

- High Temperature and Low Light Performance
- 20 Year Warranty on Power Output at 80%
- Quick-Connect Terminals* and Adhesive Backing
- Bypass Diodes for Shadow Tolerance
- UL 1703 Listed to 600 VDC (UL)
- IEC 61646 v1 certified
- IEC 61646 v2 and 61730, TUV certification pending

Performance Characteristics

Rated Power (P_{max}): 144 Wp

Production P_{max} Tolerance: $\pm 5\%$

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: 4 mm² (12 AWG) cable with weatherproof DC rated quick-connect terminals*
560mm (22") length.

By-pass Diodes: Connected across every solar cell

Encapsulation: Durable ETFE high light-transmissive polymer

Adhesive: Ethylene propylene copolymer adhesive-sealant with microbial inhibitor

Cell Type: 22 triple junction amorphous silicon solar cells 356 mm 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 quick-connect terminals*

Application Criterion

- New or qualified new roof installations
- 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: 5/8:12 (3°)
- Maximum slope 21:12 (60°)
- Membrane: Select EPDM and TPO substrates from approved manufacturers only
- Metal: PVDF Coated (Galvalume® or Zincolume®) steel metal roofing pan with flat surface (without pencil beads or decorative stippling) and 406 mm (16") minimum width

Refer to manufacturers installation guide for approved substrates and installation methods

*e.g., Multi-Contact (MC®) Connectors



Flexible



Lightweight



No-Glass



Durable

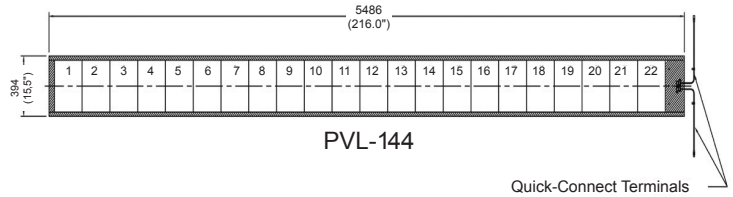
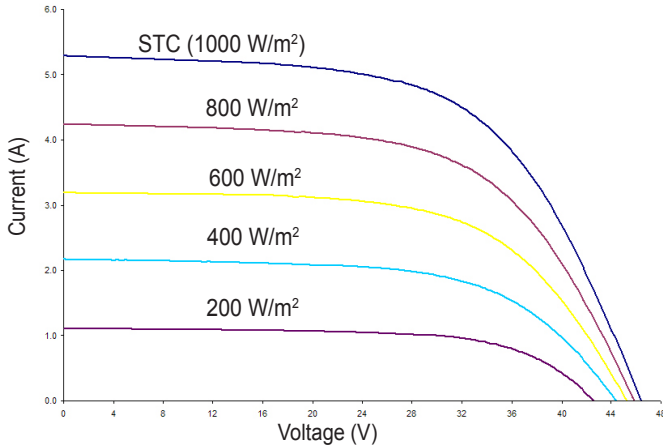


Shadow Tolerant



High Temp
Performance

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



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}): 144 W
Voltage at P_{max} (V_{mp}): 33.0 V
Current at P_{max} (I_{mp}): 4.36 A
Short-circuit Current (I_{sc}): 5.3 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}): 111 W
Voltage at P_{max} (V_{mp}): 30.8 V
Current at P_{max} (I_{mp}): 3.6 A
Short-circuit Current (I_{sc}): 4.3 A
Open-circuit Voltage (V_{oc}): 42.2 V
NOCT: 46 °C

Global Headquarters Sales & Manufacturing

United Solar Ovonic LLC
2956 Waterview Drive
Rochester Hills, MI 48309
Tel: 248.293.0440
Fax: 248.844.1214
Toll Free (USA): 800.528.0617
info@uni-solar.com

Temperature Coefficients

(at AM 1.5, 1000 W/m² irradiance)

Temperature Coefficient (TC) of I_{sc}: 0.001/°K (0.10%/°C)
Temperature Coefficient (TC) of V_{oc}: -0.0038/°K (-0.38%/°C)
Temperature Coefficient (TC) of P_{max}: 0.0021/°K (-0.21%/°C)
Temperature Coefficient (TC) of I_{mp}: 0.001/°K (0.10%/°C)
Temperature Coefficient (TC) of V_{mp}: -0.0031/°K (-0.31%/°C)
 $y = y_{reference} \cdot [1 + TC \cdot (T - T_{reference})]$

Notes:

- 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 %.
- Electrical specifications 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.
- 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.
- Specifications subject to change without notice.

Your UNI-SOLAR® Distributor:

European Sales Office

United Solar Ovonic
Europe GmbH
Trakehner Strasse 7-9
D-60487 Frankfurt am Main
Germany
Tel: +49.69.7137667.20
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

www.uni-solar.com

A subsidiary of Energy
Conversion Devices, Inc.
(Nasdaq: ENER)