

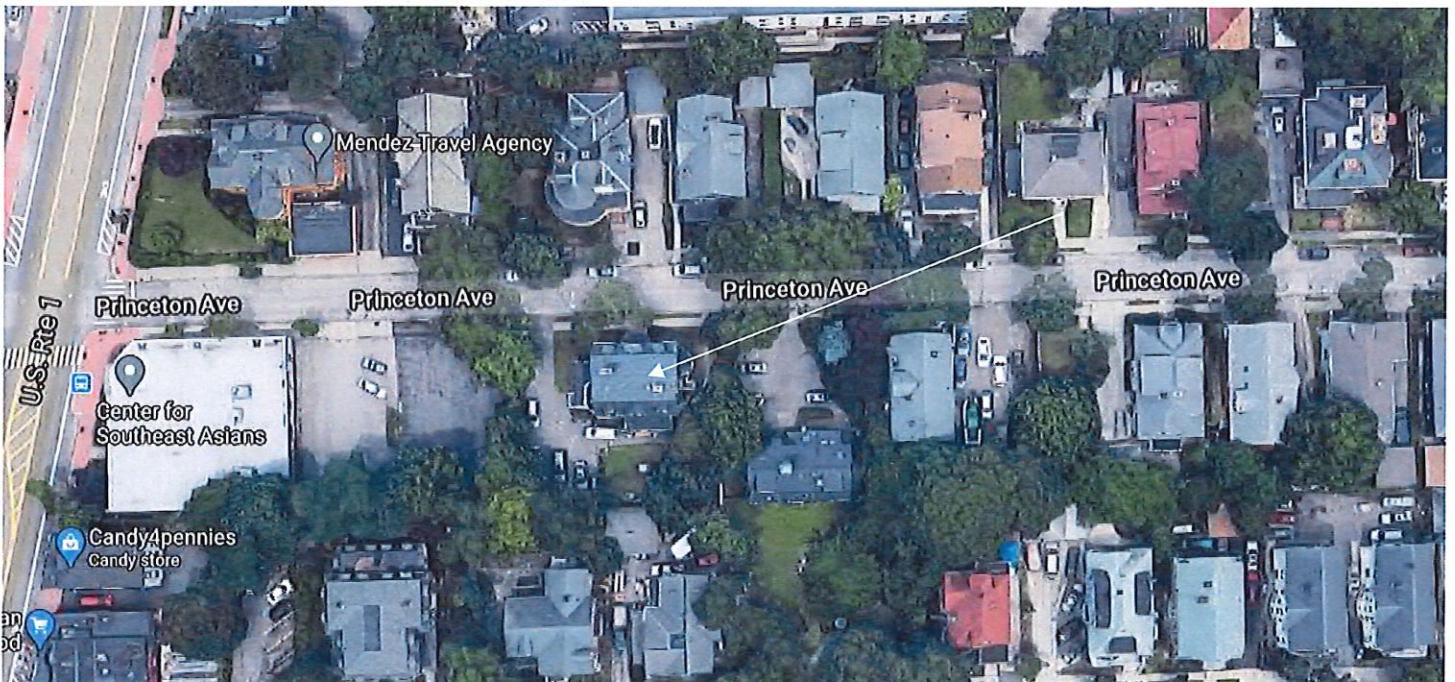
6. CASE 20.099, 118 PRINCETON AVENUE, Webster Knight House, ca1897 (NORTH ELMWOOD)

One of the earliest and finest Colonial Revival residences in Providence, this imposing 24-story flank-gambrel structure, with its symmetrical facade and central-hall plan is reminiscent of some of the larger mid-eighteenth-century homes of New England. Probably designed by the local firm of Angell & Swift, it possesses a fanlight-and-sidelight front entrance, a semi-circular Corinthian-column front porch, and an ionic-column side porch with an ornate, Chippendale-inspired upper railing. Webster Knight 1854-1933 son of Robert Knight, one of the founders of the B. B. & R. Knight cotton manufacturing empire, assumed major management responsibilities in the B. B. & R. Knight firm in 1898, and became senior partner in 1912.

CONTRIBUTING



Arrow indicates 118 Princeton Street.



Arrow indicates project location.

Applicant/Owner: Brett Schneider, 118 Princeton Avenue, Providence, RI 02907

Contractor: SGE Solar, 85 South Bow Street, Milford, MA 01757

Proposal: The scope of work proposed consists of Minor Alterations: Solar Energy Systems and includes:

- The applicant is requesting the installation of 23 solar panels to the upper gambrel roof, south, rear elevation.

