ES-A

ES-A Series Photovoltaic Solar Panels 215, 210, 205 and 200 W

The all-purpose ES-A series of panels deliver exceptional, field-proven performance yet are versatile enough to be installed on virtually any roof in almost any climate. Made with our patented String Ribbon® wafers, these elegant, black-framed panels have the smallest environmental impact of any silicon panel ever made.

MORE electricity

- Our ES-A series panels have the best power tolerance in the industry (-0 / +5 W) and consistently deliver more electricity than competitors in field tests.
- **Guaranteed Power**[1]

  The minimum guaranteed power is the nameplate so you never get less than you paid for.

- **Independently Verified Power**[2]

  Four independent test labs regularly check panel power so you get the power we promise.

- **Anti-Reflective Glass**

  Delivering 2-3% more electricity compared to panels with standard glass.

- **TEMPERATURE RATINGS OVER 90%**[3]

  Maintaining up to 4% higher output than most other crystalline silicon panels under hot conditions.

- **HIGH RANKINGS IN FIELD TESTS**[4]

  Long-term Photon and TÜV field tests prove Evergreen panels produce more electricity (kWh/kW).

- UL 1703
  (What is an ETL Listing?)
- IEC

61215 & 61730

- CE Declaration
- Florida Solar Energy Center (FSEC)
- Transportation Test
- TUV
- PV CYCLE

"What is best for someone is Evergreen Solar, period. If the trust is put in our hands, I recommend them every time." *-Evergreen Solar Installer*

25/5 25 year power warranty

LESS impact

- Our ES-A series panels have the smallest carbon footprint and fastest energy payback of any silicon-based solar panel ever made.
- **SMALLEST CARBON FOOTPRINT[5]**

  Our String Ribbon™ wafers are made with a fraction of the emissions resulting from making conventional silicon panels.

- **12-MONTH ENERGY PAYBACK[5]**

Our panels begin generating truly clean electricity faster than any other silicon-based panel on the market.

- **100% Cardboard-Free REUSABLE PACKAGING**

  Reduces disposal costs and on-site manpower while eliminating tons of landfill.

- **LEAD-FREE SOLAR CELLS**

  Our panels make clean electricity, and the way we make them is clean too.

- 1 – Guaranteed upon initial delivery of the panel; 2 – Maximum power up to 4.99 W above nameplate rating; 3 – based on comparing PTC/STC ratings of major competing multi-crystalline silicon brands; 4 – Power regularly calibrated by taking the straight average of test data from NREL, TÜV Rheinland PTL, TÜV Rheinland Cologne and Fraunhofer ISE; 5 – According to research carried out by the Energy Research Foundation of the Netherlands and Evergreen Solar evaluation of latest published competitor data;

Expand

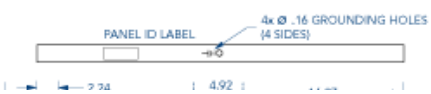
Technical Specifications

ELECTRICAL characteristics

Standard Test Conditions (STC)[1]

ES-A-200	ES-A-205	ES-A-210	ES-A-215

MECHANICAL specifications



	-fa3*	-fa3*	-fa3*	-fa3*	
P_{mp}[2]	200	205	210	215	W
$P_{tolerance}$	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	W (%)
$P_{mp,\ max}$	204.99	209.99	214.99	219.99	W
$P_{mp,\ min}$	200.00	205.00	210.00	215.00	W
P_{ptc}[3]	180.7	185.4	190.0	194.6	W
η_{min}	12.7	13.1	13.4	13.7	%
V_{mp}	18.1	18.2	18.3	18.4	V
I_{mp}	11.05	11.27	11.48	11.69	A
V_{oc}	22.6	22.7	22.8	22.9	V
I_{sc}	11.80	11.93	12.11	12.30	A

Nominal Operating Cell Temperature Conditions (NOCT)[4]

T_{NOCT}	45.4	45.4	45.4	45.4	°C
P_{max}	146.4	150.1	153.8	157.4	W
V_{mp}	16.5	16.6	16.7	16.8	V
I_{mp}	8.87	9.04	9.21	9.37	A
V_{oc}	20.8	21.0	21.1	21.2	V
I_{sc}	9.44	9.57	9.76	9.95	A

Low Irradiance

The typical relative reduction of panel efficiency at an irradiance of 200 W/m² both at 25°C cell temperature and spectrum AM 1.5 is 0%.

