



N-TYPE MODULE

PRODUCT: TSM-NE09RC.05

PRODUCT RANGE:

410-435W

435W

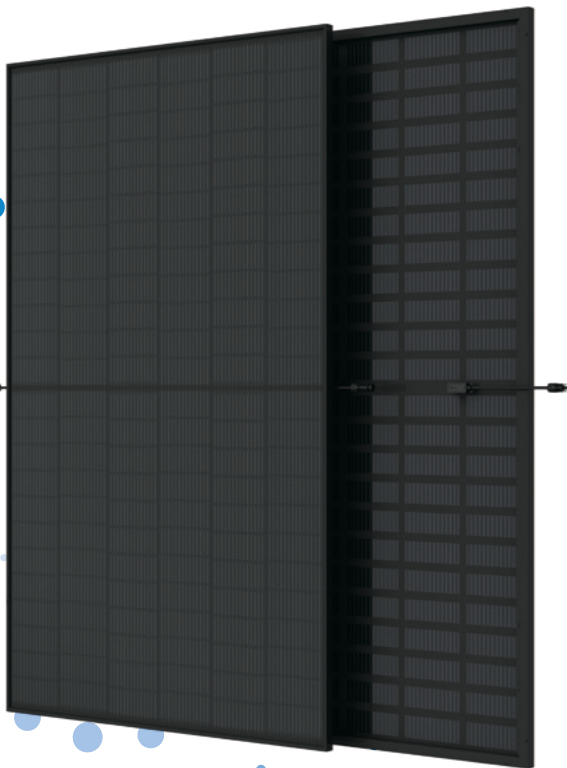
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

21.8%

MAXIMUM EFFICIENCY



**Smaller panel, Bigger power generation**

- Up to 435W, 21.8% module efficiency.
- Reduce installation cost with higher module power on the roof.
- Boost performance in warm weather with lower temperature coefficient



**High Reliability**

- Innovative non-destructive cell cutting technology for improved mechanical resistance and strength

**Lower Degradation, longer warranty, higher output**



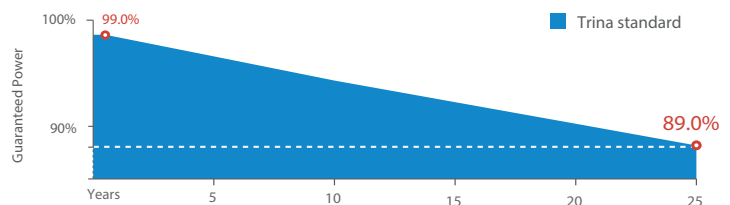
- First-year degradation 1% and annual degradation at 0.4%
- Up to 25 years product warranty and 25 years power warranty



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

- Easy for integration, designed for compatibility with existing mainstream inverters and diverse mounting systems
- Perfect size and low weight for handling and installation
- Most valuable solution on low load capacity rooftops
- Mechanical performance up to 6000 Pa positive load and 4000 Pa negative load

**Trina Solar's Vertex Bifacial Dual Glass Performance Warranty**



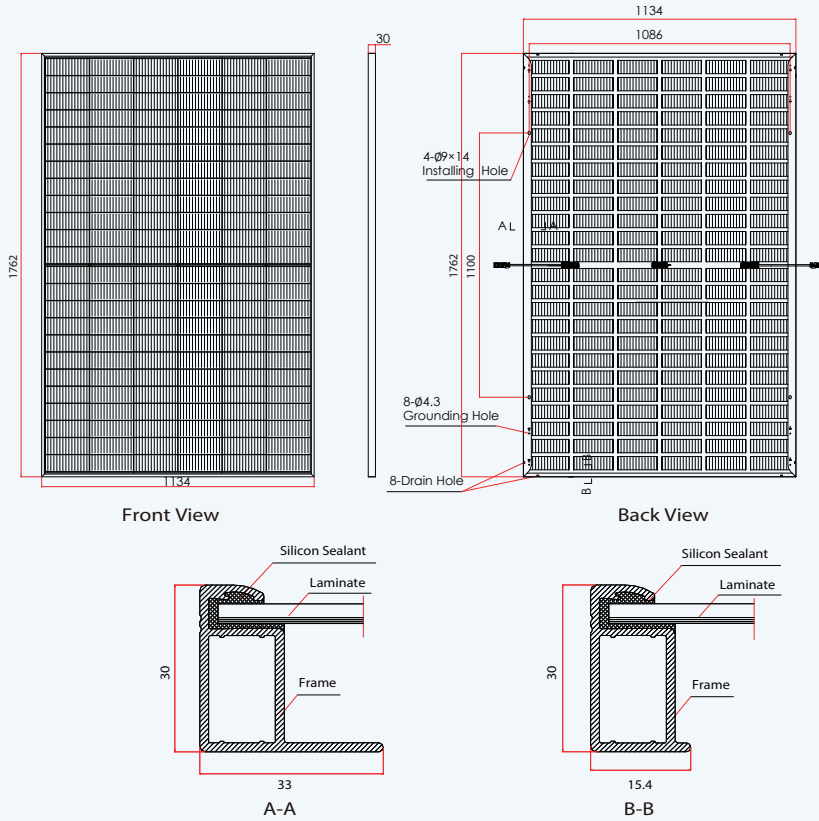
Comprehensive Products and System Certificates



