

## Monocrystalline Solar Module ESPSA

### High-Quality Solar Modules

Within 72 cells and 3 bypass diodes in powerclasses of 160 to 180 Wp for grid connected systems.

### Reliable

The high quality level of ERA SOLAR guarantees a long life-time and high earnings.

### Solid

Aluminium hollow-chamber frame on each side combined with low-iron, tempered solar-glass ensures a very high mechanical capacitance.

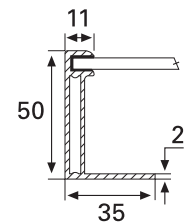
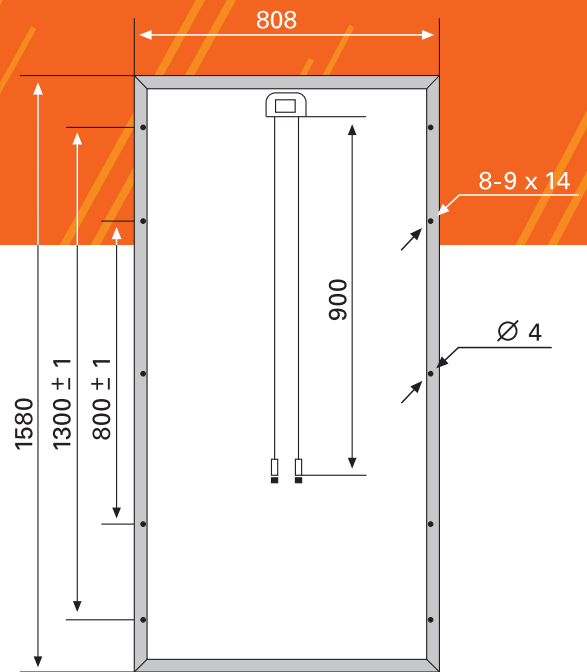
### Performance Guarantee

ERA SOLAR give a power guarantee of 90% of nominal power output for 10 years and 80% for 25 years.

### Certificates

IEC 61215 edition 2 (TÜV Rheinland)  
Safety Class II  
LEAD testing and certification (UK)





## Specifications

<b>Dimensions</b> .....	1580 x 808 mm x 50 mm
<b>Weight</b> .....	15.5 kg
<b>Frame</b> .....	Aluminium hollow-chamber frame on each side
<b>Glass</b> .....	Pilkington, Australia
<b>Cells</b> .....	72 pcs monocrystalline Si-cells (125 x 125 mm)
<b>Cell Embedding</b> .....	EVA
<b>Back-Foil</b> .....	Tedlar TPT
<b>Junction Box</b> .....	Cixi Renhe PV-RH0502 FPE 001 Aluminium Junction Box
<b>Cable</b> .....	4 mm <sup>2</sup> solar-cable 2 x 900 mm
<b>Temperature-Range</b> .....	- 40°C ... + 85°C
<b>Certificates</b> .....	IEC 61215 edition 2, Safety-Class II
<b>Power-Guarantee</b> .....	10 years 90%, 25 years 80%

## Electrical Characteristics

Typ	ESPSA 160	ESPSA 165	ESPSA 170	ESPSA 175	ESPSA 180
<b>Power-Class +/- 5%</b>	160 W	165 W	170 W	175 W	180 W
<b>Max. Power Voltage (<math>U_{mpp}</math>)* at STC**</b>	35.6 V	35.8 V	36.1 V	36.5 V	36.7 V
<b>Max. Power Current (<math>I_{mpp}</math>) at STC</b>	4.50 A	4.60 A	4.70 A	4.80 A	4.90 A
<b>Open Circuit Voltage (<math>U_{oc}</math>) at STC</b>	42.7 V	43.0 V	43.3 V	43.7 V	44.3 V
<b>Short Circuit Current (<math>I_{sc}</math>) at STC</b>	4.80 A	4.90 A	5.00 A	5.10 A	5.20 A
<b>Efficiency</b>	12.5%	12.9%	13.3%	13.7%	14.1%

<b>Max. System Voltage</b>	1000 V
<b>Temperature-Coefficient <math>I_{sc}</math></b>	1.9 mA/K
<b>Temperature-Coefficient <math>U_{oc}</math></b>	- 165 mV/K
<b>Temperature-Coefficient <math>P_{mpp}</math></b>	-0.43%/K
<b>NOCT***</b>	48°C +/-2°C

- \* **MPP: Maximum Power Point**
- \*\* **STC (Standard Test Conditions): 1000 W/m<sup>2</sup>, 25°C, AM 1.5**
- \*\*\* **Normal Operating Cell Temperature**

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**ERA SOLAR**