

Products and Solutions



Transient Voltage Suppressors

Motor Controllers

Solid State Power Controller Solutions

QPL Product: JANTXV/JANS, JANHC/JANKC

High Power Prime Rectification

High-Reliability Discretes

Space Level Solutions

Custom Hybrids

Power Modules

OUR VISION

Utilize our strong, proven technical expertise in power product design, development & manufacturing.

Position ourselves as the first choice solution provider in power management and control.

Utilize the natural synergy between all of our product areas and technological capabilities to give our customers exceptional quality, service and delivery at competitive prices.

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YOUR POWER SOLUTIONS PROVIDER

SENSITRON OFFERS PROVEN SOLUTIONS FOR TOUGH REQUIREMENTS

Sensitron has over 50 years of heritage as a leading manufacturer of high reliability power electronic component solutions for the Defense, Aerospace, Space, and Medical markets. Our products provide rugged, light-weight, and cost effective solutions for switching power supplies, AC-DC rectification, primary & secondary power distribution, motion control, transient voltage spike protection, and custom applications. Sensitron has a complete staff of engineers whose specialties include electrical and mechanical design, material science expertise, packaging, and testing. From engineering design to finished product, we can provide your application with innovative product to meet your power system requirements.

Sensitron is a privately held small business company, founded in 1969 with corporate headquarters located in Hauppauge, New York with worldwide sales and distribution support.

SENSITRON IS CERTIFIED TO MIL-PRF-38534, CLASS H AND CLASS K, FOR HYBRID MICROELECTRONICS, MIL-PRF-19500 FOR JANTX, JANTXV AND JANS DISCRETE DIODES, AND REGISTERED TO AS9100 AND ISO9001:2008



HAUPPAUGE, NY



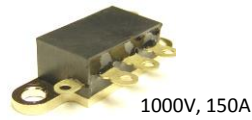
DEER PARK, NY

High Power Prime Power Rectification



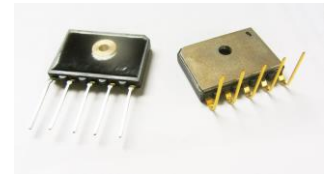
High Power 3 Phase Bridges

- Operating temp range: -55°C to +150°C
- Low thermal impedance
- High performance packaging
- Wide current and voltage range available
- Multiple baseplate options
- Hermetic or non-hermetic
- Designed for high altitude applications
- Optional fuse links and TVS



Three Phase Full Wave Bridge Rectifiers, SBR Series

- High voltage: available up to 1400V
- Current range from 45A to 250A
- Designed for harsh environments and wide temperature range (-65°C to 150°C)
- 1.5kV to 2.5kV AC isolation to baseplate
- Low VF, low thermal impedance, direct mount to heatsink
- Light weight, designed for commercial aircraft applications
- Extreme temp cycling capability



P/N	PIV @ 25 (V)	I _o (A)	V _F (V)	I _{FSM} (A)	R _{BJC} (C/W ⁰ C)
SBR1001	1200 V	45 A	1.4 V	300 A	4.00
SBR1002	1200 V	45 A	1.9 V	700 A	4.00
SBR1002A	1400 V	45 A	1.9 V	700 A	4.00
SBR1003	1200 V	200 A	1.8 V	400 A	0.18
SBR1004/A	1000 V	190 A	1.1 V	1500 A	0.85
SBR1005	1200 V	55 A	1.25 V	1000 A	1.00
SBR1006/A	1200 V	190 A	1.2 V	1500 A	0.40
SBR1007	1200 V	360 A	1.2 V	2800 A	0.20

