



SunPower® X-Series Commercial Solar Panels | X21-470-COM

More than 21% Efficiency

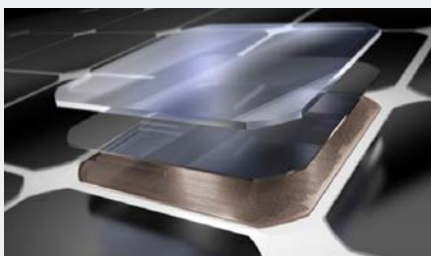
Captures more sunlight and generates more power than conventional panels.

Maximum Performance

Delivers excellent performance in real-world conditions, such as high temperatures, clouds and low light.¹

Utility Grade

Optimized to maximize returns, the X-Series panel is a bankable solution for large-scale power plants.



Maxeon® Solar Cells: Fundamentally better
Engineered for performance, designed for reliability.

Engineered for Peace of Mind

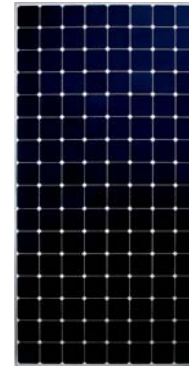
Designed to deliver consistent, trouble-free energy over a very long lifetime.²

Designed for Reliability

The SunPower Maxeon solar cell is the only cell built on a solid metal foundation. Virtually impervious to the corrosion and cracking that degrade conventional panels.

Same excellent durability as E-Series panels.
#1 Rank in Fraunhofer durability test.³

High Performance & Excellent Reliability



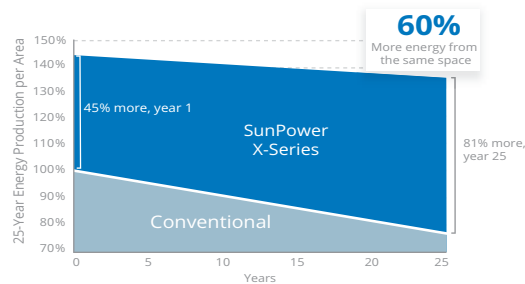
SPR-X21-470-COM



High Efficiency

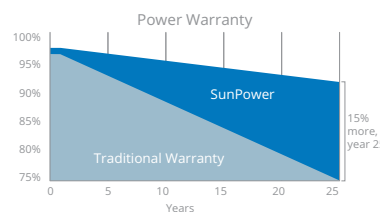
Generate more energy per square foot

More energy to power your operations. X-Series commercial systems convert more sunlight to electricity by producing 45% more energy in the first year. This advantage increases over time, producing 60% more energy over the first 25 years to meet your needs.¹

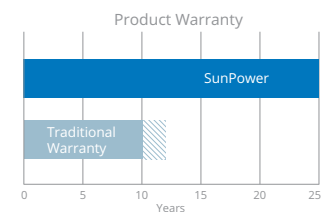


Best Reliability, Best Warranty

A better warranty starts with a better product. Proven performance backs up our industry-best coverage, including out warranted 0.25% per year degradation rate.⁴



More guaranteed power: 98% for first year, -0.25%/yr. to year 25



Combined Power and Product defect 25-year coverage



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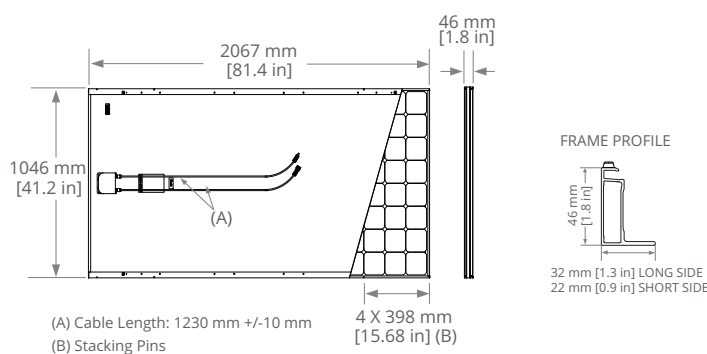
Electrical Data			
	SPR-X21-470-COM	SPR-X21-460-COM	SPR-X20-445-COM
Nominal Power (P _{nom}) ⁵	470 W	460 W	445 W
Power Tolerance	+5/-0%	+5/-0%	+5/-0%
Avg. Panel Efficiency ⁶	21.7%	21.3%	20.6%
Rated Voltage (V _{mpp})	77.6 V	77.3 V	76.5 V
Rated Current (I _{mpp})	6.06 A	5.95 A	5.82 A
Open-Circuit Voltage (V _{oc})	91.5 V	90.5 V	90.0 V
Short-Circuit Current (I _{sc})	6.45 A	6.39 A	6.24 A
Max. System Voltage	1000 V UL & 1000 V IEC		
Maximum Series Fuse	15 A		
Power Temp Coef.	-0.29% / ° C		
Voltage Temp Coef.	-223.2 mV / ° C		
Current Temp Coef.	2.9 mA / ° C		

Tests And Certifications	
Standard Tests ⁷	UL1703 (Type 2 Fire Rating), IEC 61215, IEC 61730
Management System Certs	ISO 9001:2015, ISO 14001:2015
EHS Compliance	RoHS, OHSAS 18001:2007, lead free, REACH SVHC-163, PV Cycle
Sustainability	Cradle to Cradle Certified™ Silver (contributes to LEED categories) ⁸
Ammonia Test	IEC 62716
Desert Test	10.1109/PVSC.2013.6744437
Salt Spray Test	IEC 61701 (maximum severity)
PID Test	1000V: IEC62804, PVEL 600hr duration
Available Listings	UL, TUV, CEC

Operating Condition And Mechanical Data	
Temperature	-40° F to +185° F (-40° C to +85° C)
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Appearance	Class B
Solar Cells	128 Monocrystalline Maxeon Gen III
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-65, 1230 mm cables / MC4 compatible
Weight	56 lbs (25.4 kg)
Max. Load	Wind: 50 psf, 2400 Pa front & back Snow: 112 psf, 5400 Pa front
Frame	Class 2 silver anodized; stacking pins

REFERENCES:

- 1 SunPower 360W compared to a Conventional Panel on same sized arrays (260W, 16% efficient, approx. 1.6 m²), 4% more energy per watt (based on 3pty module characterization and PVSIM), 0.75%/yr slower degradation (Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, 2013).
- 2 "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.
- 3 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.
- 4 See us.sunpower.com/home-solar-system-warranty/ for more details.
- 5 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.
- 6 Based on average of measured power values during production.
- 7 Type 2 fire rating per UL1703:2013, Class C fire rating per UL1703:2002.
- 8 See salesperson for details.



Please read the safety and installation guide.

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