


- 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 
- IEC 61646 v1 certified
- IEC 61646 v2 and 61730, TUV certification pending

### Performance Characteristics

Rated Power ( $P_{max}$ ): 68 Wp  
 Production  $P_{max}$  Tolerance:  $\pm 5\%$

### Construction Characteristics

Dimensions: Length: 2849 mm (112.1"), Width: 394 mm (15.5"), Depth: 4 mm (0.2"),  
 16 mm (0.6") including potted terminal housing assembly

Weight: 3.9 kg (8.7 lbs)

Output Cables: 4 mm<sup>2</sup> (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: 11 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

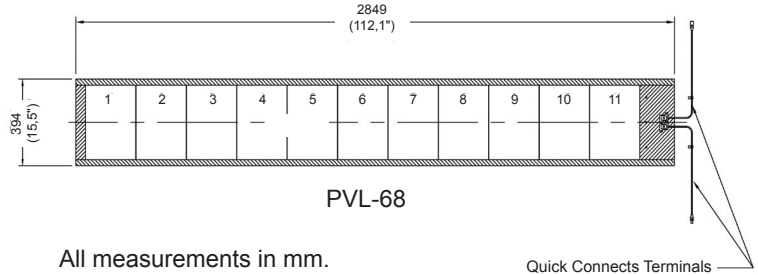
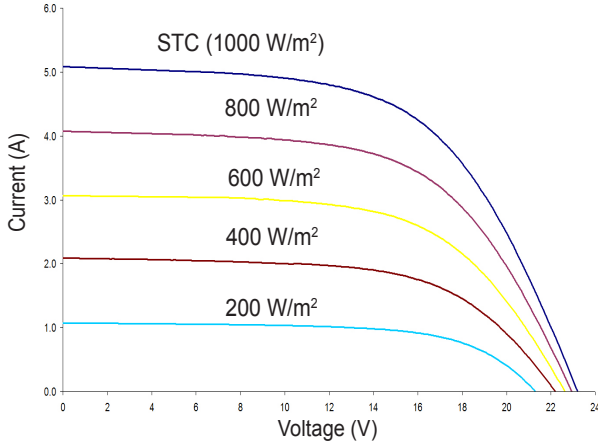


Shadow Tolerant



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/m<sup>2</sup>, AM 1.5, 25 °C Cell Temperature)

Maximum Power (P<sub>max</sub>): 68 W  
Voltage at Pmax (V<sub>mp</sub>): 16.5 V  
Current at Pmax (I<sub>mp</sub>): 4.13 A  
Short-circuit Current (I<sub>sc</sub>): 5.1 A  
Open-circuit Voltage (V<sub>oc</sub>): 23.1 V  
Maximum Series Fuse Rating: 8 A

#### NOCT

(Nominal Operating Cell Temperature)  
(800 W/m<sup>2</sup>, AM 1.5, 1 m/sec. wind)

Maximum Power (P<sub>max</sub>): 53 W  
Voltage at Pmax (V<sub>mp</sub>): 15.4 V  
Current at Pmax (I<sub>mp</sub>): 3.42 A  
Short-circuit Current (I<sub>sc</sub>): 4.1 A  
Open-circuit Voltage (V<sub>oc</sub>): 21.1 V  
NOCT: 46 °C

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### Temperature Coefficients

(at AM 1.5, 1000 W/m<sup>2</sup> irradiance)

Temperature Coefficient (TC) of I<sub>sc</sub>: 0.001/°K (0.10%/°C)  
Temperature Coefficient (TC) of V<sub>oc</sub>: -0.0038/°K (-0.38%/°C)  
Temperature Coefficient (TC) of P<sub>max</sub>: 0.0021/°K (-0.21%/°C)  
Temperature Coefficient (TC) of I<sub>mp</sub>: 0.001/°K (0.10%/°C)  
Temperature Coefficient (TC) of V<sub>mp</sub>: -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/m<sup>2</sup> 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.

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