2023 8th International Conference on Integrated Circuits and Microsystems (ICICM 2023)

Nanjing, China
20-23 October 2023

IEEE Catalog Number: CFP23H23-POD
ISBN: 979-8-3503-1852-4

Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP23H23-POD
ISBN (Print-On-Demand): 979-8-3503-1852-4

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

2023 The 8th International Conference on Integrated Circuits and Microsystems (ICICM 2023)

Table of Contents

Preface ..... **xiv**
Committee ..... **xvi**

CMOS Process and Integrated Circuit Modular Design

Design of Millimeter-Wave Asymmetric Single-Pole Double-Throw Switch in a 45nm SOI CMOS Technology 1

Yiwen Fu, Zhihao Zhang, Chaoyu Huang, Gary Zhang

High-Efficiency Digital Power Amplifier Design Based on 22-nm CMOS Process 5

Wenkai Fang, Zhiqun Li, Zhennan Li, Xiaowei Wang, Jiancong Du

Complete Timing Model of ECSM Lookup Table for CMOS Inverter 10

Jiawei Wang, Jingjing Guo, Dongmin Zhao, Zhikuang Cai

A 10GS/s 10bit Time-interleaved SAR ADC in 28nm CMOS 16

Runjie Li, Jie Fu, Siyuan Ma, Danyu Wu, Xuan Guo, Jin Wu

A 1.8-V 1.9-ppm/°C 0.042% Inaccuracy CMOS Bandgap Reference with Curvature Compensation 21

Dongyan Zhao, Ziteng Chen, Tianting Zhao, Jiping Li, Yue Zhuo, Wanyuan Qu

A Wideband 6-bit Phase Shifter with Low RMS Error in 65nm CMOS Technology 26

Juanfei Bao, Dongdi Zhu, Qin Zheng, Zhiyu Wang, Wei Chen, Jiongjiong Mo, Hua Chen, Faxin Yu

A 1.8V 109.3 dB SNDR Continuous Time Sigma-Delta Modulator for Audio Applications 30

Yuhao Luo, Hongwei Yue

A 12-bits 100 MSPS Current-Steering DAC With Low-Power In 40nm CMOS 34

Zizhou Yuan, Qin Li

Design and Manufacturing of Semiconductor Devices/Optical Components

FeOCl monolayer as a promising anode material for alkali metal batteries 39

Dong Xu, Junjun Xue

A Dual-Core Digitally Controlled Oscillator with a Switched Capacitor 47
Ruixu Wang, Weixin Gai, Yuanliang Li, Fangzhu Li, Xin Liu, Guangdong Wu

Corrosion Behavior Analysis and Panel Properties Protection in Flexible OLEDs 51
Zhiyong Xiong, Yaolin Wang, Shixian Deng

An ASIC Interface for MEMS Vibratory Gyroscopes With a 110 dB DR and 0.001°/s/√‾Hz Noise Floor Over a 100 Hz 55
Shanli Long, Shimin Ma, Xuemei Fan, Chuanqi Wu, Ziping Tong, Kejun He, Xinggang Tang

Investigation of a High Power Density Vertical IGBT with Zero Tail Current 61
Junhong Li, Guojun Zhang, Wei Li

An In-Situ Deep Learning-Based Defect Detection Technology for Additive Manufacturing Process 65
Wei Wang, Peiren Wang, Hanzhong Zhang, Xiaoyi Chen, Min Chen, Ji Li

High voltage and high power IGBT performance optimization design 71
Ruifen Nie, Feng He, Yanqing Lu, Kai Gao, Pei Cao, Rui Jin

Ultra low leakage planer back gate transistor realized by 12inch RF PVD $InGaZnO_4$ channel 76
Chao Tian, Jun Zhou, Shujuan Mao, Yujie Yang, Yanchao Dong, Chao Zhao

Electronic Materials and Components

A 4th Order Chebychev Active-RC Low-Pass Filter With 5/10/20/30/40/50 MHz Tunable Bandwidth and Low Power 81
Buyue He, Qin Li

