

THE

# DUOMAX<sup>tw</sup>

## BIFACIAL DUAL GLASS 252 LAYOUT MODULE

### 252 LAYOUT MONOCRYSTALLINE MODULE

### 465-485W POWER OUTPUT RANGE

### 20.6% MAXIMUM EFFICIENCY

### 0~+5W POSITIVE POWER TOLERANCE

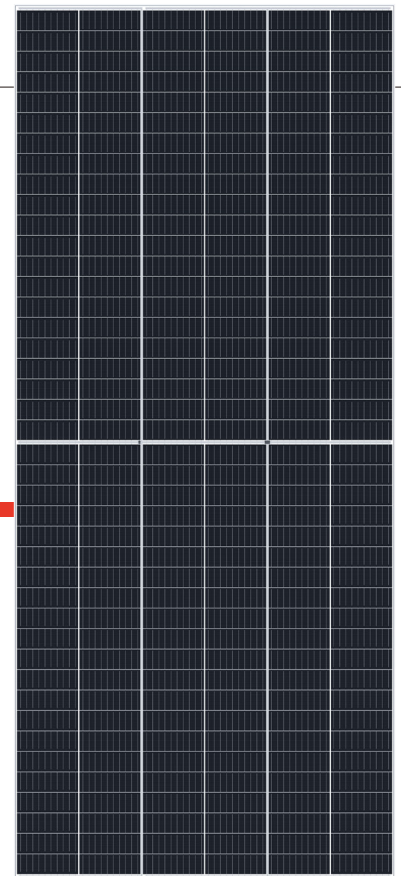
Founded in 1997, Trina Solar is the world's leading total solution provider for solar energy. With local presence around the globe, Trina Solar is able to provide exceptional service to each customer in each market and deliver our innovative, reliable products with the backing of Trina as a strong, bankable 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

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



PRODUCTS	POWER RANGE
TSM-DEG15VC.20(II)	465-485W



#### High power

- Up to 485W front power and 20.6% module efficiency with 1/3-cut and MBB (Multi Busbar) technology enable higher BOS savings
- Lower resistance and good reflection effect of MBB ensure higher power



#### High reliability

- Improved PID resistance through cell process and module material control
- Resistant to salt, acid, and ammonia
- Proven to be reliable in high temperature and humidity areas
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



#### High energy generation

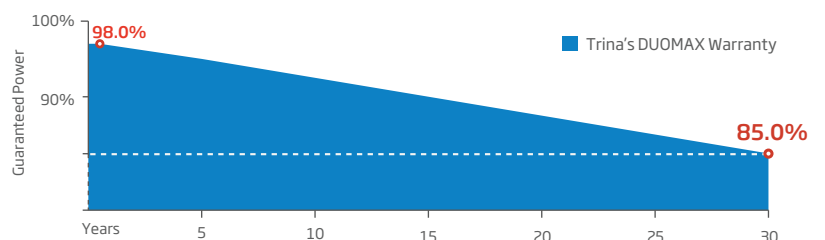
- Up to 25% additional power gain from back side depending on the albedo
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Better anti-shading performance and lower operating temperature



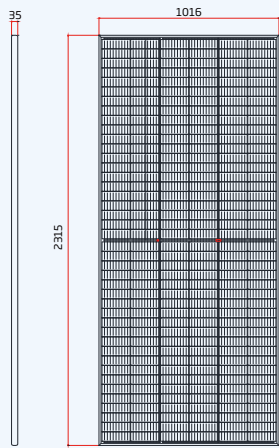
#### Easy to install

- Frame design makes module compatible with all racking and installation methods
- Easy to handle during transportation and install as normal framed module

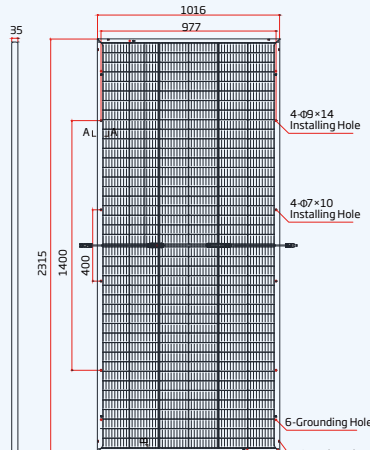
#### Trina Solar's DUOMAX Performance Warranty



