

# Shell Solar

## Product Information Sheet

### Shell SQ160-PC Photovoltaic Solar Module

#### General

The Shell SQ160-PC module contains 72 series connected 125 x 125 mm PowerMax® mono-crystalline silicon solar cells.

The Shell SQ160-PC can generate a peak power of 160 watts at 35.0 volts.

The Shell SQ160-PC solar module has been designed for grid connected and industrial applications.

The Shell SQ160-P is the non-cable version of the Shell SQ160-PC and is available upon special order. The Shell SQ160-P does not include the cable and fitting assembly.

#### Qualifications and Certificates

The Shell SQ160-PC solar module meets the following requirements:

- IEC 61215 (Pending)
- UL – Listing 1703
- FM approved (Shell SQ160-P only)
- TÜV Safety Class II (Pending)



All Shell Solar modules are produced in EN-ISO 9001 certified factories.

#### Limited Warranties

- Peak Power for 25 years\*

\*See Shell Solar Limited Warranty for PV-Modules

#### Shell SQ160-PC Module



#### Junction Box

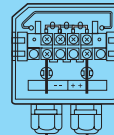
The junction box provides a high quality, dust protected and splash proof IP54-rated housing. The housing contains a rigid connection block with screw terminals and by-pass diodes providing "hot spot" protection for the solar cells.

For ease of installation, the junction box includes male and female MultiContact® flying cables.

The universal junction box design allows for easy, field replacement of diode or cable assemblies.

##### ProCharger™ – CR Cable Junction Box

Maximum conductor cross-section: 4 mm<sup>2</sup>  
Type of protection: IP54  
Number of by-pass diodes: 3



#### Benefits

- PowerMax® mono-crystalline solar cells deliver maximum power output even under reduced light conditions.
- Dense packing of cells provides more power where space is a limitation and creates a uniform aesthetic.
- Ideal for large grid connected systems where high power density minimizes system costs.
- Tight electrical specifications guarantee industry leading energy yield performance.
- Highly transparent tempered glass delivers more power and ensures high impact resistance and protection against hail, snow, ice, and storms.
- Over 300MW of cumulative installed experience has been applied to the evolution of our mono-crystalline range to ensure that our products have a long and reliable service life backed by a 25 year warranty.
- Cables and MultiContact® plugs pre-assembled to reduce installation time in grid connected applications



**ELECTRICAL EQUIPMENT,  
CHECK WITH YOUR INSTALLER**

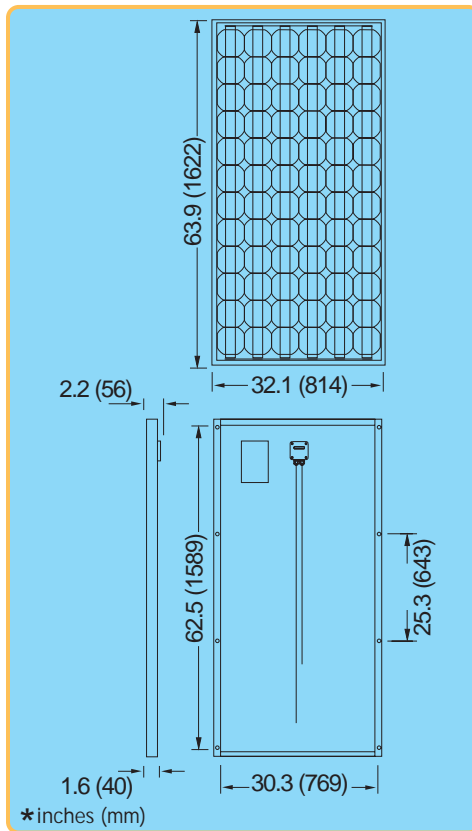
Due to continuous research and product improvement the specifications in this Product Information Sheet are subject to change without notice. Specifications can vary slightly. For installation and operation instructions, see the applicable manuals. No rights can be derived from this Product Information Sheet and Shell Solar assumes no liability whatsoever connected to or resulting from the use of any information contained herein.