High-performance Ga_2O_3 Schottky Barrier Diode with a Self-aligned Shallow Groove and Dual Field-plate 86
Shida Han, Yuangang Wang, Yuanjie Lv, Hongyu Liu, Tingting Han, Shaobo Dun, Zhihong Feng

A 14-ppm/V 1.5-ppm/℃ Reference Voltage Source with a Wide Input Range of 4.5-35V 92
Yifei Du, Xin Wang, Wei Wu, Zhenhua Han, Zhiwei Qi, Zixuan Wang, ShanWen Hu

Interconnect Reliability Simulation Analysis of Fanout Package redistribution Layer 98
Yifeng Fan, Shuang Tian, Honghao Jiao, Dexi Meng, Zhibin Wang, Meng Meng

Voltage over Scaling for Approximate Newton Method in Total Variation-based Image Denoising 105
Junqi Huang, T.Nandha Kumar, Haider A.F. Almurib

A High-power Microwave Switch Design 112
Qi Zhang, Jiangeng Yu, Meng Zhang, Chao Pu, Ziran Chen, Tao Li

Lamé-Mode Resonator with Trapezoidal Grooves Based on $Sc_{0.3}Al_{0.7}N$/AlN Composite Film Achieving Coupling Coefficient of 18.7% 117

Zhiyu Wang, Jiewei Jiang, Chen Ma, Fengyuan Yang, Yiming Ma, Nan Wang

Electronic Component Development and System Function Analysis

Design of a High-Performance Power Supply Module with Subsection Compensation BGR and Capless LDO for Chip Applications 122

Chiyuan Zhang, Bin Wang, Hongju Yue, Ting Li, Liang Yang, Lijun Gao, Haisong Li

A Continuous Blood Glucose Monitoring Front End IC Design with Large Input Range 128

Zheng Wang, Xu Liu, Zhiruo Liu, Jiaying Zhang, Tianqi Fang

A Low-Noise Fast-Startup Low-Dropout Regulator with Off-Chip Filter Capacitor 134

Jiandong Yan, Shuyu Liu, Feng Zou, Zijie Meng, Shuntao Song, Ming Zhang

Research Progress of Electrospinning Nanofibers 139

Ren Jing, Fang Yingli, Fang Yuming

Improved Whale Optimization Algorithm Based Parameter Extraction Method for GaN HEMT on Si and SiC Substrates 145

Peng Wei, Jian Qin, Jiabin Deng, Wei Zhang

A low-temperature drift current-mode relaxation oscillator with feed-forward period control 150

Feilong Cao, Mei Jiang, Zena Zhang

A 13-19GHz Broadband Phase Shifter Using 0.15μm GaAs pHEMT Technology 155

Dongsheng Tao, Canxing Wang, Hao Zhang, Xiaoming Xing

A W-band Phase-Locked Loop with a Robust Injection-Locked Frequency Divider 159

Jingjing Lv, Li Du, Yuan Du

Compact MEMS-Based Computational Mid-Infrared Spectrometer on Silicon-on-Insulator Platform 164

Heng Chen, Jing Zhou, Nan Wang, Yiming Ma

Impact of Proton Irradiation at Different Temperatures on 100 V VDMOSFETs 169

Fan Mei, Yao Ma, Haiming Xu, Mu He, Xuhao Zhu, Xue Zhao

Simulation and Radio Frequency Circuit Design

A Multi-channel LED Current Mismatch Calibration Method Based On PWM Duty Cycle and Amplitude Segmentation Circuit 174

Runqing Yang, Xiaochao Li, Huifang Zheng, Weidong Xiao

A High-performance LCD Driver Analog Circuit Based on Charge Pump 182
Zhenyang Liu, Ai Guan, Leisheng Jin, Dongmin Zhao, Tao Liu, Yiming Cao

Fast transient response enhancement circuit for LDO 187
Zhongjie Guo, Chengjun Gong, Ruokai Bai