Power Rectifier Bridges

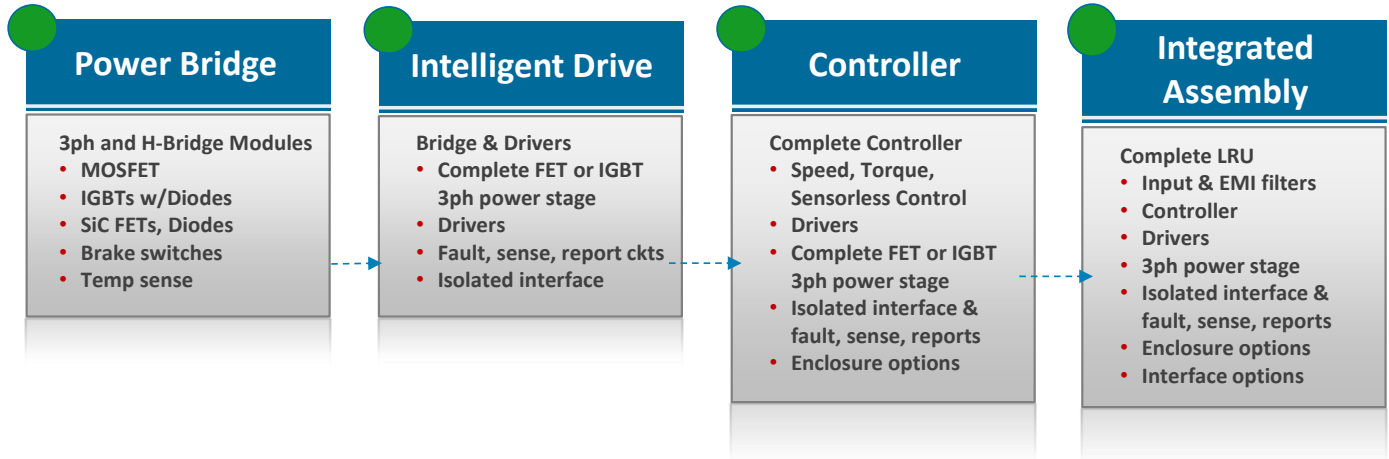
- High reliability single phase and three phase power rectifier bridge assemblies available up to 1200V
- Ultrafast (<100ns), Fast (100-500ns), and General Purpose (>500ns) available
- Available with diodes screened to JANTX level (100 % screening & Group A only)
- Low reverse leakage current
- Electrically isolated mounting
- Hermetic or non-hermetic
- *Contact factory for different voltage, current, and package options*



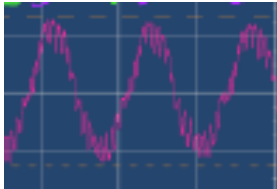
PRODUCT OFFERING:

- CUSTOM 3-PHASE BRIDGES
- INDUSTRY STANDARD 3-PHASE BRIDGES
- SINGLE PHASE BRIDGES
- DUAL DIODE ASSEMBLIES
 - COMMON ANODE
 - COMMON CATHODE
 - DOUBLER

Scalable Motor Control Solutions



Fully Integrated BLDC Motor Controllers



3Ph Digital Motor Controllers, **SMCV & SECV Series**

- 20A to 100A, 100V to 1200V
- Field oriented control for smoother torque at low speed, better efficiency at high speed
- Near sinusoidal phase current for lower noise, smoother torque
- Program for speed, torque or sensorless control
- Top speed over 70,000 RPM (4 pole)
- Easy to use GUI Configuration Utility
- Interface by RS-232 or CAN
- Reconfigurable firmware



Fully Integrated Analog 3Ph BLDC Motor Controllers

SMC6, SMCT6, SMCS6 Series

- Designed for applications starting from 800W
- Up to 1200V, 150A
- Hermetic & non-hermetic available
- Speed, sensorless & torque controllers

Low Cost, High Power Density Controller Open Frame Configuration

- Low cost, open module construction
- High power density, ~2KW per oz.
- Available in 600V/20A, 100V/80A
- Full load efficiency above 95%
- Single supply
- Lightweight. easy connections
- Package size: 2.5" x 2.1" x 0.65", 1oz total weight

Evaluation Boards for Motor Controllers

- Provides the controller module with easy connections, input caps & more
- Options for resolver, brake switch
- Connections for hall sensor inputs
- Allows customer to evaluate controllers easily, or to support rapid prototype/system development testing ahead of production

Motor Controllers, Modules & Assemblies



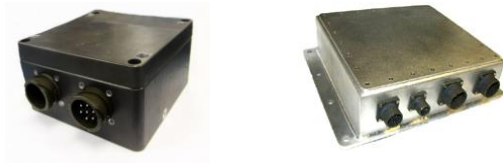
Lightweight Three Phase (IGBT or MOSFET) Power Bridge Modules, **SPx10xx Series**

- Lightweight, fully isolated package
- Si or SiC
- High voltage up to 1200V, 15A to 150A
- Designed for harsh environments and wide temperature range (-65°C to 175°C)
- Available with high performance baseless format, or with a choice of baseplate materials



Three Phase IGBT Bridge with Brake IGBT, 3Ph Half Controlled Bridge with Inrush SCR, **SCM1001**

- 1,200V, 150A, three-phase IGBT bridge
- 1,200V, 57A SCR Half-Controlled Bridge with 63A diodes
- Upper and lower regenerative brake IGBT switch
- Next generation IGBT and diodes to minimize total losses
- AISiC base plate for high temperature cycling capability
- Low profile, light weight package, near-hermetic construction



SECV Motor Control Boxes/Enclosures

- IP/NEMA enclosures or open frame available
- Input and MIL-STD-461/DO-16 EMI filters
- Digital controller provides:
 - FOC w/Space Vector PWM
 - Reconfigurable firmware
 - Sensor (hall or resolver), sensorless, or torque control
 - Serial digital interface for control and monitoring
- Contact factory for analog controller options



