

Kuang Sheng

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

125
papers

1,465
citations

20
h-index

34
g-index

150
ext. papers

2,006
ext. citations

3.8
avg. IF

5.37
L-index

#	Paper	IF	Citations
125	Modeling and Optimization of Smoothly Tapered Junction Termination Extension for High-Voltage SiC BJTs and Thyristors by Simulation. <i>IEEE Transactions on Electron Devices</i> , 2022 , 1-7	2.9	0
124	Sidewall-Implanted Trench Termination for 4H-SiC Devices With High Breakdown Voltage and Low Leakage Current. <i>IEEE Electron Device Letters</i> , 2022 , 43, 104-107	4.4	2
123	Characterization and Analysis of 4H-SiC Super Junction JFETs Fabricated by Sidewall Implantation. <i>IEEE Transactions on Electron Devices</i> , 2022 , 1-9	2.9	
122	Electrothermal Coupling Model with Distributed Heat Sources for Junction Temperature Calculation during Surges. <i>IEEE Transactions on Power Electronics</i> , 2022 , 1-1	7.2	
121	A Voltage Balancing Method for Series-Connected Power Devices Based on Active Clamping in Voltage Source Converters. <i>IEEE Transactions on Power Electronics</i> , 2022 , 1-1	7.2	0
120	The Impact of the Hexagonal and Circular Cell Designs on the Characteristics and Ruggedness for 4H-SiC MPS Diodes. <i>IEEE Transactions on Electron Devices</i> , 2022 , 69, 1226-1232	2.9	
119	The Safe Operating Area of AlGaN/GaN-Based Sensor. <i>IEEE Sensors Journal</i> , 2021 , 21, 6241-6247	4	1
118	Investigation on Thermal Resistance and Capacitance Characteristics of a Highly Integrated Power Control Unit Module. <i>Electronics (Switzerland)</i> , 2021 , 10, 958	2.6	
117	Switching Performance Analysis of Vertical GaN FinFETs: Impact of Interfin Designs. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2021 , 9, 2235-2246	5.6	11
116	A Voltage Balancing Method for Series-Connected Power Devices in an LLC Resonant Converter. <i>IEEE Transactions on Power Electronics</i> , 2021 , 36, 3628-3632	7.2	3
115	Methodology for Enhanced Surge Robustness of 1.2kV SiC MOSFET Body Diode. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2021 , 1-1	5.6	
114	The Impact of Process Conditions on Surge Current Capability of 1.2 kV SiC JBS and MPS Diodes. <i>Materials</i> , 2021 , 14,	3.5	1
113	Analytical Model and Optimization for SiC Floating Island Structure. <i>IEEE Transactions on Electron Devices</i> , 2021 , 68, 222-229	2.9	0
112	Plasma Spreading Layers: An Effective Method for Improving Surge and Avalanche Robustness of SiC Devices. <i>IEEE Transactions on Electron Devices</i> , 2021 , 1-8	2.9	2
111	Hybrid Termination With Wide Trench for 4H-SiC Super-Junction Devices. <i>IEEE Electron Device Letters</i> , 2021 , 42, 216-219	4.4	5
110	Single-Mask Implantation-Free Technique Based on Aperture Density Modulation for Termination in High-Voltage SiC Thyristors. <i>IEEE Transactions on Electron Devices</i> , 2021 , 68, 1181-1184	2.9	1
109	Conductivity Modulation in Vertical GaN PiN Diode: Evidence and Impact. <i>IEEE Electron Device Letters</i> , 2021 , 42, 300-303	4.4	9

