

THE SUN FOTOELEMENT VOLT-AMPER CHARACTERISTICS CALCULATION OF

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Abstract: This article environment of the element depending on the change of the parameters of light and temperature on the electrical voltes on-ampere characteristic have been studied. Fotovoltaik the exact electric moduleon mathematical equations based on the model presented. To evaluate the model, special solar panels were used and the obtained results are compared with those obtained directly from the point and the line curve of the model showed excellent compatibilitybirths.

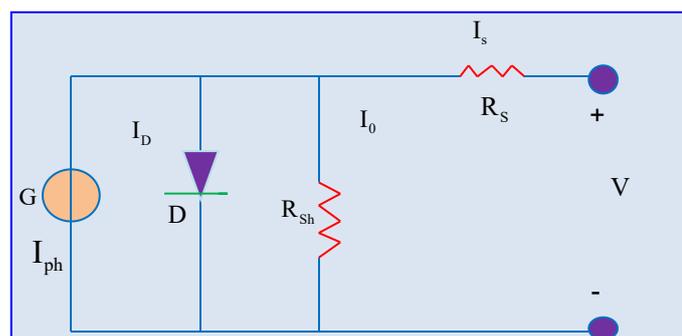
Keywords: fotovoltaika, fotovoltaik elements, Matlab , fotovoltaik module simulation.

Access: The sun a source of heat and light energy that can be used in many ways as richis. Fotovoltaik energy system translates the light of the sun directly into electrical energy. Fotovoltaik major industry or energy production and energy efficiency of the system which is the object of their devices, the research on reducing the cost ofthere being conducted. Fotovoltaik systems that can be applied to the production of electric energy and has been recognized as the means in the world [1]. Fotovoltaik facilitate the use of the system and conducted research work on them for integration into the existing system of renewable and clean sources of energyto create andto be directed. Fotoelement to the light of the sun consists of a conductor that affects half diod. Different elements of the production process of different types of yarimo'tkazgichlarda the sun which is prepared using the stream [1]. Element of electrical energy produced by the sun and solar radiation depends on the degree its internal characteristics [2]. The energy of solar radiation consists of different foton them, if p-n transition is carried out at the expense of. Industrial properties have been studied in this article diod fotoelement a single physical model. In the article the characteristic of the change of temperature due to radiation and ampere volt element modeling to change what I am.

1. Ideal solar panel

As mentioned above, the solar elements p-n semi-conductor tayerlanadi in the form of a thin plate or layer. The effect of light in you is greater than band gap energy foton if fototok which is proportional to the solar radiation is formed. Ideal diod solar battery configurations 1-in the picture shown.

1 picture. Solar battery equivalent scheme.



Either connected in parallel to the source of the flow generated rug'lik diod consists of one semi-conductor flow out so that voltage and characterizes as follows: it is

$$I = I_{ph} - I_0 \left(\exp \left(\frac{V - I R_s}{n_s k_B T} \right) - 1 \right), \tag{1}$$

I_{ph} - fototok, I_s - diod to'yinganlik the reverse of flow, q is the electronic charge, v - voltage, diod, k_B - Bolsdoimiysi man, T - temperature, n_s - ideal diod koeffitsienti (usually from 1 to 2 pm). At the point of maximum power $V = V_{mp}$ and $I = I_{mp}$

$$I = I_{ph} - I_0 \cdot \left(\exp \left(\frac{V_{mp} + I_{mp} R_s}{n_s V_T} \right) - 1 \right) - \frac{V_{mp} + I_{mp} R_s}{R_{SH}} \tag{2}$$

