

The invention relates to alternative power engineering and electrical engineering, in particular to semiconductor devices for conversion of solar radiation into electrical energy and can be used in the manufacture of the photoelectric cell, and in the manufacture of high-temperature semiconductor devices.

The method for manufacturing a semiconductor device with relief p-n junction includes the degreasing of substrate epitaxy, made as a crystallographically disoriented plate of A^3B^5 n or p-type compound, in organic solution and its etching, for example, in ammonia solution. After that, on the substrate is formed a relief three-dimensional microstructure with sizes of 30...3000 nm, for example, by chemical etching in the selective acid solution $HCl:HNO_3:H_2O$. On relief surfaces of the substrate is grown the first epitaxial layer, then is formed the p-n junction by growing the second epitaxial layer opposite to the first layer of the type. The method further includes the removal of the first and second epitaxial layers from one surface of the substrate, for example, by mechanical grinding, the formation of electrical contacts, for example, by applying a metal layer on the surface of the second epitaxial layer and the ground surface of the substrate, and cutting of the plate with the resulting structure into crystals.

Claims: 2