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METHODS OF ALMONDING OF SEMICONDUCTOR MATERIALS

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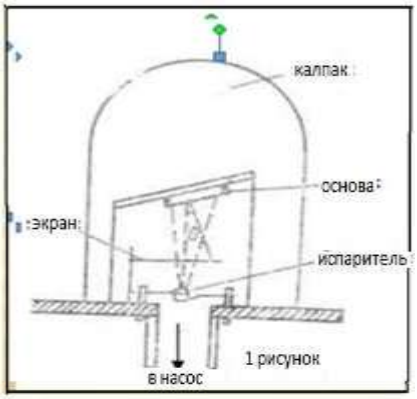
Introduction

How is the semiconductor layer preparation technology implemented?
A number of studies have been devoted to obtaining thin layers of semiconductors from various materials. Such layers are prepared using special devices [1]. It consists of cover, base,
evaporator, screen, pump, in which a high vacuum is created (sometimes only in special cases there may be a low vacuum). (Figure 1). [2].



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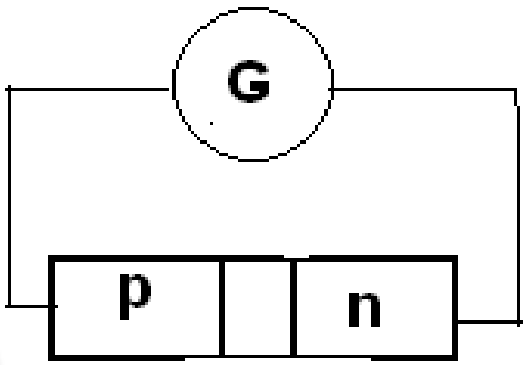
Finished evaporators can be used to transfer material into the tray by evaporating or they can be made certain technology. First, the lid is removed, a glass plate is placed on the base, and semiconductor connection. The lid is back in place. [3]. Using a pump, the air inside the cap is sucked in to create a vacuum, then the semiconductor junction is vaporized by applying high voltage to evaporator, causing the semiconductor to evaporate and adhere to the glass plate. After a certain time, air is released into the lid, the lid is removed from its place. The glass plate is also taken from the base, the wire is welded on both sides and connected to the galvanometer. If light is placed on a glass plate, the galvanometer indicates that a current is being generated. [4]. Figure 2.



2 рисунок

In this way p and n type layers are formed. The semiconductor compound vapor sits on the glass plate like a sawtooth. Half of the saw tooth is p-shaped and the other half is n-shaped. [5]. Titanium vapor quickly reacts with water vapor to release hydrogen, which is easily removed by a diffusion pump. Titanium vapor also reacts rapidly with oxygen, nitrogen and hydrogen. Titanium can be evaporated using tantalum evaporators or tungsten wire evaporators. [6].

It is known that the residual gas in the chamber has a great influence on the properties of the thin layer. As the material begins to evaporate, the vacuum may decrease and the number of residual gas molecules may increase in proportion to the release of the oxygen it absorbs. In such cases, the use of titanium is advisable.

When preparing any semiconductor layer, it is necessary to find a clear optimal mode depending on the purpose for which it is used. For this, time, temperature, pressure, volume, suction rate, evaporation rate, purity, amount and location of the evaporated material, its purity (mixtures), route of administration if a mixture is introduced are important. Depending on the purpose, one or more of these parameters should be constant. The main parameters are pressure, base temperature and speed.

During physical conduction, temperatures of 100-200 °C are often reached because no chemically active medium is used. In this process, material vapors are only

condensed. When the vacuum is sufficient, the atoms and molecules of the material reach the bottom in a straight line. [eight].

During the preparation of the layers, a high vacuum is created, very few residual gas molecules are absorbed, and the process is carried out in a closed volume.

When preparing layers, the vapor pressure of the material must be several degrees higher than the pressure of the residual gas. In this case, the atoms of the evaporating material are distributed in a straight line, so that the mean free path of the atoms is several times greater than the "evaporator base" interval. Thus, in the transition zone, the charges move in two directions. Thousands of p-n junctions or solar cells can be assembled in parallel to form solar panels. [9].

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