



Advantages

- Prominent performance at high temperature and low irradiation!
- Cost-effective and economic energy production by a high level of efficiency.
- Environmentally friendly.
- Guaranteed steady production quality by manufacture in the worldwide latest and most up to date Oerlikon production facility.
- Flexible installation, perfect achieving building integrated Photovoltaics.

Warranties

- | | |
|---|----------|
| • Product Warranty | 5 years |
| • 90% of the minimal Nominal Power Output | 10 years |
| • 80% of the minimal Nominal Power Output | 25 years |

Manufacture

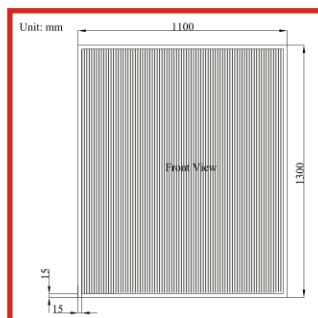
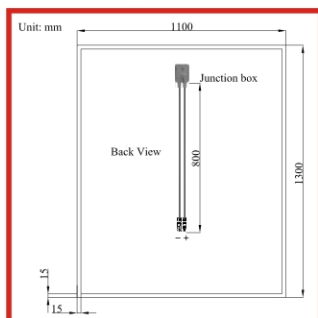
- The phase I of 50MW production line had already been put into mass production in August 2009, and the total capacity of 500MW will be finished at the end of third phase by 2015.
- For phase I, TianWei SolarFilms has introduced the "Turn-Key" solution from a world-class European thin film equipments provider. Dust-free workshops & systemic quality control system ensure top product quality.
- TianWei SolarFilms products have been well sold to Germany, Spain, North America, Southeast Asia, China mainland, Taiwan etc.



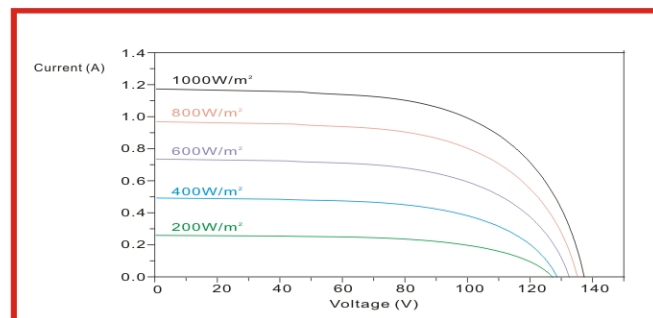
**BAODING TIANWEI
SOLARFILMS CO., LTD.**
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Product Specification

Module Dimensions



I-V-Curve



Electrical Characteristics (*STC)

	Unit	TW-SF85	TW-SF90	TW-SF95	TW-SF100
Power Output(P_{mpp})	Wp	85W	90W	95W	100W
MPP Voltage(V_{mpp})	V	98	100	102	104
MPP Current(I_{mpp})	A	0.87	0.90	0.93	0.96
Open-circuit Voltage(V_{oc})	V	135	136	138	138
Short-circuit Current(I_{sc})	A	1.12	1.14	1.17	1.22
Output Tolerance		-2 W / +3 W			
Maximum System Voltage	V_{DC}	1000 V (TÜV) , 600 V (UL)			

*STC: 1,000 W/m² irradiance strength with a spectrum of AM 1.5 at a module temperature of 25°C

Electrical Characteristics (**NOCT)

	Unit	TW-SF85	TW-SF90	TW-SF95	TW-SF100
Power Output(P_{mpp})	Wp	68W	73W	77W	81W
MPP Voltage(V_{mpp})	V	96	98	100	101
MPP Current(I_{mpp})	A	0.71	0.74	0.77	0.80
Open-circuit Voltage(V_{oc})	V	132	133	135	135
Short-circuit Current(I_{sc})	A	0.93	0.95	0.97	0.99
Nominal Operation Cell Temperature		46°C ±2°C			

**NOCT (Normal Operating Cell Temperature): Electrical datas are measured to the irradiance of 800 W/m² and a wind velocity of 1m/s.

Mechanical Characteristics a-Si (Frameless)

Dimensions	1,100 mm × 1,300 mm
Net Thickness	6.8 mm ± 0.4 mm
Weight	Approx. 24 Kg
Junction Box	Conform to IP65, Bypass Diode: 3 A, 1300 V
Cables	2.5 mm ² , Length 800 mm
Material for Encapsulation	Polyvinylbutyral (PVB), Thickness: 0.76 mm
Front Cover	White Float Glass, Thickness: 3.2 mm
Back Cover	Tempered Float Glass, Thickness: 3.2 mm

Temperature Coefficients

Nominal Power(P_{nom})	-0.21% / K	MPP Current(I_{mpp})	+0.09% / K
MPP Voltage(V_{mpp})	-0.29% / K	Open-circuit Voltage(V_{oc})	-0.28% / K
Short-circuit Current(I_{sc})	+0.04% / K		