108	Low limit of detection of the AlGa _N /Ga _N -based sensor by the Kelvin connection detection technique. <i>Microsystems and Nanoengineering</i> , 2021 , 7, 51	7.7	1
107	Performance analysis of 4H-SiC super-junction devices: impact of trench angle and improvement with multi-epi structure. <i>Semiconductor Science and Technology</i> , 2021 , 36, 105006	1.8	1
106	Characterization and Analysis on Performance and Avalanche Reliability of SiC MOSFETs With Varied JFET Region Width. <i>IEEE Transactions on Electron Devices</i> , 2021 , 68, 3982-3990	2.9	1
105	Protection of isolated and active regions in AlGa _N /Ga _N HEMTs using selective laser annealing*. <i>Chinese Physics B</i> , 2021 , 30, 097302	1.2	0
104	Design and Fabrication of 1.92 kV 4H-SiC Super-Junction SBD With Wide-Trench Termination. <i>IEEE Transactions on Electron Devices</i> , 2021 , 1-8	2.9	3
103	4H-SiC Super-Junction JFET: Design and Experimental Demonstration. <i>IEEE Electron Device Letters</i> , 2020 , 41, 445-448	4.4	14
102	A Novel Self-Controlled Double Trench Gate Snapback Free Reverse-Conducting IGBT With a Built-in Trench Barrier Diode. <i>IEEE Transactions on Electron Devices</i> , 2020 , 67, 1705-1711	2.9	3
101	Novel Platform for Surface-Mediated Gene Delivery Assisted with Visible-Light Illumination. <i>ACS Applied Materials & Interfaces</i> , 2020 , 12, 17290-17301	9.5	2
100	A Comparative Study of Silicon Carbide Merged PiN Schottky Diodes with Electrical-Thermal Coupled Considerations. <i>Materials</i> , 2020 , 13,	3.5	5
99	Design and Optimization of Vertical GaN PiN Diodes With Fluorine-Implanted Termination. <i>IEEE Journal of the Electron Devices Society</i> , 2020 , 8, 241-250	2.3	2
98	Accurate Analytical Switching-On Loss Model of SiC MOSFET Considering Dynamic Transfer Characteristic and Qgd. <i>IEEE Transactions on Power Electronics</i> , 2020 , 35, 12264-12273	7.2	4
97	The Leakage Mechanism of the Package of the AlGa _N /Ga _N Liquid Sensor. <i>Materials</i> , 2020 , 13,	3.5	5
96	Single Pulse Avalanche Robustness and Analysis for 1200-V SiC Junction Barrier Schottky Diode 2020 ,		1
95	Experimental Investigation on Failure Mechanism of SiC Power MOSFETs under Single Pulse Avalanche Stress 2020 ,		1
94	Vertical GaN power rectifiers: interface effects and switching performance. <i>Semiconductor Science and Technology</i> , 2020 , 36, 024005	1.8	2
93	Understanding the breakdown asymmetry of 4H-SiC power diodes with extended defects at locations along step-flow direction. <i>Journal of Applied Physics</i> , 2020 , 128, 164501	2.5	2
92	Understanding Turn-On Transients of SiC High-Power Modules: Drain-Source Voltage Plateau Characteristics. <i>Energies</i> , 2020 , 13, 3802	3.1	0
91	Investigation on Surge Current Capability of 4H-SiC Trench-Gate MOSFETs in Third Quadrant Under Various VGS Biases. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2020 , 1-1	5.6	4

