

# Shell Solar

## Product Information Sheet

### Shell SM100-24P Photovoltaic Solar Module

#### General

The Shell SM100-24P module contains 72 series connected PowerMax<sup>®</sup> mono-crystalline silicon solar cells.

The Shell SM100-24P can generate a peak power of 100 watt at 34.0 volt.

The Shell SM100-24P solar module has been designed 24V grid connected applications.

#### Qualifications and Certificates

The Shell SM100-24P solar module meets the following requirements:

- UL – Listing 1703



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

#### Limited Warranties

- Peak Power for 25 years
- Product workmanship for 2 years

#### Shell SM100-24P Module Benefits



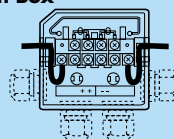
- Tolerance on the peak power output is  $\pm 5\%$  ensuring that you receive the power that we promise.
- PowerMax<sup>®</sup> mono-crystalline solar cells deliver maximum power output even under reduced light conditions providing more power where space is a limitation.
- The surface of the PowerMax<sup>®</sup> cell has a pyramidal textured surface to enable more light absorption and deliver exceptional efficiency.
- Highly transparent tempered glass delivers more power and ensures high impact resistance and protection against hail, snow, ice and storms.
- Nearly 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.

#### Junction Box

The junction box provides a high quality, dust protected and splash proof IP44-rated housing. The housing contains a rigid connection block with screw terminals and by-pass diodes providing "hot spot" protection for the solar cells.

##### ProCharger™ – CR Junction Box

Maximum conductor cross-section: 4 mm<sup>2</sup>  
Type of protection: IP44  
Number of by-pass diodes: 3



**ELECTRICAL EQUIPMENT,  
CHECK WITH YOUR INSTALLER**

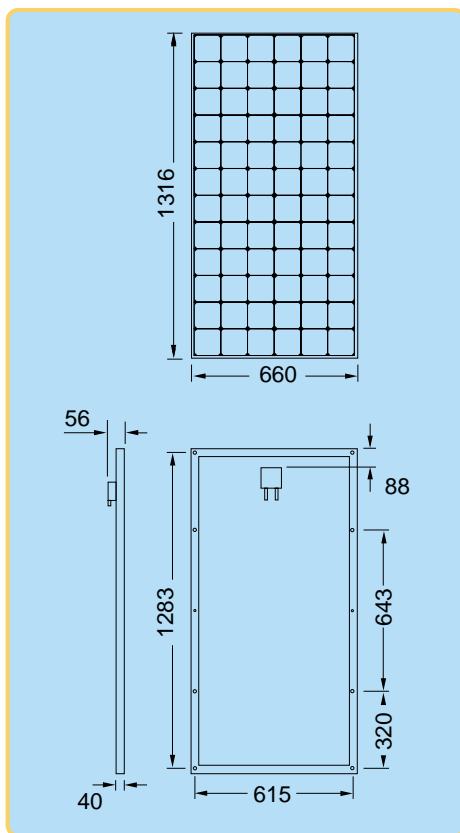
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# Shell SM100-24P Photovoltaic Solar Module

## Mechanical Specifications Module

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



Outside dimensions (mm)	1316 x 660
Thickness (inc. junction box) (mm)	56
Thickness (exc. junction box) (mm)	40
Weight (kg)	11.5

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	$P_r$	100W
Peak power*	$P_{mpp}^*$	100W
Peak power voltage	$V_{mpp}$	34.0V
Open circuit voltage	$V_{oc}$	42.0V
Short circuit current	$I_{sc}$	3.25A
Minimum peak power	$P_{mpp\ min}$	95W
*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	$T_{NOCT}$	45°C
Mpp power	$P_{mpp}$	72.3W
Mpp voltage	$V_{mpp}$	30.6V
Open circuit voltage	$V_{oc}$	38.5V
Short circuit current	$I_{sc}$	2.6A

### 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 9%.

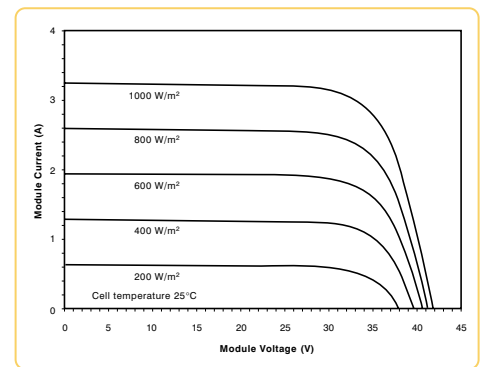
### Temperature coefficients

$\alpha P_{mpp}$	-0.45 %/°C
$\alpha V_{mpp}$	-152 mV/°C
$\alpha I_{sc}$	+1.4 mA/°C
$\alpha V_{oc}$	-152 mV/°C

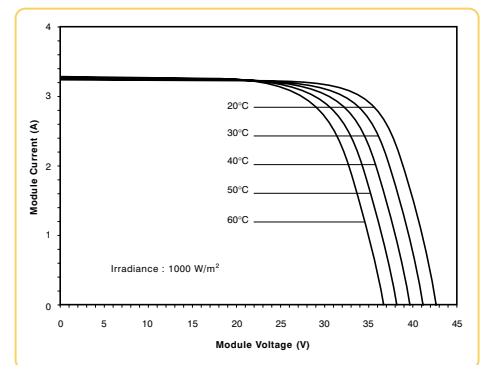
Maximum system voltage: 600 Vdc

## 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 organisational entities within the Royal Dutch/Shell Group of Companies that are engaged in the photovoltaic solar energy business. Shell Solar was set up in 1999 and has its principal office in Amsterdam, the Netherlands.

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