Issues: The following issues are relevant to this application:

- The modifications as proposed will not be visible from the public rights-of-way;
- The modifications as proposed meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, in the following manner: Panel layout shall be sympathetic or appropriate to design and scale of building. Rectangular configurations are preferred, with ample setback from edge of roof, dormers, chimneys, etc. (2.A); Panels shall be installed parallel to the existing roof slope and matched as closely as possible to the roof plane (2.B); Panels shall be installed without destroying or replacing original or historic materials or significantly compromising or altering the building's structural integrity (2.C); Panels shall be compatible in color to existing roofing insofar as possible (2.D); Installation of panels shall be as inconspicuous as possible when viewed from public right-of-way (2.E); Installation shall be reversible. Panels shall be removed when no longer viable or functioning and roofing restored to pre-existing conditions (2.F); and,
- Drawings and pictures have been submitted.

Recommendations: The staff recommends the PHDC make the following findings of fact:

- a) 118 Princeton Ave is a structure of historical and architectural significance that contribute to the significance of the North Elmwood local historic district, having been recognized as a contributing structure to the Elmwood National Historic Register District;
- b) The modifications as proposed meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, and is considered complete; and,
- c) The work as proposed is in accord with PHDC Standards 8 & 9 as follows: 8) the work will be done so that it does not destroy the historic character of the property or the district being not visible from the public rights-of-way; and, 9) Whenever possible... alterations to structures shall be done in such a manner that if removed in the future, the essential form and integrity of the structure and the site will be unimpaired.

Staff recommends a motion be made stating that: The application is considered complete. 118 Princeton Avenue is a structure of historical and architectural significance that contributes to the significance of the North Elmwood local historic district, having been recognized as a contributing structure to the Elmwood National Historic Register District. The Commission grants Final Approval of the proposal as submitted as the proposed alteration is appropriate having determined that the proposed alteration does not destroy the historic character of the property or the district and are historically and architecturally compatible with the property and district as the proposed alteration meets Minor Alterations: Solar Energy Systems Guidelines, Section 2, is not visible from the public rights-of-way, is reversible and will not have an adverse effect on the property or district, and the recommendations in the staff report, with staff to review any additional required details.

PROJECT OVERVIEW

System size	8.28 kW DC
Estimated Solar Savings Over 25 Years	\$83,695.03
Estimated first year production	10,991 kWh AC