3Ph BLDC Motor Controller in Open Frame Assembly

- Includes all features of the SMC or SMCV Series, plus:
- Small package: 3.84" x 4.19" max x 1.74" max
 - Light weight: 20 oz.
 - Overvoltage and under-voltage shutdown
 - EMI filter to DO-160 & aux power supply
 - Intended for UAV, aircraft and military applications
 - Rugged design intended to drive fans, pumps, compressors



Intelligent Power Modules **SPM6 Series**

- MOSFETs: 100V to 600V, Up to 150A
- IGBTs: 600V to 1200V, Up to 140A
- Most have isolated signal I/O
- Most report baseplate temp & current
- Most have overtemp, overcurrent, and de-saturation protection
- -40°C to 150°C operating



3-Ph IGBT Bridge w/ Gate Driver **SBM Series**

- IGBTs: 600 to 1200V, Up to 250A
- Overtemperature, UVLO, and desaturation protection
- 2500V isolation to baseplate
- -40°C to 150°C operating



High Power Half-Bridge IGBT Module, **SCP-5115i**

- 600V, 1200A
- IGBTs and diodes
- Creepage & clearance for altitude
- Minimized & matched stray inductances
- -55°C to 150°C
- Package size: 4.5" x 3.6"



Solid State Power Management



Applications/Markets:

- Military Ground Vehicles
- Unmanned Aerial Vehicles
- Marine Vessels
- Test & Industrial Equipment
- Communication & Command Centers
- Energy Exploration Equipment
- Off Highway and Heavy Duty Vehicles
- Medical Emergency Vehicles

Features/ Benefits

- ✓ Saves size and weight
- ✓ False trip and EMC Reduction
- ✓ Built-in test features
- ✓ Save weight and size compared to electromechanical designs
- ✓ Solid State Reliability
- ✓ True I²t and Instant Trip Protection
- ✓ Software and hardware current rating programmability
- ✓ Accurate Current, Temperature and Voltage Measurements
- ✓ Isolated Discrete or serial interface controls and load monitoring
- ✓ SSPC combine protection, remote control and health monitoring functionalities



Multi-Channel SSPC Enclosure Unit

- Support for return current wires
- 1 or 2 16-Channel cards
- 1 or 2 32-Channel cards
- Circular, rugged connectors
- Design and production capability
- Build-to-print capability



Multi-Channel SSPC
Diamondback Series, 16 Ch

- 16 programmable channels
- Paralleling of like channel groups
- 8x5A, 3x15A, 5x25A
- Up to 210A of total current
- CAN Interface (up to 1Mbaud) J1939
- Measurements include: output currents, input & output voltages, board temperature



Multi-Channel SSPC
Diamondback Series, 32 Ch

- 32 programmable channels
- Paralleling of like channel groups
- 8x8A, 12x7A, 12x6A, 32x10A
- Up to ~300A of total current
- CAN Interface (up to 1Mbaud) J1939
- Measurements include: output currents, input & output voltages, board temperature



Multi-Channel SSPC
Boa Series, 2 Ch, 4 Ch

- Highest current smart power module in the industry
- Two or Four Individual Channels Programmable to 100A, up to 200A with Channel Paralleling
- Total Current up to 400 amps
- 28VDC-derived auxiliary power
- J1939 CAN bus communications

Solid State Power Management



Single Channel SSPCs

- 5:1 programming range for 28V
- True I^2T with thermal memory
- No heat sinking or cooling required
- **SPDPXXD28 Series:** Up to 50A, 28V ultra small size, occupying ~57% of industry standard PCB space. Low weight, 30 grams (~1.1 oz)
- **SPDPXXD270 & SPDPXXD375:** Up to 50A, 270V & 375V high voltage modules. Low weight, 40 grams (1.4 oz)
- **SRPC/SPDC Series:** Up to 150A, 28V extremely low power loss



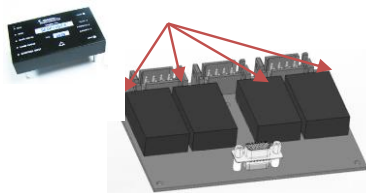
Small Footprint DC Solid State Relay SSR Contactor, **SSR Series**

- 2kV isolation control input to output / output to baseplate
- Up to 1200V blocking, up to 100A continuous current
- Up to 400A surge capability
- Single wide range control signal 4.6V to 36V
- Low power control, 0.5W typ. and low "on" state resistance
- Fast turn on/turn off
- High current terminals and three point mounting plate
- $R_{\theta JC} \leq 1.15^\circ\text{C/W}$
- Small package: 1.4" x 2.6" x .5"