Temperature Coefficients

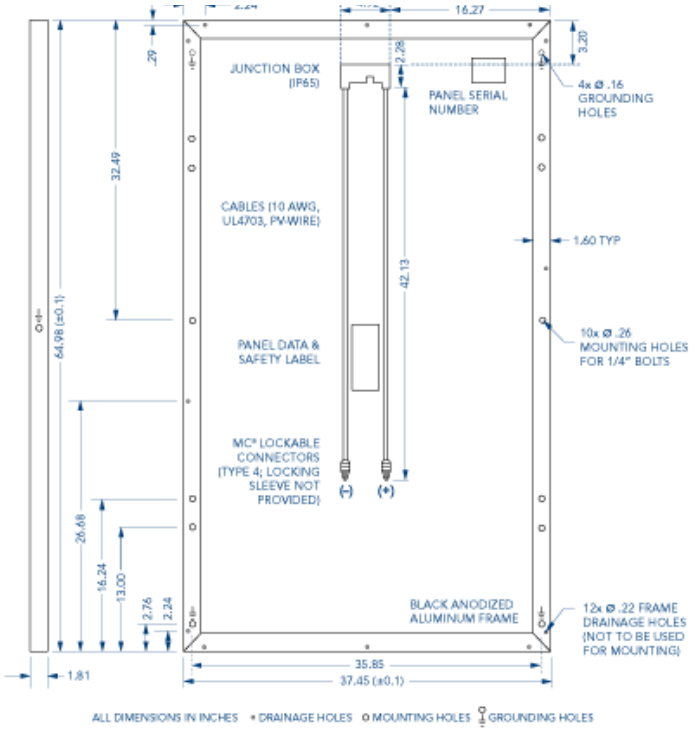
γP_{mp}	-0.43	%/°C
βV_{mp}	-0.40	%/°C
αI_{mp}	-0.03	%/°C
βV_{oc}	-0.31	%/°C
αI_{sc}	+0.05	%/°C

System Design

Series Fuse Rating	20 A
Maximum DC System Voltage (UL)	600 V

1 1000 W/m², 25°C cell temperature, AM 1.5 spectrum; 2 Maximum power point or rated power; 3 At PV-USA Test Conditions: 1000 W/m², 20°C ambient temperature, 1 m/s wind speed; 4 800 W/m², 20°C ambient temperature, 1 m/s wind speed, AM 1.5 spectrum; 5 Cell color may vary due to our unique manufacturing process but does not affect the performance of the panel; 6 Per UL 1703. When using Mounting Methods A3 (long side end mounting) or B (three rails) as described in the Mounting Guide for this product; 7 Per IEC 61215. ★H-framed, a-low voltage, 3-matt blue (textured) cells and black anodized frame

ELECTRICAL EQUIPMENT
CHECK WITH YOUR INSTALLER



ALL DIMENSIONS IN INCHES • DRAINAGE HOLES ○ MOUNTING HOLES ⏚ GROUNDING HOLES

External Dimensions	65.0" x 37.5" x 1.8" / 1650.5 x 951.3 x 46 mm
Weight	41 lbs
Solar Cells[5]	114 Multi-Crystalline Silicon String Ribbon™ Cells
Frame	Black Anodized Aluminum—Doubled Walled
Front Cover	Anti-Reflective Tempered Solar Glass 1/8" Thickness
Encapsulant / Back Cover	EVA / TPE
Maximum Certified Wind & Snow Load[6]	80 lbs/ft²
Hailstone Impact Test[7]	ø 1" ice ball at 23 m/s (52 miles/h)

Product packaged 28 per pallet and tested to International Safe Transit Association (ISTA) Standard 2B. All specifications in this product information sheet conform to EN 50380. See the Evergreen Solar Safety, Installation and Operation Manual, Mounting Guide and Inverter Selection Guide for further information on approved installation and use of this product.

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PARTNER

ES-A_200_205_210_215_fa3_US; effective May 1st 2010 *SM-0089*

Evergreen Solar Inc.
www.evergreensolar.com

WORLDWIDE HEADQUARTERS
Evergreen Solar Inc.
138 Bartlett Street, Marlboro, MA 01752, USA
T +1.508.357.2221 **F** +1.508.229.0747
info@evergreensolar.com

CUSTOMER SERVICE Americas and Asia
Evergreen Solar Inc.
138 Bartlett Street, Marlboro, MA 01752, USA
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P_{mp}[2]	200	205	210	215	W
$P_{tolerance}$	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	-0/+4.99 (-0/+2.5)	W (%)
$P_{mp, max}$	204.99	209.99	214.99	219.99	W
$P_{mp, min}$	200.00	205.00	210.00	215.00	W
P_{pk}[3]	180.7	185.4	190.0	194.6	W
η_{min}	12.7	13.1	13.4	13.7	%
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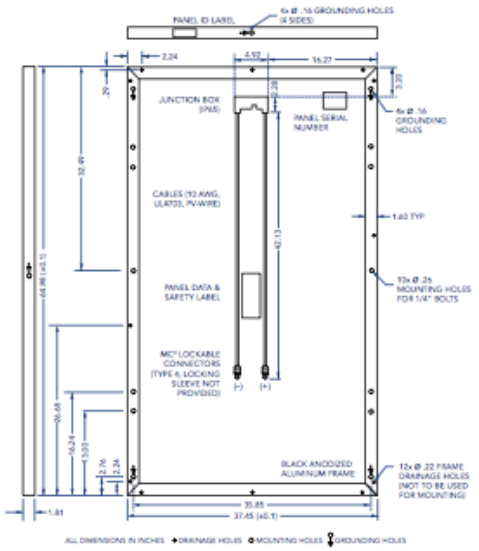

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