



BACKSHEET MONOCRYSTALLINE MODULE

PRODUCT: TSM-DE19R

PRODUCT RANGE: 560-580W

580W

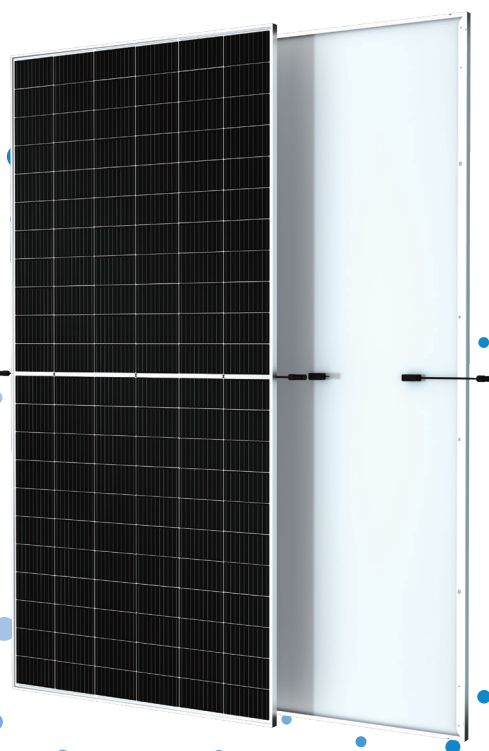
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

21.5%

MAXIMUM EFFICIENCY



High customer value

- Lower LCOE (Levelized Cost Of Energy), reduced BOS (Balance of System) cost, shorter payback time
- Lowest guaranteed first year and annual degradation;
- Designed for compatibility with existing mainstream system components
- Higher return on Investment



High power up to 580W

- Up to 21.5% module efficiency with high density interconnect technology
- Multi-busbar technology for better light trapping effect, lower series resistance and improved current collection



High reliability

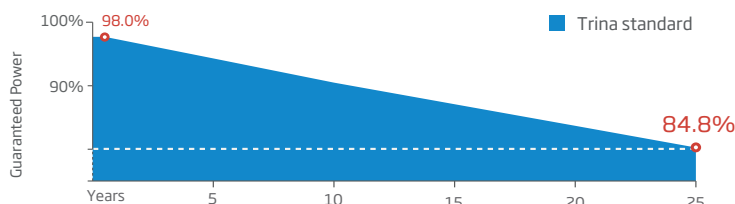
- Minimized micro-cracks with innovative non-destructive cutting technology
- Ensured PID resistance through cell process and module material control
- Mechanical performance up to 5400 Pa positive load and 2400 Pa negative load



High energy yield

- Excellent IAM (Incident Angle Modifier) and low irradiation performance, validated by 3rd party certifications
- The unique design provides optimized energy production under inter-row shading conditions
- Lower temperature coefficient (-0.34%) and operating temperature

Trina Solar's Backsheet Performance Warranty



Comprehensive Products and System Certificates



IEC61215/IEC61730/IEC61701/IEC62716

ISO 9001: Quality Management System

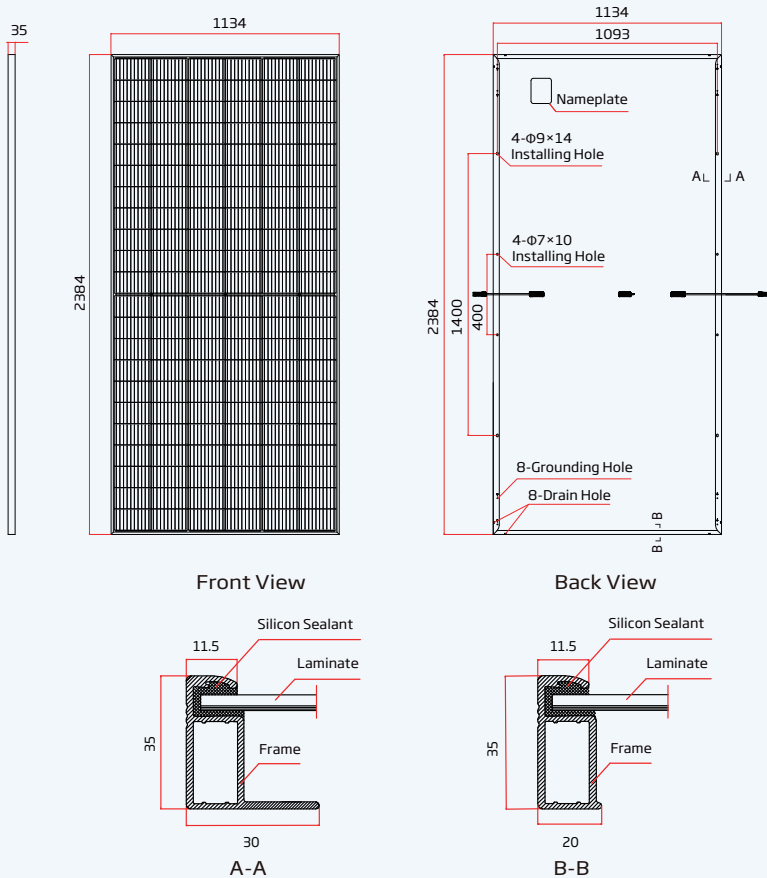
ISO 14001: Environmental Management System

