

ORGANIC LIGHT-EMMITING DIODES (OLED)

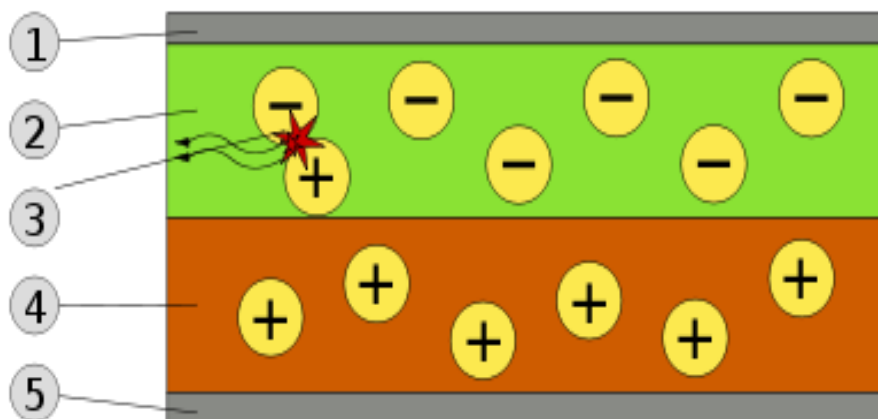
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Organic light-emitting diode is the main component of the Organic Light-Emitting Diode Technology, or abbreviated OLED. This technology is young but very promising in the field of construction of display devices. The main difference from other LEDs is that, made of organic compounds, they conduct an electric current capable of emitting visible light. This is related to their special features and capabilities. So the purpose of this work is to study existing methods of obtaining OLEDs and to compare OLED technology with other LED technologies.



Picture 1. Two-layer scheme OLED

OLED consists of the following elements:

- substrates (plastic, glass, foil);
- the cathode which injects electrons into the emitting layer when current flows;
- layers of organic materials, one of which holds a hole injecting anode, and the second - electron injecting cathode, radiative recombination of charge carriers happens in the second layer;
- transparent anode which injects holes when the current flows through it.

The physical principle of generating light emission OLED based on the phenomenon of electroluminescence in organic low molecular weight compounds and polymers.

This paper contains the study of the basic advantageous properties of OLEDs and a comparative analysis of OLEDs and other types of diodes. The main advantages of OLED are small size, weight, lower power consumption, the ability to create very thin flexible displays with high resolution.

REFERENCES

1. Bochkarev M.N., Vitukhnovsky A.G., Katkova M.A. Organic light-emitting diodes (OLED). Moscow.-356 pages.
2. Gorbachev S.V., Vaganova E.V., Syryamkin V. I., Syryamkin M. V. Application of formation detection and prediction of the latest innovations and breakthrough technologies the example of Russian market of lighting [electronic resource]. - Mode of access: <http://cyberleninka.ru/article/n/primenenie-metoda-vyyavleniya-i-prognozirovaniya-stanovleniya-peredovyh-innovatsiy-i-proryvnyh-tehnologiy-na-primererossiyskogorynka>