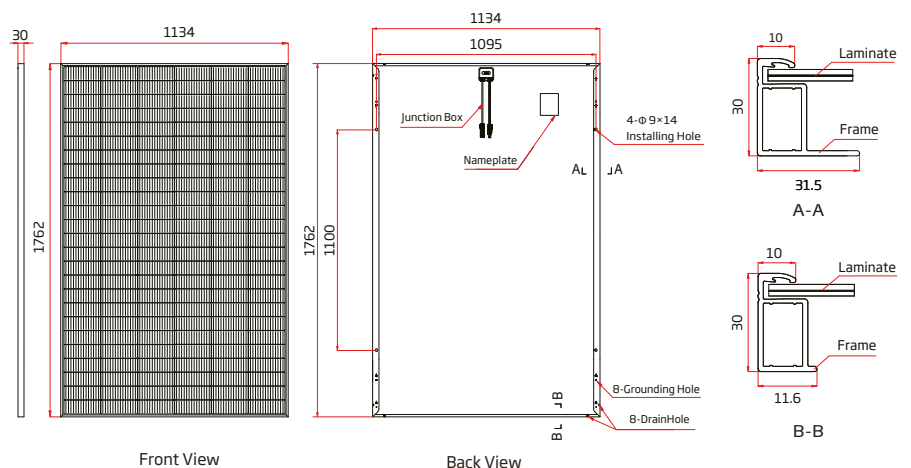
Preliminary



**MECHANICAL DATA**

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	150 cells
Module Dimensions	1762×1134×30 mm (69.37×44.65×1.18 inches)
Weight	21.1 kg (46.52lb)
Front Glass	1.6mm (0.06inches), AR Coating Heat Strengthened Glass
Back Glass	1.6mm (0.06inches), Heat Strengthened Glass
Frame	30mm(1.18inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 6.0mm <sup>2</sup> (0.009inches <sup>2</sup> ) Landscape :1100/1100 mm (43.31/43.31 inches) Length can be customized
Connector	TS4 Plus / TS4 / MC4 EVO2*
Packaging	Modules per box: 36 pieces Modules per 40' container: 936pieces

\*The connector names listed are general names; specific types are subject to the certification documents.



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CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
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