4,799 Trees planted



38.99 Vehicles off the road



435.24 Barrels not consumed





118
PRINCETON
AVE.



Exhibit 1



Princeton Ave



↑
N

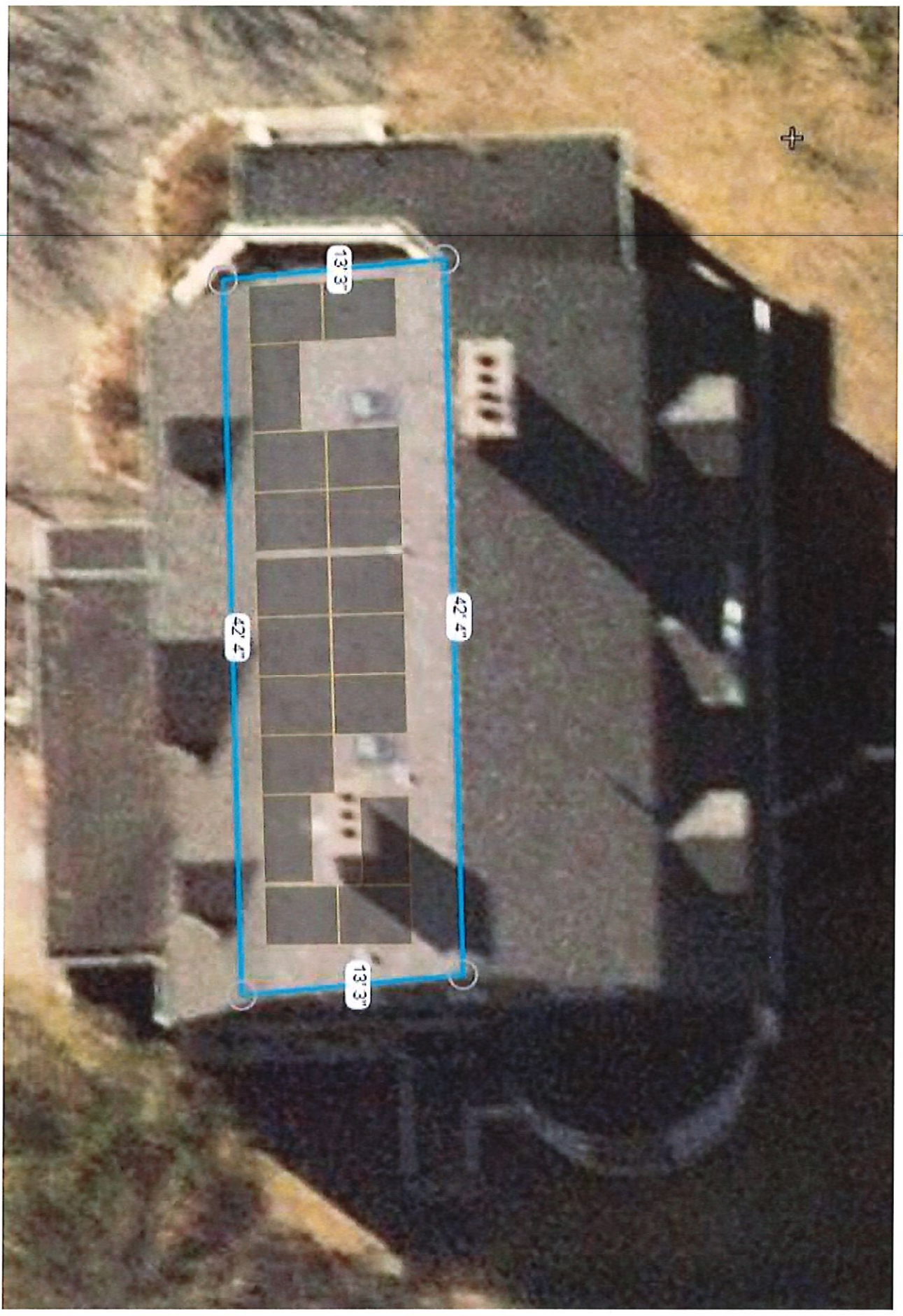
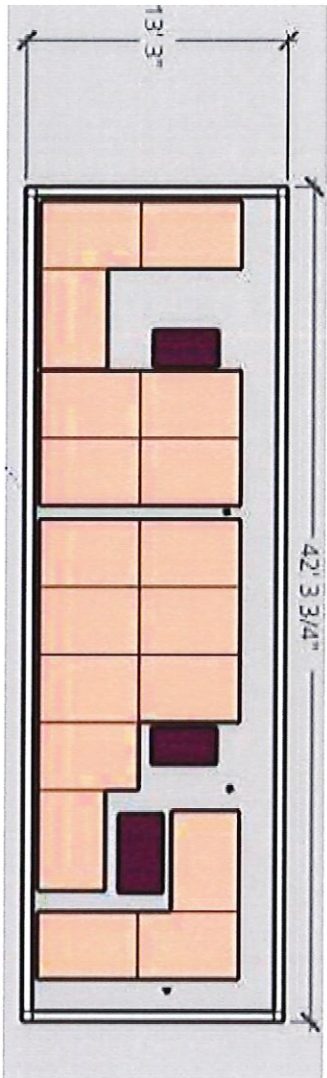


Exhibit 3

118 Princeton Ave

Exhibit 4



117 Pinner Ave

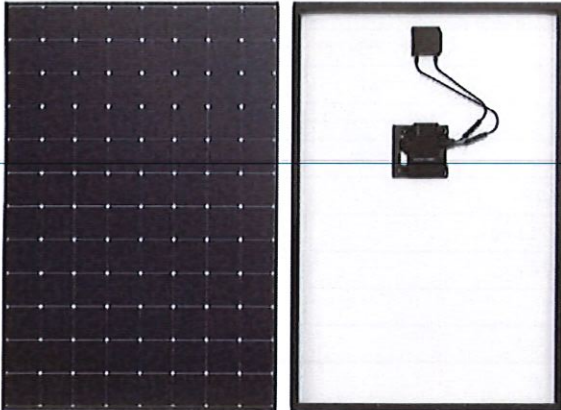


SUNPOWER®

SunPower® X-Series: X22-370 | X22-360

SunPower® Residential AC Module

Built specifically for use with the SunPower Equinox™ system, the only fully integrated solution designed, engineered, and warranted by one manufacturer.