90	Degradation of 4H-SiC MOSFET body diode under repetitive surge current stress 2020 ,		4
89	Negative Dynamic RON in Vertical GaN PiN Diode: The Impact of Conductivity Modulation 2020 ,		1
88	UIS Withstanding Capability of GaN E-HEMTs with Schottky and Ohmic p-GaN contact 2020 ,		3
87	1200-V 4H-SiC Merged p-i-n Schottky Diodes With High Avalanche Capability. <i>IEEE Transactions on Electron Devices</i> , 2020 , 67, 3679-3684	2.9	10
86	Investigation of Avalanche Capability of 1200V 4H-SiC MPS Diodes and JBS Diodes 2020 ,		1
85	1.2kV SiC Merged PiN Schottky Diode with Improved Surge Current Capability 2020 ,		1
84	Investigation of Temperature-Dependent Dynamic RON of GaN HEMT with Hybrid-Drain under Hard and Soft Switching 2020 ,		3
83	High-Temperature Characterization of a 1.2-kV SiC MOSFET Using Dynamic Short-Circuit Measurement Technique. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2020 , 8, 215-222	5.6	11
82	Improving Surge Current Capability of SiC Merged PiN Schottky Diode by Adding Plasma Spreading Layers. <i>IEEE Transactions on Power Electronics</i> , 2020 , 35, 11316-11320	7.2	6
81	A Novel SiC LDMOS with Electric Field Optimization by Step Doping Technology 2020 ,		1
80	Failure Mechanism Analysis of SiC MOSFETs in Unclamped Inductive Switching Conditions 2019 ,		8
79	Photon-Enhanced Conductivity Modulation and Surge Current Capability in Vertical GaN Power Rectifiers 2019 ,		12
78	1.2-kV 4H-SiC Merged PiN Schottky Diode With Improved Surge Current Capability. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2019 , 7, 1496-1504	5.6	17
77	Circulating Current and ZVS-on of a Dual Active Bridge DC-DC Converter: A Review. <i>IEEE Access</i> , 2019 , 7, 50561-50572	3.5	38
76	Correction to "Trench Termination With SiO ₂ -Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices" [Dec 18 1900-1903]. <i>IEEE Electron Device Letters</i> , 2019 , 40, 353-353	4.4	
75	Mechanism of Ti/Al/Ni/Au ohmic contacts to AlGaIn/GaN heterostructures via laser annealing. <i>Chinese Physics B</i> , 2019 , 28, 037302	1.2	1
74	Suppressing Methods of Parasitic Capacitance Caused Interference in a SiC MOSFET Integrated Power Module. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2019 , 7, 745-752	5.6	8
73	Modeling and Analysis of v _{gs} Characteristics for Upper-Side and Lower-Side Switches at Turn-on Transients for a 1200V/200A Full-SiC Power Module. <i>Micromachines</i> , 2019 , 11,	3.3	1

72	Dynamic on-State Resistance Test and Evaluation of GaN Power Devices Under Hard- and Soft-Switching Conditions by Double and Multiple Pulses. <i>IEEE Transactions on Power Electronics</i> , 2019 , 34, 1044-1053	7.2	56
71	Surge Current Capability of GaN E-HEMTs in Reverse Conduction Mode 2019 ,		1
70	Low surface damage during ohmic contact formation in AlGaIn/GaN HEMT by selective laser annealing. <i>Electronics Letters</i> , 2019 , 55, 658-660	1.1	1
69	Investigation of Surge Current Capability of GaN E-HEMTs in The Third Quadrant: The Impact of P-GaN Contact. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2019 , 7, 1465-1474	5.6	6
68	Design and Characterization of Area-Efficient Trench Termination for 4H-SiC Devices. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2019 , 7, 1519-1526	5.6	6
67	Design and Experimental Study of 1.2kV 4H-SiC Merged PiN Schottky Diode 2019 ,		1
66	Investigation of 1200 V SiC MOSFETs' Surge Reliability. <i>Micromachines</i> , 2019 , 10,	3.3	12
65	Optimization of gate geometry towards high-sensitivity AlGaIn/GaN pH sensor. <i>Talanta</i> , 2019 , 205, 120134	3.4	15
64	Practical One-Step Solution of Smoothly Tapered Junction Termination Extension for High Voltage SiC Gate Turn-off Thyristor 2019 ,		3
63	Fluorine-Implanted Termination for Vertical GaN Schottky Rectifier With High Blocking Voltage and Low Forward Voltage Drop. <i>IEEE Electron Device Letters</i> , 2019 , 40, 1040-1043	4.4	37
62	Dynamic On-Resistance in GaN Power Devices: Mechanisms, Characterizations, and Modeling. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2019 , 7, 1425-1439	5.6	40
61	Heat Transfer Characteristics and Flow Pattern Visualization for Flow Boiling in a Vertical Narrow Microchannel. <i>Journal of Electronic Packaging, Transactions of the ASME</i> , 2019 , 141,	2	5
60	A Resonant DC-DC Converter with Modular Rectifier for High Voltage Gain and Wide Output Voltage Range Applications 2019 ,		3
59	Switching Performance Evaluation of 1200 V Vertical GaN Power FinFETs 2019 ,		4
58	An Empirical Study on the Impact of Collaborative R&D Networks on Enterprise Innovation Performance Based on the Mediating Effect of Technology Standard Setting. <i>Sustainability</i> , 2019 , 11, 7249	3.6	6
57	. <i>IEEE Transactions on Power Electronics</i> , 2019 , 34, 10193-10205	7.2	54
56	Current-Collapse-Free and Fast Reverse Recovery Performance in Vertical GaN-on-GaN Schottky Barrier Diode. <i>IEEE Transactions on Power Electronics</i> , 2019 , 34, 5012-5018	7.2	40
55	Investigation on single pulse avalanche failure of SiC MOSFET and Si IGBT. <i>Solid-State Electronics</i> , 2019 , 152, 33-40	1.7	18

