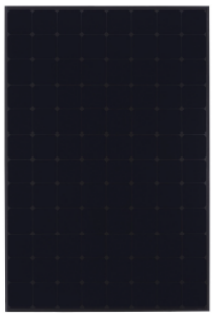
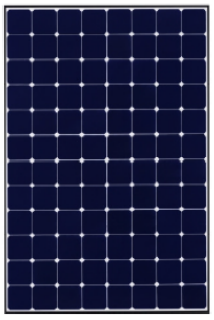
SunPower X-SERIES SOLAR PANELS

• **21.5% 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.[1, 2, 3]
• **Premium aesthetics**
SunPower® Signature™ Black X-Series panels blend harmoniously into your roof. The most elegant choice for 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.[4,5]
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.[4,5]
Same excellent durability as E-Series panels.
#1 Ranked in Fraunhofer durability test

UNMATCHED PERFORMANCE, RELIABILITY & AESTHETICS



SIGNATURE™ BLACK
X21 - 335 PANEL



X21 - 345 PANEL

X21 SERIES

HIGHEST EFFICIENCY[6]

Generate more energy per square foot

X-Series residential panels convert more sunlight to electricity producing 44 more power per panel,[1] and 75% more energy per square foot over 25 years.[3,4]

HIGHEST ENERGY PRODUCTION[7]

Produce more energy per rated watt

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

ELECTRICAL DATA		
	X21-335-BLK	**X21-345**
Nominal Power[12] (Pnom)	335 W	345 W
Power Tolerance	+5/–0%	+5/–0%
Avg. Panel Efficiency[13]	21.1%	21.5%
Rated Voltage (Vmpp)	57.3 V	57.3 V
Rated Current (Impp)	5.85 A	6.02 A
Open-Circuit Voltage (Voc)	67.9 V	68.2 V
Short-Circuit Current (Isc)	6.23 A	6.39 A
Maximum System Voltage	600 V UL ; 1000 V IEC	
Maximum Series Fuse	20 A	
Power Temp Coef. (Pmpp)	–0.30% / °C	
Voltage Temp Coef. (Voc)	–167.4 mV / °C	
Current Temp Coef. (Isc)	3.5 mA / °C	

OPERATING CONDITION AND MECHANICAL DATA	
Temperature	– 40°F to +185°F (– 40°C to +85°C)
Max load	Wind: 50 psf, 2400 Pa, 245 kg/m² front & back Snow: 112 psf, 5400 Pa, 550kg/m² front
Impact resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Appearance	Class A+
Solar Cells	96 Monocrystalline Maxeon Gen III Cells
Tempered Glass	High Transmission Tempered Anti-Reflective
Junction Box	IP-65 Rated
Connectors	MC4 Compatible
Frame	Class 1 black anodized, highest AAMA Rating
Weight	41 lbs (18.6 kg)

TESTS AND CERTIFICATIONS	
Standard tests	UL 1703, IEC 61215, IEC 61730
Quality tests	ISO 9001:2008, ISO 14001:2004
EHS Compliance	RoHS, OHSAS 18001:2007, lead-free
Ammonia test	IEC 62716
Salt Spray test	IEC 61701 (passed maximum severity)
PID test	Potential-Induced Degradation free: 1000V [10]
Available listings	CEC, UL, TUV, MCS

REFERENCES:
1 All comparisons are SPR-X21-345 vs. a representative conventional panel: 240W, approx. 1.6 m², 15% efficiency.
2 PVEvolution Labs "SunPower Shading Study," Feb 2013.
3 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.
4 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, Oct 2012.

5 "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.

6 Higher than E Series which is highest of all 2600 panels listed in Photon Int'l, Feb 2012.

7 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 Int'l, Mar 2013.

8 Compared with the top 15 manufacturers. SunPower Warranty Review, Feb 2013.

9 Some exclusions apply. See warranty for details.

10 X-Series same as E-Series, 5 of top 8 panel manufacturers were tested by Fraunhofer ISE, "PV Module Durability Initiative Public Report," Feb 2013.

11 Compared with the non-stress-tested control panel. X-Series same as E-Series, tested in Atlas 25+ Durability test report, Feb 2013.

12 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C).

13 Based on average of measured power values during production.