

# Renewable Energy: Photovoltaic Modules



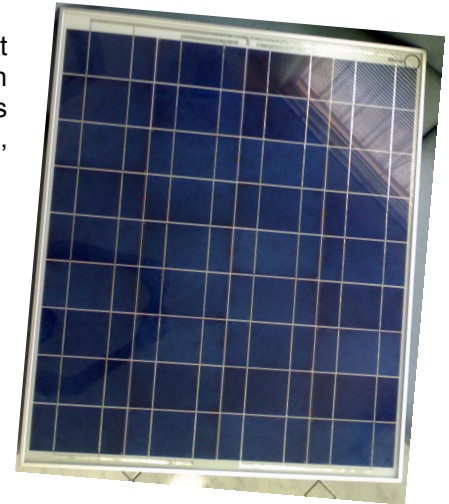
## 60 Watts

### Compact designed PV modules Single (Mono) Crystalline PV modules

Ekarat Solar's compact 60 Watts PV module is produced under a stage of the art automatic assembly machines to ensure a consistency and reliability of production quality. The compact PV module is commonly used for wide range applications such as Battery charger, Street Lamppost, Garden Lamppost, Pumping System, and specially Solar Home System.

High efficiency module, more than 12%, is a result of solar cell's superior power output, which has been developed by our own solar cell factory. More over other component materials are also selected to comply with international standards such as IEC and TISI. These create a customer's confidence ensured with a manufacturing based 20 years limited warranty.

- Choice of Low iron tempered glass, which allows a high light transmission rate with a great robustness or Normal glass for economical application.
- EVA encapsulate sheet, back-sheet, and clear anodized aluminum frame are technically equipped to protect the module against all weather condition.
- Junction box with IP65 to ensure water proof and prolong lifetime operation.
- Special cable with connectors is offered as option for easy interconnection.
- Bypass diode included in promptly provided junction box is to prevent the power dropped by partial shading.



## Electrical Characteristics

Model No.	ES2060
Maximum power (Pmax)	60 W
Power tolerance	± 3%
No. of connected cells	18
Voltage of Pmax (Vmp)	17.46 V
Current at Pmax (Imp)	3.39 A
Short - Circuit current (Isc)	3.61 A
Open - Circuit voltage (Voc)	21.7 V
Temperature Coefficient of Voc	- 0.0816 V / °C
Temperature Coefficient of Isc	+ 1.6 mA / °C
Temperature Coefficient of power	- 0.3750 % / °C
Maximum series fuse rating	A
Maximum voltage system	1000 V

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Specifications subject to technical changes

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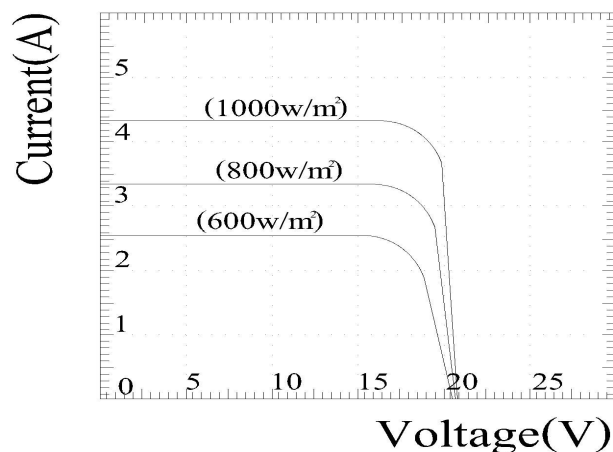


## Mechanical Characteristics

<b>Dimension</b>	982 x 550 x 37 mm.
<b>Weight</b>	6.2 kg.
<b>Dimension tolerance</b>	± 1 mm.
<b>Size of carton</b>	982 x 1420 x 1002 mm.
<b>Junction Box</b>	Degree of protection: IP65 and compatibility with 2.5 - 4.0 mm cross section cable size.
<b>Diode</b>	Silicon or Schottky By - pass diode for every 18 cells connection.
<b>Frame</b>	Anodized Aluminum.
<b>Construction structure</b>	Front: High light transmission tempered glass with 3.20 mm thickness, or Normal glass as option. Back: Weather proof back sheet material. Laminated Material: EVA.
<b>Package</b>	36 modules per carton.

## Module drawing diagram

## IV - curves Irradiance (1,000 W/m<sup>2</sup>, 800 W/m<sup>2</sup>, and 600 W/m<sup>2</sup>)



Model: 60W

These data represent the performance of typical modules as measured at their out put terminals, and do not include the effect of such additional equipment as diodes or cables. The data are based on measurements made in accordance with ASTM E1036-85 corrected to SRC (Standard Reporting Conditions, also known as STC or Standard Test Conditions), which are:

- Illumination of 1kW/m<sup>2</sup> (1sun) at spectral distribution of AM1.5 (ASTME892-87 global spectral irradiance);
- Cell temperature of 25°C.

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