

## TPM8-TPLDD132 650-670W MONOCRYSTALLINE PERC BIFACIAL PV MODULE



### Bifacial Technology

- Module power increases 5-25% generally, bringing significantly lower LCOE and higher IRR.



### Adapt to Harsh Outdoor Environments

- Resistant to harsh environments such as salt, ammonia, sand, high temperature, and high humidity environment



### Better Weak Illumination Response

- More power output in weak light conditions, such as haze, cloudy, and early morning



### Excellent Quality Management System

- Warranted reliability and stringent quality assurances well beyond certified requirements.



### Higher Power Output

- MBB technology applied led to better light trapping and current collection to improve module power output

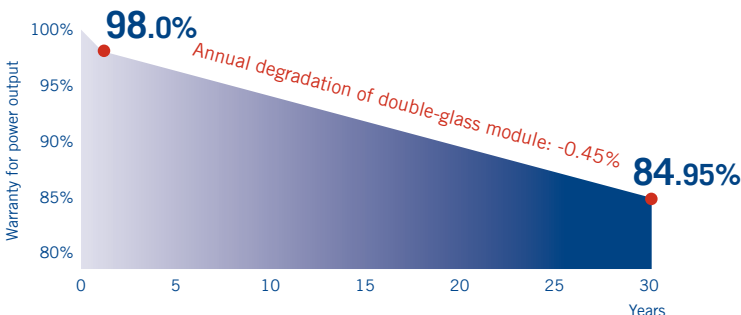
### Linear Power Output Warranty

12

12-year warranty for materials

30

30-year warranty for linear power output



### Quality Management System and Product Certification



IEC61730, UL61730  
ISO9001:2015:Quality/Management system  
ISO14001:2015:Environment Management system  
ISO45001:2018 Occupational health and safety management systems

**Electrical Characteristics (STC)**

Module Type (TPM8-TPLDD132)		650	655	660	665	670
Maximum Power Voltage Vmp	[V]	37.7	37.9	38.1	38.3	38.5
Maximum Power Current Imp	[A]	17.25	17.29	17.33	17.37	17.41
Open Circuit Voltage Voc	[V]	45.2	45.4	45.6	45.8	46
Short Circuit Current Isc	[A]	18.27	18.32	18.37	18.42	18.47
Module Efficiency-η	[%]	20.92	21.09	21.25	21.41	21.57

**Electrical Characteristics at NMOT**

Maximum Power Pmax	[W]	489	492	496	500	504
Maximum Power Voltage Vmpp	[V]	35.2	35.4	35.6	35.7	35.9
Maximum Power Current Impp	[A]	13.88	13.92	13.95	13.99	14.03
Open Circuit Voltage Voc	[V]	42.4	42.6	42.8	43	43.2
Short Circuit Current Isc	[A]	14.75	14.79	14.83	14.87	14.91

Note:  
1. Standard Test Conditions (STC): irradiance 1000 W/m<sup>2</sup>; AM 1.5; ambient temperature 25°C according to EN 60904-3;  
2. Nominal Module Operating Temperature (NMOT): Irradiance 800W/m<sup>2</sup>; wind speed 1m/s, ambient temperature 20°C.  
3. Tolerance of Pm: 0~+5W, Measuring uncertainty of power: ±3%. Performance deviation of Voc [V], Isc [A], Vm [V] and Im [A]: ±3%.

**ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN**

Front power Pmax	[W]	650	655	660	665	670
Total power Pmax	[W]	813	819	825	831	838
Vmp (Total)	[V]	37.8	38	38.2	38.4	38.6
Imp (Total)	[A]	21.49	21.55	21.6	21.65	21.7
Voc (Total)	[V]	45.3	45.5	45.7	45.9	46.1
Isc (Total)	[A]	22.77	22.83	22.89	22.96	23.02

**Mechanical Characteristics**

Solar cells	Mono P-TYPE
Cells orientation	132 (6×22)
Module dimension	2384×1303×35 mm (With Frame)
Weight	38.5kg
Glass	2.0mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction box	IP68, 1500VDC, 3 diodes
Cables	4mm <sup>2</sup> , 400mm (customized length based on needs)
Connectors	MC4

**Temperature Parameters**

NMOT	43°C ±2°C
Temperature coefficient of Pmax	-0.34%/°C
Temperature coefficient of Voc	-0.29%/°C
Temperature coefficient of Isc	0.05%/°C
Bifaciality	70±10%

**Working Conditions**

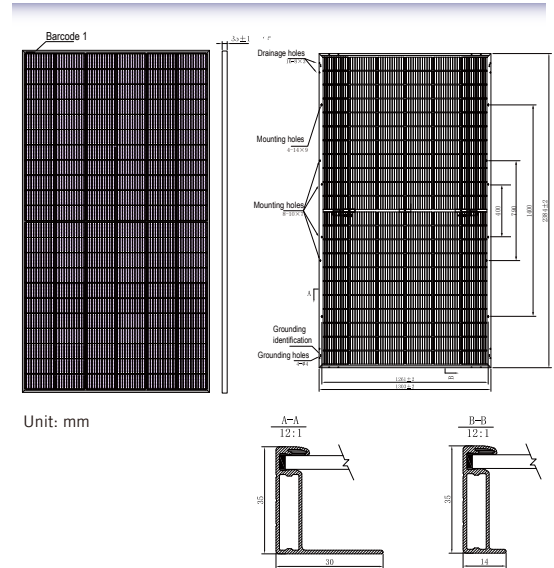
Maximum system voltage	1500 V DC
Operating temperature	-40 C ~+85 C
Maximum series fuse	35 A
Front Side Maximum Static Loading	Up to 5400 Pa
Rear Side Maximum Static Loading	Up to 2400Pa

**Packing Configuration**

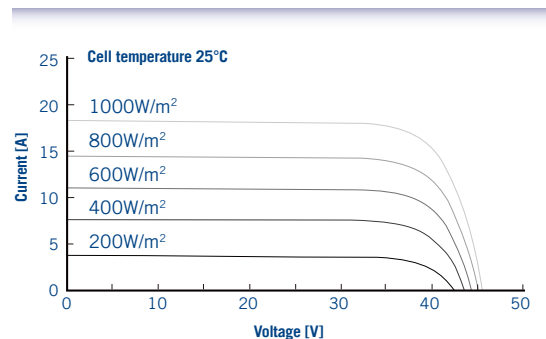
Piece/Box	31
Piece/Container(40'HQ)	558

\*Customized packaging is available upon request

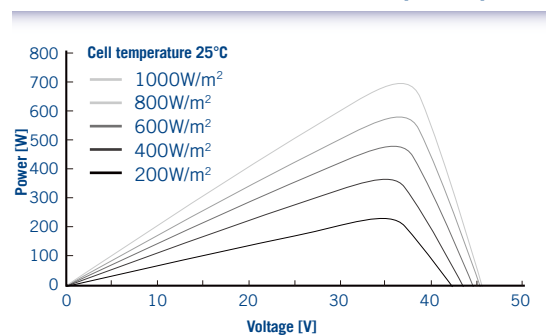
**Engineering Drawings**



**I-V CURVES OF PV MODULE (650W)**



**P-V CURVES OF PV MODULE (650W)**



Declaration: With the technical progress and product updates, there exists a deviation between the technical parameter of the Topco Solar's future products and the technical parameter in this specification. The Topco Solar reserves the right to adjust the technical parameter at any time without notifying the customers. Topco Solar reserves the final right of interpretation.

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