

Diode thermometer for measuring low temperatures under conditions of magnetic fields influence comprises a thermosensitive element made of a silicon p-n-structure, placed in a flat parallelepiped-shaped housing having a base and a lid, electrical contacts to the thermosensitive element, and electrical leads. Thermosensitive element is made of a silicon n^{++} - p^+ -structure, wherein an n^{++} emitter region is formed by phosphorus diffusion with a concentration of $N_P \approx 3 \times 10^{20} \text{ cm}^{-3}$, p^+ base region is formed by boron diffusion with a concentration of $N_B \approx 4 \times 10^{18} \text{ cm}^{-3}$, and stability of the thermometer to the effects of self-heating and magnetic field is achieved if $\ln(V(T)/I) = f(T^{1/4})$ where T , I , and V are temperature, forward operating current, and forward voltage drop across the silicon n^{++} - p^+ structure, respectively.