

From the datasheet of a **STP320-24-Ve polycrystalline** PV module manufactured by **Suntech** [1] at standard test conditions (STC) (irradiance $G = 1000 \text{ W/m}^2$ and temperature $T = 25 \text{ }^\circ\text{C}$), the array sizing of the PV generator used in this work is calculated and shown in Table 1. A maximum DC output power of around 507 kW is attained for the DC bus voltage ($v_{DC} = 807.4 \text{ V}$) and the output current ($i_P = 627.84 \text{ A}$).

Table 1. Parameters of the photovoltaic generator.

Parameters	Value
Number of the strings	72
Number of the series modules	22
Current at the maximum power	627.84 A
Voltage at the maximum power	807.4 V
DC output power	506.91 kW
Open circuit voltage	1003.2 V
Short circuit current	653.04 A

A Matlab/SIMULINK PV generator model with the specifications shown in the above Table is used to generate the several I-V and P-V curves for different irradiances and $T = 25 \text{ }^\circ\text{C}$ as displayed in Fig. 10. These curves are used to build up a Lookup Table (2-D) in order to evaluate the proposed control algorithms under several test conditions.

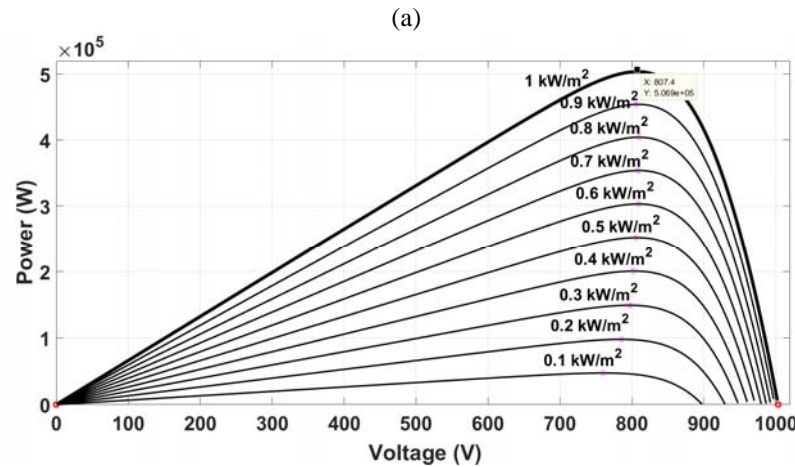
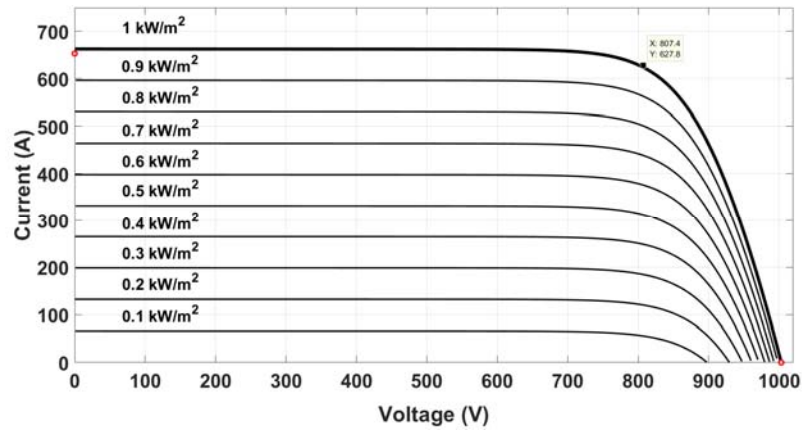


Fig. 1. Curves for different irradiances at $T = 25 \text{ }^\circ\text{C}$. (a) I-V curve, (b) P-V curve.

[1] Suntech n.d. <http://www.suntech-power.com/> (accessed January 14, 2019).