

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM821300

SUBMISSION TYPE:	NEW ASSIGNMENT		
NATURE OF CONVEYANCE:	SECURITY INTEREST		
CONVEYING PARTY DATA			
Name	Formerly	Execution Date	Entity Type
Wolfspeed, Inc.		06/23/2023	Corporation: NORTH CAROLINA
RECEIVING PARTY DATA			
Name:	U.S. Bank Trust Company, National Association		
Street Address:	214 N. Tryon Street, 27th Floor		
Internal Address:	Mail Code CN-NC-H27A		
City:	Charlotte		
State/Country:	NORTH CAROLINA		
Postal Code:	28202		
Entity Type:	National Banking Association: UNITED STATES		
PROPERTY NUMBERS Total: 9			
Property Type	Number	Word Mark	
Registration Number:	6895781		
Registration Number:	6318374		
Registration Number:	5530598		
Registration Number:	5530599	WOLFSPEED	
Registration Number:	5530597	WOLFSPEED	
Registration Number:	2883412	ZERO RECOVERY	
Registration Number:	4048150	ZERO RECOVERY	
Registration Number:	4158655	Z-FET	
Registration Number:	3935047	Z-REC	
CORRESPONDENCE DATA			
Fax Number:	2124920492		
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>			
Phone:	(212) 373-3492		
Email:	ndokkedahl@paulweiss.com, mmcguire@paulweiss.com		
Correspondent Name:	Nikolai Dokkedahl		
Address Line 1:	1285 Avenue of the Americas		
Address Line 2:	Paul Weiss Rifkind Wharton & Garrison LLP		

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Notice of Grant of Security Interest in Intellectual Property

NOTICE OF GRANT OF SECURITY INTEREST IN PATENTS AND TRADEMARKS, dated as of June 23, 2023 (this “Agreement”), made by Wolfspeed, Inc., a North Carolina corporation (the “Pledgor”), in favor of U.S. Bank Trust Company, National Association, as Collateral Agent (as defined below).

Reference is made to the Collateral Agreement, dated as of June 23, 2023 (as amended, restated, supplemented or otherwise modified from time to time, the “Collateral Agreement”), Wolfspeed, Inc. (the “Issuer”), each subsidiary of the Issuer identified therein and U.S Bank Trust Company, National Association, as collateral agent (together with its successors and assigns in such capacity, the “Collateral Agent”) for the Secured Parties (as defined therein). The parties hereto agree as follows:

SECTION 1. **Terms.** Capitalized terms used in this Agreement and not otherwise defined herein have the meanings specified in the Collateral Agreement. The rules of construction specified in Section 1.01(b) of the Collateral Agreement also apply to this Agreement.

SECTION 2. **Grant of Security Interest.** As security for the payment or performance when due (whether at the stated maturity, by acceleration or otherwise), as the case may be, in full of the Secured Obligations, the Pledgor hereby assigns and pledges to the Collateral Agent, its successors and permitted assigns, for the benefit of the Secured Parties, and hereby grants to the Collateral Agent, its successors and permitted assigns, for the benefit of the Secured Parties, a security interest in all right, title and interest in or to any and all of the following assets now owned or at any time hereafter acquired by such Pledgor or in which such Pledgor now has or at any time in the future may acquire any right, title or interest (collectively, but excluding any Excluded Property, the “IP Collateral”):

all Patents, including those listed on Schedule I and all Trademarks, including those listed on Schedule II.

provided, however, that the foregoing pledge, assignment and grant of security interest will not cover any “intent-to-use” applications for trademark or service mark registrations filed pursuant to Section 1(b) of the Lanham Act, 15 U.S.C. §1051, unless and until an Amendment to Allege Use or a Statement of Use under Section 1(c) or 1(d) of the Lanham Act has been filed, to the extent, if any, that any assignment of an “intent-to-use” application prior to such filing would violate the Lanham Act.

SECTION 3. **Collateral Agreement.** The security interests granted to the Collateral Agent herein are granted in furtherance, and not in limitation of, the security interests granted to the Collateral Agent pursuant to the Collateral Agreement. Each Pledgor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the IP Collateral are more fully set forth in the Collateral Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Collateral Agreement, the terms of the Collateral Agreement shall govern.

SECTION 4. **Counterparts.** This Agreement may be executed in two or more counterparts, each of which shall constitute an original but all of which when taken

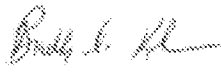
together shall constitute but one contract. Delivery of an executed counterpart to this Agreement by facsimile or other electronic transmission shall be as effective as delivery of a manually signed original.

SECTION 5. *Governing Law.* THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES UNDER THIS AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO ANY PRINCIPLE OF CONFLICTS OF LAW THAT COULD REQUIRE THE APPLICATION OF ANY OTHER LAW.


[Signature Pages Follow]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

WOLFSPEED, INC.

By: 
Name: Bradley Kohn
Title: General Counsel and Secretary

U.S. Bank Trust Company, National
Association, as Collateral Agent,

By: 
Name: Ryan E. Williams
Title: VP

[Signature Page to Notice of Grant of Security Interest in Patents and Trademarks]

TRADEMARK
REEL: 008119 FRAME: 0875

Schedule I
to Notice of Grant of Security Interest in Patents

Patents Owned by Wolfspeed, Inc.

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Semi-Insulating GaN and Method of Making Same	10/618,024 11-Jul-2003	7170095 30-Jan-2007
LOW 1C SCREW DISLOCATION 3 INCH SILICON CARBIDE WAFER	10,957,806 04-Oct-2004	7314520 01-Jan-2008
Low Micropipe 100 mm Silicon Carbide Wafer	10/957,807 04-Oct-2004	7314521 01-Jan-2008
Optically Triggered Wide Bandgap Bipolar Power Switching Devices and Circuits	11/412,338 27-Apr-2006	7679223 16-Mar-2010
Method of Manufacturing an Adaptive AlGaN Buffer Layer (Intrinsic)	11/474,431 26-Jun-2006	7485512 03-Feb-2009
Monolithically Integrated Vertical Power Transistor and Bypass Diode	14/032,718 20-Sep-2013	10868169 15-Dec-2020
Power Module	29/663,502 17-Sep-2018	D909310 02-Feb-2021
GaN Boule Growth from Liquid Melt Using GaN Seed Wafers	10328223 23-Dec-2002	7097707 29-Aug-2006
Method of Treating a Silicon Carbide Substrate for Improved Epitaxial Deposition and Resulting Structures and Devices	10248586 30-Jan-2003	7138291 21-Nov-2006
Methods and Apparatus for Controlling Formation of Deposits in a Deposition System and Depositions Systems and Methods Including the Same	10/414,787 16-Apr-2003	7118781 10-Oct-2006
Phase Controlled Sublimation	10/426,200 30-Apr-2003	7147713 12-Dec-2006
Methods, Systems and Computer Program Products for Dynamically Controlling a Semiconductor Dicing Saw	10/606,980 26-Jun-2003	6945844 20-Sep-2005
Trench Cut Light Emitting Diodes and Methods of Fabricating Same	10/610,329 30-Jun-2003	6995032 07-Feb-2006
Nitride-Based Transistors and Methods of Fabrication Thereof Using Non-Etched Contact Recesses	10/617,843 11-Jul-2003	6982204 03-Jan-2006
Heterogeneous Bandgap Structures for Semiconductor Devices and Manufacturing Methods Therefor	10/619,228 14-Jul-2003	6875995 05-Apr-2005
Growth of Ultra-High Purity Silicon Carbide Crystals in an Ambient Containing Hydrogen	10/628,189 28-Jul-2003	7147715 12-Dec-2006
Reducing Nitrogen Content in Silicon Carbide Crystals by Sublimation Growth in a Hydrogen-Containing Ambient	10/628,188 28-Jul-2003	7220313 22-May-2007

