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Accession number:12650317
Title:A CMOS Magnetic Hall Sensor Using a Switched Biasing Amplifier
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Source title:IEEE Sensors Journal
Abbreviated source title:IEEE Sens. J. (USA)
Volume:12
Issue:5
Publication date:May 2012
Pages:1195-6
Language:English
ISSN:1530-437X
CODEN:ISJEAZ
Document type:Journal article (JA)
Publisher:IEEE
Country of publication:USA
Material Identity Number:BF94-2012-003
Abstract:A compact CMOS magnetic Hall sensor that includes both a Hall plate and readout circuit is proposed. In order to achieve a low-noise and low-power operation, the sensor employs a switched biasing amplifier with a chopper. The prototype has been implemented and fabricated in a high-voltage 0.18 CMOS process and occupies 0.624 mm². Owing to the switched biasing amplifier, the input-referred noise is reduced from 41 μT√Hz to 25 μT/ √Hz. The entire sensor consumes 4.5 mW with a 3.3 V supply voltage.
Number of references:5
Inspec controlled terms:amplifiers - choppers (circuits) - CMOS integrated circuits - Hall effect transducers - low-power electronics - magnetic sensors
Uncontrolled terms:switched biasing amplifier - compact CMOS magnetic Hall sensor - Hall plate - readout circuit - low-noise operation - low-power operation - chopper - high-voltage CMOS processing - input-referred noise reduction - size 0.18 mum - power 4.5 mW - voltage 3.3 V
Inspec classification codes:B7230 Sensing devices and transducers - B2570D CMOS integrated circuits - B1220 Amplifiers - B1210 Power electronics, supply and supervisory circuits - B2560F Bulk effect devices
Numerical data indexing:size 1.8E-07 m;power 4.5E-03 W;voltage 3.3E+00 V
Treatment:Practical (PRA); Experimental (EXP)
Discipline:Electrical/Electronic engineering (B)
DOI:10.1109/JSEN.2011.2169055
Database:Inspec
IPC Code:H01L27/085; H01L27/22; H01L27/26; H01L43/06; H01L47/00; H02M; H03F