J ournal of I ntegrated C ircuits and S ystems

Volume 12 • *Number 2* • *August 2017* • *ISSN 1807-1953*

Origin of the Low-Frequency Noise in the Asymmetric Self-Cascode Structure Composed by Fully Depleted SOI nMOSFETs R. Assalti, R. T. Doria, D. Flandre and M.Souza

Focal-Plane Compression Imager with Increased Quantization Bit Rate and DPCM Error Modeling F. D. V. R. Oliveira, T. M. F. Lopes, J. G. R. C. Gomes, F. A. P. Barúqui and A. Petraglia

Ground Plane Influence on Analog Parameters of Different UTBB nMOSFET Technologies V. T. Itocazu, V. Sonnenberg, J.A. Martino, E. Simoen and C. Claeys

Electrospun Polymeric Fibers Coated With Pd As A Sensitive Layer For Hydrogen Detection A. N. R. Silva, Sebastião G. Santos Filho, M. B. A. Fontes

An UHF RFID tag characterization methodology including a low-cost and low-complexity SDR platform for information extraction

J. S. M. Baquero, F. L. Cabrera, and F. R. Sousa

Analytical Model for Threshold Voltage in UTBB SOI MOSFET in Dynamic Threshold Voltage Operation

V. T. Itocazu, K. R. A. Sasaki, V. Sonnenberg, J.A. Martino, E. Simoen and C. Claeys







www.sbc.org.br/jics www.sbmicro.org.br/jics



The **Journal of Integrated Circuits and Systems (JICS)** is a publication from SBMicro – Brazilian Microelectronics Society and SBC – Brazilian Computer Society whose are non-profit scientific societies aiming to foster the microelectronics and computer science teaching, research and development.

Editor-in-chief:

Marcelo Antonio Pavanello, FEI University, Brazil

Associate Editors: Process and Materials

> Jacobus Swart, State University of Campinas, Brazil Magali Estrada, CINVESTAV, Mexico Olivier Bonnaud, University of Rennes, France

Devices and Characterization

Cor Claeys, IMEC, Belgium João Antonio Martino, USP, Brazil

Design

Elmar Uwe Kurt Melcher, Federal University of Campina Grande, Brazil Jürgen Becker, Karlsruhe Institute of Technology, Germany Guido Araújo, State University of Campinas, Brazil

Test

Alex Orailoglu, UCSD, USA Michel Renovell, LIRMM, France

Sponsored by:

Brazilian Computer Society Av. Bento Gonçalves, 9500 Porto Alegre, Brazil Caixa Postal 15012 - CEP 91501-970 Brazilian Microelectronics Society Av. Prof. Luciano Gualberto, trav. 3 n. 158 CEP 05508-900, São Paulo, Brazil

JICS - Journal of Integrated Circuits and Systems

Professor Marcelo Antonio Pavanello, Editor Departament of Electrical Engineering, Centro Universitario FEI Av. Humberto de Alencar Castelo Branco, 3972

CEP 09850-901, São Bernardo do Campo - SP - Brazil

Manuscript Preparation:

General:

Editors reserve the right to adjust style to certain standards of uniformity. Original manuscripts are discarded one month after publication unless the Publisher is asked to return original material after use. Please use Word or Word Perfect files for the text of your manuscript.

Structure:

We suggest following this order when typing manuscripts: Title, Authors, Affiliations, Abstract, Keywords, Main text, Acknowledgements, Appendix, References, Figure Captions and then Tables. Please supply figures imported into the text AND also separately as original graphics files. Collate acknowledgements in a separate section at the end of the article and do not include them on the title page, as a footnote to the title or otherwise.

Text Layout:

The manuscript must be typed using double spacing and wide A4 paper (3 cm) margins (Top, Bottom, Left, Right) with 12 pt Times New Roman font size up to 18 pages (maximum). Present tables and figure legends on separate pages at the end of the manuscript. All the manuscript pages must be numbered consecutively.

Abstract:

A self-contained abstract outlining in a single paragraph the aims, scope and conclusions of the paper must be supplied.

Keywords:

Immediately after the abstract, please provide a maximum of six keywords (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible.

Symbols:

As there is considerable variation in nomenclature and unit systems from country to country, authors are required to include a list of symbols, which they have used in their manuscripts, and of the units in which the corresponding qualities are measured. Another possibility is to define the symbols along the manuscript. SI units should be used where possible.

Units:

Follow internationally accepted rules and conventions: use the international system of units (SI). If other quantities are mentioned, give their equivalent in SI.

Maths:

Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

References:

All publications cited in the text should be presented in a list of references following the text of the manuscript. Along the text, indicate references by number(s) in square brackets in line with the text.

The papers are submitted online following the link www.sbmicro.org.br/jics.

After acceptance, the author will be notified about the final paper format to be submitted for printing.

J ournal of I ntegrated C ircuits and S ystems

Volume 12 • Number 2 • August 2017 • ISSN 1807-1953

Foreword)5
----------	----

Origin of the Low-Frequency Noise in the Asymmetric Self-Cascode Structure Composed by Fully Depleted SOI nMOSFETs

Rafael Assalti, Rodrigo Trevisoli Doria, Denis Flandre and Michelly de Souza07

Focal-Plane Compression Imager with Increased Quantization Bit Rate and DPCM Error Modeling

Fernanda Duarte Vilela Reis de Oliveira, Tiago Monnerat de Faria Lopes, José Gabriel Rodríguez Carneiro Gomes, Fernando Antônio Pinto Barúqui and Antonio Petraglia....16

Ground Plane Influence on Analog Parameters of Different UTBB nMOSFET Technologies

V. T. Itocazu, V. Sonnenberg, J.A. Martino, E. Simoen and C. Claeys......27

Electrospun Polymeric Fibers Coated With Pd As A Sensitive Layer For Hydrogen Detection

Ana Neilde R. da Silva, Sebastião G. dos Santos Filho, Marcelo Bariatto A. Fontes34

An UHF RFID tag characterization methodology including a low-cost and lowcomplexity SDR platform for information extraction

Juan Sebastián Moya Baquero, Fabian L. Cabrera and Fernando Rangel de Sousa40

Analytical Model for Threshold Voltage in UTBB SOI MOSFET in Dynamic Threshold Voltage Operation

V. T. Itocazu, K. R. A. Sasaki, V. Sonnenberg, J.A. Martino, E. Simoen and C. Claeys..47

This issue continues the publication of selected papers from those presented at SBMicro2016 (31th Symposium on Microelectronics Technology and Devices) and SBCCI2016 (29th Symposium on Integrated Circuits and Systems Design), which have been held in Belo Horizonte, Brazil, in 2016. Among the contributions presented at both Symposia, only a few best rated were selected by the JICS Editorial Board and have been invited to submit an extended version to the Journal. These extended papers have passed through the usual reviewing process before acceptance.

In addition to the best papers presented at these conference, spontaneous submissions passed through the usual reviewing process and have been accepted as regular papers.

We would like to thank the authors for their effort in preparing these high quality papers, as well as the reviewers for their valuable contribution on paper evaluation and selection, which guarantees the scientific level of this issue. We sincerely hope that JICS readers will enjoy these contributions.

Marcelo Antonio Pavanello JICS Editor-in-chief