Title	Application No. Application Date	(Publication No.)
		Patent No. Issue Date
Nitrogen Passivation of Interface States in SiO ₂ /SiC Structures	10/640,934 14-Aug-2003	7022378 04-Apr-2006
Method to Reduce Stacking Fault Nucleation Sites and Reduce Forward Voltage Drift in Bipolar Devices	10/605,312 22-Sep-2003	7018554 28-Mar-2006
Methods of Forming Power Semiconductor Devices Using Boule-Grown Silicon Carbide Drift Layers and Power Semiconductor Devices Formed Thereby	10/686,795 16-Oct-2003	6974720 13-Dec-2005
Vertical JFET Limited Silicon Carbide Power Metal-Oxide Semiconductor Field Effect Transistors	10/698,170 30-Oct-2003	7221010 22-May-2007
Large Area, Uniformly Low Dislocation Density GaN Substrate and Process for Making the Same	10/712,351 13-Nov-2003	7323256 29-Jan-2008
Vicinal GaN Substrate for High Quality Homoepitaxy	10/714,307 14-Nov-2003	7118813 10-Oct-2006
Multiple Floating Guard Ring Edge Termination for Silicon Carbide Devices and Methods of Fabricating Silicon Carbide Devices Incorporating Same	10/731,860 09-Dec-2003	7026650 11-Apr-2006
Semiconductor Substrate Assemblies and Methods for Preparing and Dicing the Same	10/733,845 11-Dec-2003	7008861 07-Mar-2006
Co-Doping for Fermi Level Control in Semi-Insulating Group III-Nitrides	10/752,970 07-Jan-2004	7135715 14-Nov-2006
Nitride-Based Transistors with a Protective Layer and a Low-Damage Recess and Methods of Fabrication Thereof	10/758,871 16-Jan-2004	7045404 16-May-2006
Silicon Carbide on Diamond Substrates and Related Devices and Methods	10/707,898 22-Jan-2004	7033912 25-Apr-2006
Nitride Heterojunction Transistors Having Charge-Transfer Induced Energy Barriers and Methods of Fabricating the Same	10/772,882 05-Feb-2004	7170111 30-Jan-2007
Reduction of Carrot Defects in Silicon Carbide Epitaxy	10/790,406 01-Mar-2004	7230274 12-Jun-2007
Doping of Gallium Nitride by Solid Source Diffusion and Resulting Gallium Nitride Structures	10/811,752 29-Mar-2004	7439609 21-Oct-2008
Laser Patterning of Substrates of Light Emitting Devices and Patterned Substrates for Light Emitting Devices	10/815,293 01-Apr-2004	7419912 02-Sep-2008
Semiconductor Devices Having a Hybrid Channel Layer, Current Aperture Transistors and Methods of Fabricating Same	10/849,589 20-May-2004	7084441 01-Aug-2006
Methods of Fabricating Nitride-Based Transistors Having Regrown Ohmic Contact Regions	10/849,617 20-May-2004	7432142 07-Oct-2008
Improved Dielectric Passivation for Semiconductor Devices	10/851,507 22-May-2004	7332795 19-Feb-2008

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Vapor Assisted Growth of Gallium Nitride	10/853,920 26-May-2004	7303632 04-Dec-2007
Cascode Amplifier Structures Including Wide Bandgap Field Effect Transistor with Field Plate	10/856,098 28-May-2004	7126426 24-Oct-2006
Methods of Fabricating Silicon Carbide Devices with Hybrid Well Regions	10/873,394 22-Jun-2004	7118970 10-Oct-2006
One Hundred Millimeter High Purity Semi-Insulating Single Crystal Silicon Carbide Wafer	10/876,963 25-Jun-2004	7601441 13-Oct-2009
Methods of Fabricating Nitride-Based Transistors with a Cap Layer and a Recessed Gate	10/897,726 23-Jul-2004	7238560 03-Jul-2007
Seed and Seedholder Combinations for High Quality Growth of Large Silicon Carbide Single Crystals	10/915,095 10-Aug-2004	7192482 20-Mar-2007
Multi-Chamber MOCVD Growth Apparatus for High Performance/High Throughput	10/920,555 18-Aug-2004	7368368 06-May-2008
Lithographic Method to Reduce Stacking Fault Nucleation Sites and Structures Having Reduced Stacking Fault Nucleation Sites	10/929,226 30-Aug-2004	7173285 06-Feb-2007
Silicon Carbide Semiconductor Structures Including Multiple Epitaxial Layers Having Sidewalls (as amended)	10/929,911 30-Aug-2004	7109521 19-Sep-2006
Wide Bandgap Transistor Devices with Field Plates	10/930,160 31-Aug-2004	7501669 10-Mar-2009
3-Layer Channel Layer Structure	11/661,962 01-Sep-2004	7834396 16-Nov-2010
Wide Bandgap HEMTs with Source Connected Field Plates	10/958,970 04-Oct-2004	7550783 23-Jun-2009
Wide Bandgap Field Effect Transistors With Source Connected Field Plates	10/958,945 04-Oct-2004	9773877 26-Sep-2017
Low 1c Screw Dislocation 3 Inch Silicon Carbide Wafer	10/957,806 04-Oct-2004	7,314,520 01-Jan-2008
High Voltage Switching Devices and Process for Forming Same	10/513,009 27-Oct-2004	7795707 14-Sep-2010
Wide Bandgap Transistors with Multiple Field Plates	10/976,422 29-Oct-2004	7573078 11-Aug-2009
Metal-Semiconductor Field Effect Transistors (MESFETs) Having Drains Coupled to the Substrate and Methods of Fabricating the Same	10/977,054 29-Oct-2004	7348612 25-Mar-2008
Asymmetric Layout Structures for Transistors and Methods of Fabricating the Same	10/977,227 29-Oct-2004	7265399 04-Sep-2007
Reduction of Subsurface Damage in the Production of Bulk SiC Crystals	10/990,607 17-Nov-2004	7300519 27-Nov-2007

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Transistors Having Buried N-Type and P-Type Regions Beneath the Source Region	10/996,249 23-Nov-2004	7456443 25-Nov-2008
Process for Producing High Quality Large Size Silicon Carbide Crystals	11/006,997 08-Dec-2004	7563321 21-Jul-2009
Transistors Having Buried N-Type and P-Type Regions Beneath the Source Region and Methods of Fabricating the Same	11/012,553 15-Dec-2004	7326962 05-Feb-2008
Methods of Treating a Silicon Carbide Substrate for Improved Epitaxial Deposition and Resulting Structures and Devices	11/022,496 22-Dec-2004	8822315 02-Sep-2014
Process for Producing Silicon Carbide Crystals Having Increased Minority Carrier Lifetimes	11/052,679 07-Feb-2005	7811943 12-Oct-2010
Method of Forming Semi-Insulating Silicon Carbide Single Crystal (Intrinsic)	11/052,899 09-Feb-2005	7276117 02-Oct-2007
High Electron Mobility Transistor	11/073,484 03-Mar-2005	7253454 07-Aug-2007
Vertical Junction Field Effect Transistor Having an Epitaxial Gate (Intrinsic)	11/071,437 04-Mar-2005	7355223 08-Apr-2008
Method of Manufacturing a Vertical Junction Field Effect Transistor Having an Epitaxial Gate (Intrinsic)	11/071,454 04-Mar-2005	7279368 09-Oct-2007
Wide Bandgap Transistors with Gate-Source Filed Plates	11/078,265 11-Mar-2005	(2006-0202272)
Apparatus and Method for the Production of Bulk Silicon Carbide Single Crystals	11/089,064 24-Mar-2005	7323052 29-Jan-2008
Methods of Fabricating Silicon Nitride Regions in Silicon Carbide and Resulting Structures	11/093,586 30-Mar-2005	7476594 13-Jan-2009
Three Inch Silicon Carbide Wafer with Low Warp, Bow, and TTV	11/101,110 07-Apr-2005	7422634 09-Sep-2008
Composite Substrates of Conductive and Insulating or Semi-Insulating Group III Nitrides for Group III Nitride Devices	11/103,127 11-Apr-2005	7626217 01-Dec-2009
Devices Having Thick Semi-Insulating Epitaxial Gallium Nitride Layers (as amended)	11/103,117 11-Apr-2005	8575651 05-Nov-2013
Aluminum Free Group III-Nitride Based High Electron Mobility Transistors	11/118,575 29-Apr-2005	7615774 10-Nov-2009
Binary Group III-Nitride Based High Electron Mobility Transistors and Methods of Fabricating Same	11/118,675 29-Apr-2005	7544963 09-Jun-2009
Silicon Carbide Junction Barrier Schottky Diodes with Suppressed Minority Carrier Injection	11/126,816 11-May-2005	8901699 02-Dec-2014