AC Solid State Relay/Contactor: **SCP-5285**

- 1600 Volts / 75 Amps, 800Apk surge
- ZVS turn on reduces EMC issues
- Crosses to industry standard products
- Back-to-back SCR output
- Panel mount with screw terminals for easy assembly
- -55°C to +85°C operating



Integrated Carrier Boards

- Up to four loads and total board current of 120A
- Configurable mix of 10, 20, 30 and 40A devices
- On-board current rating programmability
- Integrated 5V auxiliary power supply
- High current bus bar system for low loss optimal current routing



170Vdc/ 115VAC Module: **SPD8A115**

- 115VAC, 8A
- True I^2t instant trip protection
- 2-pole operation with 500V isolation between poles
- Small footprint epoxy shell construction
- Cross-trip, overtemp, TVS protection

High Power Lightning Strike Protection



Applications:

- Power Bus Protection
- Flight Control
- Compressor Protection
- Engine Compartment
- Power Generator

Compliances:

- DO-160 Sec 22, Levels 4 & 5, Waveform 5A & 5B
- Exceeds MIL-STD-1275
- Exceeds MIL-STD-1399
- MIL-STD-2036
- Exceeds MIL-STD704/A and DOD-STD-1399

High Power Lightning Strike Protection (Levels 4 & 5)

- Lightning strike protection for 28V, that handles peak power with margin
- DO-160 Section 22, Level 4 & 5, Waveform 5A & 5B compliant
- 100% tested to 1600A peak current (Level 5), 100% tested to 750A peak current (Level 4)
- Superior clamping performance

Package Types:



"A"= Thru Hole



"B"= Gull Wing



"BL"= Low Profile

Type	Config	Peak Pwr 50u/500us	Min V _{rwm}	Leakage Max @V _{rwm}	Min V _{br}	I _{ppm}	Max Vclamp @Ippm	100% Tested to DO-160 Req
LSP15x-1600-17*	Bi	39kW	15V	1uA	17.6V	1600A	24.4V	Level 5, Waveform 5B
LSP15x-1600-17U	Uni	39kW	15V	1 uA	17.6V	1600A	24.4V	Level 5, Waveform 5B
LSP28x-1600-41	Bi	100kW	36V	30 uA	41V	1600A	60V	Level 5, Waveform 5B
LSP28x-1600-82	Bi	200kW	72V	30 uA	82V	1600A	120V	Level 5, Waveform 5B
LSP28x-750-80U*	Uni	72kW	66V	60 uA	78V	750A	102V	Level 4, Waveform 5B
LSP28x-750-80*	Bi	72kW	66V	60 uA	78V	750A	102V	Level 4, Waveform 5B
LSP28x-750-39U*	Uni	37kW	33V	30 uA	39V	750A	51V	Level 4, Waveform 5B
LSP28x-750-39*	Bi	37kW	33V	30 uA	39V	750A	51V	Level 4, Waveform 5B
LSP28C-20K-37	Bi	1.3MW@6.5us	33V	30 uA	36.7V	20,000A	65/60V	Level 5, Waveform 5B
LSP52x-1100-60	Bi	100kW	52V	30 uA	60V	1100A	90V	1100A, Waveform 5B
LSP52x-1600-60	Bi	137kW	52V	30 uA	60V	1600A	90V	Level 5, Waveform 5B

Lightning Strike Protection for High Power Primary LSP Protection Applications, LSP28C-20K-37

- For induced lightning current spec having 1.3MW peak power, 20kA Ipk, 6.5us waveform with 2kA tail for another 50us
- Low inductance, low resistance for the lowest clamping voltage
- Lower height threaded insert connection
- Designed to meet RTCA/DO-160G, Section 16, Category B



High Power Transient Voltage Suppressors

The Sensitron Advantage: No power consumption under clamping voltage threshold, no power interruption, high pulse power capability, low cost & small size. Proven solutions for tough environments– 100 % surge testing!

Vehicle Power Surge Protection

MIL-STD-1275 Compliant Transorb, SCP-5282-x Series

- 28V power system transient protection including load dump
- Clamping below 40V DC for both 100V and 250V pulse
- Power savings by allowing lower voltage device ratings
- 100% production tested to meet MIL-STD-1275 test method
- **SuperClamp TVS, SCP-5282-4, SCP-5282-9**
 - Clamps to under 33V at 100A, or under 32V at 50A
 - Clamping is independent of temperature
 - 100% tested to single pulse of 100A for 100ms

MIL-STD-1275 SuperClamp Enclosure , SECPx-5282-x

- Up to 3 SuplerClamp devices in parallel
- Clamping below 40V DC for 40V, 100V, and 250V pulses
- High pulse power capability up to 300A
- Precision clamping
- Aluminum IP-67 Enclosure with pressure equalizing vent
- Chassis mountable for heat sinking
- Enables injected/emitted 1275 compliance

