TOPRAY Solar

TPS105T Photovoltaic Module

180W/185W/190W/195W/200W

- Plus power tolerance (0-3%) to ensure the high reliability of power output
- Modules certified by TÜV to withstand high level of wind loads (2400 Pa) and snow loads (5400 Pa)*
- Proprietary PV glass design improves oblique irradiance performance and enhances module yield in low-light and medium-angle-light condition
- Easy installation and minimal maintenance with compatibility to industry standard inverters and mounting systems
- Special PV Module Insurances by world leading insurance company guarantees the benefit of PV investors and PV module users
- Junction box and bypass diodes guarantee the modules free of overheating and "hot spot effect"

Topray Solar manufactures high quality crystalline modules through rigorous quality control in every procedure of our vertical integration. TPS105T module series ensures a guaranteed power performance in solar arrays for residential and commercial installations.

Guaranteed Performance**

10 Years
Manufacturing Warranty

12 Years Warranty,
90% Power Output

25 Years Warranty,
80% Power Output

Free module recycling through membership in the PV Cycle Association.

Choosing Topray Solar

- The most vertically integrated solar manufacturer in the industry with production of ingots, wafer, solar cells and modules using both mono crystalline and multi crystalline technology.
- Manufacturing with international quality standards and environment management system: ISO 9001 and ISO 14001.
- Modules certified by global testing facilities: IEC61215, IEC61730, CE, ROHS.
- Global distribution with local warehousing, delivery and after sales services.

- Minimal wiring effort required as the module has high reverse current resistance.
- Most updated design with drainage holes in the frame ensures the modules to withstand various weather conditions.

* Please refer to Topray Safety and Installation Manual for details.
** Please refer to Topray Limited Product Warranty for details.

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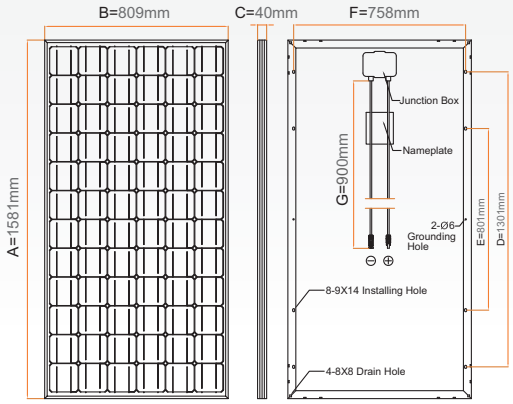
MECHANICAL SPECIFICATION

Cell Type	Monocrystalline 125×125 mm (5 inches)
Number of cells	72 (6×12)
Dimensions (A×B×C)	1581×809×40mm
Weights	14kg
Front Glass	3.2 mm Low iron tempered glass
Frame	Anodized aluminum
Junction Box	IP 65, with bypass diodes
Connector	MC4 compatible
Output Cables	TÜV, ±length 900mm, 4.0mm²

MECHANICAL DRAWINGS



ELECTRICAL CHARACTERISTICS

PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m², 25 °C, AM 1.5)

Maximum Power at STC (Pmax)	180W	185W	190W	195W	200W
Short Circuit Current (Isc)	5.50A	5.61A	5.66A	5.68A	5.72A
Open Circuit Voltage (Voc)	43.20V	43.40V	44.00V	45.00V	45.20V
Maximum Power Current (Impp)	5.10A	5.14A	5.23A	5.33A	5.41A
Maximum Power Voltage (Vmpp)	35.20V	36.00V	36.30V	36.60V	37.00V
Encapsulated Cell Efficiency	16.80%	17.30%	17.80%	18.20%	18.60%
Module Efficiency	14.10%	14.50%	14.90%	15.30%	15.70%
Power Tolerance	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%

PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800W/m²,47±3°C,AM 1.5)

Maximum Power (Pmax)	129W	133W	137W	140W	144W
Short Circuit Current (Isc)	4.64A	4.73A	4.77A	4.79A	4.82A
Open Circuit Voltage (Voc)	40.06V	40.25V	40.81V	41.73V	41.92V
Maximum Power Current (Impp)	4.17A	4.20A	4.28A	4.36A	4.42A
Maximum Power Voltage (Vmpp)	31.01V	31.72V	31.98V	32.25V	32.60V

The typical relative change in module efficiency at an irradiance of 200W/m² in relation to 1000W/m² (both at 25°C and AM 1.5 spectrum) is less than 6%.

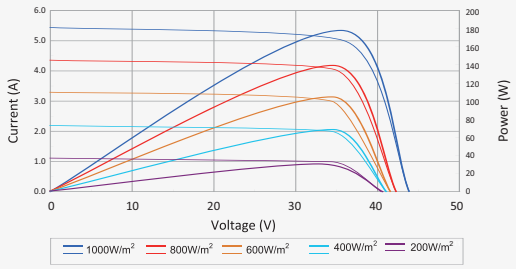
TEMPERATURE CHARACTERISTICS

Nominal Operating Cell Temperature (NOCT)	47±3°C
Temperature Coefficient of Pmax (γ)	-0.47%/K
Temperature Coefficient of Voc (β)	-0.36%/K
Temperature Coefficient of Isc (α)	0.05%/K

PACKING CONFIGURATION

Container	20' GP	40' GP
Pieces per pallet	25	25
Pallets per container	12	28
Pieces per container	300	700

Current-Voltage & Power-Voltage Curve (TPS105T-180W)



SYSTEM INTEGRATION PARAMETERS

Maximum system voltage	DC 1000V
Maximum Series Fuse	10A
Maximum reverse current	13.5A
Increased snowload acc. to IEC 61215	5400Pa/m²
Operating Temperature	-40~+85°C
Number of bypass diodes	3

QUALIFICATIONS AND CERTIFICATES

CE-Compliant, IEC 61215 (Ed.2), IEC 61730 (Ed.1) application class A, TÜV Safety Class II

DEALER INFORMATION BOX

NOTE: READ SAFETY AND INSTALLATION INSTRUCTIONS OR CONTACT THE TECHNICAL SERVICE FOR FURTHER INFORMATION BEFORE USING THE PRODUCT.