Title	Application No. Application Date	(Publication No.)
		Patent No. Issue Date
Method and Apparatus for the Production of Silicon Carbide Crystals	11/128,447 13-May-2005	7387680 17-Jun-2008
High Voltage Silicon Carbide MOS-Bipolar Devices Having Bi-Directional Blocking Capabilities and Methods of Fabricating the Same	11/132,355 18-May-2005	7414268 19-Aug-2008
High Voltage Silicon Carbide Devices Having Bi-Directional Blocking Capabilities	11/131,509 18-May-2005	7391057 24-Jun-2008
Methods of Fabricating Silicon Carbide Devices Having Smooth Channels	11/136,057 24-May-2005	7528040 05-May-2009
Fluid-Dispensing Apparatus with Controlled Tear-Off	11/138,704 26-May-2005	7681759 23-Mar-2010
Low Basal Plane Dislocation Bulk Grown SiC Wafers	11/147,645 08-Jun-2005	7294324 13-Nov-2007
Gallium Nitride Based High Electron Mobility Devices (Intrinsic)	11/147,341 08-Jun-2005	7326971 05-Feb-2008
Method of Manufacturing Gallium Nitride Based High-Electron Mobility Devices (Intrinsic)	11/147,342 08-Jun-2005	7364988 29-Apr-2008
Highly Uniform Group III-Nitride Epitaxial Layers on 100 mm Diameter SiC Substrates	11/149,664 10-Jun-2005	7405430 29-Jul-2008
Semiconductor Devices Having Varying Electrode Widths to Provide Non-Uniform Gate Pitches and Related Methods	11/157,356 21-Jun-2005	8203185 19-Jun-2012
High Voltage Silicon Carbide Devices Having Bi-Directional Blocking Capabilities	11/159,972 23-Jun-2005	7615801 10-Nov-2009
Low Dislocation Density Semi-Insulating III-Nitride Layers on SiC Substrates and Methods of Making the Same	11/169,471 29-Jun-2005	9331192 03-May-2016
Passivation of SiC and Wide Band Gap Devices Using Novel Hydrogen-Free Sputtered Nitrides	11/169,378 29-Jun-2005	7525122 28-Apr-2009
Semiconductor Device and a Method for Production Thereof	11/185,106 20-Jul-2005	7768092 03-Aug-2010
Methods, Apparatus and Computer Program Products for Controlling a Volume of Liquid in Semiconductor Processing Based on Reflected Optical Radiation	11/194,183 01-Aug-2005	7623252 24-Nov-2009
Double Side Polished Wafer Scratch Inspection Tool	11/211,061 24-Aug-2005	7319518 15-Jan-2008
Nitride-Based Transistors and Methods of Fabrication Thereof Using Non-Etched Contact Recesses	11/221,343 07-Sep-2005	7550784 23-Jun-2009
Method of Manufacturing Carrier Wafer and Resulting Carrier Wafer Structures	11/223,298 09-Sep-2005	7393790 01-Jul-2008

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Gas Driven Rotation Apparatus and Method for Forming Crystalline Layers	11/224,458 12-Sep-2005	8628622 14-Jan-2014
Directed Reagents to Improve Material Uniformity	11/224,374 12-Sep-2005	8052794 08-Nov-2011
Silicon Carbide Bipolar Junction Transistors Having Epitaxial Base Regions and Multilayer Emitters and Methods of Fabricating the Same	11/229,474 16-Sep-2005	7304334 04-Dec-2007
Methods of Fabricating Oxide Layers on Silicon Carbide Layers Utilizing Atomic Oxygen	11/229,476 16-Sep-2005	7572741 11-Aug-2009
Methods of Treating a Silicon Carbide Substrate for Improved Epitaxial Deposition and Resulting Structures and Devices	11/243,581 05-Oct-2005	7675068 09-Mar-2010
Producing High Quality Bulk Silicon Carbide Single Crystal by Managing Thermal Stresses at a Seed Interface	11/249,107 12-Oct-2005	9200381 01-Dec-2015
One Hundred Millimeter Single Crystal Silicon Carbide Wafer	11/248,998 12-Oct-2005	7351286 01-Apr-2008
Seeded Single Crystal Silicon Carbide Growth and Resulting Crystals	11/248,458 12-Oct-2005	7323051 29-Jan-2008
Seeded Single Crystal SiC Growth and Resulting Crystals	11/248,579 12-Oct-2005	7316747 08-Jan-2008
Multiple Floating Guard Ring Edge Termination	11/268,789 08-Nov-2005	7419877 02-Sep-2008
Trench Cut Light Emitting Diodes and Methods of Fabricating Same	11/273,008 14-Nov-2005	7368756 06-May-2008
Restricted Radiative Heating Assembly for High Temperature Processing	11/272,909 14-Nov-2005	7645342 12-Jan-2010
Group III Nitride Semiconductor Devices with Silicon Nitride Layers and Methods of Manufacturing Such Devices	11/286,805 23-Nov-2005	7901994 08-Mar-2011
High Power, High Frequency Switch Circuits Using Strings of Power Transistors	11/295,060 06-Dec-2005	7368971 06-May-2008
Semiconductor Devices Including Implanted Regions and Protective Layers and Methods of Forming the Same	11/302,062 13-Dec-2005	7419892 02-Sep-2008
Silicon Carbide Bipolar Junction Transistors Having a Silicon Carbide Passivation Layer on the Base Region Thereof	11/315,672 22-Dec-2005	7345310 18-Mar-2008
Methods of Fabricating Strain Balanced Nitride Heterojunction Transistors	11/325,735 05-Jan-2006	8153515 10-Apr-2012
Environmentally Robust Passivation Structure for High Voltage Silicon Carbide Semiconductor Devices	11/328,550 10-Jan-2006	7598576 06-Oct-2009

Title	(Publication No.)	
	Application No.	Application Date
Edge Termination Structure for Silicon Carbide Devices	11/331,325	12-Jan-2006
Methods of Fabricating Transistors Including Supported Gate Electrodes and Related Devices	9515135	06-Dec-2016
Dispersed Electrical Interconnections	11/333,726	17-Jan-2006
Silicon Carbide on Diamond Substrates and Related Devices and Methods	11/334,922	19-Jan-2006
Heterojunction Transistors Including Energy Barriers and Related Method	11/347,953	06-Feb-2006
NITRIDE-BASED TRANSISTORS WITH A PROTECTIVE LAYER AND A LOW-DAMAGE RECESS	11357752	17-Feb-2006
High Power Silicon Carbide Pin Diodes Having Low Forward Voltage Drops	11358241	2006-02-21
Self-Aligned Gate for a FET	11363800	28-Feb-2006
Method to Reduce Stacking Fault Nucleation Sites and Reduce Forward Voltage Drift in Bipolar Devices	10/570,852	06-Mar-2006
Vicinal Gallium Nitride Substrate for High Quality Homoepitaxy	11/389,825	27-Mar-2006
Semiconductor Devices Including Self-Aligned Refractory Contacts and Methods of Fabricating the Same	11/431,990	11-May-2006
Methods and Apparatus for Fabricating Semiconductor Devices Having Reduced Implant Contamination and Related Devices	11/434,853	16-May-2006
Methods for Reducing Contamination of Semiconductor Devices and Materials During Wafer Processing	11/434,854	16-May-2006
High-Temperature Ion Implantation Apparatus and Methods of Fabricating Semiconductor Devices Using High-Temperature Ion Implantation	11/437,934	19-May-2006
MPS I Merged PN/Schottky Diode	11/441,524	26-May-2006
Sequential Lithographic Methods to Reduce Stacking Fault Nucleation Site	11/444,106	31-May-2006
100mm SiC Crystal Grown on Off Axis Seed	11425954	23-Jun-2006
Robust Transistors with Fluorine Treatment	11/428,954	06-Jul-2006
Method of Forming SiC MOSFETs with High Inversion Layer Mobility	11/482,330	07-Jul-2006
	11486752	14-Jul-2006

