UNI-SOLAR®

PowerBond ePVL

TECHNICAL DATA SHEET
ePVL 144 | 136 | 68

It Pays To Be Flexible

Building on 25 years of solar experience, the new, enhanced version of our proven PVL delivers greater efficiency, packing density and ease of installation, resulting in a lower cost of electricity than ever before.

Key Attributes

- Lightweight and flexible
- Roof-friendly solution requiring no penetrations
- BIPV & BAPV
- Superior performance at high temperatures
- Excellent performance even when partially shaded
- Built-in strain relief reduces installation labor and improves reliability
- Polarized, latching connectors
- Lead-free RoHS compliant design

Performance Characteristics

Rated Power (Pmax):	144, 136 or 68 Wp
Tolerance of Pmax:	±5 %

Mechanical Characteristics

Junction Box:	IP66 terminal housing with integrated strain relief
Connectors:	Polarized, weatherproof latching connectors with 4 mm^2 (12 AWG) halogen-free cables
Bypass Diodes:	Connected across every solar cell
Front Surface:	Durable ETFE high light-transmissive polymer
Adhesive:	Peel and stick pressure sensitive adhesive (PSA)
Cell Type:	Multi-junction amorphous silicon solar cells 356 mm x 239 mm (14" x 9.4")

Certifications and Warranty

- UL 1703 Listed by Underwriters Laboratories® for electrical and fire safety (Class A Max. Slope 2/12, Class B Max. Slope 3/12, Class C Unlimited Slope fire ratings) for use in systems up to 600 VDC
- IEC 61646 and IEC 61730 certified by TÜV Rheinland for use in Class A PV systems up to 1000 VDC
- MCS Certified
- CEC Listed

5-Year Limited Product Warranty

Limited Power Output Warranty: 92% at 10 years, 84% at 20 years, 80% at 25 years (of minimum power)

Application Criteria*

Suitable for installation on clean, dry approved substrates (refer to uni-solar.com for full details) at ambient temperatures above 10°C

Roof Requirements

Maximum slope of 60°

Install in areas free of water pooling

**Refer to United Solar's installation manuals for further application criteria*

Lightweight

Flexible

No Penetrations

Shadow Tolerant

Durable

Easy to Install

Global Contact Information

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Electrical Performance at Standard Test Conditions (STC) (1000 W/m², AM 1.5, 25°C Cell Temperature)

	ePVL-144	ePVL-136	ePVL-68
Maximum Power (P_{max}):	144 W	136 W	68 W
Voltage at Pmax (V_{mpp}):	33.0 V	33.0 V	16.5 V
Current at Pmax (I_{mpp}):	4.4 A	4.1 A	4.1 A
Short-circuit Current (I_{sc}):	5.3 A	5.1 A	5.1 A
Open-circuit Voltage (V_{oc}):	46.2 V	46.2 V	23.1 V
Maximum Series Fuse Rating:	10 A	10 A	10 A
Limiting Reverse Current:	10 A	10 A	10 A

Temperature Coefficients (TC)* (at AM 1.5, 1000 W/m² irradiance)

TC of I_{sc}	0.0010/K (0.10%/°C)
TC of V_{oc}	-0.0038/K (-0.38%/°C)
TC of P_{max}	-0.0021/K (-0.21%/°C)
TC of I_{mpp}	0.0010/K (0.10%/°C)
TC of V_{mpp}	-0.0031/K (-0.31%/°C)

Electrical Performance at Nominal Operating Cell Temperature (NOCT) (800 W/m², AM 1.5, 1 m/sec. wind)

	ePVL-144	ePVL-136	ePVL-68
Maximum Power (P_{max}):	111 W	105 W	53 W
Voltage at Pmax (V_{mpp}):	30.8 V	30.8 V	15.4 V
Current at Pmax (I_{mpp}):	3.6 A	3.4 A	3.4 A
Short-circuit Current (I_{sc}):	4.3 A	4.1 A	4.1 A
Open-circuit Voltage (V_{oc}):	42.2 V	42.2 V	21.1 V
NOCT:	46°C	46°C	46°C

Notes:

