Recommended For


Residential Roof


Commercial Roof

TPSM5U
Mono Crystalline
Photovoltaic Module

- Plus power tolerance(0-3%) to ensure the high reliability of power output
- Module certified by TUV
  - For SNOW ZONE III, withstand high level of wind loads(2400Pa) and snow loads(5400Pa)
  - For PID test. No Potential Induced Degradation cause by High Voltage Stress
  - For Salt mist corrosion, ammonia corrosion test
- Anti-reflective, hydrophobic layer of module surface(proprietary 800° C online coating technology) improves light absorption and reduces surface dust
- Easy installation and minimal maintenance with compatibility to industry standard inverters and mounting system
- 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 module free of overheating and "hot spot effect"
- Modules' excellent performance under low light environments(mornings, evenings, and cloudy days) create better kWh/kW ratio and produce average 2-3% more electricity in the field

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

QUALIFICATIONS AND CERTIFICATES

Choosing Topray Solar

Professional solar producer and solutions provider since 1992, reliable partner of global distributors, installers and project integrators

The most vertically integrated solar manufacturer in the industry with production of ingots, wafer, solar cells and modules using bith mono crystalline and multi crystalline technology

Manufacuring with intemational quality standards and environment management syst em: ISO 9001 and ISO 14001

Global distribution with local warehousing, delivery and after sales services

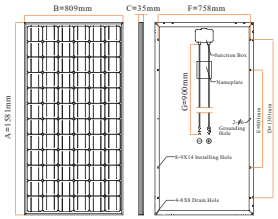
Minimal wiring effort required as the module has high reverse current resistance

Most updated design with drainage holes in the frame ensures the modules to withstand various weather conditions

MECHANICAL SPECIFICATION

Cell Type	Mono crystalline 125x125mm(5 inches)
Number of cells	72(6x12)
Dimensions(AxBxC)	1581x809x35mm
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, 4.0mm²

MECHANICAL DRAWINGS



ELECTRICAL CHARACTERISTICS

PERFORMANCE AT STANDARD TEST CONDITION(STC:1000W/m², 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(Impp)	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(NOTE:800W/m², 47±3°C, AM1.5)

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(Impp)	4.32A	4.38A	4.42A
Maximum Power Voltage(Vmpp)	31.70V	32.10V	32.60V

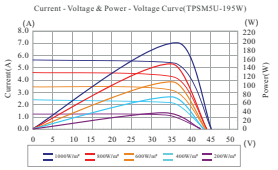
The typical relative changr in module efficiency at an irradiance of 200W/m² in relation to 1000W/m²(both at 25°C and AM 1.5 spectrum) is less than 6%

TEMPERATURE CHARACTERISTICS

Nominal Operating Cel 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

PACKING CONFIGURATION

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



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