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Methods of Fabricating Transistors Including Dielectrically-Supported Gate Electrodes	11493069 26-Jul-2006	7709269 04-May-2010
Semiconductor Devices Including Schottky Diodes with Controlled Breakdown and Methods of Fabricating Same	11/496,842 01-Aug-2006	7728402 01-Jun-2010
Reduced Leakage Schottky Diode By Inversion Layer Surface Passivation	11/462,016 02-Aug-2006	7696584 13-Apr-2010
Structure and Method for Reducing Forward Voltage Across a Silicon Carbide Group III Nitride Interface	11/465,470 18-Aug-2006	7646024 12-Jan-2010
Heat Sink Assembly and Related Methods for Semiconductor Vacuum Processing System	11/467,040 24-Aug-2006	7622803 24-Nov-2009
Deposition Systems and Susceptor Assemblies for Depositing a Film on a Substrate	11/512,800 29-Aug-2006	8430960 30-Apr-2013
Silicon Carbide Devices with Hybrid Well Regions	11/513,473 31-Aug-2006	7705362 27-Apr-2010
Methods of processing semiconductor wafers having silicon carbide power devices thereon	11531975 2006-09-14	7547578 2009-06-16
Co-Doping for Fermi Level Control in Semi-Insulating Group III Nitrides	11/522,773 18-Sep-2006	7449353 11-Nov-2008
Transistors Having Buried P-Type Layers Coupled to the Gate and Methods of Fabricating the Same	11/536,143 28-Sep-2006	7646043 12-Jan-2010
INTEGRATED CIRCUIT ESD PROTECTION	11550650 2006-10-18	7719025 2010-05-18
Methods and Apparatus for Reducing Buildup of Deposits in Semiconductor Processing Equipment	11/551,498 20-Oct-2006	7865995 11-Jan-2011
Power Switching Semiconductor Devices Including Rectifying Junction- Shunts	11/556,448 03-Nov-2006	7598567 06-Oct-2009
Sublimation Chamber for Phase Controlled Sublimation	11/556,750 06-Nov-2006	7695565 13-Apr-2010
Methods of Fabricating Semiconductor Devices Including Implanted Regions for Providing Low-Resistance Contact to Buried Layers and Related Devices	11/556,871 06-Nov-2006	8823057 02-Sep-2014
High Voltage GaN Transistors	11603427 21-Nov-2006	7692263 06-Apr-2010
Epitaxial Semiconductor Structures Having Reduced Stacking Fault Nucleation Sites	11/615,600 22-Dec-2006	7601986 13-Oct-2009
Feature Forming Methods to Reduce Stacking Fault Nucleation Sites	11/615,614 22-Dec-2006	7396410 08-Jul-2008
Silicon Carbide Dimpled Substrate	11/651,528 10-Jan-2007	8664664 04-Mar-2014

Title	Application No. Application Date	(Publication No.) Patent No. Issue Date
Low Voltage Diodes with Reduced Parastic Resistance and Method for Fabricating	11/655,696 19-Jan-2007	7834367 16-Nov-2010
Transistors Having Implanted Channels and Implanted P-Type Regions Beneath the Source Region and Methods of Fabricating the Same	11/700,268 31-Jan-2007	7880172 01-Feb-2011
Seed and Seedholder Combinations for High Quality Growth of Large Silicon Carbide Single Crystals	11/671,015 05-Feb-2007	7364617 29-Apr-2008
Schottky Diode Structure with Silicon Mesa and Junction Barrier Schottky Wells	11/673,117 09-Feb-2007	8384181 26-Feb-2013
Methods of Fabricating Vertical JFET Limited Silicon Carbide Metal-Oxide Semiconductor Field Effect Transistors	11/677,422 21-Feb-2007	7923320 12-Apr-2011
Insulated Gate Bipolar Transistors Including Current Suppressing Layers	11/711,383 27-Feb-2007	8835987 16-Sep-2014
Silicon Carbide Self-Aligned Epitaxial MOSFET for High Powered Device Applications	11/711,703 28-Feb-2007	7629616 08-Dec-2009
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Polytype Hetero-Interface High Electron Mobility Device And Method Of Making	11/783,958 13-Apr-2007	7745851 29-Jun-2010
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Methods of Fabricating Nitride-Based Transistors with a Cap Layer and a Recessed Gate	11/810,026 04-Jun-2007	7678628 16-Mar-2010
Methods of Forming Ohmic Layers Through Ablation Capping Layers	11/763,081 14-Jun-2007	7851343 14-Dec-2010
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Passivation of Wide Band-Gap Based Semiconductor Devices with Hydrogen-Free Sputtered Nitrides	11/845,805	28-Aug-2007
Halide-Assisted Physical Vapor Transport (HA-PVT) Method for Silicon Carbide Growth	11/846,574	29-Aug-2007
Si ion implant into nitrides through protective layer (Si ₃ N ₄) at high temperature with high ion beam current	11/846,605	29-Aug-2007
Micropipe-Free Silicon Carbide and Related Method of Manufacture	11/854,864	13-Sep-2007
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GRID-UMOSFET WITH ELECTRIC FIELD SHIELDING OF GATE OXIDE	11855595	2007-09-14
Large Area, Uniformly Low Dislocation Density GaN Substrate and Process for Making the Same	11/856,222	17-Sep-2007
Insulated Gate Bipolar Conduction Transistor (IBCT)	11/857,037	18-Sep-2007
Current Aperture Transistors and Methods of Fabricating Same	11/871,790	12-Oct-2007
Transistors and Method for Making Ohmic Contact to Transistors	11904064	12-Oct-2007
WIRELESS TELEMETRY FOR INSTRUMENTED COMPONENT	11/936,936	08-Nov-2007
Low Micropipe 100 mm Silicon Carbide Wafer	11/940,423	15-Nov-2007
Low 1c Screw Dislocation 3 Inch Silicon Carbide Wafer	11/940,454	15-Nov-2007
Short Gate High Power MOSFET	11/949,221	03-Dec-2007
Transistor with A-Face Conductive Channel and Trench-Protecting Well Region	11/952,447	07-Dec-2007
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Integration of Device Types that Require Buried Conductive Layers and Epitaxial Re-growth	12/051,303 19-Mar-2008	7898047 01-Mar-2011
VICINAL GALLIUM NITRIDE SUBSTRATE FOR HIGH QUALITY HOMOEPITAXY	12102275 2008-04-14	7700203 2010-04-20
Methods of Forming Group III-Nitride Semiconductor Devices Including Implanting Ions Directly Into Source and Drain Regions and Implanted Ions	12/118,243 09-May-2008	9711633 18-Jul-2017
Highly Uniform Group III-Nitride Epitaxial Layers on 100 mm Diameter SiC Substrates	12/118,947 12-May-2008	7662682 16-Feb-2010
Housing Assembly for an Induction Heating Device Including Liner or Susceptor Coating	12/121,072 15-May-2008	9155131 06-Oct-2015
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Mesa Termination Structures for Power Semiconductor Devices and Methods of Forming Power Devices with Mesa Termination Structures	12/189,551 11-Aug-2008	8097919 17-Jan-2012
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Methods of Fabricating Silicon Carbide Devices Incorporating Multiple Floating Guard Ring Edge Terminations	12/195,700 21-Aug-2008	7842549 30-Nov-2010
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Methods of Fabricating Transistors Having Buried N-Type and P-Type Regions Beneath the Source Region	12/253,387 17-Oct-2008	9166033 20-Oct-2015
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Passivation of Wide Band-Gap Based Semiconductor Devices with Hydrogen-Free Sputtered Nitrides	12/404,557 16-Mar-2009	7858460 28-Dec-2010
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Methods of Forming Semiconductor Devices Including Epitaxial Layers and related Structures	12/412,448 27-Mar-2009	8288220 16-Oct-2012
High Volume Ion Implant System	12/422,826 13-Apr-2009	8008637 30-Aug-2011
Silicon Carbide Devices Having Smooth Channels	12/424,960 16-Apr-2009	8188483 29-May-2012
Wide Bandgap HEMTs with Source Connected Field Plates	12/437,505 07-May-2009	7915644 29-Mar-2011
Wide Bandgap Bipolar Turn-Off Thyristor Having Non-Negative Temperature Coefficient and Related Control Circuits	12/437,929 08-May-2009	8294507 23-Oct-2012
Schottky Diodes Containing High Barrier Metal Islands In a Low Barrier Metal Layer and Methods of Forming the Same	12/465,279 13-May-2009	7915703 29-Mar-2011
Transistors Including Supported Gate Electrodes	12/468,537 19-May-2009	7960756 14-Jun-2011
Methods of Processing Semiconducot Waafers Having Silicon Carbide Power Devices Thereon	12/474,720 29-May-2009	9349596 24-May-2016
A Low Barrier Height Schottky Diode on SiC for Applications	12/477,376 03-Jun-2009	8304783 06-Nov-2012
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Methods of Fabricating Oxide Layers on Silicon Carbide Layers Utilizing Atomic Oxygen	12/502,582 14-Jul-2009	8119539 21-Feb-2012
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Power Switching Semiconductor Devices Including Rectifying Junction- Shunts	12/560,729 16-Sep-2009	8034688 11-Oct-2011
Methods of Fabricating Nitride-Based Transistors Having Laterally Grown Active Region	12/564,473 22-Sep-2009	8946777 03-Feb-2015
LOW-LOSS NOISE-RESISTANT HIGH-TEMPERATURE GATE DRIVER CIRCUITS	12586729 2009-09-25	<u>7965522</u> 2011-06-21
Heterojunction Transistors Having Barrier Layer Bandgaps Greater than channel Layer Bandgaps and Related Methods	12/566,973 25-Sep-2009	9035354 19-May-2015
Transistors with Semiconductor Interconnection Layers and Semiconductor Channel Layers of Different Semiconductor Materials	12/577,929 13-Oct-2009	9312343 12-Apr-2016
Methods of Fabricating Transistors Using Laser Annealing of Source/Drain Regions	12/580,633 16-Oct-2009	8216924 10-Jul-2012
Robust Transistors with Fluorine Treatment	12/581,977 20-Oct-2009	7955918 07-Jun-2011
Method of Manufacturing Silicon Carbide Self-Aligned Epitaxial MOSFET for High Powered Device Application	12/603,603 22-Oct-2009	7994017 09-Aug-2011
Monolithic SiC High Voltage Switching Device with High Mobility Silicon MOS Gate	12/609,406 30-Oct-2009	8610130 17-Dec-2013
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Method of Fabricating Transistors Having Buried P-Type Layers Coupled to the Gate	12627743 30-Nov-2009	7943972 17-May-2011
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Semiconductor Device Structures with Modulated Doping and Related Methods	12/639,493 16-Dec-2009	8604461 10-Dec-2013
Restricted Radiative Heating Assembly for High Temperature Processing	12/651,512 04-Jan-2010	8888917 18-Nov-2014
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Growing Polygonal Carbon From Photoresist	12/686,066 12-Jan-2010	8080441 20-Dec-2011
Methods of Forming Contact Structures Including Alternating Metal and Silicon Layers and Related Devices	12/704,013 11-Feb-2010	8563372 22-Oct-2013
Vicinal Gallium Nitride Substrate for High Quality Homoepitaxy	12/713,514 26-Feb-2010	8043731 25-Oct-2011
Diffused Junction Termination Structures for Silicon Carbide devices and Methods of Fabricating Silicon Carbide Devices Incorporating Same	12/719,497 08-Mar-2010	8637386 28-Jan-2014
Semiconductor Devices with Hetrojunction Barrier Regions and Methods of Fabricating Same	12/719,412 08-Mar-2010	9117739 25-Aug-2015
Methods of Fabricating Transistors Including Dielectrically-Supported Gate Electrodes and Related Devices	12/724,656 16-Mar-2010	8049252 01-Nov-2011
Multilayer Diffusion Barriers for Wide Bandgap Schottky Barrier Devices	12/725,812 17-Mar-2010	9142631 22-Sep-2015
Wide Band-Gap MOSFETS Having a Heterojunction Under Gate Trenches Thereof and Related Methods of Forming Such Devices	12/761,518 16-Apr-2010	8415671 09-Apr-2013
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Method for Controlled Growth of Silicon Carbide and Structures Produced by the Same	12/768,960 28-Apr-2010	8377806 19-Feb-2013
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Method of Forming SiC MOSFETs with High Inversion Layer Mobility	12776831 10-May-2010	8536066 17-Sep-2013

