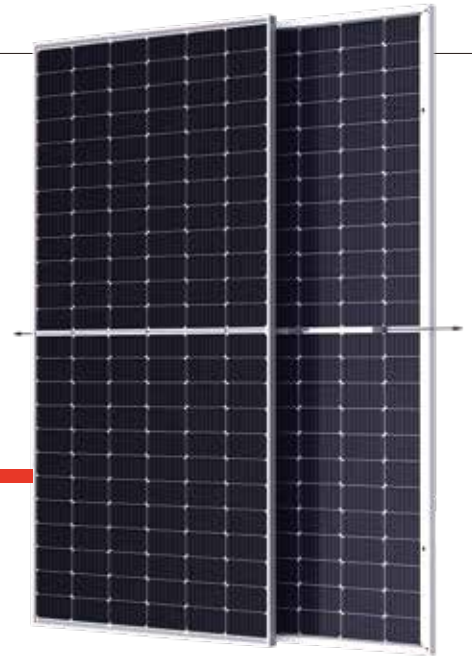


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# DUOMAX twinn

## BIFACIAL DUAL GLASS 144 LAYOUT MODULE



### 144 LAYOUT MONOCRYSTALLINE MODULE

### 430-455W POWER OUTPUT RANGE

### 20.7% 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  
 ISO 9001: Quality Management System  
 ISO 14001: Environmental Management System  
 ISO14064: Greenhouse Gases Emissions Verification  
 ISO45001: Occupational Health and Safety Management System



**PRODUCTS**

TSM-DEG17MC.20(II)

**POWER RANGE**

430-455W



#### High power Mono Perc

- Up to 455W front power and 20.7% module efficiency with half-cut and MBB (Multi Busbar) technology bringing more BOS savings
- Lower resistance of half-cut and good reflection effect of MBB ensure high power



#### High reliability

- Ensured 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
- Minimizes micro-crack and snail trails
- Mechanical performance: Up to 5400 Pa positive load and 2400 Pa negative load



#### High energy generation

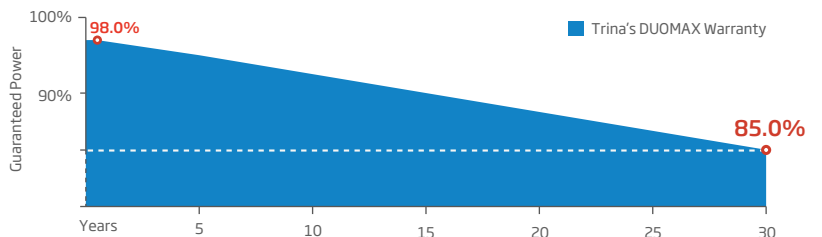
- Up to 25% additional power gain from back side depending on the albedo ;
- Excellent IAM and low light performance validated by 3rd party with cell process and module material optimization
- Better anti-shading performance and lower operating temperature



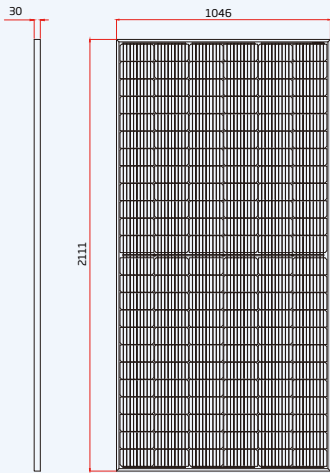
#### Easy to install

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

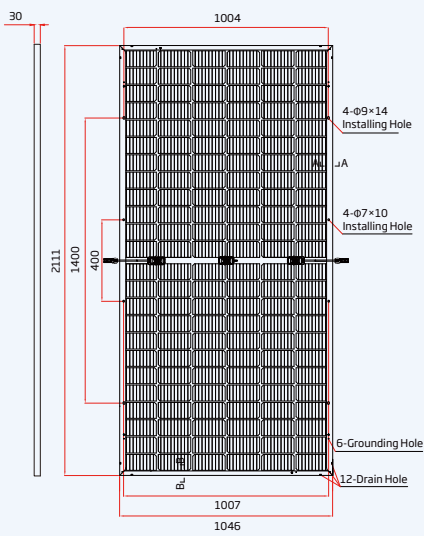
#### Trina Solar's DUOMAX Performance Warranty



