



# ESPSA(BK)

## Monocrystalline Solar Module-Black

- High-quality**  
 With 72 cells and 3 bypass diodes in power classes from 190 to 200 Wp for grid connected systems.
- Reliable**  
 The high quality level of ERA SOLAR guarantees long life-time and high earnings.
- Solid**  
 An Aluminium hollow-chamber frame on each side combined with low-iron and tempered solar glass ensures high load capacity resistance.
- Performance guarantee**  
 ERA SOLAR grants a power guarantee of 90% of nominal power output up to 10 years and 80% up to 25 years.



	WATTS POSITIVE TOLERANCE		10 YEARS PRODUCT WARRANTY		10 YEARS PERFORMANCE GUARANTEE 90%		25 YEARS PERFORMANCE GUARANTEE 80%
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## Monocrystalline Solar Module-Black

### SPECIFICATIONS

Dimensions	1580 x 808 x 35 mm
Weight	13.5 kg
Frame	Aluminium hollow-chamber frame on each side
Glass	Low-iron and tempered glass 3.2 mm
Cells	72 pcs monocrystalline Si-cells (125 x 125 mm)
Cell Embedding	EVA
Back-Foil	FEVE / PET / FEVE
Junction Box	TÜV certified
Cable	4 mm <sup>2</sup> solar cable 2 x 900 mm
Temperature Range	-40°C ... +85°C
Load Capacity	2400 Pa(IEC61215),35mm 5400 Pa(IEC61215),45mm
Application class	Class A
Electrical protection class	Class II
Fire safety class	Class C
Product Warranty	10 years
Power Guarantee	10 years 90% 25 years 80%

### CHARACTERISTICS

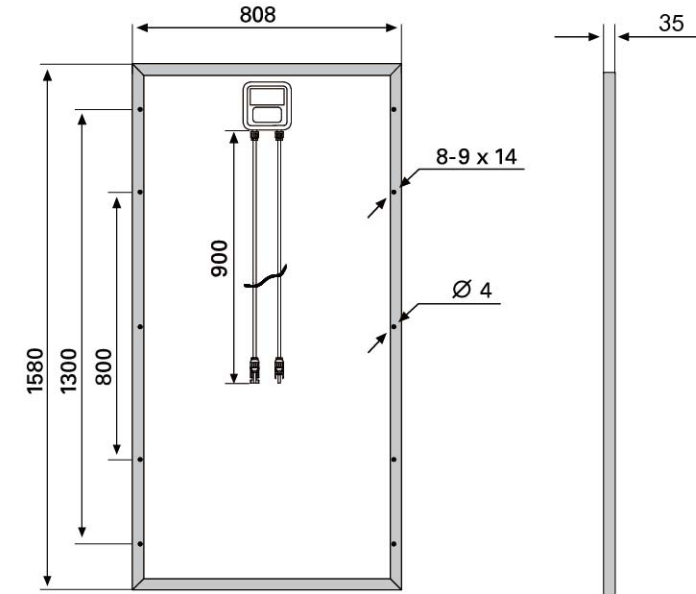
Max. System Voltage	1000V/DC
Temperature-Coefficient I <sub>sc</sub>	+0.07%/°K
Temperature-Coefficient V <sub>oc</sub>	-0.36%/°K
Temperature-Coefficient P <sub>mpp</sub>	-0.43%/°K
NOCT***	45°C

### CERTIFICATES

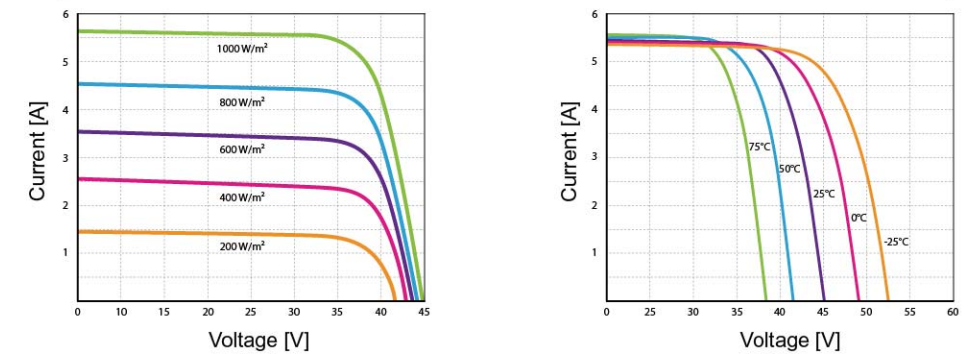
IEC 61215 edition 2 (TÜV Nord)  
 IEC 61730 MCS INMETRO  
 CE CEC SALT-MIST  
 UL1703 CSA  
 PID Resistant

### INSURANCE

Chubb



### CURRENT-VOLTAGE CURVES



Module characteristics at constant module temperatures (25°C) and different levels of irradiance.

Module characteristics at different module temperatures and constant module irradiance (1.000 W/m<sup>2</sup>).

ESPSA TYPE	190	200
Power Class	190W	200W
Max. Power Voltage (V <sub>mpp</sub> )* at STC**	36.2V	36.7V
Max. Power Current (I <sub>mpp</sub> ) at STC	5.25A	5.45A
Open Circuit Voltage (V <sub>oc</sub> ) at STC	44.8V	45.4V
Short Circuit Current (I <sub>sc</sub> ) at STC	5.6A	5.8A
Module Efficiency	14.9 %	15.7 %

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