An Output-Capacitor-less LDO with Push-pull Stage and Transient-enhanced Circuit 191
Dongyin Mao, Xiaohang Wang, Junhui Ye

SiC-Based High-Temperature Gate Driver Integrated Circuit for SiC Power MOSFET 195
Moufu Kong, Yingzhi Luo, Ronghe Yan, Xinghong Chang, Yinjun Huang, Hongfei Deng, Xinyang Chen, Zhaoyu Ai

A Programmable Square-Wave Delay Circuit with Self-Calibration Structure 200
Hongxu Xue, Ying Zhang, Tiankai Wang, Shuang Cheng

A New Strategy to Recover Threshold Voltage of SiC MOSFET After Gamma Radiation by Self-Heating in Circuit 205
Wei Luo, Weidan Li, Mingmin Huang, Yao Ma, Zhimei Yang, Min Gong, Zhongyu Lu, Liqiang Liu

An LDO Current Limit Protection Circuit With Hiccup Mode 209
Ning Wang, Ying Zhang, Enguang Qi, Yue Cheng

Microfiring Design and Circuit Protection

A Wideband Mixer with Adaptive Bias Current Adjustment Function 214
Yingjie Lv, Zhiqun Li, Xiaowei Wang, Qin Li

Soft-Start with Hiccup Mode Short-Circuit Protection 219
Yue Cheng, Hua Yang, Ying Zhang, Ning Wang, Enguang Qi

Efficient Configurable Modular Multiplier For RNS 224
Qingyu Zhang, Weiguo He, RuiRui Yang

An Acceleration Architecture of Polynomial Multiplication based on NTT for CKKS Homomorphic Evaluation 229
Zepeng Yang, Chen Yang, Fahong Zhang, Jianfei Wang, Jia Hou, Yang Su

Design and Implementation of a Configurable I/O Expander with the Wide-range Voltage and Temperature 234
Jiandong Yan, Zijie Meng, Feng Zou, Shuyu Liu, Shuntao Song, Ming Zhang

A High-Precision Delay Faults Testing Technique Based on the Improved DWR Structure 240
Xiaoting Liu, Xuewei Zhang, Haofei Hong, Guopeng Zhou, Zixuan Wang, Zhikuang Cai

A 4% Impedance Variation JEDEC Compatible ZQ Calibrator for DDR3, DDR4 and DDR5 SDRAM 246
Hongguang Zhang

Circuit Design and Electronic Device Performance Simulation

A 8 Channels 14 bits 100 MHz Sample and Hold Circuit Based on Delay-Locked Loop Control 254
Wentao Ni, Qin Li

Design of Digital Phase Interpolator for 6.25Gbps CDR Circuit 259
Yufei Huang, Yunrong Zhu, Chengying Chen

Precise Current Sensing Circuit for Li-Battery Power Management System 264
Yan Liu, Longkun Cui, Jian Deng, Chujie Xu, Pao-Hsun Huang, Xiang Cheng

A low-noise and low-power front-end readout ASIC for CZT detectors 269
Dechen Liu, Tingcun Wei, Nan Chen

A 4.0-μV_{rms} 7.5-kHz-BW Neural Signal Recording Circuit for Closed-Loop Deep Brain Stimulation 275
Ruizhi Tian, Fei Zhou, Qingjiang Xia, You You, Wengao Lu, Yacong Zhang, Zhongjian Chen

A -236.5dB Jitter-FoM Dual-Path RO-PLL With Improved Supply Sensitivity 280
Yu Cui, Haojie Xu, Gaofeng Jin, Yan Chen, Xiang Gao

Adaptive Resistance Calibration Circuit for High-speed Serial Transceivers 285
Yize Wang, Xiang Jin, Xiaolong Lv, Huabo Sun, Lei Chen, Weixin Gai

A multi-cell battery management chip voltage sampling circuit with positive and negative voltage pretreatment structure of the battery 289
Zhongjie GUO, Xuan CHEN, Ruokai BAI, Yuan YANG, Ningmei YU