Maximum Power. Minimalist Design.

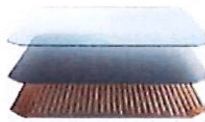
Industry-leading efficiency means more power and savings per available space. With fewer modules required and hidden microinverters, less is truly more.



Highest Lifetime Energy and Savings.

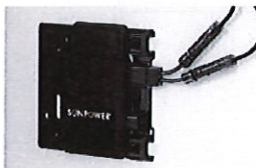
Designed to deliver 60% more energy over 25 years in real-world conditions like partial shade and high temperatures.¹

Fundamentally Different. And Better.



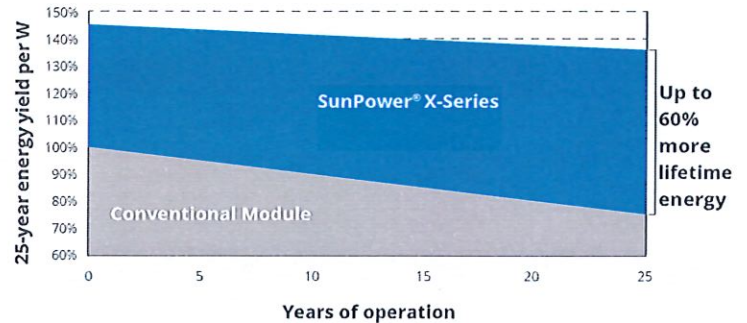
The SunPower® Maxeon® Solar Cell

- Enables highest-efficiency modules available²
- Unmatched reliability³
- Patented solid metal foundation prevents breakage and corrosion



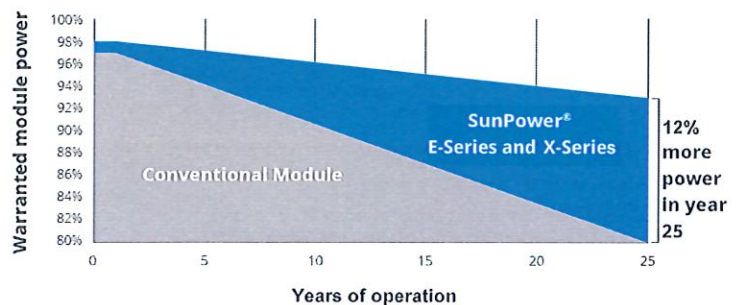
Factory-integrated Microinverter

- Simpler, faster installation
- Integrated wire management, rapid shutdown
- Engineered and calibrated by SunPower for SunPower modules



Best Reliability. Best Warranty.

With more than 25 million modules deployed around the world, SunPower technology is proven to last. That's why we stand behind our module and microinverter with the industry's best 25-year Combined Power and Product Warranty, including the highest Power Warranty in solar.



X-Series: X22-370 | X22-360 SunPower® Residential AC Module

AC Electrical Data		
Inverter Model: Enphase IQ 7XS (IQ7XS-96-ACM-US)	@240 VAC	@208 VAC
Peak Output Power	320 VA	320 VA
Max. Continuous Output Power	315 VA	315 VA
Nom. (L-L) Voltage/Range ² (V)	240 / 211–264	208 / 183–229
Max. Continuous Output Current (A)	1.31	1.51
Max. Units per 20 A (LL) Branch Circuit ³	12 (single phase)	10 (two pole) wye
CEC Weighted Efficiency	97.5%	97.0%
Nom. Frequency	60 Hz	
Extended Frequency Range	47–68 Hz	
AC Short Circuit Fault: Current Over 3 Cycles	5.8 A rms	
Overtoltage Class AC Port	III	
AC Port Backfeed Current	18 mA	
Power Factor Setting	1.0	
Power Factor (adjustable)	0.7 lead. / 0.7 lag.	
No active phase balancing for three-phase installations		

DC Power Data		
	SPR-X22-370-E-AC	SPR-X22-360-E-AC
Nominal Power ⁴ (Pnom)	370 W	360 W
Power Tolerance	+5/-0%	+5/-0%
Module Efficiency ⁵	22.7%	22.1%
Temp. Coef. (Power)	-0.29%/°C	-0.29%/°C
Shade Tolerance	<ul style="list-style-type: none"> • Three bypass diodes • Integrated module-level maximum power point tracking 	

