

# THE TALLMAX<sup>M</sup>

FRAMED 144 HALF-CELL MULTI-BUSBAR MODULE



**144-Cell**  
MONOCRYSTALLINE MODULE

**395-420W**  
POWER OUTPUT RANGE

**20.9%**  
MAXIMUM EFFICIENCY

**0~+5W**  
POSITIVE POWER TOLERANCE

PRODUCTS	COLOR OF FRAME	POWER RANGE
TSM-DE15M(II)	Silver	395-420W



## High power output

- Reduce BOS cost with high power bin and 1500V system voltage
- New cell string layout and split J-box location reduces the energy loss caused by inter-row shading
- Lower resistance of half-cut cells and increased MBB (Multi Busbar) reflectance ensure higher power



## High energy generation, low LCOE

- Excellent 3rd party validated IAM and low light performance with cell process and module material optimization
- Low  $P_{max}$  temp coefficient (-0.36%) increases energy production
- Better anti-shading performance and lower operating temperature



## Certified to perform in highly challenging environments

- High PID resistance through cell process and module material control
- Resistant to salt, acid, sand, and ammonia
- Certified to 5400 Pa positive load and 2400 Pa negative load



## Easy to install, wide application

- Frame design enables compatibility with standard installation methods
- Deployable for ground mounted and rooftop projects
- Safe and easy to transport, handle, and install

Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable brand. Trina Solar now distributes its PV products to over 100 countries all over the world. We are committed to building strategic, mutually beneficial collaborations with installers, developers, distributors and other partners in driving smart energy together.

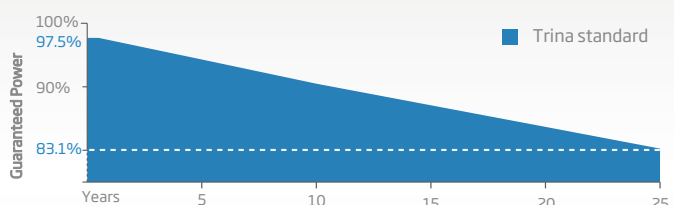
### Comprehensive Products and System Certificates

- UL 61730
- IEC61215/IEC61730/IEC61701/IEC62716
- ISO 9001: Quality Management System
- ISO 14001: Environmental Management System
- ISO14064: Greenhouse Gases Emissions Verification
- OHSAS 18001: Occupation Health and Safety Management System



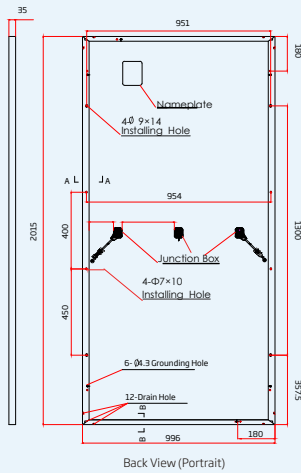
## PERFORMANCE WARRANTY

12 Year Product Warranty · 25 Year Power Warranty

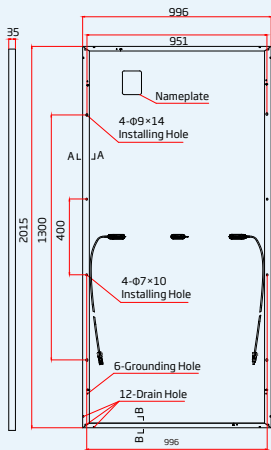


From the 2nd year to the 25th year, the average annual power decline will be no more than 0.6%.

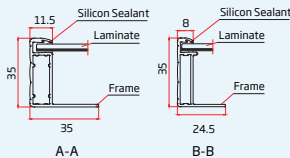
### DIMENSIONS OF PV MODULE (mm)



Back View (Portrait)



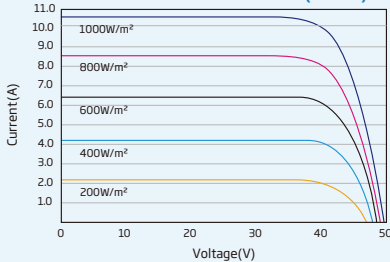
Back View (Landscape)



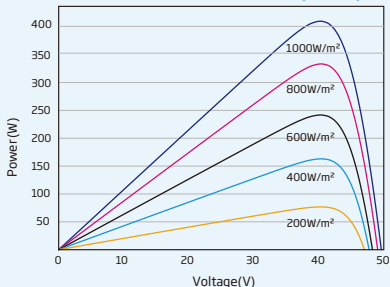
A-A

B-B

### I-V CURVES OF PV MODULE(410W)



### P-V CURVES OF PV MODULE(410W)



### ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)*	395	400	405	410	415	420
Power Output Tolerance- $P_{MAX}$ (W)	0 ~ +5					
Maximum Power Voltage- $V_{MPP}$ (V)	40.1	40.3	40.5	40.7	40.9	41.0
Maximum Power Current- $I_{MPP}$ (A)	9.86	9.92	10.00	10.07	10.15	10.25
Open Circuit Voltage- $V_{OC}$ (V)	48.7	49.0	49.2	49.4	49.6	49.7
Short Circuit Current- $I_{SC}$ (A)	10.37	10.45	10.52	10.59	10.66	10.76
Module Efficiency $\eta_m$ (%)	19.7	19.9	20.2	20.4	20.7	20.9

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

### ELECTRICAL DATA (NMOT)

Maximum Power- $P_{MAX}$ (Wp)	298	301	305	309	313	317
Maximum Power Voltage- $V_{MPP}$ (V)	37.7	38.0	38.1	38.4	38.6	38.8
Maximum Power Current- $I_{MPP}$ (A)	7.90	7.93	8.01	8.05	8.11	8.18
Open Circuit Voltage- $V_{OC}$ (V)	45.9	46.1	46.3	46.5	46.6	46.7
Short Circuit Current- $I_{SC}$ (A)	8.36	8.42	8.48	8.54	8.59	8.66

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

### MECHANICAL DATA

Solar Cells	Monocrystalline PERC 158.75mm
Cell Orientation	144 cells (6 × 24)
Module Dimensions	2015 × 996 × 35 mm (79.33 × 39.21 × 1.38 inches)
Weight	22.0kg ( 48.5lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA
Backsheet	White
Frame	35 mm (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: N 140mm/P 285mm (5.51/11.22 inches) Landscape: N 1400 mm /P 1400 mm (55.12/55.12 inches)
Connector	Trina TS4/MC4-Evo2
Fire Type	Type 1

### TEMPERATURE RATINGS

NMOT (Nominal Module Operating Temperature)	41°C ( $\pm 3^\circ\text{C}$ )
Temperature Coefficient of $P_{MAX}$	- 0.36%/°C
Temperature Coefficient of $V_{OC}$	- 0.26%/°C
Temperature Coefficient of $I_{SC}$	0.04%/°C

### MAXIMUM RATINGS

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

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection, refer fuse section in User Manual)

### WARRANTY

12 year Product Workmanship Warranty
25 year Power Warranty
(Please refer to product warranty for details)

### PACKAGING CONFIGURATION

Modules per box: 31 pieces
Modules per 40' container: 682 pieces
Pallet dimensions (L x W x H): 2055 x 1125 x 1153 mm
Pallet weight: 723.5kg (1,595lb)