



### Structural Parameter

Dimensions of Module	2278×1134×35mm
Weight	46kg
Packing	31PCS/Pallet
Glass	High Transparency Solar Glass 3.2mm
Backsheet	White
Frame	Anodized Aluminum Alloy & Custom Color Accepted
J-Box	IP68 Rated
Cable	4.0mm <sup>2</sup> , 300mm
Bypass Diodes	3PCS
Wind/ Snow Load	2400Pa/5400Pa
Connector	MC4 Compatible

### Electrical Specification

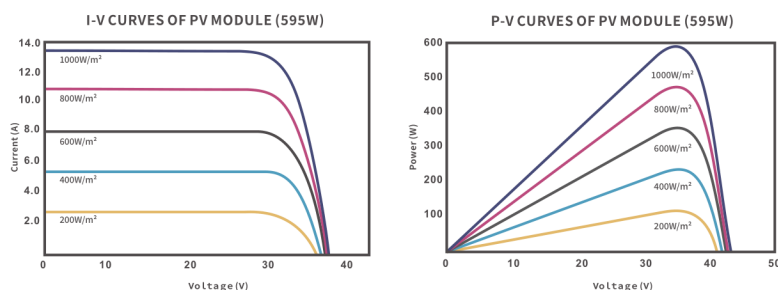
(STC: Irradiance 1000W/m<sup>2</sup>, Cell temperature 25°C, AM1.5G — NOCT: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C, Wind speed 1m/s)

Module Type	SF-M18/144580		SF-M18/144585		SF-M18/144590		SF-M18/144595	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax) [W]	580	434.42	585	438.17	590	441.91	595	445.66
Maximum Power Voltage (Vmp) [V]	42.91	40.12	43.07	40.27	43.23	40.42	43.39	40.57
Maximum Power Current (Imp) [A]	13.52	10.83	13.58	10.88	13.65	10.93	13.71	10.98
Open Circuit Voltage (Voc) [V]	50.80	47.50	50.95	47.64	51.10	47.78	51.25	47.92
Short Circuit Current (Isc) [A]	14.55	11.65	14.62	11.71	14.70	11.77	14.77	11.83
Module Efficiency [%]	22.45		22.65		22.84		23.03	
Cell Type [mm]	Mono 182±1.5×91±1.5, 144 Cells							
Operational Temperature [°C]	-40~+85°C							
Maximum System Voltage	1500V DC							
Max Series Fuse Rating	25A							

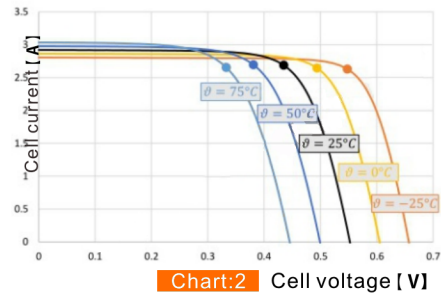
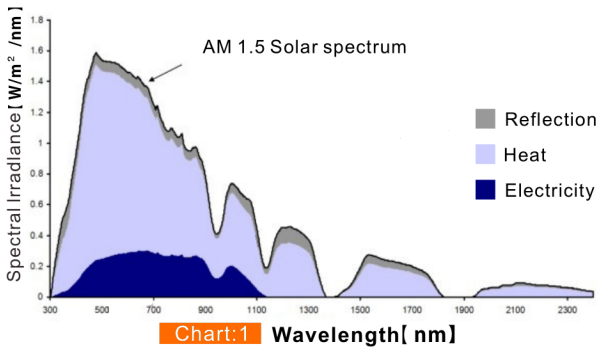
### Temperature Ratings

Nominal Operating Cell Temperature	45±2°C
Temperature Coefficient of Isc	+0.05%/°C
Temperature Coefficient of Voc	-0.23%/°C
Temperature Coefficient of Pmax	-0.30%/°C

### Curve Diagram



# The Revolutionary PV/T Solar Hybrid Panel Was Born

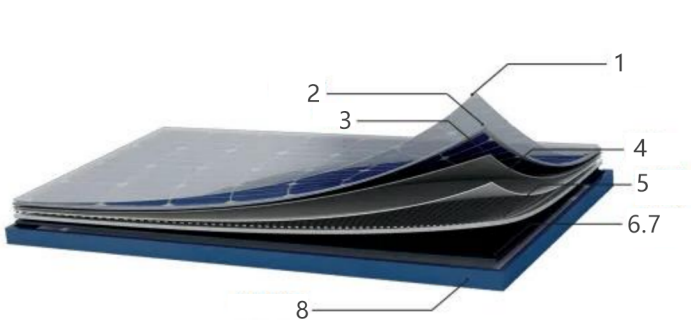


**Chart:1**

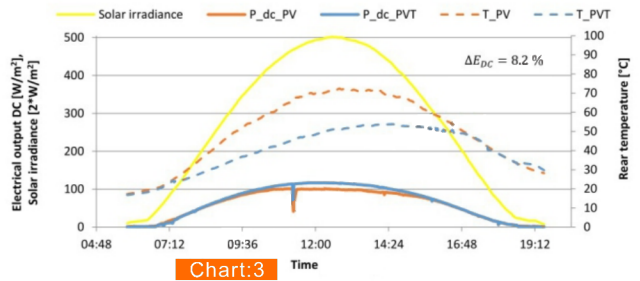
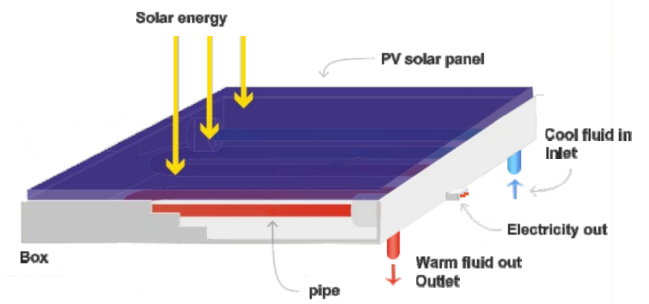
10% of solar irradiation on a PV cell is reflected and cannot be utilized.  
 17% of the remaining 90% of the irradiation is absorbed by the PV cell can be converted into electricity  
 73% is converted into thermal energy.

**Chart:2**

In a PV module, the thermal output remains unused. It raises the temperature of the cell, thus have a negative effect on the electrical efficiency of the PV module.  
 In standard silicon PV cells, an increase in the cell temperature results in a reduction of the open-circuit voltage and a less pronounced increase of the short-circuit current. This results in a reduction of the electrical efficiency at the maximum powerpoint.



- ① Tempered glass
- ② Mono-crystalline photovoltaic module
- ③ EVA
- ④ Alloy heat conduction plate
- ⑤ Heat exchange pipe
- ⑥ High-temperature insulation layer
- ⑦ Insulation
- ⑧ Aluminum frame



Max. operating pressure **10Bar**

**Chart:3**

Shinefar PVT panel solves the weakness of conventional PV module, extracts of heat and increase the electrical efficiency of PV cells, produce solar electricity and hot water together. The difference in the temperature between the Shinefar PVT and PV modules reached a maximum of 22°C. At that moment, the Shinefar PVT reached a 17% higher electrical power output per m2 than the standard PV system. Integrated over the complete day, the difference between the electrical yields of PVT and PV amounted to 8.2%.