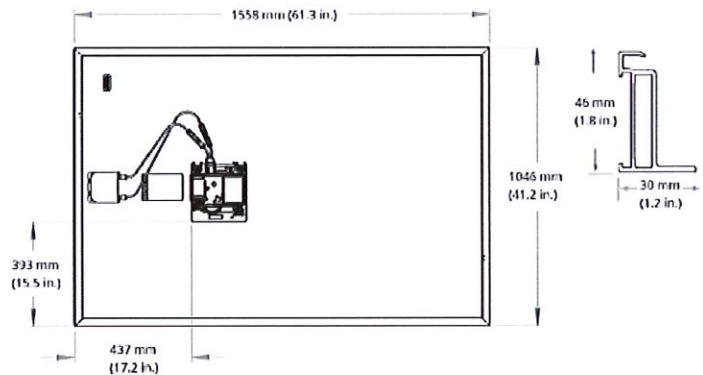
Tested Operating Conditions	
Operating Temp.	-40°F to +140°F (-40°C to +60°C)
Max. Ambient Temp.	122°F (50°C)
Max. Load	Wind: 62 psf, 3000 Pa, 305 kg/m ² front & back Snow: 125 psf, 6000 Pa, 611 kg/m ² front
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)

Mechanical Data	
Solar Cells	96 Monocrystalline Maxeon Gen III
Front Glass	High-transmission tempered glass with anti-reflective coating
Environmental Rating	Module: Outdoor rated Inverter: NEMA Type 6 Class II
Frame	Class 1 black anodized (highest AAMA rating)
Weight	42.9 lb (19.5 kg)
Recommended Max. Module Spacing	1.3 in. (33 mm)

1 SunPower 360 W compared to a conventional module on same-sized arrays (260 W, 16% efficient, approx. 1.6 m²), 4% more energy per watt (based on third-party module characterization and PVSIM), 0.75%/yr slower degradation (Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, 2013).
 2 Based on search of datasheet values from websites of top 10 manufacturers per IHS, as of January 2017.
 3 #1 rank in "Fraunhofer PV Durability Initiative for Solar Modules: Part 3," PVTech Power Magazine, 2015. Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, 2013.
 4 Factory set to 1547a-2014 default settings, CA Rule 21 default settings profile set during commissioning. See the Equinox Installation Guide #518101 for more information.
 5 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25°C). NREL calibration standard: SOMS current, LACCS FF and voltage. All DC voltage is fully contained within the module.
 6 This product is UL Listed as PVRE and conforms with NEC 2014 and NEC 2017 690.12; and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors; when installed according to manufacturer's instructions.

See www.sunpower.com/facts for more reference information.
 For more details, see extended datasheet www.sunpower.com/datasheets
 Specifications included in this datasheet are subject to change without notice.
 ©2018 SunPower Corporation. All Rights Reserved. SUNPOWER, the SUNPOWER logo and MAXEON are registered trademarks of SunPower Corporation in the U.S. and other countries as well. 1-800-SUNPOWER.

Warranties, Certifications, and Compliance	
Warranties	<ul style="list-style-type: none"> • 25-year limited power warranty • 25-year limited product warranty
Certifications and Compliance	<ul style="list-style-type: none"> • UL 1703 • UL 1741 / IEEE-1547 • UL 1741 AC Module (Type 2 fire rated) • UL 62109-1 / IEC 62109-2 • FCC Part 15 Class B • ICES-0003 Class B • CAN/CSA-C22.2 NO. 107.1-01 • CA Rule 21 (UL 1741 SA)⁶ (includes Volt/Var and Reactive Power Priority) • UL Listed PV Rapid Shutdown Equipment⁶ <p>Enables installation in accordance with:</p> <ul style="list-style-type: none"> • NEC 690.6 (AC module) • NEC 690.12 Rapid Shutdown (inside and outside the array) • NEC 690.15 AC Connectors, 690.33(A)-(E)(1) <p>When used with InvisiMount racking and InvisiMount accessories (UL 2703):</p> <ul style="list-style-type: none"> • Module grounding and bonding through InvisiMount • Class A fire rated <p>When used with AC module Q Cables and accessories (UL 6703 and UL 2238)⁶:</p> <ul style="list-style-type: none"> • Rated for load break disconnect
PID Test	Potential-induced degradation free



SUNPOWER®

Please read the Safety and Installation Instructions for details.

531945 RevA