



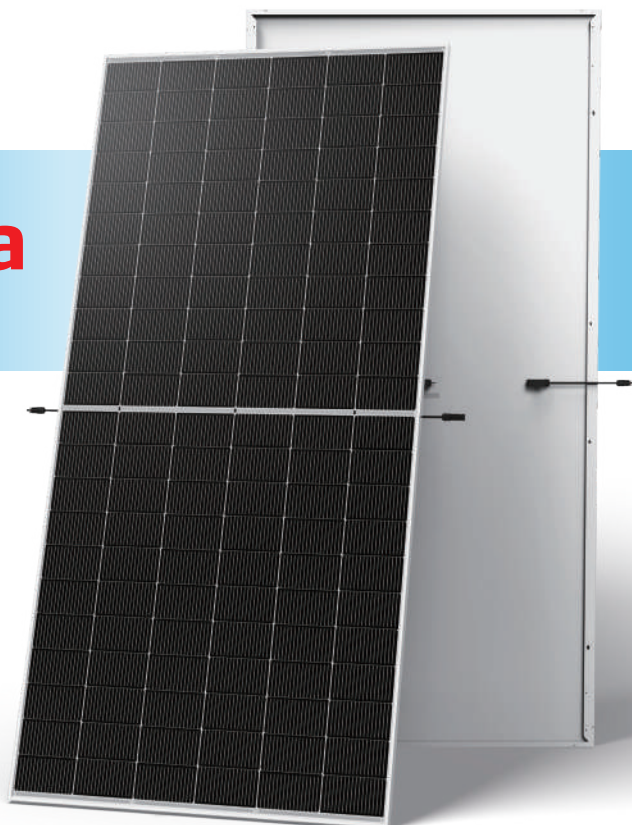
# N-type i-TOPCon Ultra

BACKSHEET MONOCRYSTALLINE MODULE

TSM-NE19R 615-650W

**650<sub>W</sub>** / MAXIMUM  
POWER OUTPUT

**24.1%** / MAXIMUM  
EFFICIENCY



## High customer value

- Standardized module size with flagship module power, 30W higher compared with conventional technology
- Low Voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 1%~5%
- Suitable for all scenario, especially C&I, residential, and ground applications
- Higher container space utilization effectively reduces the freight cost
- Excellent compatibility with existing mainstream system components



## High power up to 650W

- Up to 24.1% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



## High reliability

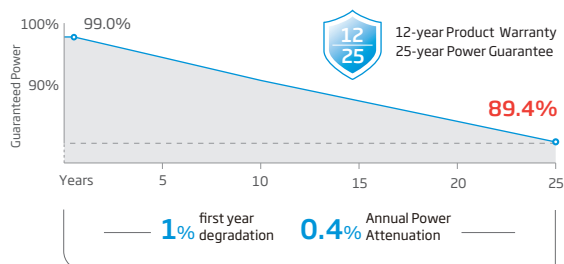
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



## High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)

## Performance Warranty



\* Please refer to product warranty for details

## 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



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

© 2025 Trina Solar Co., Ltd. All rights reserved. Specifications included in this datasheet are subject to change without notice. The right of final interpretation belongs to Trina Solar Co., Ltd.

Version number: TSM\_EN\_2025\_C

**Trina**solar

## ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}(W_p)^*$	615	620	625	630	635	640	645	650
Power Selection (W)**	0 ~ +5							
Maximum Power Voltage- $V_{MPP}$ (V)	41.10	41.40	41.60	42.00	42.30	42.60	42.90	43.20
Maximum Power Current- $I_{MPP}$ (A)	14.98	14.99	15.00	15.01	15.02	15.03	15.04	15.05
Open Circuit Voltage- $V_{oc}$ (V)	49.30	49.60	49.80	50.30	50.50	50.90	51.20	51.50
Short Circuit Current- $I_{sc}$ (A)	15.89	15.91	15.93	15.94	15.95	15.97	15.99	16.01
Module Efficiency $\eta_m$ (%)	22.8	23.0	23.1	23.3	23.5	23.7	23.8	24.1