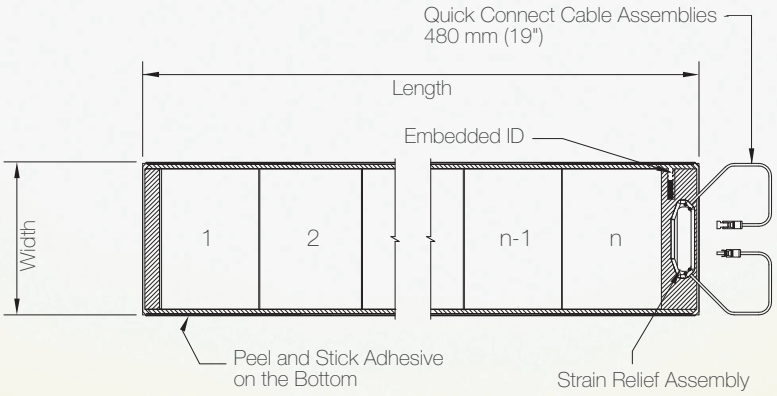
1. During the first 8-10 weeks of operation, electrical output exceeds specified ratings. Power output may be higher by 15%, operating voltage may be higher by 8%, and operating current may be higher by 7%, Voc may be higher by 4% and Isc may be higher by 2%.
2. Production tolerance for Pmax at standard test conditions (STC) is +/-5% and for other electrical parameters is +/-10%. Electrical specifications are based on measurements performed at STC of 1000 W/m², AM1.5 and cell temperature of 25°C (per ASTM E892) after long-term stabilization. Actual performance may vary up to 10% from rated power due to low temperature operation, spectral and other related effects. Maximum system open-circuit voltage not to exceed 600 VDC per UL, 1000 VDC per IEC regulations.
3. Specifications subject to change without notice.

*To determine performance of a module at a different temperature, use the following formula: $y = y_{reference} \times [1 + TC \times (T - T_{reference})]$

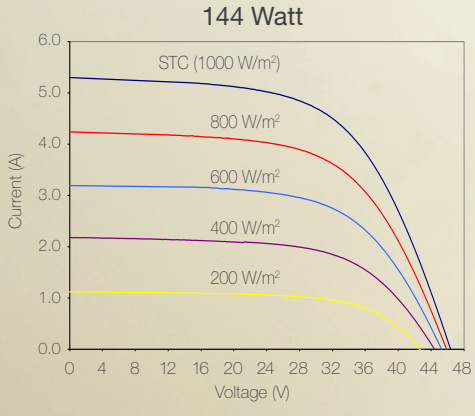
Physical Characteristics

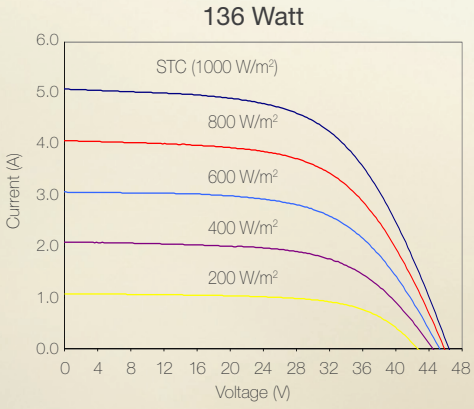
	ePVL-136 ePVL-144	ePVL-68
Length:	5412 mm (213.1")	2771 mm (109.1")
Width:	373 mm (14.69")	373 mm (14.69")
Laminate Thickness:	3 mm (.12")	3 mm (.12")
Overall Thickness: (including adhesive and terminal housing)	21 mm (.83")	21 mm (.83")
Weight:	7.4 kg (16.2 lbs)	3.9 kg (8.5 lbs)
Number of Cells:	22 (n)	11 (n)

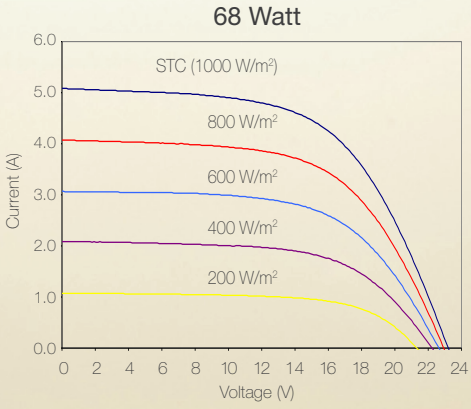
Tolerances: Length: ± 5 mm (¼"), Width: ± 5 mm (¼")



IV Curves at Various Levels of Irradiance at Air Mass 1.5 and 25°C Cell Temperature







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PowerBond ePVL

To learn more about PowerBond and other UNI-SOLAR products, please call 1.800.528.0617 or visit uni-solar.com.

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PV CYCLE

United Solar is a proud member of PV Cycle, an association that promotes the environmentally responsible collection and recycling of PV laminates and the protection of our climate and the environment by encouraging increased use and sustainability of PV technology. To learn more, please visit pvcycle.org.