

# Kuang Sheng

## List of Publications by Citations

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papers

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34  
g-index

150  
ext. papers

2,006  
ext. citations

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5.37  
L-index

#	Paper	IF	Citations
125	A Bidirectional LLC Resonant Converter With Automatic Forward and Backward Mode Transition. <i>IEEE Transactions on Power Electronics</i> , <b>2015</b> , 30, 757-770	7.2	133
124	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> , <b>2018</b> , 39, 572-575	4.4	76
123	High Temperature Stability and the Performance Degradation of SiC MOSFETs. <i>IEEE Transactions on Power Electronics</i> , <b>2014</b> , 29, 2329-2337	7.2	74
122	A Bidirectional Three-Level LLC Resonant Converter With PWAM Control. <i>IEEE Transactions on Power Electronics</i> , <b>2016</b> , 31, 2213-2225	7.2	63
121	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> , <b>2019</b> , 34, 1044-1053	7.2	56
120	. <i>IEEE Transactions on Power Electronics</i> , <b>2019</b> , 34, 10193-10205	7.2	54
119	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> , <b>2014</b> , 29, 2296-2306	7.2	52
118	An All-SiC High-Frequency Boost DCDC Converter Operating at 320 °C Junction Temperature. <i>IEEE Transactions on Power Electronics</i> , <b>2014</b> , 29, 5091-5096	7.2	48
117	Design and Experimental Study of 4H-SiC Trenched Junction Barrier Schottky Diodes. <i>IEEE Transactions on Electron Devices</i> , <b>2014</b> , 61, 2459-2465	2.9	44
116	Impact of Substrate Bias Polarity on Buffer-Related Current Collapse in AlGaIn/GaN-on-Si Power Devices. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 5048-5056	2.9	42
115	Dynamic On-Resistance in GaN Power Devices: Mechanisms, Characterizations, and Modeling. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , <b>2019</b> , 7, 1425-1439	5.6	40
114	Current-Collapse-Free and Fast Reverse Recovery Performance in Vertical GaN-on-GaN Schottky Barrier Diode. <i>IEEE Transactions on Power Electronics</i> , <b>2019</b> , 34, 5012-5018	7.2	40
113	Circulating Current and ZVS-on of a Dual Active Bridge DC-DC Converter: A Review. <i>IEEE Access</i> , <b>2019</b> , 7, 50561-50572	3.5	38
112	Fluorine-Implanted Termination for Vertical GaN Schottky Rectifier With High Blocking Voltage and Low Forward Voltage Drop. <i>IEEE Electron Device Letters</i> , <b>2019</b> , 40, 1040-1043	4.4	37
111	Cryogenic and high temperature performance of 4H-SiC power MOSFETs <b>2013</b> ,		34
110	SILICON CARBIDE SCHOTTKY BARRIER DIODE. <i>International Journal of High Speed Electronics and Systems</i> , <b>2005</b> , 15, 821-866	0.5	34
109	An Analytical Model With 2-D Effects for 4H-SiC Trenched Junction Barrier Schottky Diodes. <i>IEEE Transactions on Electron Devices</i> , <b>2014</b> , 61, 4158-4165	2.9	33

