

# SunPower® X-Series Residential Solar Panels | X21-345

## More than 21% Efficiency

Ideal for roofs where space is at a premium or where future expansion might be needed.

## Maximum Performance

Designed to deliver the most energy in demanding real-world conditions, in partial shade and hot rooftop temperatures.<sup>1,2,4</sup>

## Premier Technology

Engineered with the newest and most powerful Maxeon technology, X-Series brings unmatched power and performance to your home.



Maxeon™ Solar Cells: Fundamentally better

Engineered for performance, designed for durability.

## Engineered for Peace of Mind

Designed to deliver consistent, trouble-free energy over a very long lifetime.<sup>3,4</sup>

## Designed for Durability

The SunPower Maxeon Solar Cell is the only cell built on a solid copper foundation. Virtually impervious to the corrosion and cracking that degrade conventional panels.<sup>3</sup>

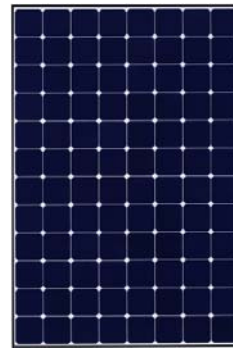
Same excellent durability as E-Series panels.

#1 Rank in Fraunhofer durability test.<sup>9</sup>

100% power maintained in Atlas 25+

comprehensive durability test.<sup>10</sup>

## High Performance & Excellent Durability



SPR-X21-345



## Highest Efficiency<sup>5</sup>

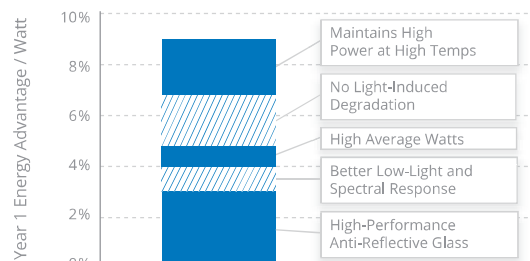
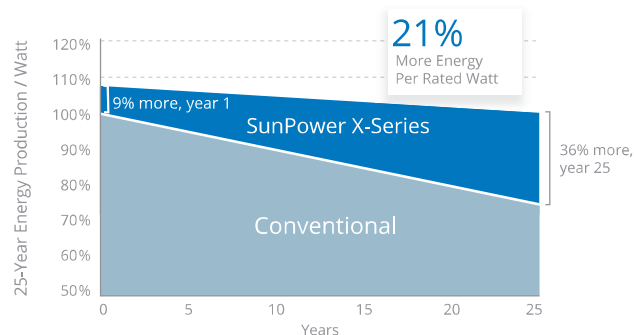
### Generate more energy per square meter

X-Series residential panels convert more sunlight to electricity by producing 38% more power per panel<sup>1</sup> and 70% more energy per square meter over 25 years.<sup>1,2,3</sup>

## Highest Energy Production<sup>6</sup>

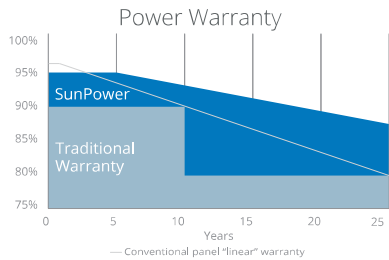
### Produce more energy per rated watt

High year-one performance delivers 8–10% more energy per rated watt.<sup>2</sup> This advantage increases over time, producing 21% more energy over the first 25 years to meet your needs.<sup>3</sup>

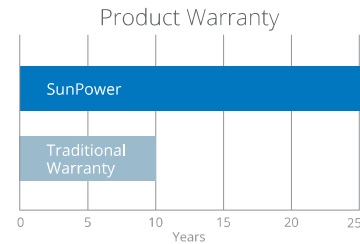


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SunPower Offers The Best Combined Power And Product Warranty