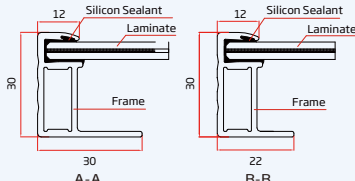
DIMENSIONS OF PV MODULE(mm)



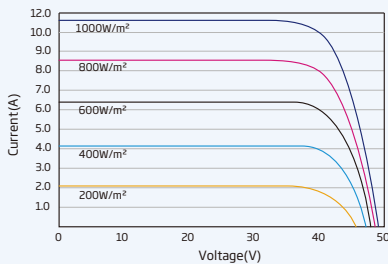
Front View



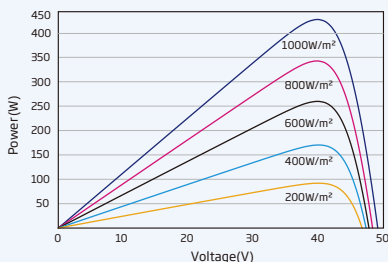
Back View



I-V CURVES OF PV MODULE(440 W)



P-V CURVES OF PV MODULE(440W)



ELECTRICAL DATA (STC)

Peak Power Watts- $P_{MAX}$ (Wp)*	430	435	440	445	450	455
Power Tolerance- $P_{MAX}$ (W)	0 ~ +5					
Maximum Power Voltage- $V_{MPP}$ (V)	40.5	40.8	41.1	41.4	41.7	41.7
Maximum Power Current- $I_{MPP}$ (A)	10.62	10.67	10.71	10.75	10.80	10.90
Open Circuit Voltage- $V_{OC}$ (V)	48.7	48.9	49.1	49.3	49.5	49.5
Short Circuit Current- $I_{SC}$ (A)	11.20	11.24	11.28	11.32	11.36	11.45
Module Efficiency $\eta_m$ (%)	19.5	19.7	19.9	20.2	20.4	20.7

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 435 Wp front)

Maximum Power- $P_{MAX}$ (Wp)	457	479	500	522	544
Maximum Power Voltage- $V_{MPP}$ (V)	40.8	40.8	40.8	40.8	40.8
Maximum Power Current- $I_{MPP}$ (A)	11.20	11.74	12.27	12.80	13.34
Open Circuit Voltage- $V_{OC}$ (V)	49.0	49.1	49.2	49.3	49.4
Short Circuit Current- $I_{SC}$ (A)	11.80	12.36	12.93	13.49	14.05
Pmax gain	5%	10%	15%	20%	25%

Power Bifaciality: 70±5%.

ELECTRICAL DATA (NOCT)

Maximum Power- $P_{MAX}$ (Wp)	324	328	331	335	339	342
Maximum Power Voltage- $V_{MPP}$ (V)	37.9	38.1	38.4	38.6	39.1	39.1
Maximum Power Current- $I_{MPP}$ (A)	8.55	8.60	8.64	8.67	8.65	8.76
Open Circuit Voltage- $V_{OC}$ (V)	45.8	46.0	46.2	46.4	46.4	46.5
Short Circuit Current- $I_{SC}$ (A)	9.02	9.06	9.09	9.12	9.16	9.23

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

MECHANICAL DATA

Solar Cells	Monocrystalline
Cell Orientation	144 cells (6 × 24)
Module Dimensions	2111×1046×30 mm (83.11×41.18×1.18 inches)
Weight	28.6 kg (63.1 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	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: 280/280 mm(11.02/11.02 inches) Landscape: 1900/1900 mm(74.80/74.80inches)
Connector	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)

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
2% first year degradation
0.45% Annual Power Attenuation

(Please refer to product warranty for details)

MAXIMUM RATINGS

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

PACKAGING CONFIGURATION

Modules per box: 36 pieces
Modules per 40' container: 792 pieces