108	Characteristics and Application of Normally-Off SiC-JFETs in Converters Without Antiparallel Diodes. <i>IEEE Transactions on Power Electronics</i> , <b>2013</b> , 28, 4850-4860	7.2	26
107	Design and experimental demonstration of 1.35 kV SiC super junction Schottky diode <b>2016</b> ,		25
106	Evaluation of reverse recovery characteristic of silicon carbide metaloxide semiconductor field-effect transistor intrinsic diode. <i>IET Power Electronics</i> , <b>2016</b> , 9, 969-976	2.2	22
105	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> , <b>2018</b> , 65, 1458-1465	2.9	19
104	Investigation on single pulse avalanche failure of SiC MOSFET and Si IGBT. <i>Solid-State Electronics</i> , <b>2019</b> , 152, 33-40	1.7	18
103	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> , <b>2019</b> , 7, 1496-1504	5.6	17
102	Theoretical Performance Limit of the IGBT. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 4184-4192	2.9	16
101	Optimization of gate geometry towards high-sensitivity AlGaIn/GaN pH sensor. <i>Talanta</i> , <b>2019</b> , 205, 120134		15
100	Comparison and analysis of short circuit capability of 1200V single-chip SiC MOSFET and Si IGBT <b>2016</b> ,		15
99	4H-SiC Super-Junction JFET: Design and Experimental Demonstration. <i>IEEE Electron Device Letters</i> , <b>2020</b> , 41, 445-448	4.4	14
98	Improved Device Performance in AlGaIn/GaN HEMT by Forming Ohmic Contact With Laser Annealing. <i>IEEE Electron Device Letters</i> , <b>2018</b> , 39, 1137-1140	4.4	14
97	Analysis on reverse recovery characteristic of SiC MOSFET intrinsic diode <b>2014</b> ,		14
96	Photon-Enhanced Conductivity Modulation and Surge Current Capability in Vertical GaN Power Rectifiers <b>2019</b> ,		12
95	Investigation of 1200 V SiC MOSFETs' Surge Reliability. <i>Micromachines</i> , <b>2019</b> , 10,	3.3	12
94	A 10kV/200A SiC MOSFET module with series-parallel hybrid connection of 1200V/50A dies <b>2015</b> ,		11
93	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> , <b>2020</b> , 8, 215-222	5.6	11
92	Switching Performance Analysis of Vertical GaN FinFETs: Impact of Interfin Designs. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , <b>2021</b> , 9, 2235-2246	5.6	11
91	Analysis of stray inductance's influence on SiC MOSFET switching performance <b>2014</b> ,		10

90	1200-V 4H-SiC Merged p-i-n Schottky Diodes With High Avalanche Capability. <i>IEEE Transactions on Electron Devices</i> , <b>2020</b> , 67, 3679-3684	2.9	10
89	Design and Application of High-Voltage SiC JFET and Its Power Modules. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , <b>2016</b> , 4, 780-789	5.6	10
88	Conductivity Modulation in Vertical GaN PiN Diode: Evidence and Impact. <i>IEEE Electron Device Letters</i> , <b>2021</b> , 42, 300-303	4.4	9
87	Failure Mechanism Analysis of SiC MOSFETs in Unclamped Inductive Switching Conditions <b>2019</b> ,		8
86	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> , <b>2019</b> , 7, 745-752	5.6	8
85	Bandgap engineering of monolayer MoS2 under strain: A DFT study. <i>Journal of the Korean Physical Society</i> , <b>2015</b> , 66, 1789-1793	0.6	8
84	Tunable bandgap of monolayer black phosphorus by using vertical electric field: A DFT study. <i>Journal of the Korean Physical Society</i> , <b>2015</b> , 66, 1031-1034	0.6	7
83	Trench Termination With SiO2-Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices. <i>IEEE Electron Device Letters</i> , <b>2018</b> , 39, 1900-1903	4.4	7
82	Investigation on single pulse avalanche failure of 900V SiC MOSFETs <b>2018</b> ,		6
81	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> , <b>2019</b> , 7, 1465-1474	5.6	6
80	Design and Characterization of Area-Efficient Trench Termination for 4H-SiC Devices. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , <b>2019</b> , 7, 1519-1526	5.6	6
79	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> , <b>2019</b> , 11, 7249	3.6	6
78	Improving Surge Current Capability of SiC Merged PiN Schottky Diode by Adding Plasma Spreading Layers. <i>IEEE Transactions on Power Electronics</i> , <b>2020</b> , 35, 11316-11320	7.2	6
77	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> , <b>2017</b> , 32, 213-216	1	5
76	Enhancement-mode GaN-on-Silicon MOS-HEMT using pure wet etch technique <b>2015</b> ,		5
75	A Comparative Study of Silicon Carbide Merged PiN Schottky Diodes with Electrical-Thermal Coupled Considerations. <i>Materials</i> , <b>2020</b> , 13,	3.5	5
74	The Leakage Mechanism of the Package of the AlGaN/GaN Liquid Sensor. <i>Materials</i> , <b>2020</b> , 13,	3.5	5
73	Dynamic on-state resistance evaluation of GaN devices under hard and soft switching conditions <b>2018</b> ,		5

