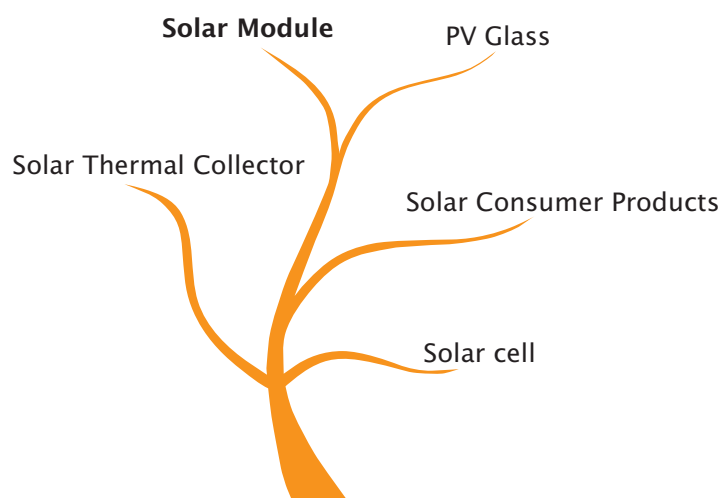


# TOPRAY Solar



## Not Your Average Solar Provider

### Our Products Categories



### 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

### Recommended For



Residential Roof








Commercial Roof

# TPSM5U

190W/195W/200W  
Mono Crystalline Photovoltaic Module

### Key Feature

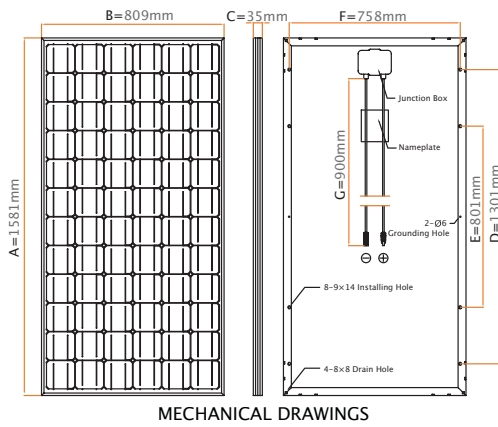
-  High module efficiency up to 15.60%
-  Plus power tolerance: 0~+3%
-  Independent research anti-reflective and self-cleaning glass surface reduces power loss from dirt and dust
-  Excellent performance under low light environments, create better kWh/kW ratio and produce average 2-3% more electricity
-  Certified by TUV to withstand high level of wind loads (2400Pa) and snow loads (5400Pa)\*

### Best Quality

- Junction box and bypass diodes guarantee the modules free of overheating and “hot spot effect”
- Industry standard inverters and mounting systems guarantee minimal maintenance
- 100%EL double-inspection ensures modules are defects free
- Modules binned current to improve system performance
- Potential Induced Degradation (PID) free

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

\*\*Please refer to Topray Limited Product Warranty for details.



MECHANICAL DRAWINGS

# TPSM5U 190W/195W/200W Mono Crystalline Photovoltaic Module

## ELECTRICAL CHARACTERISTICS

### MECHANICAL SPECIFICATION

Cell Type	Mono crystalline 125×125 mm (5 inches)
Number of cells	72 (6×12)
Dimensions (A×B×C)	1581×809×35mm
Weights	13kg
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, 4.0mm <sup>2</sup>

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%.

### PACKING CONFIGURATION

Container	20' GP	40' HQ
Pieces per pallet	28	28
Pallets per container	14	28
Pieces per container	392	784+84

### TEMPERATURE CHARACTERISTICS

Nominal Operating Cell Temperature (NOCT)	47±3°C
Temperature Coefficient of Pmax (γ)	-0.44%/K
Temperature Coefficient of Voc (β)	-0.36%/K
Temperature Coefficient of Isc (α)	0.05%/K

### SYSTEM INTEGRATION PARAMETERS

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

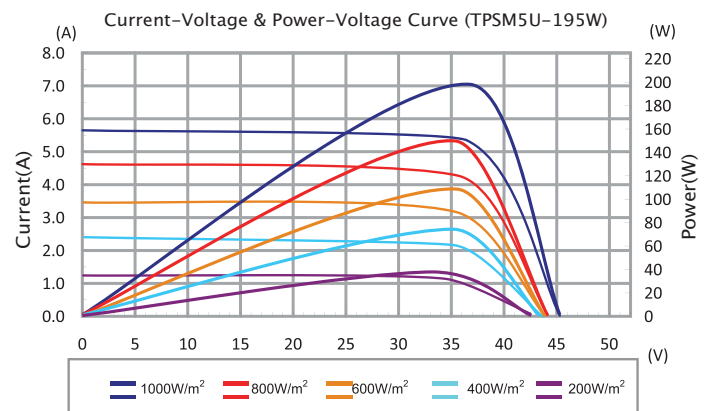
### DEALER INFORMATION BOX

## PERFORMANCE AT STANDARD TEST CONDITION (STC:1000W/m<sup>2</sup>,25°C,AM1.5)

Module Series	TPSM5U — Topray Universal		
Maximum Power at STC(Pmax)	190W	195W	200W
Short Circuit Current(Isc)	5.65A	5.71A	5.77A
Open Circuit Voltage(Voc)	44.90V	45.20V	45.40V
Maximum Power Current(Imp)	5.28A	5.36A	5.41A
Maximum Power Voltage(Vmpp)	36.00V	36.40V	37.00V
Encapsulated Cell Efficiency	17.20%	17.60%	18.10%
Module Efficiency	14.90%	15.20%	15.60%
Power Tolerance	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)	137W	141W	144W
Short Circuit Current(Isc)	4.76A	4.82A	4.87A
Open Circuit Voltage(Voc)	41.60V	41.90V	42.10V
Maximum Power Current(Imp)	4.32A	4.38A	4.42A
Maximum Power Voltage(Vmpp)	31.70V	32.10V	32.60V



### QUALIFICATIONS AND CERTIFICATES

CE-Compliant, IEC 61215 (Ed.2), IEC 61730 (Ed.1) application class A, TÜV Safety Class II, UL 1703