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Smoothing Method for Semiconductor Material and Wafers Produced by Same	12/788,592 27-May-2010	8445386 21-May-2013
Diode Having Reduced On-Resistance and Associated Method of Manufacture	11/675,658 09-Jul-2010	8138583 20-Mar-2012
Power Converter Circuits Including High Electron Mobility Transistors for Switching and Rectification	12/837,092 15-Jul-2010	8847563 30-Sep-2014
Electronic Device Structure Including a Buffer Layer on a Base Layer	12/840,583 21-Jul-2010	8552435 08-Oct-2013
Electronic device structure with a semiconductor ledge layer for surface passivation	12843113 2010-07-26	8809904 2014-08-19
Semiconductor Device Structures with Modulated and Delta Doping and Related Methods	12/848,600 02-Aug-2010	8536615 17-Sep-2013
Circuit Breaker	12/850,098 04-Aug-2010	8817441 26-Aug-2014
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SEMICONDUCTOR DEVICE WITH PROTECTING FILM AND METHOD OF FABRICATING THE SEMICONDUCTOR DEVICE WITH PROTECTING FILM	12/876,614 07-Sep-2010	8410600 02-Apr-2013
Methods of Forming Semiconductor Contacts and Related Semiconductor Devices	12/879,398 10-Sep-2010	8357571 22-Jan-2013
Normally-Off D-Mode Driven Direct Drive Cascode	12/924,622 30-Sep-2010	8228114 24-Jul-2012
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Low Voltage Diodes with Reduced Parasitic Resistance and Method for Fabricating	12/905,374 15-Oct-2010	8344398 01-Jan-2013
Nitride Semiconductor Structures with Interlayer Structures	12/907,556 19-Oct-2010	8324005 04-Dec-2012
Contact Pad	12/943,517 10-Nov-2010	9607955 28-Mar-2017
Silicon Carbide on Diamond Substrates and Related Devices and Methods	12/952,278 23-Nov-2010	8513672 20-Aug-2013
Methods and Apparatus for Reducing Buildup of Deposits in Semiconductor Processing Equipment	12/974613 21-Dec-2010	8387194 05-Mar-2013
Large Area, Uniformly Low Dislocation Density GaN Substrate and Process for Making the Same	13/008,008 17-Jan-2011	8728236 20-May-2014

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High Voltage GaN Transistors	13/014,619 26-Jan-2011	8169005 01-May-2012
INSTRUMENTED COMPONENT FOR WIRELESS TELEMETRY	13/015,782 28-Jan-2011	9071888 30-Jun-2015
Silicon Carbide Switching Devices Including P-Type Channels	13/019,723 02-Feb-2011	9552997 24-Jan-2017
Nitride-based transistors with a protective layer and a low-damage recess	13022182 2011-02-07	11316028 2022-04-26
Junction Termination Structures Including Guard Ring Extensions and Methods of Fabricating Electronic Devices Incorporating Same	13/024,812 10-Feb-2011	8803277 12-Aug-2014
Integrated Nitride and Silicon Carbide-Based Devices	13/036,657 28-Feb-2011	8035111 11-Oct-2011
Semiconductor Devices Having High Performance Channel	13/039,441 03-Mar-2011	9478616 25-Oct-2016
Methods of Fabricating Vertical JFET Limited Silicon Carbide Metal-Oxide Semiconductor Field Effect Transistors	13/048,696 15-Mar-2011	8492827 23-Jul-2013
Semiconductor Devices Including Schottky Diodes Having Overlapping Doped Regions and Methods of Fabricating Same	13/051,606 18-Mar-2011	8432012 30-Apr-2013
Wide Bandgap HEMTs with Source Connected Field Plates	13/072,449 25-Mar-2011	8592867 26-Nov-2013
Recessed termination structures and methods of fabricating electronic devices including recessed termination structures	13080126 2011-04-05	9318623 2016-04-19
Coupled Inductor Output Filter	13/068,229 05-May-2011	8427120 23-Apr-2013
Field Effect Transistor Devices with Low Source Resistance	13/102,510 06-May-2011	9029945 12-May-2015
Field Effect Transistor Devices with Low Source Resistance	13/108,440 16-May-2011	9142662 22-Sep-2015
SiC Devices with High Blocking Voltage Terminated by a Negative Bevel	13/108,366 16-May-2011	9337268 10-May-2016
Robust Transistors with Fluorine Treatment	13/112,285 20-May-2011	8669589 11-Mar-2014
THIN FILM RESISTOR	13153041 2011-06-03	8570140 2013-10-29

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Methods of Fabricatin Normally-Off Semiconductor Devices	13/175,069 01-Jul-2011	8198178 12-Jun-2012
Method of Producing High Quality Silicon Carbide Crystal in a Seeded Growth System	13/181,167 12-Jul-2011	9790619 17-Oct-2017
OHMIC CONTACT TO SEMICONDUCTOR DEVICE	13182661 2011-07-14	9214352 2015-12-15
Ohmic Contact Structure for Group III Nitride Semiconductor Device Having Improved Surface Morphology and Well-Defined Edge Features	13/182,679 14-Jul-2011	9548206 17-Jan-2017
System and Method for Wafer Level Packaging (IFX)	13/183,272 14-Jul-2011	8497558 30-Jul-2013
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Semiconductor Device with Increased Channel Mobility and Dry Chemistry Processes for Fabrication Thereof	13/229,276 09-Sep-2011	9269580 23-Feb-2016
SCHOTTKY DIODE	13229749 2011-09-11	8680587 2014-03-25
Edge Termination Structure Employing Recesses for Edge Termination Elements	13/229,750 11-Sep-2011	8618582 31-Dec-2013
Schottky Diode Employing Recesses for Elements of Junction Barrier Array	13/229,752 11-Sep-2011	8664665 04-Mar-2014
GaN Based HEMTs with Buried Field Plates	13/245,579 26-Sep-2011	8933486 13-Jan-2015
Power Switching Semiconductor Devices Including Rectifying Junction- Shunts	13/267,966 07-Oct-2011	8546874 01-Oct-2013
Bipolar Junction Transistor Structure for Reduced Current Crowding	13/323,297 12-Dec-2011	9755018 05-Sep-2017
Mesa Termination Structures for Power Semiconductor Devices and Methods of Forming Power Devices with Mesa Termination Structures	13/338,620 28-Dec-2011	8460977 11-Jun-2013
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SEMICONDUCTOR DEVICE AND FABRICATION METHOD FOR THE SAME	13/403,341 23-Feb-2012	9761506 12-Sep-2017

