UNI-SOLAR®

Solar Laminate PVL-Series
Model: PVL-136

- High Temperature and Low Light Performance
- 20 Year Warranty on Power Output at 80 %
- Multi-Contact Connectors or Junction Box
- Bypass Diodes for Shadow Tolerance
- UL Listed to 600 VDC
- Meets IEC 61646 Requirements

Performance Characteristics

Rated Power (P_{max}):	136 Wp
Production Tolerance:	± 5 %

Construction Characteristics

Dimensions:	Length: 5486 mm (216"), Width: 394 mm (15.5"), Depth: 4 mm (0.2"), 16 mm (0.6") including potted terminal housing assembly
Weight:	7.7 kg (17.0 lbs)
Output Cables:	~2.5 mm^2 cable with weatherproof DC rated Multi-Contact (MC®) connectors – 560 mm (22") length
By-pass Diodes:	Connected across every solar cell
Laminate Encapsulation:	Durable ETFE (e.g. Tefzel®) high light-transmissive polymer
Adhesive:	Ethylene propylene copolymer adhesive-sealant with microbial inhibitor
Cell Type:	22 triple junction amorphous silicon solar cells 356 x 239 mm (14" x 9.4") connected in series

Qualifications and Safety

Listed by Underwriter's 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.

Laminate Standard Configuration

Photovoltaic laminate with potted terminal housing assembly with output cables and Multi-Contact (MC®) connectors.

Optional Configuration

Photovoltaic laminate with junction box.

Application Criterion

- New or qualified new roof installations
- 400 mm (16") minimum steel pan width
- PVDF Coated (Galvalume® or Zincalume® steel metal pan)
- Steel pans with flat surface (without pencil beads or decorative stippling)
- Installation by certified installers only
- Installation temperature between 10 °C - 40 °C (50 °F - 100 °F)
- Maximum roof temperature 85 °C (185 °F)
- Minimum slope 1:12 (5°)
- Maximum slope 21:12 (60°)
- Refer to manufacturers installation guide for approved substrates and installation methods

Flexible

Lightweight

No-Glass

Durable

Shadow Tolerant

High Temp Performance

Technical Data Sheet

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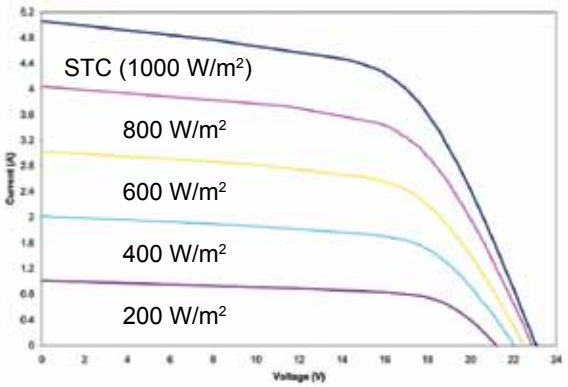
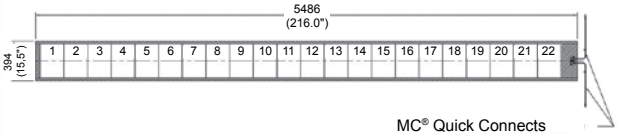
I-V Curves at various Levels of Irradiance at Air Mass 1.5 and 25 °C Cell Temperature





PVL-136

All measurements in mm.
Inches in parentheses.
Tolerances: Length: ± 5 mm (1/4"), Width: ± 3 mm (1/8")

Electrical Specifications

STC

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

Maximum Power (P_{max}): 136 W
Voltage at Pmax (V_{mp}): 33.0 V
Current at Pmax (I_{mp}): 4.1 A
Short-circuit Current (I_{sc}): 5.1 A
Open-circuit Voltage (V_{oc}): 46.2 V
Maximum Series Fuse Rating: 8 A

NOCT

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

Maximum Power (P_{max}): 105 W
Voltage at Pmax (V_{mp}): 30.8 V
Current at Pmax (I_{mp}): 3.42 A
Short-circuit Current (I_{sc}): 4.1 A
Open-circuit Voltage (V_{oc}): 42.2 V
NOCT: 46 °C

Temperature Coefficients

(at AM 1.5, 1000 W/m² irradiance)

Temperature Coefficient of I_{sc}: 5.1 mA/K (0.10 %/°C)
Temperature Coefficient of V_{oc}: -176 mV/K (-0.38 %/°C)
Temperature Coefficient of P_{max}: -286 mW/K (-0.21 %/°C)
Temperature Coefficient of I_{mp}: 4.1 mA/K (0.10 %/°C)
Temperature Coefficient of V_{mp}: -102 mV/K (-0.31 %/°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 11 % and operating current may be higher by 4 %.
2. Electrical specifications (± 5 %) are based on measurements performed at standard test conditions of 1000 W/m² irradiance, Air Mass 1.5, and cell temperature of 25 °C after stabilization.
3. 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.
4. Specifications subject to change without notice.

Global Headquarters Sales & Manufacturing
United Solar Ovonic LLC
3800 Lapeer Rd.,
Auburn Hills, MI 48326 USA
Toll free: +1.800.843.3892
Tel: +1.248.475.0100
Fax: +1.248.364.0510
info@uni-solar.com

European Sales Office
United Solar Ovonic
Europe GmbH
Trakehner Strasse 7-9
D-60487 Frankfurt/Main
Germany
Tel: +49.69.7137667.0
Fax: +49.69.7137667.67
europeinfo@uni-solar.com

Southern European Sales Office
United Solar Ovonic
Europe GmbH
Via Monte Baldo, 4
I-37069 Villafranca (VR)
Italy
Tel: +39.045.8600982
Fax: +39.045.8617738
italyinfo@uni-solar.com

Iberian Sales Office
United Solar Ovonic
Europe GmbH
c/o Velazquez 99 - 1C
E-28006 Madrid
Spain
Tel: +34.91.4116133
Cell: +34.606.584252
spaininfo@uni-solar.com

French Sales Office
United Solar Ovonic
Europe GmbH
c/o 17 bis Route de la Reine
F-92100 Boulogne
France
Cell: +33.666.850777
franceinfo@uni-solar.com

www.uni-solar.com

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