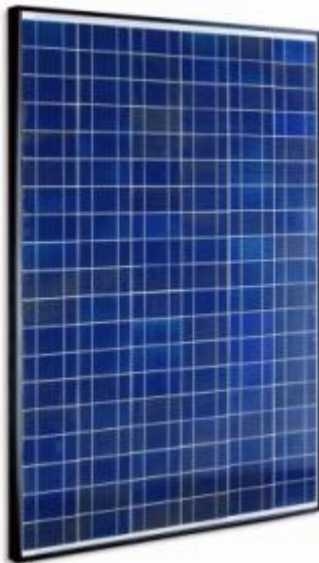


Evergreen revises electrical specifications for black framed ES-A Series panels

No change in CEC ratings



Evergreen is making minor revisions to the electrical specifications for the new black framed ES-A Series panels (ES-A-xxx-fa3 model).

Evergreen is revising the **nominal voltage, current and temperature coefficient ratings** of the panels based on experience gained during the first 9 months of production of this panel type.

This change is **not** being made as a result of this, or any other, product change. It is simply being made to optimize system design and performance projections.

The new datasheets available for this product reflect all the changes being made. The changes are also highlighted below for your convenience.

Changes in Nominal Electrical Ratings (STC)

The nominal electrical ratings for both panel models are shown below for comparison purposes. The new ES-A-xxx-fa3 nominal voltage and current ratings under Standard Test Conditions (STC) are as follows:

| Panel Model ES-A | | 190-fa3 | 195-fa3 | 200-fa3 | 205-fa3 | 210-fa3 |
|-----------------------|-----|---------|---------|---------|---------|---------|
| Peak power voltage | [V] | 17.7 | 17.9 | 18.1 | 18.2 | 18.3 |
| Open circuit voltage | [V] | 22.4 | 22.5 | 22.6 | 22.7 | 22.8 |
| Peak power current | [A] | 10.74 | 10.90 | 11.05 | 11.27 | 11.48 |
| Short circuit current | [A] | 11.65 | 11.70 | 11.80 | 11.93 | 12.11 |

See next page

For comparison purposes, the existing ES-A-xxx-fa2 voltage and current ratings (STC) are as follows:

| | | 190-fa2 | 195-fa2 | 200-fa2 | 205-fa2 | 210-fa2 |
|-----------------------|-----|---------|---------|---------|---------|---------|
| Peak power voltage | [V] | 17.4 | 17.8 | 18.1 | 18.4 | 18.7 |
| Open circuit voltage | [V] | 22.0 | 22.3 | 22.5 | 22.8 | 23.1 |
| Peak power current | [A] | 10.92 | 10.96 | 11.05 | 11.15 | 11.23 |
| Short circuit current | [A] | 11.80 | 11.90 | 12.00 | 12.10 | 12.20 |

Changes in Nominal Electrical Ratings (NOCT)

The new ES-A-xxx-fa3 nominal voltage and current ratings under Nominal Operating Temperature Conditions (NOCT) are as follows:

| Panel Model ES-A | | 190-fa3 | 195-fa3 | 200-fa3 | 205-fa3 | 210-fa3 |
|-----------------------|------|---------|---------|---------|---------|---------|
| Temperature | [°C] | 45.4 | 45.4 | 45.4 | 45.4 | 45.4 |
| Peak power | [W] | 139.2 | 142.7 | 146.4 | 150.1 | 153.8 |
| Peak power voltage | [V] | 16.3 | 16.4 | 16.5 | 16.6 | 16.7 |
| Open circuit voltage | [V] | 20.4 | 20.6 | 20.8 | 21.0 | 21.1 |
| Peak power current | [A] | 8.54 | 8.70 | 8.87 | 9.04 | 9.21 |
| Short circuit current | [A] | 9.26 | 9.32 | 9.44 | 9.57 | 9.76 |

For comparison purposes, the existing ES-A-xxx-fa2 nominal voltage and current ratings (NOCT) are as follows:

| | | 190-fa2 | 195-fa2 | 200-fa2 | 205-fa2 | 210-fa2 |
|-----------------------|------|---------|---------|---------|---------|---------|
| Temperature | [°C] | 44.8 | 44.8 | 44.8 | 44.8 | 44.8 |
| Peak power | [W] | 139.2 | 142.7 | 146.4 | 150.1 | 153.8 |
| Peak power voltage | [V] | 16.3 | 16.5 | 16.7 | 16.8 | 17.0 |
| Open circuit voltage | [V] | 20.0 | 20.3 | 20.5 | 20.7 | 21.0 |
| Peak power current | [A] | 8.54 | 8.65 | 8.76 | 8.93 | 9.04 |
| Short circuit current | [A] | 9.44 | 9.52 | 9.60 | 9.68 | 9.76 |

See next page

Changes in Temperature Coefficients

Temperature coefficient ratings are compared below:

| Panel Model ES-A-xxx | | -fa3 | -fa2 |
|----------------------|--------------|-------|--------|
| Peak power | [γ] | -0.43 | -0.45 |
| Peak power voltage | [β] | -0.40 | -0.43 |
| Open circuit voltage | [β] | -0.31 | -0.32 |
| Peak power current | [α] | -0.03 | -0.02 |
| Open circuit current | [α] | +0.05 | -0.003 |

If you have any further questions regarding this product, please do not hesitate contacting your local Evergreen Solar representative or use the Contact Us function on our website.

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