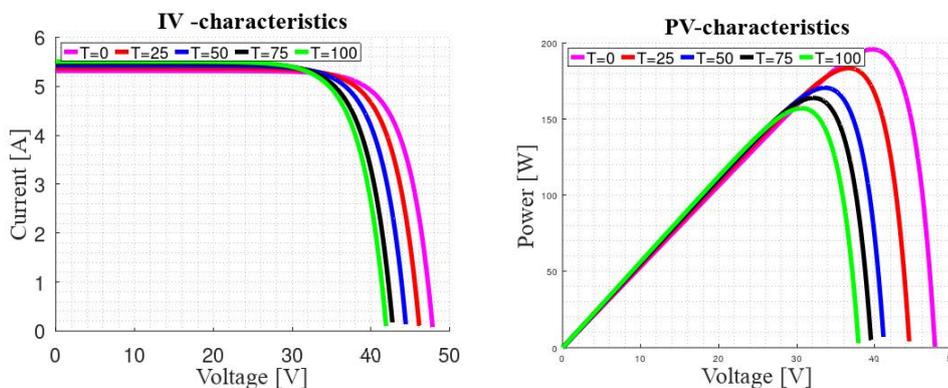
R_{SH} and R_s the element's graft and the series resistance.

3 . Fotovoltaik device modeling

Fotovoltaik module IV characteristic of the sun which is formed in the battery usually depends on the relationship between the voltage and the flow of the vine. Volt amper characteristic is the curved line and is related to many parameters which affect the characteristics of fotoelement. The standard value of the parameters of the scheme are listed in the following table .

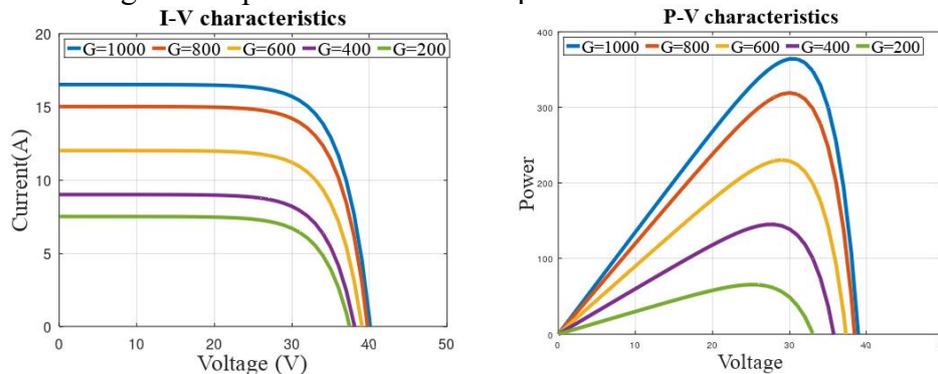
Solar module PS-P36 and technical characteristics of electric 150 w	
Maximum power (W)	150,04 W
voltage (v)	V 18,41
Vine (A)	a 8,15
so that short-circuit (A)	8,63 A
Primary voltage (V)	V 22,06
Temperaturewith a coefficient of i (K)	A 0,058/°C
the number of cells (N)	36

The solar module vine-voltage characteristic is not linear, this issue hinders the detection. In the picture below the specified level for solar radiation and temperature I-v and p-v characteristics curve is shown.



2 picture. Ideal in solar battery volt amper characteristic of the appearance and haroratning from 0 to 100 ° c. the change chart

Of solar radiation from 200 to 1000 w/m^2 as a result of the change to change chart xarakteristikaning volt amper 3 is shown in the picture.



3 picture. Of solar radiation from 200 to 1000 w/m^2 volt amper xarakteristikaning change as a result of the change to the chart.

SUMMARY: Fotovoltaik see it mentioned in this article the mathematical model of the element. Ideal in solar battery volt amper characteristic of the appearance of haroratning from 0 to 75 °c. the change and quyo irradiation from 200 to 1000 w/m^2 as a result of the change to xara volt ampereristikaning changethe description of the world is based on matlab software. Matlab procedures proposed temperature change module parameters in a way that can show the influence of radiation fotoelement xarakteristik developed. Fotovoltaik value close to the maximum power provided by the manufacturer of the module and about 150,04 w I = 8,15 and V = v. 18,41

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