

Patent Title:	Hall effect magnetic sensor of the improved type and matrix comprising a plurality of said Hall effect magnetic sensors.
FBK Center:	CMM
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Application number(s):	IT Patent Application No. VI2014A000224 — priority date 2014-09-05; International Patent Application No. PCT/IB2015/056747 — filing date 2015-09-04; EP Application No. 150788186.3 — filing date 2015-09-04
Bibliographic data:	WO2016035039 (A1) — 2016-03-10; EP3194991 (A1) — 2017-07-26
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IP Status:	Patent pending. Available for license or assignment
Patent Family:	WO2016035039 (A1) — 2016-03-10; EP3194991 (A1) — 2017-07-26
Application(s):	Measure the intensity of a magnetic field
Keyword(s):	Hall effect magnetic sensors
Abstract:	The invention is a Hall effect magnetic sensor (1) suited to measure the intensity of a magnetic field (M), comprising a semiconductor substrate (2) subjected to doping on which the following elements are defined: two diodes arranged side by side; means (6) suited to inject minority charge carriers (100) and provided on the semiconductor substrate (2) along the axis of symmetry (X) defined between the two diodes (3), wherein the injector means (6) are configured to inject the minority charge carriers (100) in the semiconductor substrate (2) in such a way as to generate a diffusion current suited to flow under the two diodes (3); processing means (7) operatively connected to each output channel (32) of the two diodes (3) and configured to count the number of events induced by the minority charge carriers (100) on both of the diodes (3) during a pre-established time observation window (T) and to calculate the difference between the counts at the end of the observation time window (T). The Hall effect magnetic sensor (1) furthermore comprises a quenching circuit (5) connected in series to each one of the output channels (32) of the diodes (3) and the processing means (7) are operatively connected in an intermediate position between the output channels (32) and the quenching circuits (5).

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