Architecture Analysis and Simulink Modeling of a High Resolution Zoom ADC 295
Shuaiyang Zhou, Nan Liu, Peng Ding, Zhizhen Yin, Suzhen Cheng, Zhanqiang Ru, Helun Song

Amplifier Circuit Design and Performance Analysis

A 27.1 dB Gain and 6.85 dB NF Low-Noise Amplifier Based on the Novel Gain-Noise Plane 301
Zhongchen Xu, Menghu Ni, Qian Xie, Zheng Wang

Design of a Broadband High Flatness Drive Amplifier Based on GaAs Process 306
Jingjing Huang, Jie Lin, Shu Ying, Shanwen Hu, Zhikuang Cai, Yufeng Guo

Front End Readout Circuit of a Novel Charge Sensitive Amplifier Based on Temperature Compensation 311
Liu Wei, Wang Shan, Liu Weihong

A 6-18 GHz Low Group Delay Variation Amplifier With Inductive ESD Protection for Phased-Arrays 317
Bo-Fan Chen, Zhi-Qun Li, Jia-Peng Wan, Ze-Wen Xu, Zhen-Nan Li

A 5.3-fJ/conv.-step Pipelined-SAR ADC with Resistance Assisted Two-Stage Dynamic Amplifier Based on Gm-Unit 322
Qing Su, Dawei Li, Xuan Guo, Heng Zhang, Ben He, Hanbo Jia, Danyu Wu, Xinyu Liu

A wide input low quiescent current without operational amplifier bandgap reference circuit 326
Enguang Qi, Chengzhi Fang, Ying Zhang, Yue Cheng, Ning Wang

Failure Analysis of Abnormal Input Voltage in Error AMP Part of the PWM Controller 331
Jiajia Sun, Meng Meng, Yifeng Fan

A Low Power PGA Design Based on the Switched Capacitor Amplifier 336
Xuanyu Hu, Zhongjie Guo, Youmei Guo

A Compact Low-Loss Bi-directional Amplifier for Ku-band 340
Jie Lin, Xiang Liao, Shu Ying, Shanwen Hu, Zhikuang Cai, Yufeng Guo

An Ultra-Wideband Low-Noise Amplifier Combining Noise-Canceling and Self-Forward-Body-Bias Techniques Achieving 2.9-to-3.7dB NF 345
Shiyou Wei, Gengzhen Qi

Design of a Broadband Miniaturized Filter Power Amplifiers 350
Xiang Liao, Jingjing Huang, Shu Ying, Shanwen Hu, Zixuan Wang, Yufeng Guo

A dB-Linear Variable Gain Amplifier for Zero-IF Receivers 355
Hongwei Guo, Zhiqun Li, Xiaowei Wang, Zhennan Li, Qin Li

A Sub-1.4 dB Noise Figure 6-18 GHz Low Noise Amplifier Using 0.15μm GaAs pHEMT Technology 359
Shaoyang Liu, Hao Zhang

A 0.4-2 GHz Wideband LNA Exploiting Noise Reduction and High Gain 363
Chaojun Zhao, Wei Zhang, Fei Yuan, Xule Wang, Beitong Cheng, Hai-zhi Song

A 2-6GHz 30W GaN Power Amplifier Using Reactive Matching Technique 368
Zilong Zheng, Xiaojiang Yao, Zhengzheng Wang, Fuxin Xiang, Shenghui Fan, Tubin Zhou

A 24-28 GHz GaN MMIC Power Amplifier with Filtering Matching Networks 373
An Situ, Zhihao Zhang, Rihong Liang, Zetao Chen, Junming Long, Gary Zhang

Sensing-Based Microelectronics and Device Design

Novel Processes for IR Drop Reducing on the Application of Large Size AMOLED Display....378
Xinbo Wen, Jingyuan Hu, Fanjing Wu, Shengdong Zhang

A FPGA-based high efficiency and low-power system for blood pressure measurement....383
Feng Zou, Ye Yuan, Song Ma, Yuhua Cheng

ADC Static Test System Based on LabVIEW Platform....387
LIU Wei, CHEN Junfeng, SHANG Shiguang