ISO14064: Greenhouse Gases Emissions Verification

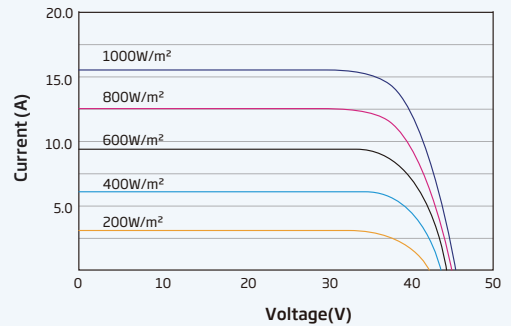
ISO45001: Occupational Health and Safety Management System



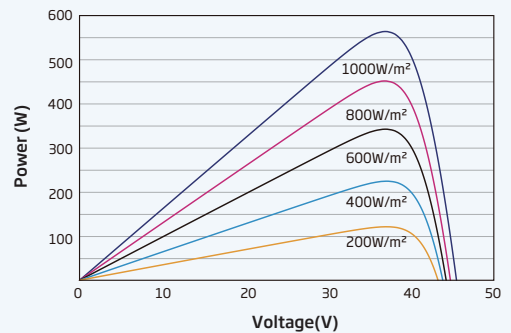
### DIMENSIONS OF PV MODULE(mm)



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



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



### ELECTRICAL DATA (STC)

Peak Power Watts - P <sub>MAX</sub> (Wp)*	560	565	570	575	580
Power Tolerance - P <sub>MAX</sub> (W)	0 ~ +5				
Maximum Power Voltage - V <sub>MPP</sub> (V)	38.0	38.3	38.5	38.8	39.0
Maximum Power Current - I <sub>MPP</sub> (A)	14.72	14.76	14.79	14.83	14.86
Open Circuit Voltage - V <sub>OC</sub> (V)	45.3	45.6	45.8	46.1	46.3
Short Circuit Current - I <sub>SC</sub> (A)	15.86	15.91	15.95	16.00	16.04
Module Efficiency $\eta_m$ (%)	20.7	20.9	21.1	21.3	21.5

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

### ELECTRICAL DATA (NOCT)

Maximum Power - P <sub>MAX</sub> (Wp)	424	428	431	436	439
Maximum Power Voltage - V <sub>MPP</sub> (V)	35.0	35.3	35.4	35.7	35.9
Maximum Power Current - I <sub>MPP</sub> (A)	12.10	12.14	12.18	12.22	12.25
Open Circuit Voltage - V <sub>OC</sub> (V)	42.6	42.9	43.1	43.4	43.6
Short Circuit Current - I <sub>SC</sub> (A)	12.78	12.82	12.85	12.89	12.93

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

### MECHANICAL DATA

Solar Cells	Monocrystalline
No. of cells	132 cells
Module Dimensions	2384 $\times$ 1134 $\times$ 35 mm (93.86 $\times$ 44.65 $\times$ 1.38 inches)
Weight	29.1 kg (64.2 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	EVA/POE
Backsheet	White
Frame	35mm(1.38 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EV02 / TS4*

\*Please refer to regional datasheet for specified connector.

### TEMPERATURE RATINGS

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

### MAXIMUM RATINGS

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

### WARRANTY

12 year Product Workmanship Warranty  
25 year Power Warranty  
2% first year degradation  
0.55% Annual Power Attenuation

(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

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