More guaranteed power: 95% for first 5 years, -0.4%/yr. to year 25<sup>7</sup>



Combined Power and Product defect 25-year coverage<sup>8</sup>

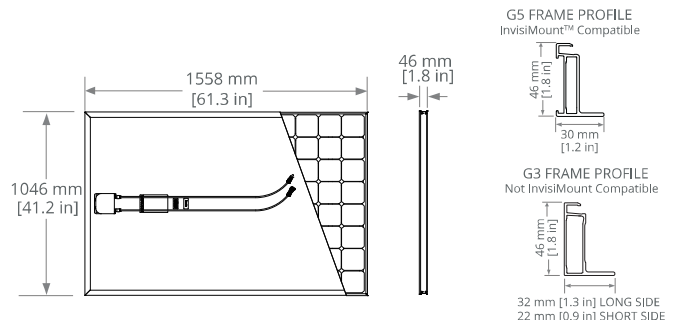
| Electrical Data                                 |                       |             |
|-------------------------------------------------|-----------------------|-------------|
|                                                 | SPR-X21-345           | SPR-X21-335 |
| Nominal Power (P <sub>nom</sub> ) <sup>11</sup> | 345 W                 | 335 W       |
| Power Tolerance                                 | +5/-0%                | +5/-0%      |
| Avg. Panel Efficiency <sup>12</sup>             | 21.5%                 | 21.0%       |
| Rated Voltage (V <sub>mpp</sub> )               | 57.3 V                | 57.3 V      |
| Rated Current (I <sub>mpp</sub> )               | 6.02 A                | 5.85 A      |
| Open-Circuit Voltage (V <sub>oc</sub> )         | 68.2 V                | 67.9 V      |
| Short-Circuit Current (I <sub>sc</sub> )        | 6.39 A                | 6.23 A      |
| Max. System Voltage                             | 1000 V IEC & 600 V UL |             |
| Maximum Series Fuse                             | 15 A                  |             |
| Power Temp Coef.                                | -0.29% / °C           |             |
| Voltage Temp Coef.                              | -167.4 mV / °C        |             |
| Current Temp Coef.                              | 2.9 mA / °C           |             |

| Tests And Certifications     |                                                             |
|------------------------------|-------------------------------------------------------------|
| Standard Tests <sup>13</sup> | IEC 61215, IEC 61730, UL1703 (Type 2 Fire Rating)           |
| Quality Certs                | ISO 9001:2008, ISO 14001:2004                               |
| EHS Compliance               | RoHS, OHSAS 18001:2007, lead free, PV Cycle, REACH SVHC-163 |
| Sustainability               | Cradle to Cradle Certified™ Silver                          |
| Ammonia Test                 | IEC 62716                                                   |
| Desert Test                  | 10.1109/PVSC.2013.6744437                                   |
| Salt Spray Test              | IEC 61701 (maximum severity)                                |
| PID Test                     | Potential-Induced Degradation free: 1000 V <sup>9</sup>     |
| Available Listings           | TUV, UL, MCS, CSA, FSEC, CEC                                |

| Operating Condition And Mechanical Data |                                                                                                               |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Temperature                             | -40° C to +85° C                                                                                              |
| Impact Resistance                       | 25 mm diameter hail at 23 m/s                                                                                 |
| Appearance                              | Class A+                                                                                                      |
| Solar Cells                             | 96 Monocrystalline Moxeon Gen III                                                                             |
| Tempered Glass                          | High-transmission tempered anti-reflective                                                                    |
| Junction Box                            | IP-65 Rated, Multi-Contact (MC4)                                                                              |
| Weight                                  | 18.6 kg                                                                                                       |
| Max. Load                               | G5 Frame: Wind: 3000 Pa, 305 kg/m <sup>2</sup><br>Snow: 6000 Pa, 611 kg/m <sup>2</sup>                        |
|                                         | G3 Frame: Cyclonic Wind: 7500 Pa, 764 kg/m <sup>2</sup> <sup>14</sup><br>Snow: 5400 Pa, 550 kg/m <sup>2</sup> |
| Frame                                   | Class 1 black anodised (highest AAMA rating)                                                                  |

REFERENCES:

- All comparisons are SPR-X21-345 vs. a representative conventional panel: 250 W, approx. 1.6 m<sup>2</sup>, 15.3% efficiency.
- Typically 8–10% more energy per watt, BEW/DNV Engineering "SunPower Yield Report," Jan 2013.
- SunPower 0.25%/yr degradation vs. 1.0%/yr conv. panel. Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, Feb 2013; Jordan, Dirk "SunPower Test Report," NREL, Q1-2015.
- "SunPower Module 40-Year Useful Life" SunPower white paper, May 2015. Useful life is 99 out of 100 panels operating at more than 70% of rated power.
- Highest of over 3,200 silicon solar panels, Photon Module Survey, Feb 2014.
- 1% more energy than E-Series panels, 8% more energy than the average of the top 10 panel companies tested in 2012 (151 panels, 102 companies), Photon International, Feb 2013.
- Compared with the top 15 manufacturers. SunPower Warranty Review, May 2015.
- Some restrictions and exclusions may apply. See warranty for details.
- X-Series same as E-Series, 5 of top 8 panel manufacturers tested in 2013 report, 3 additional panels in 2014. Ferrara, C., et al. "Fraunhofer PV Durability Initiative for Solar Modules: Part 2". Photovoltaics International, 2014.
- Compared with the non-stress-tested control panel. X-Series same as E-Series, tested in Atlas 25+ Durability test report, Feb 2013.
- Standard Test Conditions (1000 W/m<sup>2</sup> irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.
- Based on average of measured power values during production.
- Type 2 fire rating per UL1703:2013, Class C fire rating per UL1703:2002.
- AS/NZS4040.2 Static strength test regime, AS/NZS1170.2 Structural Design Actions - Wind Actions.



Please read the safety and installation guide.