



The BP 380 photovoltaic module provides superior value and performance for general use, operating DC loads directly or, in an inverter-equipped system, AC loads. Its 36 enhanced-efficiency multicrystalline silicon cells in series charge 12-volt batteries efficiently in virtually any climate. With 80 watts of nominal maximum power, it is well-suited to utility grid-supplemental systems and traditional applications of photovoltaics such as telecommunications, remote villages and clinics, water pumping, and land-based aids to navigation. Modules use our Universal frame, the strongest in the industry.

Available versions include:

BP 380S – Framed module with output cables and polarized connectors

BP 380L – Unframed laminate version of the BP 380S

BP 380U – Framed module with a high-volume Type A junction box

BP 380H – Framed module with our Type B junction box

### Proven Materials and Construction

BP Solar's quarter-century of field experience shows in every aspect of this module's construction and materials:

- 36 multicrystalline silicon solar cells in series, efficiency enhanced by improved cell coating;
- Cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 3mm tempered glass;
- Frame strength exceeds requirements of certifying agencies.



### DC Connectors

### Output Options

The BP 380 is offered with three output options: Connector-equipped cables and two types of junction box.

**BP 380S and BP 380L** output is via heavy-duty AWG #12 (3.3mm<sup>2</sup>) output cables with polarized weatherproof DC-rated connectors which provide reliable low-resistance connections, eliminate wiring errors, and speed installation. Asymmetrical cables enable side-by-side or end-to-end module placement in arrays.

**BP 380U** output is via our Type A junction box. This junction box is



### Clear Anodized Universal Frame

raintight (IP54 rated) and accepts PG13.5 or 1/2" nominal conduit or cable fittings. Its volume (411cc, 25 cubic inches) and 6-terminal connection block enable series or parallel array connections to be made right in the junction box.

Options include:

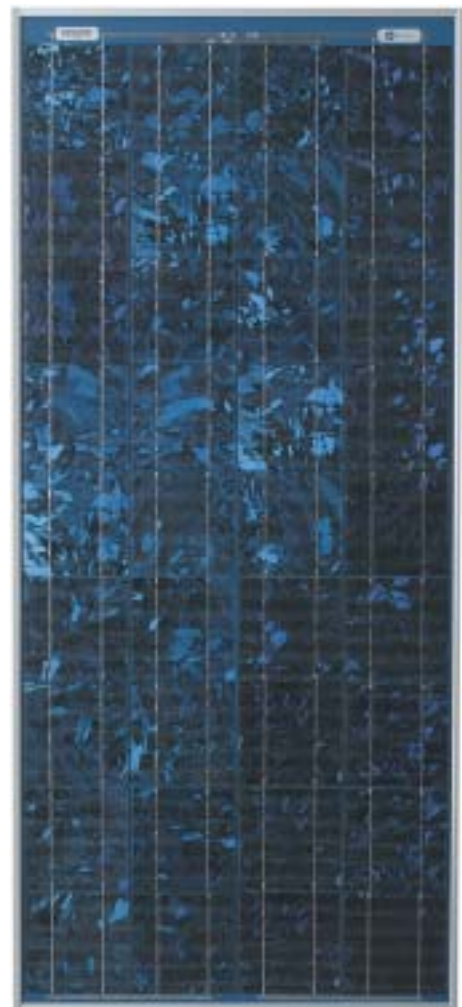
- oversize terminal block which accepts conductors up to 25mm<sup>2</sup> (AWG #4); standard terminals accept up to 6mm<sup>2</sup> (AWG #10);
- Solarstate™ charge regulator.

**BP 380H** output is via our Type B junction box, which is raintight (IP65 rated) and features a convenient flip screw-tight lid. It is equipped with a versatile 5-terminal Euro-style connection block with the same wiring capabilities as the Type A junction box. Two cable fittings that accept cable with a diameter between 6-12mm are included with each BP 380H module.

### Limited Warranties

- Power output for 25 years;
- Freedom from defects in materials and workmanship for 3 years.

See our website or your local representative for full terms of these warranties.