PN	Config	Peak Pwr 1ms	Vwm, Min	Leakage Max @Vwm	Vbr, Min	Ippm	Max Vclamp @ Ippm Max	100% Tested To:
* SuperClamp								
SCP-5282-1	Bi	60kW	33V	25 uA	36.7V	100A	49V	100A/80ms square
SCP-5282-1U	Uni	60kW	33V	25 uA	36.7V	100A	49V	100A/80ms square
SCP-5282-2	Bi	60kW	33V	25 uA	36.7V	100A	49V	5x 100A, 50ms sq
SCP-5282-3	Bi	100kW	33V	40 uA	36.7V	135A	49V	5x 110A, 50ms sq
SCP-5282-4*	Uni	100kW	33V	20mA	33.8V	150A	37.7V	120A/100ms
SCP-5282-5/ A	Uni	50kW	33V	250uA	36.7V	120A	43V/ 42V	120A/100ms
SCP-5282-6A/B	Bi	65kW	52V	30uA	60V	54A	77V	1275 waveform
SCP-5282-9*	Uni	10kW	30V	20mA	30.2	120A	33.5V	120A/100ms
SCP-5282-9A*	Uni	10kW	30V	4mA	30.2	120A	33.5V	120A/100ms



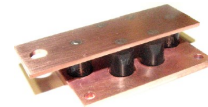
SAE Compliant Transorb 12V Protection for Military Vehicles, SAE-5282-12

- High pulse power transorb for +12 Vdc systems
- Clamping below 32Vdc for 100V pulse /142A peak current
- SAE J1113-11 compliant; 100V surge withstanding with 0.5 Ohm source impedance, 400 msec pulse
- Allows the use of 40V high efficiency FET
- Screw terminals, isolated base plate for mounting to chassis

PN	Config	Peak Pwr	Vwm, Min	Leakage Max Vwm	Vbr, Min	Ippm	Vclamp @ Ippmmax	100% Tested To:
SAE-5282-12	Uni	4kW/400ms	18V	250 uA	25.1V	142A	32V	J1113-11, 142A/400ms

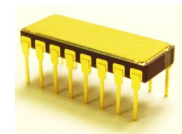
MIL-STD-1275 Transorb, SCP-1275

- Voltage transient protection / load dump function
- Clamping below 55V DC for both 100V and 250V pulse
- 100% production tested to Meet MIL-STD-1275 test method



Data Line Protection TVS & Diode Arrays, STB Series

- Low Capacitance, for use in high speed data lines
- 500W capability for 8/20 μs repetitive pulses, 100% tested
- Multi-channel hybrid saves board space
- Uni-directional or bi-directional
- Hermetic package
- 100% electrically tested for clamp performance



Space Level Solutions



Applications/Markets:

- Navigation and Guidance Systems
- Electrical Power System
- Solar Arrays
- Power Conditioning
- Satellites Power Distribution
- Orbit Control

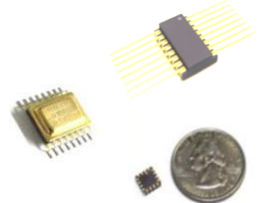
Schottky Rectifier Discretes

- Available voltages: 15V to 200V
- Ultra low leakage current for 100V & 150V
- 200°C process
- Low forward voltage drop
- Ceramic feedthroughs standard
- Drop in replacements for industry standard product in any package
- Available screened up to JANS equivalent

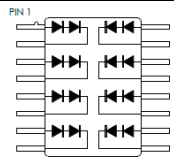


Space Diode Arrays, SDA Series

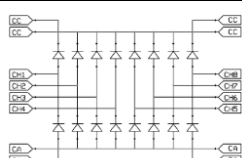
- Up to 400V, 1A space level diode array
- Devices are serialized
- Die manufactured on qualified JANS line
- Quality Conformance Inspection (QCI) in accordance with MIL-PRF-38534 is performed on each lot
- Add suffix "S" for screening per MIL-PRF-38534, Class H
- Add suffix "SS" for Space Level Screening per MIL-PRF-38534, Class K
- High density, smallest package in the industry



