

Title (en)

SENSOR FOR MEASURING A MAGNETIC FIELD

Title (de)

SENSOR ZUR MESSUNG EINES MAGNETFELDES

Title (fr)

DETECTEUR POUR MESURER UN CHAMP MAGNETIQUE

Publication

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Application

EP 99953539 A 19990819

Priority

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- DE 19839671 A 19980901

Abstract (en)

[origin: DE19839671A1] The invention relates to a sensor for measuring a magnetic field. The inventive sensor has a high level of measuring sensitivity compared to a Hall probe, comprising several electrically semiconductive layers. Said layers are arranged in the form of a power diode connected in the reverse direction, consisting of an anode layer, a cathode layer and an intrinsically conductive layer enclosed between the two. The anode layer is subdivided by insulation sections into several anode layer areas, these areas being insulated from each other. The cathode layer has an injector area on the areas opposite the insulation sections which is oppositely doped. An electron beam is formed between the injector area and the anode by applying an injection voltage to said injector area. The electron beam is distributed across the areas of the earthed anode layer areas in the form of uniform partial currents. The electron beam is diverted by a magnetic field which forms in the intrinsically conductive layer, resulting in partial currents of different strengths on the earthed anode layer areas. The magnetic field can then be evaluated by measuring these differences in strength between the partial currents.

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