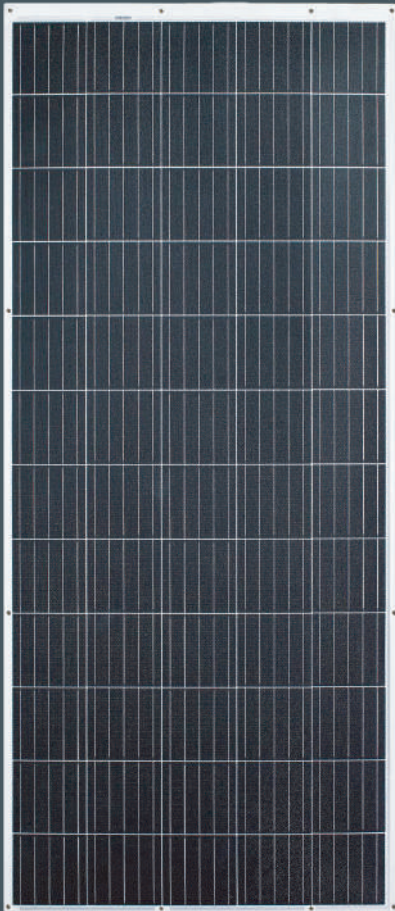


# SUNO-UL 310W

## 60 Cell Monocrystalline Module



**Ultra-light:** Glass free module weighs 5.0 kg, 70% lighter than conventional glass modules.



**Fast-Installation:** Through "Quick-Bonding" installation, TSOe requires no penetration, reduces time on roof by 40% and eliminates the use of mounting hardware.



**Aesthetic:** Seamless integration with underlying installation surface.



**Durable:** TSOe is the first glassless module to pass the same durability tests as conventional glass modules, including IEC 61215:2016, IEC61730:2016 and UL1703 (USA). eArc has also passed PID, salt mist and ammonia corrosion tests.

POWER OUTPUT RANGE 305~310 W

POWER TOLERANCE 0-5 W

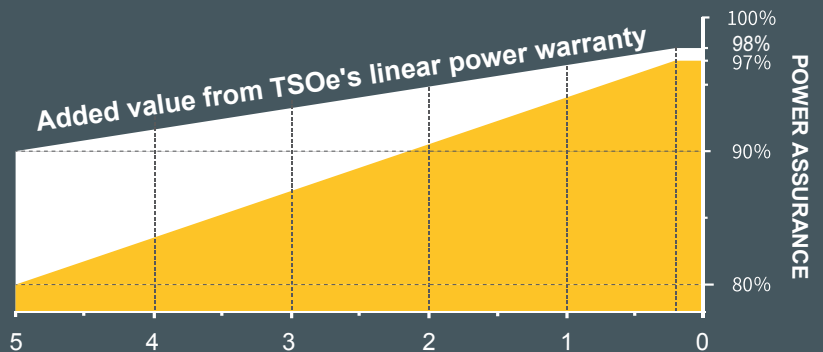
### LINEAR PERFORMANCE WARRANTY

CAUTION: Read installation manual before using the product.  
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#### 5 Year Linear Product Warranty



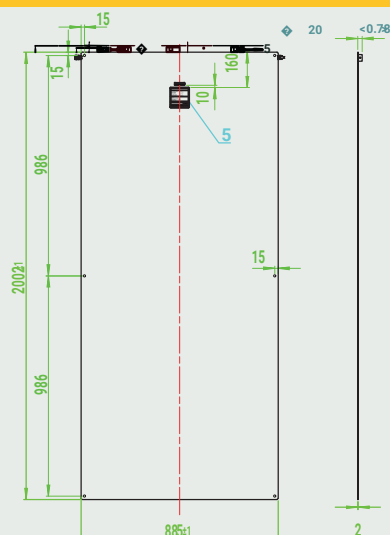
ULTRA-LIGHT & FLEXIBLE SOLAR PANEL



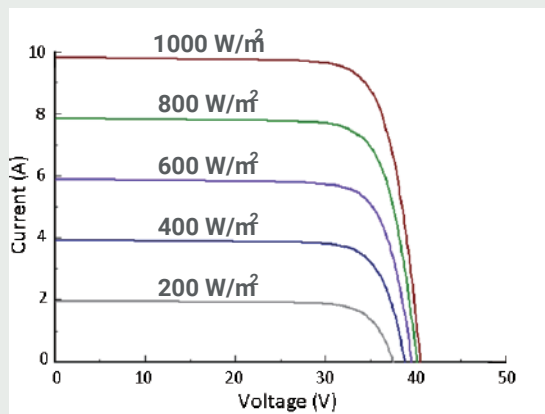
"Innovating for Solar Energy"

[www.tso.solar](http://www.tso.solar)

## DIMENSIONS

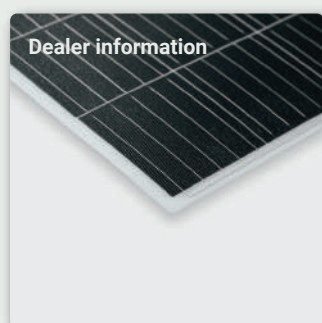


## I-V CURVE (310)



## TEMPERATURE CHARACTERISTICS

Nominal Module Operating Temperature(NOMT)	41±2 °C
Temperature Coefficient of $P_{max}$	-0.38 %/°C
Temperature Coefficient of $V_{oc}$	-0.28 %/°C
Temperature Coefficient of $I_{sc}$	0.020 %/°C



SMFUV IEC EN 2020B

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## ELECTRICAL CHARACTERISTICS

STC	SUNO-U305F-5x12DW	SUNO-U310F-5x12DW
Maximum Power ( $P_{max}$ )	305	310
Maximum Power Voltage ( $V_{mp}$ )	33.0	33.3
Maximum Power Current ( $I_{mp}$ )	9.25	9.31
Open-circuit Voltage ( $V_{oc}$ )	40.3	40.5
Short-circuit Current ( $I_{sc}$ )	9.74	9.81
Module Efficiency (%)	17.2	17.4
Operating Temperature	-40 °C to 85 °C	
Maximum System Voltage	1000 V DC (IEC)	
Maximum Series Fuse Rating	20 A	
Application Class	Class A	
Power Tolerance	0/+5 W	

STC: Irradiance 1000W/m<sup>2</sup>, Cell temperature 25°C, AM=1.5. Tolerances of  $P_{max}$ ,  $V_{oc}$  and  $I_{sc}$  are within ±5%

NMOT	SUNO-U305F-5x12DW	SUNO-U310F-5x12DW
Maximum Power ( $P_{max}$ )	229	233
Maximum Power Voltage ( $V_{mp}$ )	30.5	30.7
Maximum Power Current ( $I_{mp}$ )	7.51	7.59
Open-circuit Voltage ( $V_{oc}$ )	37.4	37.6
Short-circuit Current ( $I_{sc}$ )	7.96	8.04

NMOT: Irradiance 800W/m<sup>2</sup>, Ambient temperature 20°C, AM=1.5, Wind speed 1 m/s.

## MECHANICAL CHARACTERISTICS

Solar Cell	Monocrystalline silicon (158.75mm)
No. of Cells	60 (5×12)
Module Dimensions	2009×885×2 mm
Weight	5.0kg
Backsheet	White
Frame	Frameless
J-box	IP 68 rated
Output Cables	Photovoltaic technology cable 4.0 mm 2, (+)150 / (-)450 mm
Connector	MC4 compatible

## PACKAGING CONFIGURATION

	20' GP	40' HC
Module per pallet	66+10	66+11
Pieces per container	710	1617