

# SunPower® X-Series Residential Solar Panels | X21-335-BLK | 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>1,2,3</sup>

## Premium Aesthetics

SunPower® sleek black X-Series panels blend harmoniously into your roof. The most elegant choice for your home.



**Maxison™ 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>4,5</sup>

## Designed for Durability

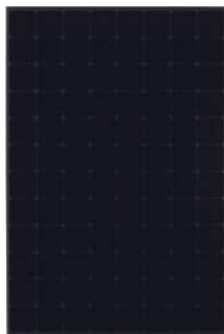
The SunPower Maxison Solar Cell is the only cell built on a solid copper foundation. Virtually impervious to the corrosion and cracking that degrade Conventional panels.<sup>4</sup>

Same excellent durability as E-Series panels.

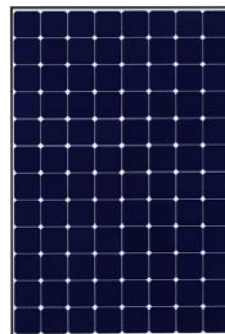
#1 Rank in Fraunhofer durability test.<sup>10</sup>

100% power maintained in Atlas 25+ comprehensive Durability test.<sup>11</sup>

## Unmatched Performance, Reliability & Aesthetics



SPR-X21-335-BLK



SPR-X21-345



## Highest Efficiency<sup>6</sup>

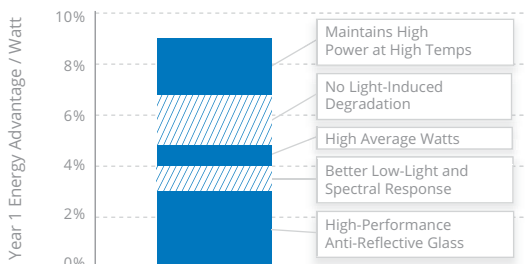
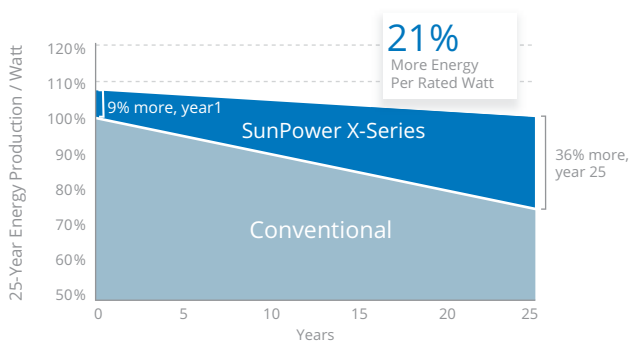
### Generate more energy per square meter

X-Series residential panels convert more sunlight to electricity producing 40% more power per panel,<sup>1</sup> and 70% more energy per square meter over 25 years.<sup>3,4</sup>

## Highest Energy Production<sup>7</sup>

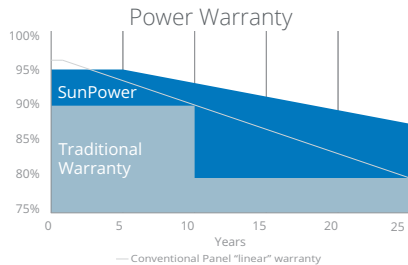
### Produce more energy per rated watt

High year one performance delivers 8-10% more energy per rated watt.<sup>3</sup> This advantage increases over time, producing 21% more energy over the first 25 years to meet your needs.<sup>4</sup>

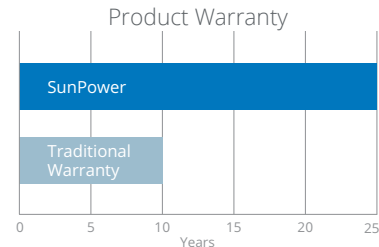


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## Sunpower Offers The Best Combined Power And Product Warranty



More guaranteed power: 95% for first 5 years, -0.4%/yr. to year 25.<sup>8</sup>



Combined Power and Product defect 25 year coverage that includes panel replacement costs.<sup>9</sup>

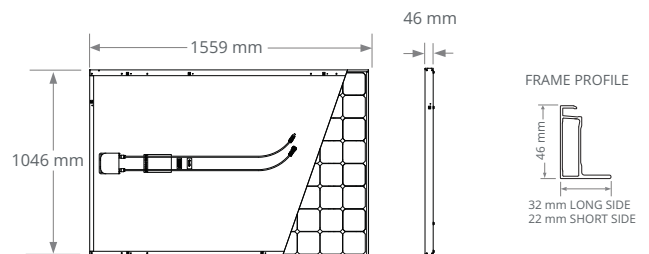
Electrical Data		
	SPR-X21-335-BLK	SPR-X21-345
Nominal Power (P <sub>nom</sub> ) <sup>12</sup>	335 W	345 W
Power Tolerance	+5/-0%	+5/-0%
Avg. Panel Efficiency <sup>13</sup>	21.0%	21.5%
Rated Voltage (V <sub>mpp</sub> )	57.3 V	57.3 V
Rated Current (I <sub>mpp</sub> )	5.85 A	6.02 A
Open-Circuit Voltage (V <sub>oc</sub> )	67.9 V	68.2 V
Short-Circuit Current (I <sub>sc</sub> )	6.23 A	6.39 A
Max. System Voltage	1000 V IEC & 600 V UL	
Maximum Series Fuse	15 A	
Power Temp Coef.	-0.30% / °C	
Voltage Temp Coef.	-167.4 mV / °C	
Current Temp Coef.	3.5 mA / °C	

Tests And Certifications	
Standard tests <sup>14</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-155
Ammonia test	IEC 62716
Desert test	10.1109/PVSC.2013.6744437
Salt Spray test	IEC 61701 (maximum severity)
PID test	Potential-Induced Degradation free: 1000V <sup>10</sup>
Available listings	TUV, MCS, UL, CEC

Operating Condition And Mechanical Data	
Temperature	-40°C to +85°C
Impact resistance	25mm 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, Yukita (YS-254/YS-255)
Weight	18,6 kg
Max load	Wind: 2400 Pa, 244 kg/m <sup>2</sup> front & back Snow: 5400 Pa, 550 kg/m <sup>2</sup> front
Frame	Class 1 black anodised (highest AAMA rating)

### REFERENCES:

- All comparisons are SPR-X21-345 vs. a representative conventional panel: 250W, approx. 1.6 m<sup>2</sup>, 15.3% efficiency.
- PVEvolution Labs "SunPower Shading Study," Feb 2013.
- Typically 8-10% more energy per watt, BEW/DNV Engineering "SunPower Yield Report," Jan 2013, with CFV Solar Test Lab Report #12063, Jan 2013 temp. coef. calculation;
- 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, Q4-2014
- "SunPower Module 40-Year Useful Life" SunPower white paper, Feb 2013. 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, Feb 2013.
- Some exclusions apply. See warranty for details.
- X-Series same as E-Series, 5 of top 8 panel manufacturers from 2013 report were tested, 3 additional silicon solar panels for the 2014. Ferrara, C., et al. "Fraunhofer PV Durability Initiative for Solar Modules: Part 2". Photovoltaics International, 77-85. 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.



Please read the safety and installation guide.

See <http://www.sunpower.com/facts> for more reference information. For more details, see extended datasheet: [www.sunpower.com/datasheets](http://www.sunpower.com/datasheets).

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