# Shell SQ160-PC Photovoltaic Solar Module

## Mechanical Specifications Module

A torsion and corrosion-resistant anodized aluminium frame ensures dependable performance, even under harsh weather conditions. Pre-drilled mounting holes are provided for ease of installation.



Outside dimensions (in)	63.9 x 32.1
Thickness (inc. junction box) (in)	2.2
Thickness (exc. junction box) (in)	1.6
Weight (lbs)	38
Cable length - male (in)	51
Cable length + female (in)	39

For installation instructions, please refer to the **Installation Manual** which is available from Shell Solar.

## Electrical Characteristics

### Data at Standard Test Conditions (STC)

STC: irradiance level 1000W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature 25°C

Rated power	$P_r$	160W
Peak power*	$P_{mpp}^*$	160W
Peak power voltage	$V_{mpp}$	35V
Peak power current	$I_{mpp}$	4.58A
Open circuit voltage	$V_{oc}$	43.5V
Short circuit current	$I_{sc}$	4.9A
Series fuse rating		15A
Minimum peak power	$P_{mpp\ min}$	152W
*Tolerance on Peak Power		±5%

The abbreviation 'mpp' stands for Maximum Power Point.

### Typical data at Nominal Operating Cell Temperature (NOCT) conditions

NOCT: 800W/m<sup>2</sup> irradiance level, AM 1.5 spectrum, wind velocity 1m/s,  $T_{amb}$  20°C

Temperature	$T_{NOCT}$	46°C
Mpp power	$P_{mpp}$	115W
Mpp voltage	$V_{mpp}$	32V
Open circuit voltage	$V_{oc}$	40V
Short circuit current	$I_{sc}$	3.95A

### Typical data at low irradiance

The relative reduction of module efficiency at an irradiance of 200W/m<sup>2</sup> in relation to 1000W/m<sup>2</sup> both at 25°C cell temperature and AM 1.5 spectrum is 8%.

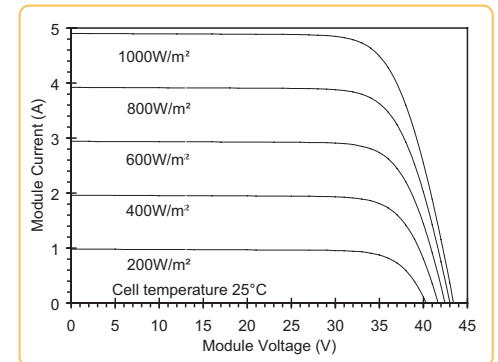
### Temperature coefficients

$\alpha P_{mpp}$	-0.52%/°C
$\alpha V_{mpp}$	-1.67mV/°C
$\alpha I_{sc}$	1.4mA/°C
$\alpha V_{oc}$	-1.61mV/°C

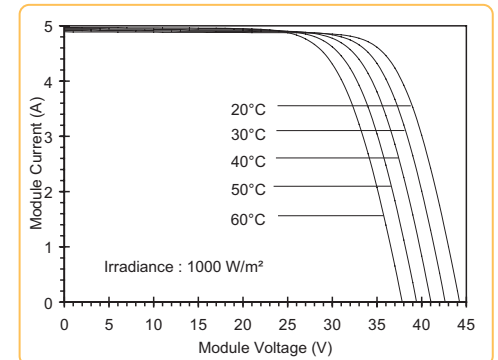
Maximum system voltage: 600 Vdc (UL)  
and 715 Vdc (TÜV Safety Class II)

## Typical I/V Characteristics

The I/V graph below shows the typical performance of the solar module at various levels of irradiance.



The I/V graph below shows the typical performance of the solar module at various cell temperatures.



References in this Product Information Sheet to 'Shell Solar' are to companies and other organizational entities within the Royal Dutch/Shell Group of Companies that are engaged in the photovoltaic solar energy business. Shell Solar has its principal office in Amsterdam, the Netherlands.

For further information on all Shell Solar products contact:

**Shell Solar**  
4650 Adohr Lane, Camarillo CA 93012  
805-482-6800 Fax 805-388-6395  
Web [www.shell.com/solar](http://www.shell.com/solar)

V2/SQ160-PC/07/03/US

