ANALYSIS OF THE USE OF PHOTOELECTRIC PLANTS

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ABSTRACT

The article Secondly, in natural light conditions, the device can work autonomously, i.e. the proposed device is transformed into non-volatile and optically controlled. Thirdly, when preparing an industrial version of the BOZ, all the details of the device can be made in a thin-film form. This circumstance provides a basis for solving the problem of microminiaturization of an optoelectronic high-speed gate.

Keywords: light-emitting diode, photodetector, sunbeam, electric signal, optoelectronic solar transformer, photo voltage, APV films, energy, light guide, capacitance.

In cascade I, concentrated solar radiation is converted into a low-amplitude electric potential, cascade I is a light-powered electric generator. The heterophotocell (GEF) and the second stage LED form a closed electrical circuit. The LED (4), receiving a low-amplitude electric potential from the HPE, converts it into a light signal. The LED (4) is an electrically powered light generator. Stage II operates as a direct optical coupler opt coupler. Here, an LED (4) serves as a light source, and an AFN film (5) serves as a photodetector. In the photodetector (5), the light energy of the emitter 4 is converted into a high-voltage photo voltage (of the order of several hundred volts). The AFN film (5) and the capacitor are electrically connected and they form.

Closed electrical circuit. The high-voltage voltage of the AFN-film arriving through the circuit to the plates of the capacitor (6) creates an electric field with energy

$W_0=C_{o*}U^2_0/2$

It is known that the capacitance of a capacitor is highly dependent on the dielectric constant of the dielectric used in the capacitor. The ferroelectric permeability is very high (of the order of 10^4). With the use of a ferroelectric, the initial capacitance naturally increases C_O by several orders of magnitude $C = X * C_0$. Depending on the capacity, the energy of the electric field of the capacitor also increases markedly, $W = K * W_0$

$W=CU^2/2; U=n*V_0$

The technical result of the proposed device is to obtain a highly efficient optoelectronic solar plant, with the help of which a high-potential electrostatic field is obtained from solar radiation.

The closest to the proposed invention is an optoelectronic voltage transformer [5-8], operating in a pulsed mode, the gain of which reaches only 100. In addition, LEDs are used as a light source in these transformers. A separate external power supply is connected in the FP circuit to operate the FP. To obtain the output potential, it is necessary that in the secondary circuit there is an external source with E.D.C greater than Vout. This drawback in works [1-4] complicates, firstly, the possibility of microminiaturization of optoelectronic optical amplifiers, and secondly, the possibilities of increasing the transformation ratios have not been considered, and the issues of using solar radiation as a light source have not been considered in these works. [5- 8].

Optoelectronic solar transformer containing a housing with a transparent coating of E6 epoxy resin type light fibrous polymer material solar radiation receiver optical fiber for transmitting solar light energy, concentrator (K) for obtaining a low-divergence solar beam with a high energy density, heterophotocell (HPE) electric generator with light power, which converts the energy of solar radiation into electric, a thin-film light-emitting diode (LED) with a flat configuration, the AFN element, which is a light generator with electric power supply, generates an abnormally large high-voltage photo voltage, a ferroelectric capacitor (FDC), receiving a high-voltage photo voltage, forms a strong electric field with a large potential. The core of an optoelectronic solar transformer is a concentrator system, a heterophotocell, an open-frame LED with a flat configuration, and an AFN- element, they are made in a thin-film form, the total size of the system instead of a substrate with an area of 1 cm2, the thickness of the system is of the order of several millimeters. A special switching system, if necessary, provides an automatic transition from solar radiation to artificial lighting. Remote control is provided with a light guide where fiber optics have low optical loss. Replacing the air gap of a high refractive immersion medium increases the efficiency of light transmission from source to receiver by increasing the total internal reflection angle and reducing reflection losses at lower angles of incidence of light.

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