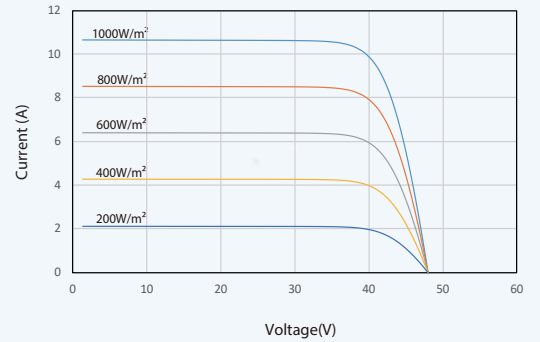
IEC61215/IEC61730/IEC61701/IEC62716/UL61730  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System



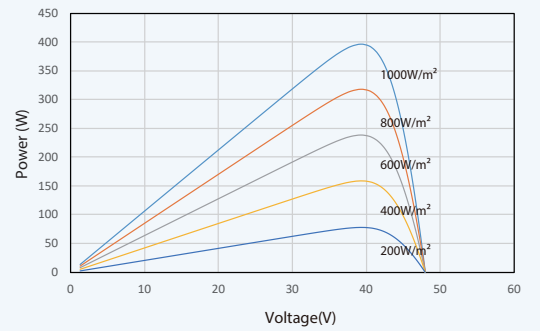
### DIMENSIONS OF PV MODULE(mm)



### I-V CURVES OF PV MODULE(420 W)



### P-V CURVES OF PV MODULE(420W)



### ELECTRICAL DATA (STC)

Peak Power Watts-P <sub>MAX</sub> (Wp)*	410	415	420	425	430	435
Power Tolerance-P <sub>MAX</sub> (W)	0 ~ +5					
Maximum Power Voltage-V <sub>MPP</sub> (V)	41.8	42.1	42.5	42.8	43.2	43.6
Maximum Power Current-I <sub>MPP</sub> (A)	9.81	9.85	9.89	9.92	9.95	9.99
Open Circuit Voltage-V <sub>OC</sub> (V)	49.7	50.1	50.5	50.9	51.4	51.8
Short Circuit Current-I <sub>SC</sub> (A)	10.46	10.50	10.54	10.57	10.60	10.65
Module Efficiency η <sub>m</sub> (%)	20.5	20.8	21.0	21.3	21.5	21.8

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

### Electrical characteristics with different power bin (reference to 10% Irradiance ratio)

Total Equivalent power -P <sub>MAX</sub> (Wp)	437	442	447	453	458	463
Maximum Power Voltage-V <sub>MPP</sub> (V)	41.8	42.1	42.5	43.2	43.6	
Maximum Power Current-I <sub>MPP</sub> (A)	10.45	10.49	10.53	10.56	10.60	10.64
Open Circuit Voltage-V <sub>OC</sub> (V)	49.7	50.1	50.5	50.9	51.4	51.8
Short Circuit Current-I <sub>SC</sub> (A)	11.14	11.18	11.22	11.26	11.29	11.34
Irradiance ratio (rear/front)	10%					

Power Bifaciality:65±10%.

### ELECTRICAL DATA (NOCT)

Maximum Power-P <sub>MAX</sub> (Wp)	312	316	320	323	327	332
Maximum Power Voltage-V <sub>MPP</sub> (V)	47.1	47.5	47.9	48.2	48.7	49.1
Maximum Power Current-I <sub>MPP</sub> (A)	8.43	8.46	8.49	8.52	8.54	8.58
Open Circuit Voltage-V <sub>OC</sub> (V)	39.0	39.3	39.6	39.9	40.3	40.6
Short Circuit Current-I <sub>SC</sub> (A)	8.01	8.04	8.07	8.09	8.12	8.16

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

### MECHANICAL DATA

Solar Cells	Topcon Bifacial
No. of cells	144cells
Module Dimensions	1762×1134×30 mm (69.37×44.65×1.18 inches)
Weight	21.8kg (48.06 lb)
Front Glass	3.2 mm (0.12inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
BackSheet	Black Grid Transparent Backsheet
Frame	30mm (1.18 inches) Anodized Aluminium Alloy, Black
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), Landscape: N 1100 mm /P 1100 mm (43.31/43.31 inches)
Connector	MC4 Evo2
Fire Type	Type 1 or Type 2

### TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P <sub>MAX</sub>	- 0.30%/°C
Temperature Coefficient of Voc	- 0.25%/°C
Temperature Coefficient of Isc	0.04%/°C

### MAXIMUM RATINGS

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

### WARRANTY

- 25 year Product Workmanship Warranty
- 25 year Power Warranty
- 1% first year degradation
- 0.4% Annual Power Attenuation

(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

- Modules per box: 36 pieces
- Modules per 40' container: 828 pieces