72	Design and experimental analysis of a 1 kW, 800 kHz all-SiC boost DC-DC converter <b>2014,</b>		5
71	Modeling of a 1200 V 6 a SiC bipolar junction transistor <b>2013,</b>		5
70	Power electronic transformer for dc power distribution network <b>2014,</b>		5
69	Gate drive investigations of IGBT modules with SiC-Schottky freewheeling diodes <b>2013,</b>		5
68	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> , <b>2019</b> , 141,	2	5
67	Hybrid Termination With Wide Trench for 4H-SiC Super-Junction Devices. <i>IEEE Electron Device Letters</i> , <b>2021</b> , 42, 216-219	4-4	5
66	Accurate Analytical Switching-On Loss Model of SiC MOSFET Considering Dynamic Transfer Characteristic and Qgd. <i>IEEE Transactions on Power Electronics</i> , <b>2020</b> , 35, 12264-12273	7-2	4
65	GaN-on-Si lateral power devices with symmetric vertical leakage: The impact of floating substrate <b>2018,</b>		4
64	Surge capability of 1.2kV SiC diodes with high-temperature implantation <b>2018,</b>		4
63	Optimization of Bosch etch process for vertically stacked Si nanowires. <i>Journal of Materials Science: Materials in Electronics</i> , <b>2012</b> , 23, 334-342	2.1	4
62	High-efficiency quasi-two-stage converter with current sharing for multi-channel LED driver <b>2013,</b>		4
61	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> , <b>2020</b> , 1-1	5.6	4
60	Degradation of 4H-SiC MOSFET body diode under repetitive surge current stress <b>2020,</b>		4
59	Switching Performance Evaluation of 1200 V Vertical GaN Power FinFETs <b>2019,</b>		4
58	A Wide Output LLC Converter Based on Full Bridge and Half Bridge Topology Morphing Method Using Trajectory Transition <b>2018,</b>		4
57	1 kV/1.3 m <sup>2</sup> vertical GaN-on-GaN Schottky barrier diodes with high switching performance <b>2018,</b>		4
56	Characterization of 1.2 kV SiC super-junction SBD implemented by trench and implantation technique <b>2018,</b>		4
55	Fabrication and testing of 3500V/15A SiC JFET based power module for high-voltage, high-frequency applications <b>2015,</b>		3