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Schottky Contact	13/414,286 07-Mar-2012	9640627 02-May-2017
Localized Annealing of Metal-Silicon Carbide Ohmic Contacts and Devices So Formed	13/417,913 12-Mar-2012	9608166 28-Mar-2017
Polymer Via Plugs with High Thermal Integrity	13431583 27-Mar-2012	10020244 10-Jul-2018
PCB Based Pre-Power Package Window Frame (IFX)	13/432,333 28-Mar-2012	8907467 09-Dec-2014
Stable Power Devices on Low-Angle Off-Cut Silicon Carbide Crystals	12/622,861 03-Apr-2012	8536582 17-Sep-2013
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Optically Assist-triggered Wide Bandgap Thyristors Having Positive Temperature Coefficients	13/461,049 01-May-2012	9171977 27-Oct-2015
Silicon Carbide Devices Having Smooth Channels	13/470,600 14-May-2012	8859366 14-Oct-2014
High Temperature Performance Capable GaN Transistor	13/480,328 24-May-2012	9240473 19-Jan-2016
Transistor with A-Face Conductive Channel and Trench-Protecting Well Region	13/482,311 29-May-2012	9064710 23-Jun-2015
Normally-Off Semiconductor Devices	13/483,737 30-May-2012	8592868 26-Nov-2013
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Monolithic Bidirectional Silicon Carbide Switching Devices and Methods of Forming the Same	13/559,246 26-Jul-2012	8901639 02-Dec-2014
POWER MODULE FOR SUPPORTING HIGH CURRENT DENSITIES	13588329 2012-08-17	9673283 2017-06-06
Semiconductor Devices with Non-Implanted Barrier Regions and Methods of Fabricating the Same	13/605,324 06-Sep-2012	9466674 11-Oct-2016

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Semiconductor Devices Including Epitaxial Layers and Related Method	13/608,350 10-Sep-2012	9640652 02-May-2017
Using a Carbon Vacancy Reduction Material to Increase Average Carrier Lifetime in a Silicon Carbide Semiconductor Device	13/610,993 12-Sep-2012	10541306 21-Jan-2020
Predisposed High Electron Mobility Transistor	13/632,395 01-Oct-2012	9608085 28-Mar-2017
Hydrogen Mitigation Schemes in the Passivation of Advanced Devices	13/644,506 04-Oct-2012	8994073 31-Mar-2015
Using Stress Reduction Barrier Sub-Layers in a Semiconductor Die	13/653,960 17-Oct-2012	9269662 23-Feb-2016
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NI-Rich Schottky Contact	13/668,540 05-Nov-2012	9202703 01-Dec-2015
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Scottky Structure Employing Central Implants Between Junction Barrier Elements	13/686,119 27-Nov-2012	9318624 19-Apr-2016
Low Voltage Diodes with Reduced Parastic Resistance and Method for Fabricating	13/693,929 04-Dec-2012	9041139 26-May-2015
Devices with Crack Stops	13/715,260 14-Dec-2012	8877611 04-Nov-2014
Dielectric Solder Barrier for Semiconductor Devices	13/724,426 21-Dec-2012	8994182 31-Mar-2015
TRANSISTOR STRUCTURES HAVING REDUCED ELECTRICAL FIELD AT THE GATE OXIDE AND METHODS FOR MAKING SAME	13730133 2012-12-28	9530844 2016-12-27
Transistor Structures Having a Deep Recessed P+ Junction and Methods for Making Same	13/730,068 28-Dec-2012	10115815 30-Oct-2018
Thick Nitride Semiconductor Structures with Interlayer Structures and Methods of Fabricating Thick Nitride Semiconductor Structures	13/751,804 28-Jan-2013	9054017 09-Jun-2015
Method for Controlled Growth of Silicon Carbide and Structures Produced by Same	13/769,977 19-Feb-2013	9048166 02-Jun-2015
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tunnel Junction Field Effect Transistors Having Self-Aligned Source and Gate Electrodes and Methods of Forming the Same	13/781,905 01-Mar-2013	9202903 01-Dec-2015

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Field effect transistor devices with protective regions	13799049	2013-03-13
Field Effect Transistor Devices with Regrown P-Layers	13/798,919	13-Mar-2013
Field Effect Transistor Devices with Buried Well Protection Regions	13/799,142	13-Mar-2013
Field Effect Transistor Devices with Buried Well Regions and Epitaxial Layers	13/799,316	13-Mar-2013
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Encapsulation of Advanced Devices Using Novel PECVD and ALD Schemes	13/804,126	14-Mar-2013
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Wafer-Level Die Attach Metallization	13/834,196	15-Mar-2013
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Methods of Forming Junction Termination Extension Edge Terminations for High Power Semiconductor Devices and Related Semiconductor Devices	13/946,035 19-Jul-2013	9064738 23-Jun-2015
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Layout Configurations for Integrating Schottky Contacts Into a Power Transistor Device	14/032,995 20-Sep-2013	9318597 19-Apr-2016
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Controlled ion implantation into silicon carbide using channeling and devices fabricated using controlled ion implantation into silicon carbide using channeling	14281384 2014-05-19	9768259 2017-09-19
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Monolithic Bidirectional Silicon Carbide Switching Devices and Methods of Forming the Same	14543400 17-Nov-2014	9136371 15-Sep-2015
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Super junction power semiconductor devices formed via ion implantation channeling techniques and related methods	15168310 2016-05-31	11075264 2021-07-27
Gallium nitride high-electron mobility transistors with p-type layers and process for making the same	15192545 2016-06-24	11430882 2022-08-30
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Methods of forming buried junction devices in silicon carbide using ion implant channeling and silicon carbide devices including buried junctions	15339178 2016-10-31	10103230 2018-10-16
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Transistor Structures Having Reduced Electrical Field at the Gate Oxide and Methods for Making Same	15/344,735 07-Nov-2016	10840367 17-Nov-2020
Power Schottky Diodes Having Local Current Spreading Layers and Methods of Forming Such Devices	15/349,092 11-Nov-2016	9929284 27-Mar-2018
Ohmic Contact Structure for Group III Nitride Semiconductor Having Improved Surface Morphology and Well-Defined Edge Features	15/361,682 28-Nov-2016	10090394 02-Oct-2018
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Power semiconductor devices having gate trenches and buried edge terminations and related methods	15372505 2016-12-08	10861931 2020-12-08
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Power module with improved reliability	15594868 2017-05-15	9998109 2018-06-12
Semiconductor Devices Having a Plurality of Unit Cell Transistors that Have Smoothed Turn-on Behavior and Improved Linearity	15628932 21-Jun-2017	10615273 07-Apr-2020
DEPLETION MODE SEMICONDUCTOR DEVICES INCLUDING CURRENT DEPENDENT RESISTANCE	15613328 2017-06-22	<u>10354879</u> 2019-07-16
Power Schottky Diodes Having Closely-Spaced Deep Blocking Junctions in a Heavily-Doped Drift Region	15642634 06-Jul-2017	10510905 17-Dec-2019
Die-Attach Method to Compensate for Thermal Expansion (IFX)	15673734 10-Aug-2017	11430744 30-Aug-2022
Wide bandgap field effect transistors with source connected field plates	15696050 2017-09-05	11664429 2023-05-30
Power Switching Devices with DV/DT Capability and Methods of Making Such Devices	15699149 2017-09-08	10601413 2020-03-24
Controlled ion implantation into silicon carbide using channeling and devices fabricated using controlled ion implantation into silicon carbide using channeling	15707548 2017-09-18	10217824 2019-02-26
RF amplifier package with biasing strip	15709532 2017-09-20	10141303 2018-11-27
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Semiconductor die with improved ruggedness	15828539 2017-12-01	10332817 2019-06-25

