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The invention relates to optoelectronics, in particular to a method for producing an infrared radiation photodetector based on GaAs nanowire.

The method, according to the invention, consists in manufacturing GaAs nanowires by the method of anodizing a Si-doped n-GaAs wafer with an electron concentration of $2 \cdot 10^{18}$ cm^{-3} in 1M HNO_3 electrolyte, for 20 minutes, with the application of a voltage of 3V, after which the GaAs wafer with manufactured nanowires is subjected to treatment for 15 seconds in an ultrasonic bath with ethanol, after which a few drops of the ethanol suspension with GaAs nanowires are applied to a glass substrate, which continues with evaporation through dehydration of ethanol. Next, a double layer of photoresist is applied to the selected GaAs nanowire on a glass substrate by the spin coating method, after which a pattern with structures for metal contacts is recorded on the substrate by the laser lithography method. After the structures are developed by magnetron sputtering, metal contacts with ohmic characteristics are deposited on the ends of the GaAs nanowire in the form of a Cr film of a thickness of 50 nm and an Au film of a thickness of 250 nm, then the photoresist is removed at a temperature of 50°C.

Claims: 1
Fig.: 4