54	High-Voltage and High- $I_{\text{ON}}/I_{\text{OFF}}$ Vertical GaN-on-GaN Schottky Barrier Diode With Nitridation-Based Termination. <i>IEEE Electron Device Letters</i> , 2018 , 39, 572-575	4.4	76
53	Experimental Demonstration and Analysis of a 1.35-kV 0.92-m $\Omega \cdot \text{cm}^2$ SiC Superjunction Schottky Diode. <i>IEEE Transactions on Electron Devices</i> , 2018 , 65, 1458-1465	2.9	19
52	GaN-on-Si lateral power devices with symmetric vertical leakage: The impact of floating substrate 2018 ,		4
51	Surge capability of 1.2kV SiC diodes with high-temperature implantation 2018 ,		4
50	Investigation on single pulse avalanche failure of 900V SiC MOSFETs 2018 ,		6
49	Dynamic on-state resistance evaluation of GaN devices under hard and soft switching conditions 2018 ,		5
48	Improved Device Performance in AlGaIn/GaN HEMT by Forming Ohmic Contact With Laser Annealing. <i>IEEE Electron Device Letters</i> , 2018 , 39, 1137-1140	4.4	14
47	A Wide Output LLC Converter Based on Full Bridge and Half Bridge Topology Morphing Method Using Trajectory Transition 2018 ,		4
46	Design and Implement of 10 kV SiC JBS Based on Exponential Varying Field Limiting Rings 2018 ,		1
45	Trench Termination With SiO ₂ -Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices. <i>IEEE Electron Device Letters</i> , 2018 , 39, 1900-1903	4.4	7
44	Photolithographic Patterning of Cytop with Limited Contact Angle Degradation. <i>Micromachines</i> , 2018 , 9,	3.3	3
43	1 kV/1.3 m ² vertical GaN-on-GaN Schottky barrier diodes with high switching performance 2018 ,		4
42	Characterization of 1.2 kV SiC super-junction SBD implemented by trench and implantation technique 2018 ,		4
41	Ab initio study of tunable band gap of monolayer and bilayer phosphorene by the vertical electronic field. <i>Journal Wuhan University of Technology, Materials Science Edition</i> , 2017 , 32, 213-216	1	5
40	A capacitor voltage balancing method for a three phase modular multilevel DC-DC converter 2017 ,		3
39	Theoretical Performance Limit of the IGBT. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 4184-4192	2.9	16
38	Optimal design of SiC MOSFETs for 20kW DCDC converter 2017 ,		2
37	Impact of Substrate Bias Polarity on Buffer-Related Current Collapse in AlGaIn/GaN-on-Si Power Devices. <i>IEEE Transactions on Electron Devices</i> , 2017 , 64, 5048-5056	2.9	42