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VERTICAL SEMICONDUCTOR DEVICE WITH IMPROVED RUGGEDNESS	15849922 2017-12-21	10615274 2020-04-07
Silicon Carbide Power Module	15/883,714 30-Jan-2018	10784235 22-Sep-2020
Vertical Power Transistor Device	15/970,148 03-May-2018	RE48380 05-Jan-2021
Power Module with Improved Reliability	15/980,101 15-May-2018	10707858 07-Jul-2020
High Power Transistor with Interior-Fed Gate Fingers	16032571 2018-07-11	10483352 2019-11-19
Wide bandgap semiconductor device	16034536 2018-07-13	11075295 2021-07-27
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METHOD AND DEVICE FOR A HIGH TEMPERATURE VACUUM-SAFE SOLDER STOP UTILIZING LASER PROCESSING OF SOLDERABLE SURFACES FOR AN ELECTRONIC MODULE ASSEMBLY	16/133,411 17-Sep-2018	11135669 05-Oct-2021
RF Amplifier Package with Biasing Strip (IFX)	16/135,163 19-Sep-2018	10651168 12-May-2020
Transistor Structures Having a Deep Recessed P+ Junction and Methods for Making Same	16/148,214 01-Oct-2018	10886396 05-Jan-2021
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High Electron Mobility Transistors Having Improved Drain Current Drift and/or Leakage Current Performance	16/238,853 03-Jan-2019	10937873 02-Mar-2021
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Methods and Apparatuses Related to Shaping Wafers Fabricated by Ion Implantation	16/269,837	07-Feb-2019
Carrier-Assisted Method for Parting Crystalline Material Along Laser Damage Region	16/274,045	12-Feb-2019
Laser-Assisted Method for Parting Crystalline Material	16/274,064	12-Feb-2019
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Power Semiconductor Devices Having Top-side Metallization Structures that Include Buried Grain Stop Layers	16/353,313	14-Mar-2019
Structures for reducing electron concentration and process for reducing electron concentration	16356234	2019-03-18
HIGH VOLTAGE POWER MODULE	16360333	2019-03-21
Group III-nitride high-electron mobility transistors with buried p-type layers and process for making the same	16376596	2019-04-05
Transistor Semiconductor Die with Increased Active Area	16/381,629	11-Apr-2019
High power transistor with interior-fed fingers	16393280	2019-04-24
Semiconductor Die with Improved Ruggedness	16/400,109	01-May-2019
LASER-ASSISTED METHOD FOR PARTING CRYSTALLINE MATERIAL	16410487	2019-05-13
Power Semiconductor Devices Having Reflowed Inter-Metal Dielectric Layers	16/413,921	16-May-2019
Silicon Carbide Wafers with Relaxed Positive Bow and Related Methods	16/415,721	17-May-2019
High reliability semiconductor devices and methods of fabricating the same	16421824	2019-05-24
Methods for dicing semiconductor wafers and semiconductor devices made by the methods	16440063	2019-06-13
High Electron Mobility Transistors Having Improved Contact Spacing and/or Improved Contact Vias	16440427	13-Jun-2019
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Device design for short-circuit protection circuitry within transistors	16448538 2019-06-21	11579645 2023-02-14
Composite-channel high electron mobility transistor	16451817 2019-06-25	11276765 2022-03-15
Depletion mode semiconductor devices including current dependent resistance	16502771 2019-07-03	11244831 2022-02-08
Hybrid power module	16504908 2019-07-08	11057033 2021-07-06
Overcurrent protection for power transistors	16524726 2019-07-29	11139810 2021-10-05
Power Silicon Carbide Based MOSFET Transistors with Improved short Circuit Capabilities and Methods of Marking Such Devices	16538229 12-Aug-2019	11164967 02-Nov-2021
Contact and Die Attach Metallization for Silicon Carbide Based Devices and Related Methods of Sputtering Eutectic Alloys	16548241 22-Aug-2019	11152325 19-Oct-2021
Multi-cavity package having single metal flange	16589624 2019-10-01	11437362 2022-09-06
High Power Transistor with Interior-Fed Gate Fingers	16596240 08-Oct-2019	10748996 18-Aug-2020
Systems and processes for increasing semiconductor device reliability	16597224 2019-10-09	11289441 2022-03-29
Semiconductor device with improved short circuit withstand time and methods for manufacturing the same	16598646 2019-10-10	11309413 2022-04-19
Stepped field plates with proximity to conduction channel and related fabrication methods	16600825 2019-10-14	11075271 2021-07-27
High power multilayer module having low inductance and fast switching for paralleling power devices	16658630 2019-10-21	10917992 2021-02-09
Power module having pin fins	29710592 2019-10-24	D942403 2022-02-01
Passivation structure for semiconductor devices	16681044 2019-11-12	RE49167 2022-08-09
Semiconductors with improved thermal budget and process of making semiconductors with improved thermal budget	16688344 2019-11-19	11658233 2023-05-23
Semiconductors Having Die Pads with Environmental Protection and Process of Making Semiconductors Having Die Pads with Environmental Protection	16704644 05-Dec-2019	(20210175138)
Methods and Systems for Matching Both Dynamic and Static Parameters in Dies, Discretes, and/or Modules, and Methods and Systems Based on the Same	16706028 2019-12-06	(20210175214)

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Stabilized, high-doped silicon carbide	16751246 2020-01-24	11371163 2022-06-28
Dislocation distribution for silicon carbide crystalline materials	16775407 2020-01-29	11519098 2022-12-06
Silicon carbide wafers with relaxed positive bow and related methods	16784311 2020-02-07	11034056 2021-06-15
High Speed, Efficient SiC Power Module	16784857 07-Feb-2020	(20200177079)
Laser-assisted method for parting crystalline material	16792261 2020-02-16	11219966 2022-01-11
Vertical semiconductor device with improved ruggedness	16801260 2020-02-26	11417760 2022-08-16
Alignment for wafer images	16804776 2020-02-28	11361454 2022-06-14
Semiconductor Die with Improved Edge Termination	16806489 02-Mar-2020	(20210273090)
System and Process for Implementing Accelerated Test Conditions for High Voltage Lifetime Evaluation of Semiconductor Power Devices	16806754 02-Mar-2020	11175333 16-Nov-2021
Power Switching Devices with DV/DT Capability and Methods of Making Such Devices	16811526 06-Mar-2020	11184001 23-Nov-2021
POWER SEMICONDUCTOR PACKAGE WITH IMPROVED PERFORMANCE	16832918 2020-03-27	(20210305166)
Power semiconductor package	29730568 2020-04-06	D937231 2021-11-30
High Speed, Efficient SiC Power Module	16851197 17-Apr-2020	(20200244164)
Semiconductor power devices having gate dielectric layers with improved breakdown characteristics and methods of forming such devices	16854959 2020-04-22	11222955 2022-01-11
Interface layer control methods for semiconductor power devices and semiconductor devices formed thereof	16855161 2020-04-22	11276762 2022-03-15
DIFFUSION AND/OR ENHANCEMENT LAYERS FOR ELECTRICAL CONTACT REGIONS	16863642 2020-04-30	(20210343847)
Trenched power device with segmented trench and shielding	16863399 2020-04-30	11563080 2023-01-24
CONDUCTION ENHANCEMENT LAYERS FOR ELECTRICAL CONTACT REGIONS IN POWER DEVICES	16863797 2020-04-30	(20210343708)