A Low Power OTA-C Filter for Wireless Body Area Networks....392
Jueyong Zhu, Weilin Xu, Xueming Wei, Baolin Wei, Haiou Li

Design of a low-pass filter for wideband transceiver....397
Wang Jin-fei, Liu Xi-feng, Ju Shui-rong, Wang Ting, Qian Jin

A Low-power, Low-Noise Readout ASIC for Gamma-ray Dosimeter Based on CdZnTe Detector....401
Jie Cheng, Jia Wang, Xiaoming Wei, Ran Zheng, FeiFei Xue, Ruiguang Zhao, Yongcai Hu

An Adaptive All-Digital Phase-Locked Loop Architecture for High-Stability MEMS Temperature-Compensated Clocks....407
Xinyu Luo, Qianxu Fu, Yujie Zheng, Lu Tang

A 0.0025mm^2 8-bit 70MS/s SAR ADC with a Linearity-Improved Bootstrapped Switch for Computation in Memory....412
Xingjie Xu, Yuhang Shui, Aili Wang

50Gb/s high-speed serial interface receiver CTLE equalization circuit design....417
Chunming Zhang, Yangzhen Xu, Xuan Zhang, Hao Wang

A 1.5GS/s Single-Channel Pipelined ADC With Large Dither Technique....422
Zilin Jiang, Danyu Wu, Xuan Guo, Hanbo Jia, Pengyu Chen, Feitong Wu

Workable Use of AlGaN/GaN D-Mode MIS-HEMTs in Realization of Highly Linear Passive Mixers Without Negative Biasing....427
Ruolan Shi, Zixuan Zhang, Miao Cui, Sang Lam

A Two-Step Reconfigurable Time-to-Digital Converter Based on Gate-Vernier Rings....432
Tian Zhao, Kai Ma, Tao Yin, Jian Liu, Zhao Zhang, Liyuan Liu

Hand Gesture Translation System based on Multi-Sensor Fusion....437
Guozhang Hao, Yang Li

Low-Power Micro-System Design and Circuit Analysis Based on CMOS Technology

A low power continuous time hysteresis comparator with an average current consumption of 614nA at 1.5 voltage 442

Tianting Zhao, Da Xu, Zhenyan Huang, Chuyun Qin, Xiaopeng Yu, Jiping Li

Low Voltage and Low Power PLL with Current-Reuse Oscillator 448

Yifeng Zheng, Runsen Wu, Jiwei Huang

A Strong-Arm Comparator Layout Design with Combined Expert Knowledge and Intelligent Optimization Algorithm in 65nm CMOS 452

Weiyao Li, Xiaoliang Chen, Li Du, Yuan Du

Design of 40Gb/s PAM4 Signal SerDes Low Power CMOS 64:4 MUX 457

Chunming Zhang, Haowang, Yangzhen Xu, Yibo Wang

A 10-bit 100-MS/s 1.2-mW Asynchronous SAR ADC with Low-power Dynamic Logic Units in 65nm CMOS 463

Xiangji Deng, Tongli Ma, Peng Luo, Maliang Liu, Jiarong Dong

A 2.4-5.25GHz Active Feedback Balun-LNA With Variable Gain in 40nm CMOS Technology 468

Yitian Zheng, Qin Li

A 32 Gb/s NRZ PI-Based Baud-Rate Digitial Clock and Data Recovery Circuit in 28nm CMOS Technology 473

Kelong Zhang, Youzhi Gu, Yongzhen Chen, Jiangfeng Wu

A Highly Reconfigurable 5th Order Active RC Filter for Multi-standard Wireless Receivers in 12-nm CMOS 479

Mingjing Huang, Xiaoyong He

An RF Power Amplifier with MGTR and Capacitor Neutralization Technology in 22nm CMOS Process 484

Qian Xie, Zhiqun Li, Zhennan Li, Xiaowei Wang, Jiancong Du

Microelectronics Theory and Design

Function-selectable Bitwise Operation Accelerators 488

Tuotuo Sun, Weijia Liu, Ben Li, Jingyu Wang, Qingyang Zeng, Xiqin Tang, Delong Shang

