

Shell Solar

Shell PowerMax® solar modules for off-grid markets

1st edition 2005

General

Shell PowerMax is a range of high performance solar products – with designs created specifically for off-grid applications.

The Shell PowerMax Ultra 25 product contains 36 series connected 125mm x 41.5mm mono-crystalline solar cells, which can generate a peak power of 25 watts at 16.1 volts.

Qualifications and Certificates

The Shell PowerMax Ultra 25 product meets the following requirement:

IEC 61215



Limited Warranties*

- Peak Power for 10 years (category B)
- 2 year workmanship warranty

* See Shell Solar Limited Warranty for PV-Modules

Shell PowerMax Ultra 25



The product can have minor differences in appearance depending on which part of a whole 125mm x 125mm mono-crystalline cell has been used to make the product. See above for the two versions. There is no difference in performance or specification between these two versions'

The Shell PowerMax advantage

Exceptional Performance

- High efficiency crystalline silicon cell technology; enhanced by TOPS® and new silicon nitride anti-reflection coatings.
- One of the industry's leading energy yields in a wide variety of climates.
- Products rated on fully stabilized initial power so you get the power you pay for.

Proven Reliability

- Module design proven over 25 years of field operations with reliability in excess of 99.9%.
- Extended limited power warranties backed by a company you can trust.
- IEC 61215 certification.

Easy to Install

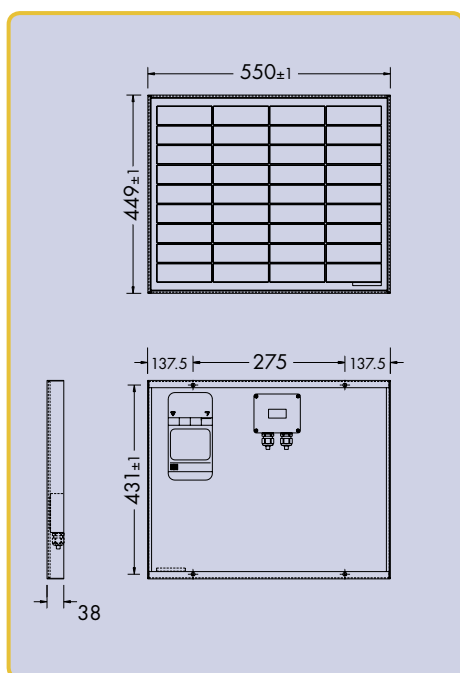
- Field-accessible junction box.
- 4 mounting holes per product



Shell PowerMax® Ultra 25 Photovoltaic Solar Module

Mechanical Specifications

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)	550 x 449
Thickness (mm)	38
Weight (kg)	3.4

For installation instructions, please refer to the **Shell Solar Installation and Safety Instructions**.

Electrical Characteristics

Data at Standard Test Conditions (STC)

STC: irradiance level 1000W/m², spectrum AM 1.5 and cell temperature 25°C.

Rated power	P _r	25W
Peak power*	P _{mpp} **	25W
Maximum system voltage	V _{sys}	120V
Peak power voltage	V _{mpp}	16.1V
Peak power current	I _{mpp}	1.55A
Open circuit voltage	V _{oc}	20.8V
Short circuit current	I _{sc}	1.90A
Minimum peak power	P _{mpp min}	22.5W
*Tolerance on Peak Power		+/-10%

** The abbreviation "mpp" stands for Maximum Power Point

Typical Data at Nominal Operating Cell Temperature (NOCT) conditions

NOCT: irradiance level 800W/m², spectrum AM 1.5, wind velocity 1m/s, T_{amb} 20°C.

Temperature	T _{NOCT}	45.5 °C
Mpp power	P _{mpp}	18 W
Mpp voltage	V _{mpp}	14.2 V
Open circuit voltage	V _{oc}	19.0 V
Short circuit current	I _{sc}	1.80 A

Typical data at low irradiance

The relative reduction of module efficiency at an irradiance of 200W/m² in relation to 1000W/m² both at 25°C cell temperature and AM 1.5 spectrum is 8%.

Temperature coefficients

α P _{mpp}	-0.43 %/°C
α V _{mpp}	-72.5 mV/°C
α I _{sc}	0.47 mA/°C
α V _{oc}	-64.5mV/°C

Maximum system voltage: 120 Vdc



**ELECTRICAL EQUIPMENT,
CHECK WITH YOUR INSTALLER**

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

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

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V1/PowerMaxUltra/OffGrid/12V/25/Int/10/05