BP 380



## Quality and Safety

The BP 380 is manufactured in BP Solar's ISO 9001-certified factories and conforms to European Community Directives 89/33/EEC, 73/23/EEC, and 93/68/EEC. The following qualifications have been granted for the BP 380S, 380U, and 380H:

- Listing by Underwriter's Laboratories for electrical and fire safety (Class C fire rating);
- Certification by TÜV Rheinland as Class II equipment;
- Certification of compliance with the requirements of IEC 61215, including:
  - repetitive cycling between -40°C and 85°C at 85% relative humidity;

- simulated impact of 25mm (one-inch) hail at terminal velocity;
- a "damp heat" test, consisting of 1000 hours of exposure to 85°C and 85% relative humidity;
- a "hot-spot" test, which determines a module's ability to tolerate localized shadowing (which can cause reverse-biased operation and localized heating);
- static loading, front and back, of 2400 pascals (50 psf); front loading (e.g. snow) of 5400 pascals (113 psf).

The BP 380U is approved by Factory Mutual Research for applications in NEC Class 1, Division 2, Groups C & D hazardous locations; the BP 380L is recognized by Underwriter's Laboratories for electrical and fire safety.

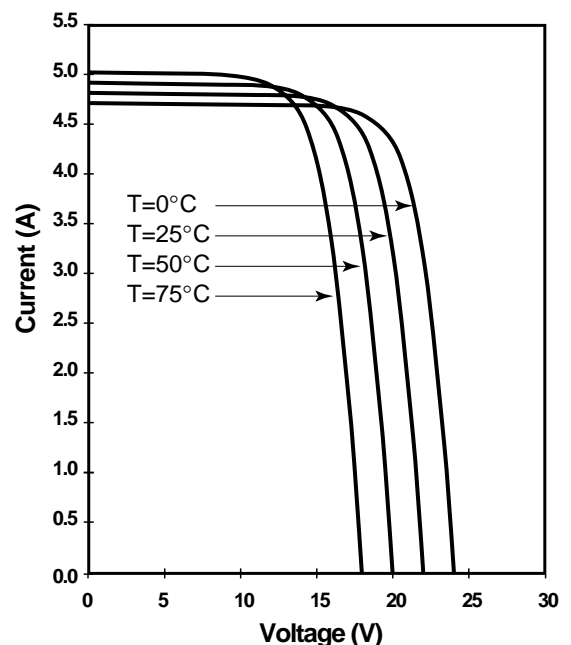
## Electrical Characteristics<sup>1</sup>

	BP 380	BP 375 <sup>4</sup>
Maximum power ( $P_{max}$ ) <sup>2</sup>	80W	75W
Voltage at $P_{max}$ ( $V_{mp}$ )	17.6V	17.3V
Current at $P_{max}$ ( $I_{mp}$ )	4.55A	4.35A
Warranted minimum $P_{max}$	75W	70W
Short-circuit current ( $I_{sc}$ )	4.8A	4.75A
Open-circuit voltage ( $V_{oc}$ )	22.1V	21.8V
Temperature coefficient of $I_{sc}$	(0.065±0.015)%/°C	
Temperature coefficient of voltage	-(80±10)mV/°C	
Temperature coefficient of power	-(0.5±0.05)%/°C	
NOCT <sup>3</sup>	47±2°C	
Maximum system voltage	600V (U.S. NEC rating) 1000V (TÜV Rheinland rating)	
Maximum series fuse rating	20A (U, H versions) 15A (S, L versions)	

## Notes

1. These data represent the performance of typical BP 380 and BP 375 modules as measured at their output terminations. The data are based on measurements made in accordance with ASTM E1036 corrected to SRC (Standard Reporting Conditions, also known as STC or Standard Test Conditions), which are:
  - illumination of 1 kW/m<sup>2</sup> (1 sun) at spectral distribution of AM 1.5 (ASTM E892 global spectral irradiance);
  - cell temperature of 25°C.
2. During the stabilization process which occurs during the first few months of deployment, module power may decrease approximately 3% from typical  $P_{max}$ .
3. The cells in an illuminated module operate hotter than the ambient temperature. NOCT (Nominal Operating Cell Temperature) is an indicator of this temperature differential, and is the cell temperature under Standard Operating Conditions: ambient temperature of 20°C, solar irradiation of 0.8 kW/m<sup>2</sup>, and wind speed of 1m/s.
4. The power of solar cells varies in the normal course of production; the BP 375 is assembled using cells of slightly lower power than the BP 380.