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

## ELECTRICAL DATA (NOCT)

Peak Power Watts- $P_{MAX}(W_p)$	470	474	477	482	487	490	494	498
Maximum Power Voltage- $V_{MPP}$ (V)	38.60	38.80	39.00	39.40	39.80	40.00	40.30	40.60
Maximum Power Current- $I_{MPP}$ (A)	12.19	12.20	12.21	12.23	12.24	12.25	12.26	12.27
Open Circuit Voltage- $V_{oc}$ (V)	46.80	47.10	47.30	47.60	47.90	48.30	48.60	48.80
Short Circuit Current- $I_{sc}$ (A)	12.80	12.82	12.84	12.85	12.86	12.87	12.89	12.91

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 ( $\pm 2^\circ\text{C}$ )

Temperature Coefficient of  $P_{MAX}$  -0.29% /°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

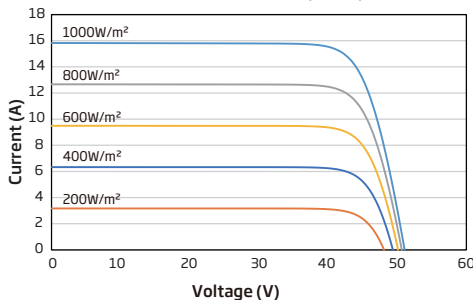
Operating Temperature -40~+70°C

Maximum System Voltage 1500V DC (IEC)

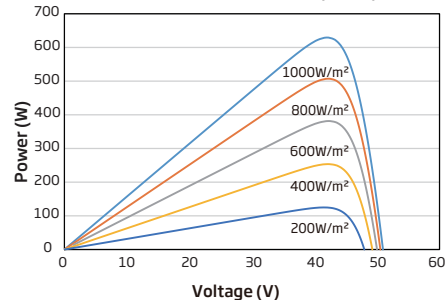
Max Series Fuse Rating 30A

## CURVES OF PV MODULE

I-V CURVES OF PV MODULE (630W)



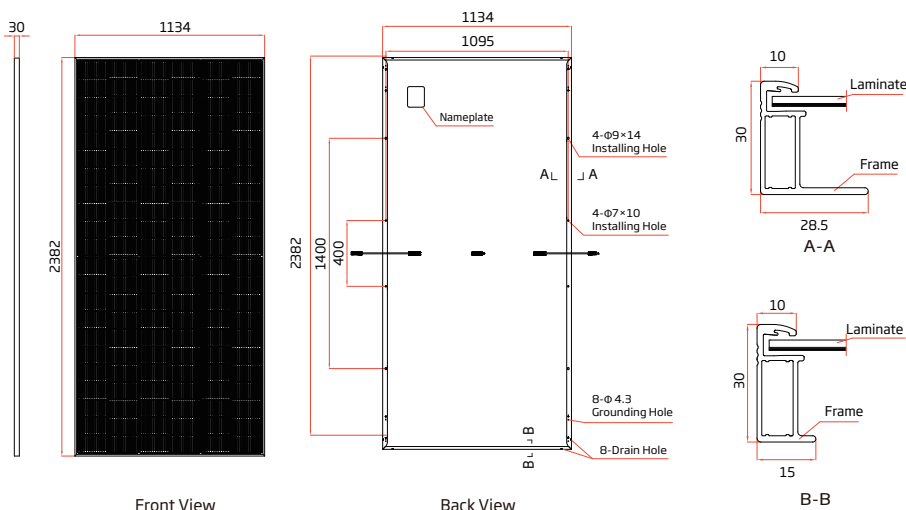
P-V CURVES OF PV MODULE (630W)



## MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2382×1134×30 mm (93.78×44.65×1.18 inches)
Weight	27.9 kg (61.51 lb)
Front Glass	3.2mm (0.13inches), AR Coating Tempered Glass
Backsheet	White
Frame	30mm (1.18 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: 200/320 mm (7.87/12.60 inches) Length can be customized
Connector	TS4 / TS4 Plus / MC4 EV02*
Packaging	Modules per box: 36 pieces Modules per 40' container: 720 pieces

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



www.trinasolar.com

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.  
© 2025 Trina Solar Co., Ltd. All rights reserved. Specifications included in this datasheet are subject to change without notice.  
The right of final interpretation belongs to Trina Solar Co., Ltd.  
Version number: TSM\_EN\_2025\_C