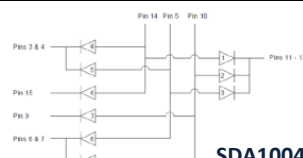
PN	Internal Diode	PIV	IR@V
SDA1001SS	Redundant 1N5806	300 V	1.0A @ 55°C / 0.75A@ 100°C
SDA1002SS	1N6638	150 V	0.30A@ 55°C / 0.16A@ 100°C
SDA1003SS	1N6642	100 V	0.30A@ 55°C / 0.16A@ 100°C
SDA1004SS w/ match	1N6642	75 V	0.05uA @20
SDA1005SS	1N6642	75 V	0.05uA @20
SDA1006SS	1N5615	200 V	0.3A@55°C
SDA1007SS	Redundant 1N5615	400 V	1.0A @ 55°C / 0.75A@ 100°
SDA1008SS	1N5806	150 V	1.0A @ 55°C / 0.75A@ 100°
SDA1009SS	1N5615	400 V	1.0A @ 55°C / 0.75A@ 100°



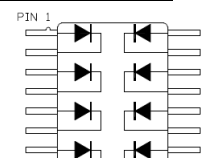
SDA1001SS
SDA1009SS



SDA1002SS
SDA1003SS



SDA1004SS



SDA1005SS
SDA1006SS
SDA1008SS

Space TVS Arrays, STB Series

- Low capacitance, 500W capability for 8/20 μs repetitive pulses, 100% tested for clamp performance
- 8 channel hybrid in a hermetic package, saves board space
- Solder temperature, 10s @260°C
- Add suffix "SS" for Space Level Screening per MIL-PRF-38534, Class K
- Protection Level: IEC 61000-4-2 ESD



Part Number	Protection	Peak Pulse Power	Standoff Voltage	Capacitance	Vclamp at	Weight
STB1001	Bidirectional	500 W	12 V	9 pF	1A, 5A	1 gm
STB1002	Unidirectional	500 W	24 V	9 pF	1A, 5A	1 gm
STB1003	Unidirectional	500 W	24 V	25 pF	1A, 10A	3 gm

QPL Product: JANTXV/JANS, JANHC/JANKC

The Sensitron Advantage:

- ✓ Sensitron has supplied Axial & MELF diodes to the space market for over 15 years.
- ✓ Sensitron is among the **largest suppliers** of Space Level Diodes, and has among the **largest portfolios** of Space Level Rectifiers, Zener Diodes, Transient Voltage Suppressors, and Switching Diodes in the world, having shipped over 3 million JANS and JANS-equivalent diodes to space applications.
- ✓ Qualified per JANTXV/JANS on twenty (20) MIL-PRF-19500 slash sheets, encompassing over 250 JANS part numbers, with more coming every quarter!
- ✓ Additional cost savings for our customer comes from our standard process flow:
 - All parts are Hot Solder Dipped, therefore there is no need to send Sensitron diodes to a third party plating house or to pay a manufacturer for “special plating services”
 - No tags are used to serialize our JANS components, eliminating the need for tag removal and cleaning
 - **These savings typically translate into a \$3 - \$7.00 price savings per device!**

BASE PART NUMBERS AVAILABLE TO JANTXV/JANS SCREENING (as indicated):

1N Part Numbers						SMT Type	Slash Sheet	Qual Level	Description
3595-1						US	241	JANS	Vf Controlled Diode
3611	3612	3613	3614	3957		None	228	JANTXV	1 Amp General Purpose Rectifier
3890/R	to	3893/R				None	304	JANS	20 Amp Fast Recovery Rectifier DO-4
4099-1	to	4120-1				UR-1	435	JANS	500mW Zener Diode
4245	4246	4247	4248	4249		None	286	JANTXV	1 Amp General Purpose Rectifier
4461	4467	to	4496			US	406	JANS	1.5W Zener Diode
4942	4944	4946	4947	4948		None	359	JANTXV	1 Amp Fast Recovery Rectifier
4958	to	4989				US	356	JANS	5W Zener Diode
5186	5187	5188	5190			None	424	JANTXV	3 Amp Fast Recovery Rectifier
5415	5416	5417	5418	5419	5420	US	411	JANS	3 Amp Fast Recovery Rectifier
5550	5551	5552	5553	5554		US	420	JANS	3 Amp General Purpose Rectifier
5555	to	5557				None	500	JANTXV	1500W Unipolar TVS DO-13
5614	5616	5618	5620	5622		US	427	JANS	1 Amp General Purpose Rectifier
5615	5617	5619	5621	5623		US	429	JANS	1 Amp Fast Recovery Rectifier
5635A	to	5661A				None	500	JANTXV	1500W Unipolar TVS DO-13
5802	5804	5806				US	477	JANS	1 Amp Ultrafast Rectifier
5807	5809	5811				US	477	JANS	3 Amp Ultrafast Rectifier
5812	5814	5816				None	478	JANS	20 Amp Ultrafast Rectifier DO-4
6041A	to	6067A				None	507	JANTXV	1500W Bi-directional TVS DO-13
6105A	to	6137A				US	516	JANS	500W Bi-directional TVS
6324	to	6351				US	533	JANS	500mW Zener Diode
6620	6621	6622	6623	6624	6625	U or US	585	JANS	1 Amp Ultrafast Rectifier
6626	6627	6628	6629	6630	6631	U or US	590	JANS	2 Amp Ultrafast Rectifier
6638	6642	6643				U & US	578	JANS	Small Signal Switching Diode
6639	6640	6641				US	609	JANS	Small Signal Switching Diode

