



# TPS105S

Photovoltaic Module

230W/235W/240W/245W/250W/255W



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. TPS105S 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.



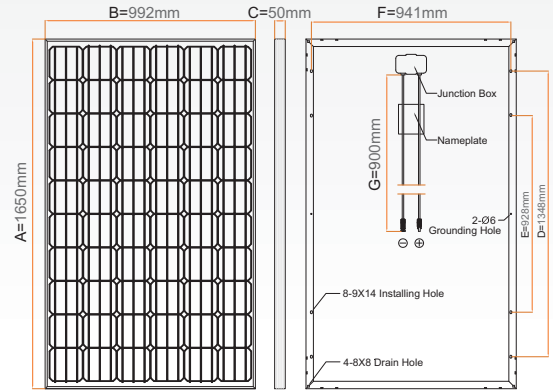
\* Please refer to Topray Safety and Installation Manual for details.  
\*\* Please refer to Topray Limited Product Warranty for details.

# TPS105S 230W/235W/240W/245W/250W/255W Photovoltaic Module

## MECHANICAL SPECIFICATION

Cell Type	Monocrystalline 156×156 mm (6 inches)
Number of cells	60 (6×10)
Dimensions (A×B×C)	1650×992×50mm
Weight	20kg
Front Glass	3.2 mm Low iron tempered glass
Frame	Anodized aluminum alloy
Junction Box	IP 65, with bypass diodes
Connector	MC4 compatible
Output Cables	TÜV, ±length 900mm, 4.0mm <sup>2</sup>

## MECHANICAL DRAWINGS



## ELECTRICAL CHARACTERISTICS

PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m<sup>2</sup>, 25 °C, AM 1.5)

Maximum Power at STC (Pmax)	230W	235W	240W	245W	250W	255W
Short Circuit Current (Isc)	8.44A	8.51A	8.58A	8.69A	8.76A	8.82A
Open Circuit Voltage (Voc)	36.50V	36.60V	36.80V	37.00V	37.30V	37.50V
Maximum Power Current (Imp)	7.83A	7.97A	8.09A	8.17A	8.25A	8.36A
Maximum Power Voltage (Vmpp)	29.40V	29.50V	29.70V	30.00V	30.30V	30.50V
Encapsulated Cell Efficiency	16.10%	16.40%	16.80%	17.10%	17.50%	17.80%
Module Efficiency	14.10%	14.40%	14.70%	15.00%	15.30%	15.60%
Power Tolerance	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%	0/+3%

PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800W/m<sup>2</sup>, 47±3 °C, AM 1.5)

Maximum Power (Pmax)	168W	172W	176W	179W	183W	187W
Short Circuit Current (Isc)	7.12A	7.18A	7.24A	7.33A	7.39A	7.44A
Open Circuit Voltage (Voc)	33.90V	33.90V	34.10V	34.30V	34.60V	34.80V
Maximum Power Current (Imp)	6.43A	6.55A	6.65A	6.71A	6.78A	6.87A
Maximum Power Voltage (Vmpp)	26.20V	26.30V	26.40V	26.70V	27.00V	27.20V

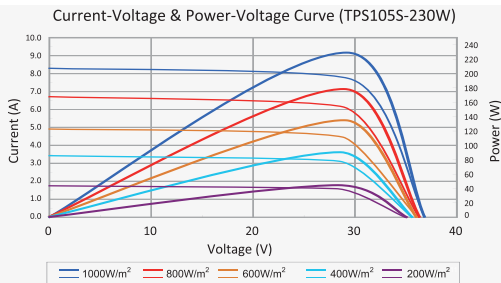
The typical relative change in module efficiency at an irradiance of 200W/m<sup>2</sup> in relation to 1000W/m<sup>2</sup> (both at 25 °C and AM 1.5 spectrum) is less than 6%.

## 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' HC
Pieces per pallet	20	20
Pallets per container	6	28
Pieces per container	120	560



## SYSTEM INTEGRATION PARAMETERS

Maximum system voltage	DC 1000V
Maximum Series Fuse	16A
Maximum reverse current	21.5A
Increased snowload acc. to IEC 61215	5400Pa/m <sup>2</sup>
Operating Temperature	-40~+85 °C
Number of bypass diodes	6

## QUALIFICATIONS AND CERTIFICATES

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



## DEALER INFORMATION BOX