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Integrated circuit having die attach materials with channels and process of implementing the same	16868639 2020-05-07	11424177 2022-08-23
Group III-Nitride High-Electron Mobility Transistors Configured with Recessed Source and/or Drain Contacts for Reduced on State Resistance and Process for Implementing the Same	16876752 18-May-2020	(20210359118)
High Power Multilayer Module Having Low Inductance and Fast Switching for Paralleling Power Devices	16890503 02-Jun-2020	(20200304037)
Contact Structures for Semiconductor Devices	16889981 02-Jun-2020	11282927 22-Mar-2022
Semiconductor power devices having graded lateral doping in the source region	16892604 2020-06-04	11282951 2022-03-22
POWER DEVICES WITH A HYBRID GATE STRUCTURE	16907163 2020-06-19	(20210399128)
Laser-Assisted method for Parting Crystalline Metarial	16909299 23-Jun-2020	(20200316724)
Power semiconductor devices having multilayer gate dielectric layers that include an etch stop/field control layer and methods of forming such devices	16922192 2020-07-07	11563101 2023-01-24
High Voltage Power Module	16936552 23-Jul-2020	11206740 21-Dec-2021
POWER MODULE	16937857 2020-07-24	(20210313243)
Vertical semiconductor device with improved ruggedness	16938032 2020-07-24	11489069 2022-11-01
SHIELDING ARRANGEMENTS FOR TRANSFORMER STRUCTURES	16942082 2020-07-29	(20220037080)
Sidewall Dopant Shielding Methods and Approaches for Trenched Semiconductor Device Structures	16993680 14-Aug-2020	(20220052152)
POWER SILICON CARBIDE BASED SEMICONDUCTOR DEVICES WITH IMPROVED SHORT CIRCUIT CAPABILITIES AND METHODS OF MAKING SUCH DEVICES	17004531 2020-08-27	(20220069138)
PACKAGING FOR RF TRANSISTOR AMPLIFIERS	17018721 2020-09-11	(20220084950)
Trench bottom shielding methods and approaches for trenched semiconductor device structures	17018305 2020-09-11	11355630 2022-06-07
Edge termination structures for semiconductor devices	17031365 2020-09-24	11600724 2023-03-07

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		11574859 2023-02-07
ELECTRONIC DEVICE PACKAGES WITH INTERNAL MOISTURE BARRIERS	17078456	2020-10-23
		(20220130773)
Vertical Power Transistor Device	17080062	26-Oct-2020
Power semiconductor devices including a trench gate and methods of forming such devices	17080956	2020-10-27
		11640990 2023-05-02
Field effect transistor with at least partially recessed field plate	17081476	2020-10-27
		11502178 2022-11-15
Gate trench power semiconductor devices having improved deep shield connection patterns	17082647	2020-10-28
		11610991 2023-03-21
Semiconductor die with improved ruggedness	17083712	2020-10-29
		11587842 2023-02-21
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		(20210351121)
TRANSISTOR PACKAGES WITH IMPROVED DIE ATTACH	17085386	2020-10-30
		(20220139852)
PROTECTION STRUCTURES FOR SEMICONDUCTOR DEVICES WITH SENSOR ARRANGEMENTS	17087740	2020-11-03
		(20220140138)
PASSIVATION STRUCTURES FOR SEMICONDUCTOR DEVICES	17088686	2020-11-04
		(20220140132)
POWER SEMICONDUCTOR DEVICES WITH IMPROVED OVERCOAT ADHESION AND/OR PROTECTION	17088647	2020-11-04
		(20220139793)
Power module	29757360	2020-11-05
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GATE TRENCH POWER SEMICONDUCTOR DEVICES HAVING IMPROVED DEEP SHIELD CONNECTION PATTERNS	17092923	2020-11-09
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SEMICONDUCTOR DEVICES INCLUDING AN OFFSET METAL TO POLYSILICON GATE CONTACT	17096147	2020-11-12
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Semiconductor power devices having multiple gate trenches and methods of forming such devices	17097617	2020-11-13
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PACKAGED RF POWER DEVICE WITH PCB ROUTING	17097294	2020-11-13
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Methods and Apparatuses Related to Shaping Wafers Fabricated by Ion Implantation	16950414	17-Nov-2020
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Power Semiconductor Deices Having Gate Trenches and Buried Edge Terminations and Related Methods	16952757 19-Nov-2020	(20210098568)
Methods and Systems for Component Analysis, Sorting, and Sequencing Based on Component Parameters and Devices Utilizing the Methods and Systems	17101888 23-Nov-2020	(20220165627)
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Power Transistor with Soft Recovery Body Diode	17110027 02-Dec-2020	(20220173237)
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LARGE DIMENSION SILICON CARBIDE SINGLE CRYSTALLINE MATERIALS WITH REDUCED CRYSTALLOGRAPHIC STRESS	17121863 2020-12-15	(20220189768)
Group III-Nitride High-Electron Mobility Transistors with Buried P-Type Layers and Process for Making the Same	17123727 2020-12-16	<u>(20210104623)</u>
LARGE DIAMETER SILICON CARBIDE WAFERS	17124810 2020-12-17	(20210198804)
PROCESS, SYSTEM, AND DEVICE FOR DETERMINING A RELATED PRODUCTP	17138193 2020-12-30	<u>(20220207464)</u>
RADIO FREQUENCY TRANSISTOR AMPLIFIERS HAVING WIDENED AND/OR ASYMMETRIC SOURCE/DRAIN REGIONS FOR IMPROVED ON-RESISTANCE PERFORMANCE	17144346 2021-01-08	(20220223700)
DEVICES INCORPORATING STACKED BONDS AND METHODS OF FORMING THE SAME	17145794 2021-01-11	(20220223559)
High electron mobility transistors having improved drain current drift and/or leakage current performance	1717148688 2021-01-14	11355600 2022-06-07
High power multilayer module having low inductance and fast switching for paralleling power devices	17149815 2021-01-15	11445630 2022-09-13
PACKAGED ELECTRONIC DEVICES HAVING DIELECTRIC SUBSTRATES WITH THERMALLY CONDUCTIVE ADHESIVE LAYERS	17159925 2021-01-27	<u>(20220238426)</u>
GROUP III-NITRIDE HIGH-ELECTRON MOBILITY TRANSISTORS WITH GATE CONNECTED BURIED P-TYPE LAYERS AND PROCESS FOR MAKING THE SAME	17172669 2021-02-10	(20210167199)
Gate Trench Power Semiconductor Devices Having Improved Deep Shield Connection patterns	17172481 10-Feb-2021	(20220130997)
POWER SEMICONDUCTOR DEVICE WITH REDUCED STRAIN	17177641 2021-02-17	(20220262909)

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Integrated power module	17178435 2021-02-18	11569174 2023-01-31
Silicon carbide wafers with relaxed positive bow and related methods	17178532 2021-02-18	11654596 2023-05-23
Semiconductor devices having gate resistors with low variation in resistance values	17188329 2021-03-01	11664436 2023-05-30
WIDE BANDGAP SEMICONDUCTOR DEVICE WITH SENSOR ELEMENT	17201468 2021-03-15	(20210202341)
Feature Enhancements for Improved partial Discharge Performance of Medium - and High-Voltage Power Modules	17207223 19-Mar-2021	(20220302014)
POWER TRANSISTOR WITH SOFT RECOVERY BODY DIODE	17208271 2021-03-22	(20220173238)
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Circuits and Group III-Nitride High-Electron Mobility Transistors with Buried P-Type Layers Improving Overload Recovery and Process for Implementing the Same	17321992 17-May-2021	(20220367696)
FIELD EFFECT TRANSISTOR WITH SOURCE-CONNECTED FIELD PLATE	17325666 2021-05-20	(20220130965)
FIELD EFFECT TRANSISTOR WITH SELECTIVE MODIFIED ACCESS REGIONS	17325643 2021-05-20	(20220376098)

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MULTILAYER ENCAPSULATION FOR HUMIDITY ROBUSTNESS AND RELATED FABRICATION METHODS	17335796 2021-06-01	<u>(20220384366)</u>
DEVICE AND PROCESS FOR FAULT DETECTION OF A POWER DEVICE	17341942 08-Jun-2021	(20220393460)
REDUCED OPTICAL ABSORPTION FOR SILICON CARBIDE CRYSTALLINE MATERIALS	17350100 2021-06-17	(20220403552)
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POWER SEMICONDUCTOR DIE WITH IMPROVED THERMAL PERFORMANCE	17357103 2021-06-24	(20220416077)
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TRANSISTOR SEMICONDUCTOR DIE WITH INCREASED ACTIVE AREA	17501244 2021-10-14	(20220037524)
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High Power Multilayer Module Having Low Inductance And Fast Switching For Paralleling Power Devices	17859449	2022-07-07
Multi-Cavity Package Having Single Metal Flange	17867801	2022-07-19
Electronic Devices With Reduced Ohmic To Ohmic Dimensions	17893277	23-Aug-2022
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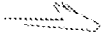
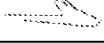


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Power Electronics Package Layouts, Structures, And/Or Configurations For One Or More Power Devices And Processes Implementing The Same	18145502 22-Dec-2022	
Gate Trench Power Semiconductor Devices Having Self-Aligned Trench Shielding Regions And Related Methods	18093343 05-Jan-2023	
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Mofets With Implanted Charge Compensation Regions	63466479 15-May-2023	

Schedule II
to Notice of Grant of Security Interest in Trademarks

Trademarks Owned by Wolfspeed, Inc.

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