## BP 380 I-V Curves



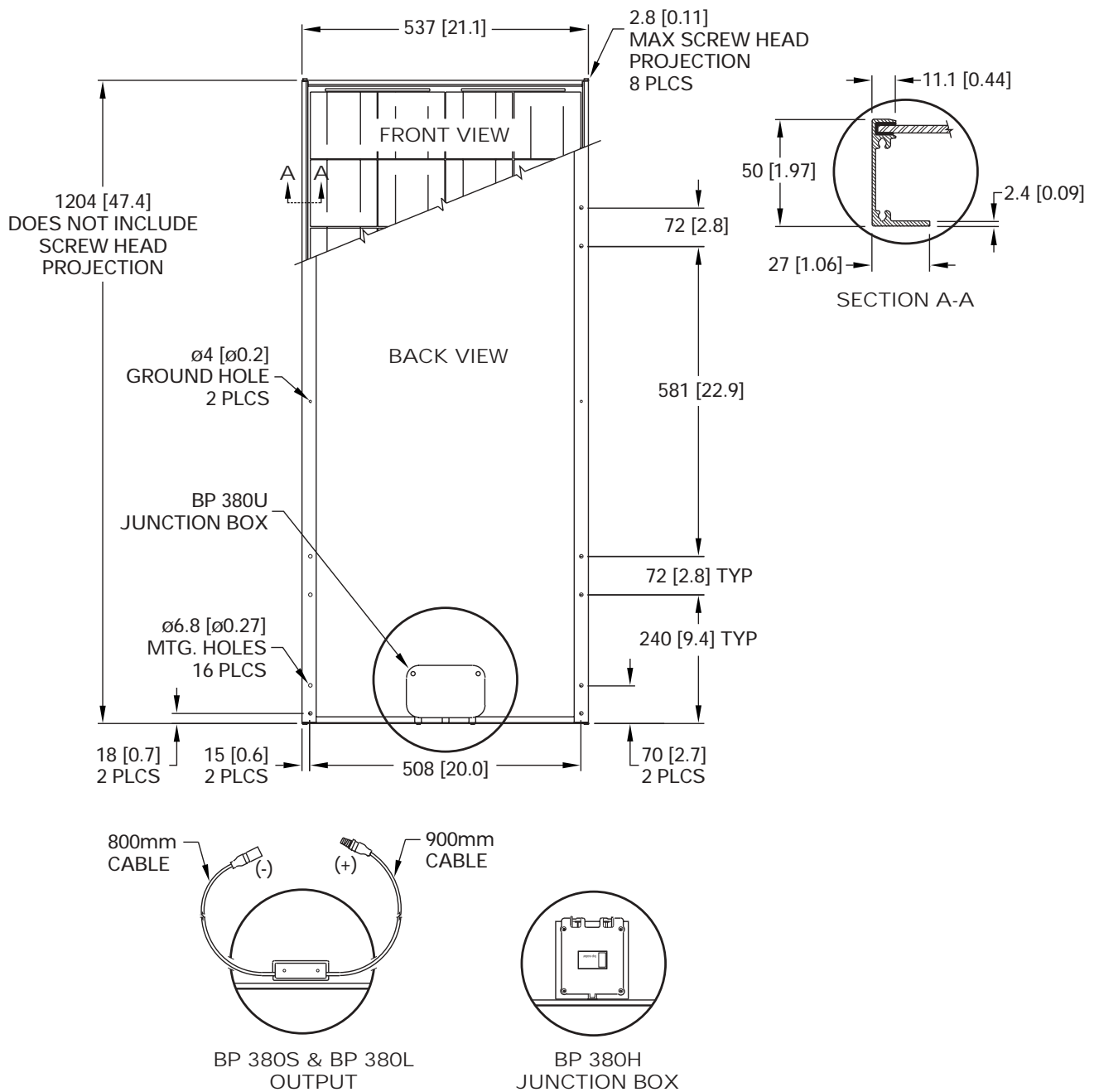
## Mechanical Characteristics

### Weight

BP 380U, 380S, 380H 7.7 kg (17 pounds)  
 BP 380L 6.1 kg (13.4 pounds)

### Dimensions

BP 380U, 380S, 380H: See drawing  
 BP 380L: 1197 [47.1] X 530 [20.9] X 20 [0.8]  
 Dimensions in brackets are in inches.  
 Unbracketed dimensions are in millimeters  
 Overall tolerances  $\pm 3\text{mm}$  (1/8")



## BP 380



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This publication summarizes product warranty and specifications, which are subject to change without notice and should not be used as the definitive source of information for final system design. Additional warranty and technical information may be found on our website [www.bpsolar.com](http://www.bpsolar.com) or may be obtained from your local representative.



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