54	CMOS-compatible enhancement-mode GaN-on-Si MOS-HEMT with high breakdown voltage (930V) using thermal oxidation and TMAH wet etching <b>2015</b> ,		3
53	Modular multilevel power electronic transformer <b>2015</b> ,		3
52	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> , <b>2020</b> , 67, 1705-1711	2.9	3
51	A capacitor voltage balancing method for a three phase modular multilevel DC-DC converter <b>2017</b> ,		3
50	Practical One-Step Solution of Smoothly Tapered Junction Termination Extension for High Voltage SiC Gate Turn-off Thyristor <b>2019</b> ,		3
49	UIS Withstanding Capability of GaN E-HEMTs with Schottky and Ohmic p-GaN contact <b>2020</b> ,		3
48	Investigation of Temperature-Dependent Dynamic RON of GaN HEMT with Hybrid-Drain under Hard and Soft Switching <b>2020</b> ,		3
47	A Resonant DC-DC Converter with Modular Rectifier for High Voltage Gain and Wide Output Voltage Range Applications <b>2019</b> ,		3
46	A Voltage Balancing Method for Series-Connected Power Devices in an LLC Resonant Converter. <i>IEEE Transactions on Power Electronics</i> , <b>2021</b> , 36, 3628-3632	7.2	3
45	Photolithographic Patterning of Cytop with Limited Contact Angle Degradation. <i>Micromachines</i> , <b>2018</b> , 9,	3.3	3
44	Design and Fabrication of 1.92 kV 4H-SiC Super-Junction SBD With Wide-Trench Termination. <i>IEEE Transactions on Electron Devices</i> , <b>2021</b> , 1-8	2.9	3
43	The effect of h-BN buffer layers in bilayer graphene on Co (111). <i>Journal of the Korean Physical Society</i> , <b>2015</b> , 66, 1631-1636	0.6	2
42	Novel Platform for Surface-Mediated Gene Delivery Assisted with Visible-Light Illumination. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2020</b> , 12, 17290-17301	9.5	2
41	Design and Optimization of Vertical GaN PiN Diodes With Fluorine-Implanted Termination. <i>IEEE Journal of the Electron Devices Society</i> , <b>2020</b> , 8, 241-250	2.3	2
40	Buffer leakage induced pre-breakdown mechanism for AlGaN/GaN HEMTs on Si <b>2013</b> ,		2
39	Optimal design of SiC MOSFETs for 20kW DCDC converter <b>2017</b> ,		2
38	Impact of common source inductance on switching loss of SiC MOSFET <b>2015</b> ,		2
37	A 10kV/200A SiC MOSFET module with series-parallel hybrid connection <b>2014</b> ,		2

36	Sidewall-Implanted Trench Termination for 4H-SiC Devices With High Breakdown Voltage and Low Leakage Current. <i>IEEE Electron Device Letters</i> , <b>2022</b> , 43, 104-107	4.4	2
35	Vertical GaN power rectifiers: interface effects and switching performance. <i>Semiconductor Science and Technology</i> , <b>2020</b> , 36, 024005	1.8	2
34	Understanding the breakdown asymmetry of 4H-SiC power diodes with extended defects at locations along step-flow direction. <i>Journal of Applied Physics</i> , <b>2020</b> , 128, 164501	2.5	2
33	Plasma Spreading Layers: An Effective Method for Improving Surge and Avalanche Robustness of SiC Devices. <i>IEEE Transactions on Electron Devices</i> , <b>2021</b> , 1-8	2.9	2
32	Mechanism of Ti/Al/Ni/Au ohmic contacts to AlGaIn/GaN heterostructures via laser annealing. <i>Chinese Physics B</i> , <b>2019</b> , 28, 037302	1.2	1
31	High-voltage Full-SiC power module: Device fabrication, testing and high frequency application in kW-level converter <b>2015</b> ,		1
30	Modeling and Analysis of vgs Characteristics for Upper-Side and Lower-Side Switches at Turn-on Transients for a 1200V/200A Full-SiC Power Module. <i>Micromachines</i> , <b>2019</b> , 11,	3.3	1
29	Surge Current Capability of GaN E-HEMTs in Reverse Conduction Mode <b>2019</b> ,		1
28	Low surface damage during ohmic contact formation in AlGaIn/GaN HEMT by selective laser annealing. <i>Electronics Letters</i> , <b>2019</b> , 55, 658-660	1.1	1
27	Design and Experimental Study of 1.2kV 4H-SiC Merged PiN Schottky Diode <b>2019</b> ,		1
26	Resonant power electronic transformer for power grid <b>2014</b> ,		1
25	PWAM control of bidirectional LLC resonant converter <b>2013</b> ,		1
24	Single Pulse Avalanche Robustness and Analysis for 1200-V SiC Junction Barrier Schottky Diode <b>2020</b> ,		1
23	Experimental Investigation on Failure Mechanism of SiC Power MOSFETs under Single Pulse Avalanche Stress <b>2020</b> ,		1
22	Negative Dynamic RON in Vertical GaN PiN Diode: The Impact of Conductivity Modulation <b>2020</b> ,		1
21	Investigation of Avalanche Capability of 1200V 4H-SiC MPS Diodes and JBS Diodes <b>2020</b> ,		1
20	1.2kV SiC Merged PiN Schottky Diode with Improved Surge Current Capability <b>2020</b> ,		1
19	The Safe Operating Area of AlGaIn/GaN-Based Sensor. <i>IEEE Sensors Journal</i> , <b>2021</b> , 21, 6241-6247	4	1