QPL Die Product- JANHC/JANKC

- ✓ Sensitron is qualified on a number of JANHC and JANKC Switching, Zener, and Ultrafast Die Products
- ✓ Sensitron continues to expand our capacity in wafer fab, assembly and test, and continues to increase our ability to support your customers' needs for JAN qualified die and packaged products.

High Reliability Hermetic Discretes

Power Rectifier in a Dual Die Series Redundant Configuration



- Dual die design for fault tolerance
- Hermetic, non-cavity glass package
- Category I Metallurgically bonded
- Hot solder dipped finish
- SJ/SX/SV/SS screening available per equivalent flow of JAN/JX/JXV/JANS

1N5822DP Schottky Rectifier



- Rugged package and connections
- Copper termination's ability to flex eliminates strain and thermal fatigue
- MIL-PRF-19500 screening and QCI available
- Fits on 1N5822US footprint



SMD-0.2, 0.5 High Strength Package, Patented Design

- Sensitron patented rugged package design
- Enhanced temp/power cycling capability over standard SMD package
- Package and PCB Temperature cycling verification complete
- Lid to pad connection options



Power Rectifiers

- Miniature power surface mount package
- Low thermal resistance
- High current
- MIL-PRF-19500 Screening and QCI available



SiC Schottky Rectifiers & MOSFETs

- SiC Schottky Rectifiers: Up to 1200 V
- SiC Schottky MOSFETs: Up to 2500 V
- No recovery time or reverse recovery losses
- Mil/Space level screening options available
- Surface mount packages- diopak, LCC, etc
- Thru hole in TO-25x packages

High Reliability Hermetic Discretes and Assemblies

MOSFETS

- MOSFET Modules
 - 3 phase bridges
 - Full and half bridges
- N-Channel - P-Channel Discretes

IGBTs

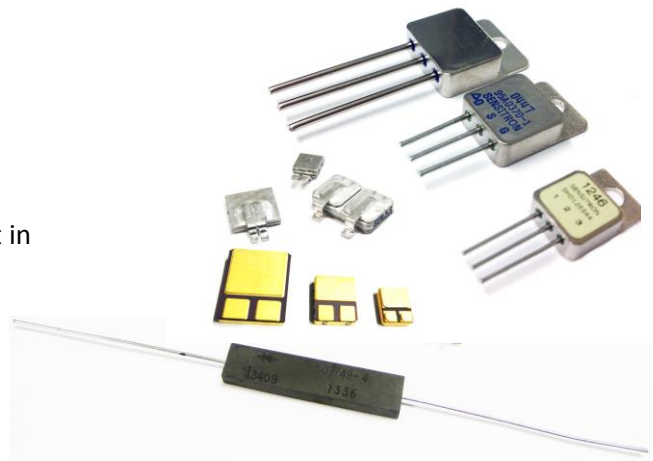
- IGBT Modules
 - 3 phase bridges
 - Full and half bridges
- IGBT Discretes

Schottky Rectifier Discretes

- Available Voltages: 15 to 200V
- Ultralow leakage current for 100 & 150V
- 200°C process
- Low forward voltage drop
- Drop in replacements for industry standard product in any package

DIODES

- Diode Array
- High Voltage Stack Diodes
- Rectifier Diodes
- Schottky Rectifier Diodes
- Small Signal Switching or Computer Diodes
- Transient Voltage Suppressors (TVS)
- Zener



Surface Mount			
Part Number	Volts	Amps	Package
SHD119568	15	45	SMD-1
SHD114668	15	120	SHD-3
SHD120211	30	15	SMD-0.5
SHD114611	30	120	SHD-3
75SLQ030	30	120	SHD-5
SHD176222	45	15	SHD-1High Profile
8EQ045	45	15	SMD-1
30SLJQ045	45	30	SMD-0.5
SHD119512	45	45	SMD-1
120LQ045	45	120	SHD-3
SHD114622	45	120	SHD-3 High Profile
75SLQ045	45	120	SHD-5
75SLQ060	60	75	SMD-1
SHD119513	60	75	SMD-1
SHD118513	60	120	SHD-5
SHD120244	100	15	SMD-0.5
5EQ100	100	15	SMD-1
SHD114544	100	60	SHD-3
120LQ100	100	120	SMD-1
SHD120245	150	15	SMD-0.5
30LJQ150	150	35	SMD-1
SHD119545	150	60	SMD-1