36	A Bidirectional Three-Level LLC Resonant Converter With PWAM Control. <i>IEEE Transactions on Power Electronics</i> , 2016 , 31, 2213-2225	7.2	63
35	Evaluation of reverse recovery characteristic of silicon carbide metaloxide semiconductor field-effect transistor intrinsic diode. <i>IET Power Electronics</i> , 2016 , 9, 969-976	2.2	22
34	Comparison and analysis of short circuit capability of 1200V single-chip SiC MOSFET and Si IGBT 2016 ,		15
33	Design and Application of High-Voltage SiC JFET and Its Power Modules. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , 2016 , 4, 780-789	5.6	10
32	Design and experimental demonstration of 1.35 kV SiC super junction Schottky diode 2016 ,		25
31	High-voltage Full-SiC power module: Device fabrication, testing and high frequency application in kW-level converter 2015 ,		1
30	Enhancement-mode GaN-on-Silicon MOS-HEMT using pure wet etch technique 2015 ,		5
29	Tunable bandgap of monolayer black phosphorus by using vertical electric field: A DFT study. <i>Journal of the Korean Physical Society</i> , 2015 , 66, 1031-1034	0.6	7
28	Fabrication and testing of 3500V/15A SiC JFET based power module for high-voltage, high-frequency applications 2015 ,		3
27	CMOS-compatible ehancement-mode GaN-on-Si MOS-HEMT with high breakdown voltage (930V) using thermal oxidation and TMAH wet etching 2015 ,		3
26	Modular multilevel power electronic transformer 2015 ,		3
25	Bandgap engineering of monolayer MoS2 under strain: A DFT study. <i>Journal of the Korean Physical Society</i> , 2015 , 66, 1789-1793	0.6	8
24	A 10kV/200A SiC MOSFET module with series-parallel hybrid connection of 1200V/50A dies 2015 ,		11
23	The effect of h-BN buffer layers in bilayer graphene on Co (111). <i>Journal of the Korean Physical Society</i> , 2015 , 66, 1631-1636	0.6	2
22	A Bidirectional LLC Resonant Converter With Automatic Forward and Backward Mode Transition. <i>IEEE Transactions on Power Electronics</i> , 2015 , 30, 757-770	7.2	133
21	Impact of common source inductance on switching loss of SiC MOSFET 2015 ,		2
20	Design and Experimental Study of 4H-SiC Trenched Junction Barrier Schottky Diodes. <i>IEEE Transactions on Electron Devices</i> , 2014 , 61, 2459-2465	2.9	44
19	Design and experimental analysis of a 1 kW, 800 kHz all-SiC boost DC-DC converter 2014 ,		5

18	An All-SiC High-Frequency Boost DCDC Converter Operating at 320 °C Junction Temperature. <i>IEEE Transactions on Power Electronics</i> , 2014 , 29, 5091-5096	7.2	48
17	High Temperature Stability and the Performance Degradation of SiC MOSFETs. <i>IEEE Transactions on Power Electronics</i> , 2014 , 29, 2329-2337	7.2	74
16	A 10kV/200A SiC MOSFET module with series-parallel hybrid connection 2014 ,		2
15	Analysis on reverse recovery characteristic of SiC MOSFET intrinsic diode 2014 ,		14
14	Analysis of stray inductance's influence on SiC MOSFET switching performance 2014 ,		10
13	An Analytical Model With 2-D Effects for 4H-SiC Trenched Junction Barrier Schottky Diodes. <i>IEEE Transactions on Electron Devices</i> , 2014 , 61, 4158-4165	2.9	33
12	A 3600 V/80 A Series--Parallel-Connected Silicon Carbide MOSFETs Module With a Single External Gate Driver. <i>IEEE Transactions on Power Electronics</i> , 2014 , 29, 2296-2306	7.2	52
11	Power electronic transformer for dc power distribution network 2014 ,		5
10	Resonant power electronic transformer for power grid 2014 ,		1
9	High-efficiency quasi-two-stage converter with current sharing for multi-channel LED driver 2013 ,		4
8	Modeling of a 1200 V 6 a SiC bipolar junction transistor 2013 ,		5
7	Buffer leakage induced pre-breakdown mechanism for AlGaN/GaN HEMTs on Si 2013 ,		2
6	Cryogenic and high temperature performance of 4H-SiC power MOSFETs 2013 ,		34
5	PWAM control of bidirectional LLC resonant converter 2013 ,		1
4	Gate drive investigations of IGBT modules with SiC-Schottky freewheeling diodes 2013 ,		5
3	Characteristics and Application of Normally-Off SiC-JFETs in Converters Without Antiparallel Diodes. <i>IEEE Transactions on Power Electronics</i> , 2013 , 28, 4850-4860	7.2	26
2	Optimization of Bosch etch process for vertically stacked Si nanowires. <i>Journal of Materials Science: Materials in Electronics</i> , 2012 , 23, 334-342	2.1	4
1	SILICON CARBIDE SCHOTTKY BARRIER DIODE. <i>International Journal of High Speed Electronics and Systems</i> , 2005 , 15, 821-866	0.5	34