18	The Impact of Process Conditions on Surge Current Capability of 1.2 kV SiC JBS and MPS Diodes. <i>Materials</i> , <b>2021</b> , 14,	3.5	1
17	Single-Mask Implantation-Free Technique Based on Aperture Density Modulation for Termination in High-Voltage SiC Thyristors. <i>IEEE Transactions on Electron Devices</i> , <b>2021</b> , 68, 1181-1184	2.9	1
16	Design and Implement of 10 kV SiC JBS Based on Exponential Varying Field Limiting Rings <b>2018</b> ,		1
15	Low limit of detection of the AlGaN/GaN-based sensor by the Kelvin connection detection technique. <i>Microsystems and Nanoengineering</i> , <b>2021</b> , 7, 51	7.7	1
14	Performance analysis of 4H-SiC super-junction devices: impact of trench angle and improvement with multi-epi structure. <i>Semiconductor Science and Technology</i> , <b>2021</b> , 36, 105006	1.8	1
13	Characterization and Analysis on Performance and Avalanche Reliability of SiC MOSFETs With Varied JFET Region Width. <i>IEEE Transactions on Electron Devices</i> , <b>2021</b> , 68, 3982-3990	2.9	1
12	A Novel SiC LDMOS with Electric Field Optimization by Step Doping Technology <b>2020</b> ,		1
11	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> , <b>2022</b> , 1-7	2.9	0
10	Understanding Turn-On Transients of SiC High-Power Modules: Drain-Source Voltage Plateau Characteristics. <i>Energies</i> , <b>2020</b> , 13, 3802	3.1	0
9	Analytical Model and Optimization for SiC Floating Island Structure. <i>IEEE Transactions on Electron Devices</i> , <b>2021</b> , 68, 222-229	2.9	0
8	Protection of isolated and active regions in AlGaN/GaN HEMTs using selective laser annealing*. <i>Chinese Physics B</i> , <b>2021</b> , 30, 097302	1.2	0
7	A Voltage Balancing Method for Series-Connected Power Devices Based on Active Clamping in Voltage Source Converters. <i>IEEE Transactions on Power Electronics</i> , <b>2022</b> , 1-1	7.2	0
6	Correction to Trench Termination With SiO <sub>2</sub> -Encapsulated Dielectric for Near-Ideal Breakdown Voltage in 4H-SiC Devices [Dec 18 1900-1903]. <i>IEEE Electron Device Letters</i> , <b>2019</b> , 40, 353-353	4.4	
5	Investigation on Thermal Resistance and Capacitance Characteristics of a Highly Integrated Power Control Unit Module. <i>Electronics (Switzerland)</i> , <b>2021</b> , 10, 958	2.6	
4	Methodology for Enhanced Surge Robustness of 1.2kV SiC MOSFET Body Diode. <i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i> , <b>2021</b> , 1-1	5.6	
3	Characterization and Analysis of 4H-SiC Super Junction JFETs Fabricated by Sidewall Implantation. <i>IEEE Transactions on Electron Devices</i> , <b>2022</b> , 1-9	2.9	
2	Electrothermal Coupling Model with Distributed Heat Sources for Junction Temperature Calculation during Surges. <i>IEEE Transactions on Power Electronics</i> , <b>2022</b> , 1-1	7.2	
1	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> , <b>2022</b> , 69, 1226-1232	2.9	