A novel readout chip for medical application with high Energy Resolution and high Time Resolution 493

Hui Zhang

The Design of Bidirectional Active Balun Chip Based on Power Modulation 497

Meng Zhang, Guoyong Ning, Chao Pu, Qi Zhang, Yayun Song, Jian Gao

An Energy-Efficient and Robust SNN Classifier for LC-ADC Sampled ECG Signals 502

Haoming Chu, Yulong Yan, Yiren Zhou, Zikai Zhu, Yuxiang Huan, Lirong Zheng, Zhuo Zou

Design of Nonlinear Phase Frequency Detector and Low Mismatch Charge Pump 507

Zichen Tian, Zhiqun Li, Weiwen Lin, Xiaowei Wang, Zhennan Li

A 0.075mm^2 Octave-Tuning 5G-NR Oscillator with E-M Mixed-Coupling Achieving 205dB FoM$_T$ 511

Zhixiang Liu, Haonan Guo, Gengzhen Qi

A High-PSRR and Curvature-Compensated Subthreshold Voltage Reference Without Special Devices or Resistors 516

Jingwu Gong, Suzhen Cheng, Nan Liu, Peng Ding, Zhizhen Yin, Zhanqiang Ru, Helun Song

A 0.008mm^2 -65dB PSR Analog-Digital Hybrid Capless LDO Using Switched-Capacitor Resistors and Frequency Detector 522

Mohan Li, Xuan Zhang, Tao Wu, Lei Yao

Advanced Storage Technology and Intelligent Electronic Devices

UVM-based Reusable Hardware Accelerator Verification Platform 527

Zheng Mengyao, Sui Jinxue, Zhang Xia

A Wide-Range and High-Linearity Timing Generator with 1.25ps-Resolution 533

Tianyang Chen, Qianyu Wang, Ze Wang, Zhiwei Qi, Zhenhua Han, Lu Liu, Shanwen Hu

A 12-bit 625 MS/s Time-interleaved Pipelined ADC 538

Yahan Yu, Peng Miao, Fei Li, Di Wang, Haotian Zhang, Ankang Ding

A 2MHz, 97.4% Peak Efficiency, Heterogenous GaN/BCD 48-to-12 V Cascaded Switched Capacitor Converter With ZVS Auxiliary Technique 543

Zhen Lin, Fanyi Meng

A 6b/8b Configurable High-Speed Asynchronous SAR ADC 549

LIU Wei, ZHAO Yanke, SHANG Shiguang

A Case Study on the Internal Mutual Interference of Multitenant FPGA 553

Jingwen Huang, Qinming Zhou, Chiayi Kuo, Weicong Lu, Tao Su

An Ultra-Fast Transient Digital-LDO with Adaptive Rising-Edge Logic Control 558

Guoqiang Song, Jinsheng Tang, Lin He

Communication and Signal Processing Circuit and System

CBi-GRU: Post-route timing path analysis method based on combined bidirectional GRU 562
Bin Wang, Pengcheng Huang, Huiqing You, Yaohua Wang

Equalization technology and Quantization analysis for Data-converter Based PAM4 SerDes Link 568
Yongzheng Zhan, Tuo Li, Xiaofeng Zou, Tongqiang Liu, Qi Song, Zhenlei Zhang

An 18.8-to-40.4 GHz reconfigurable multi-mode VCO with wide-band common-mode resonance 573
Yuxuan Sun, Jinyu Zhang, Hanze Liu, Zheng Wang

A DAC-Based 28Gb/s PAM4 Transmitter for Serial Link System 579
Dejun Tong, Qingsheng Hu, Jianmin Hu, Kehan Hu

MEMS-Enabled Computational Spectrometer Using A Denoising Autoencoder for Enhanced Reconstruction Resolution 583
Jing Zhou, Heng Chen, Nan Wang, Yiming Ma