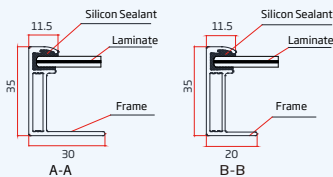
**DIMENSIONS OF PV MODULE(mm)**



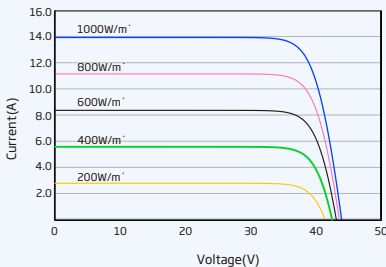
Front View



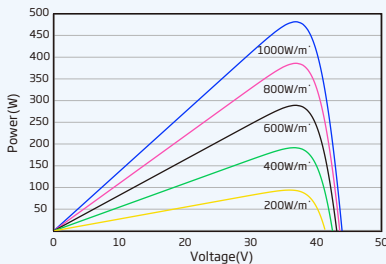
Back View



**I-V CURVES OF PV MODULE(480W)**



**P-V CURVES OF PV MODULE(480W)**



**ELECTRICAL DATA (STC)**

Peak Power Watts- $P_{MAX}$ (Wp)*	465	470	475	480	485
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5				
Maximum Power Voltage- $V_{MPP}$ (V)	35.8	35.9	36.0	36.1	36.2
Maximum Power Current- $I_{MPP}$ (A)	12.99	13.09	13.19	13.29	13.39
Open Circuit Voltage- $V_{OC}$ (V)	43.0	43.1	43.2	43.3	43.4
Short Circuit Current- $I_{SC}$ (A)	13.58	13.68	13.80	13.92	13.97
Module Efficiency $\eta_m$ (%)	20.0	20.0	20.2	20.4	20.6

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

**Electrical characteristics with different rear side power gain (reference to 485 Wp front)**

Maximum Power- $P_{MAX}$ (Wp)	509	534	558	582	606
Maximum Power Voltage- $V_{MPP}$ (V)	36.2	36.2	36.2	36.2	36.2
Maximum Power Current- $I_{MPP}$ (A)	14.06	14.73	15.40	16.07	16.74
Open Circuit Voltage- $V_{OC}$ (V)	43.4	43.4	43.4	43.4	43.4
Short Circuit Current- $I_{SC}$ (A)	14.67	15.37	16.07	16.76	17.46
Pmax gain	5%	10%	15%	20%	25%

Power Bifaciality: 70±5%.

**ELECTRICAL DATA (NOCT)**

Maximum Power- $P_{MAX}$ (Wp)	350	354	358	361	365
Maximum Power Voltage- $V_{MPP}$ (V)	33.6	33.7	33.8	33.8	34.1
Maximum Power Current- $I_{MPP}$ (A)	10.41	10.49	10.59	10.68	10.69
Open Circuit Voltage- $V_{OC}$ (V)	40.5	40.6	40.7	40.8	40.8
Short Circuit Current- $I_{SC}$ (A)	10.94	11.02	11.12	11.22	11.26

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

**MECHANICAL DATA**

Solar Cells	Monocrystalline PERC
Cell Orientation	252 cells (12 × 21)
Module Dimensions	2315 × 1016 × 35 mm (91.14 × 40 × 1.38 inches)
Weight	30.0 kg (66.1 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)
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 450 mm/P 450 mm (17.72/17.72 inches) Landscape: N 1400/P 1400 mm (55.12/55.12 inches)
Connector	MC4 EVO2 / TS4

**TEMPERATURE RATINGS**

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of $P_{MAX}$	-0.34 %/°C
Temperature Coefficient of $V_{OC}$	-0.25 %/°C
Temperature Coefficient of $I_{SC}$	0.04 %/°C

(Do not connect Fuse in Combiner Box with two or more strings in parallel connection)

**MAXIMUM RATINGS**

Operational Temperature	-40 ~ +85°C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	25A

**WARRANTY**

12 year Product Workmanship Warranty
30 year Power Warranty

(Please refer to product warranty for details)

**PACKAGING CONFIGURATION**

Modules per box: 31 pieces
Modules per 40' container: 589 pieces

\*\* Back-side power gain varies depending upon the specific project albedo