GPU Accelerated Harmonic-Balance Small Signal Analysis 588
Zhenya Zhou, Jing Li, Jiandong Cheng, Xuan Xiao, Jinyu Zhang, Chengjie Zuo

A Configurable Detector Based on Layered Belief Propagation for Massive MIMO Detection 593
Rui Gao, Houren Ji, Wenyue Zhou, Xiaohu You, Chuan Zhang

A BW-Extended Blocker-Tolerant Receiver with RF Passive-Gain and High-Order BB Impedance Achieving 30dBm OOB-IIP3 and 110MHz RF-BW 598
Shushu Yu, Gengzhen Qi

Modern Microelectronics System and Signal Control

DC and RF Small Signal Modeling of 28nm Planar MOSFET 603
Siyu Chen, Yabin Sun, Xiaojin Li, Yanling Shi

A Dual Loop Low-Dropout Regulator with Fast Transient Response 607
Jiaxin Cheng, Qin Li, Chao Zhao, Jiaweixi Li

Design and Implementation of Active Phased Array Beam Steering System Based on FPGA 612
Fuxin Xiang, Xiaojiang Yao, Zilong Zheng, Shenghui Fan, Tubin Zhou

Design and Implementation of Image Processing Platform Based on GUI 617
Tiantian XU, Xiqian LEI, Chengying GONG, Ying LI, Jiting SONG

Slip Detection through Fusion of Visual-Tactile Data using Swin Transformer V2 623
Mingyu Shangguan, Yang Li

An Efficient Accelerator on FPGA for Large Convolution and Correlation using Winograd 629
Xiaomin Li, Xiaofeng Wang, Fengrong Hu, Xiongbo Zhao, Hanguang Mi, Xinyi Zhao, Yifan Ge

A Hybrid Harmony Search and Simulated Annealing Algorithm for Job Shop Scheduling Problem 637
JianYong Lv, ChuanYang Ren, XiaoYu Lu, Bo Huang

An Improved Test Structure of Boundary Scan Designed for 2.5D Integration 643
Zhen Zhang, Jinghe Wei, Yujia Yin, Jian He, Ying Gao

The Design of LTCC-based Miniaturized X-band T/R Module 649
Shenghui Fan, Jin Gao, Xiaojiang Yao, Fuxin Xiang, Zilong Zheng, Tubin Zhou

Enhancing FPGA-Based YOLO Object Detection: Multi-Bank Storage Optimization and Model Refinement for Real-Time Applications 653
Shiwei Ma, Zhisong Bie, Xianchen Liang

Intelligent Communication System and Functional Control Based on Embedded Systems

An Automated Deployment with Reconfigurable Digital Controller for SRAM-based Computation-in-Memory 659
Kangwei Xu, Xiangdong Liu, Erxiang Ren, Qingzeng Song, Junlin Li, Li Luo, Fei Qiao

The Impact of CTLE Poles on Receiver Eye Diagrams 665
Haowei Niu, Weixin Gai, Bingyi Ye, Boyang Zhang

RS-CIM: A Charge Domain Compute-in-Memory Architecture with Resolution Shifting ADC for Intelligent Perception Edge Nodes 670
Jiahui Liu, Erxiang Ren, Guilin Zhu, Li Luo, Bo Liu, Qi Wei, Xinghua Yang, Fei Qiao

A 10/20/40/80 MHz 3rd-order Active-RC Butterworth LPF for 802.11ax Receiver 676
Wenzhen Wang, Jiwei Huang

Transformer Design for Transformer-Coupled Multiphase Voltage- controlled Oscillators (VCOs) 681
Sheng-Lyang Jang, Sung-Yang Chen, Dan-Li Wang, Wen-Cheng Lai

A Path-Based System-Level Placement and Routing Framework for Muti-FPGA Systems 685
Pengfei Chu, Jing Tang, Hailong You

Design of a 9-bit SAR ADC for Quad-channel VCSEL Transmitters 691
Yinghao Chen, Yingmei Chen, Wentian Fan, En Zhu

Author Index