Thru-Hole			
Part Number	Volts	Amps	Package
SHD126268	15	15	TO-257
16SYQ030C	30	16	TO-257
35SGQ030	30	35	TO-254
SHD124611	30	45	TO-258
SHD125222	45	15	TO-254
10YQ045	45	15	TO-257
10YQ045C	45	15	TO-257
16YQ045C	45	16	TO-257
25GQ045	45	35	TO-254
35SGQ060	60	35	TO-254
SHD124623	60	45	TO-258
SHD125434	100	30	TO-254
22GQ100	100	45	TO-258
SHD124535	150	45	TO-258
SHD125246	200	15	TO-254
SHD124446	200	30	TO-258
SHD125536	200	35	TO-254

High Temperature Extreme Environment



Extreme Environment Capability:

- ✓ **Extreme Temperature:** -65°C to 250°C
- ✓ **Extreme Vibration:** up to 30G at up to 2000Hz
- ✓ **State-of-the-Art Technologies:** SiC, GaN, Si3N4, Ag Sintering
- ✓ **Packaging:** High Performance Ceramic (HPC), Advanced Engineering Polymers (AEP), Metal Matrix Composites (MMC), Package-in-Package (PiP)

Applications/Markets:

- Commercial Aircraft Engines
- Downhole Drilling/Exploration
- Harsh Environments
- High Temperature Applications

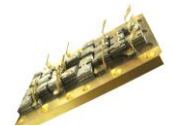
Rotating Rectifiers

- Designed to 27,500 RPM, Mechanical rigidity up to 35,000 RPM
- Max operating temperature: 175°C
- Max rating: 1000 V, 120 A
- Type of rectifier: Standard / Fast
- Environment: Compatible to oil and other airborne fluids
- Dimensions: Available in 1" to 4"



Oil Cooled and Air Cooled 3-Phase Rectifiers

- Excellent thermal performance
- Flexible design configuration (customizable terminals)
- High efficiency heat sink
- High power density



3.00" L x 2.00" W x 1.00" H
130°C Oil Cooled

High Temperature Brushless DC Motor Driver

- Three-phase brushless DC motor controller/driver subsystem housed in a compact power package
- Up to 7A motor peak current with up to 650VDC bus voltage, at operating case temperature of 175°C.
- Cycle by cycle current limiting

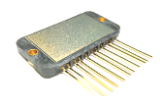


PN: SCP-6174

PN: SMC6G040-120-1H

Silicon Carbide Schottky Rectifier and Bridges

- Screening to to MIL-PRF-19500, TX, TXV or S-level available
- Rectifiers/Bridges:
 - Available in 600V & 1200V (single) and up to 2500V (Bridges)
 - Essentially zero forward and reverse recovery
 - Temperature independent switching behavior
- MOSFETs
 - 1200V up to 31A, TO-254, TO-257 and SMD-1 packages
 - Can operate up to 300°C and at frequencies in excess of 1MHz
 - Parallel SiC diode option for higher efficiency
 - Low Rds



Custom Hybrids – Integrated Assemblies

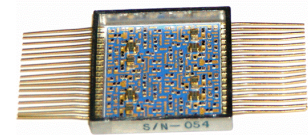


Features/Benefits:

- ✓ Superior thermal performance
- ✓ Flexible design configurations
- ✓ Various power device options
- ✓ High power density
- ✓ Best performance/space ratio over competing technologies
- ✓ Sophisticated advanced simulation and modeling tools with an R&D team

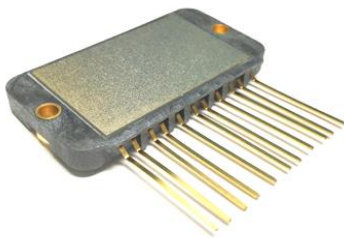
Sensitron is certified to MIL-PRF-38534 Class K and Class H

	Advanced	Traditional			
	Baseless Packaging Technology	Copper Baseplate	AISIC Baseplate	Aluminum Baseplate	IMS Technology (AI)
Thermal Performance					
Thermal resistance index	0.4	1.0	1.1	1.2	1.4
Max usable temperature	200°C	150°C	150°C	150°C	150 °C
Fatigue resistance	superior	fair	good	poor	excellent
Flatness (per inch)	<=0.003	>=0.005	N/A**	>= 0.005	>= 0.005
Cost factor	\$	\$\$\$\$	\$\$\$\$\$	\$\$\$	\$\$
Weight index	0.2	1.0	0.5	0.5	0.5
Typical package height (for a comparable module)	0.2 inch	0.325 inch	0.37 inch	0.325 inch	0.325 inch



Small Signal Hybrid

- Input Voltage: 12 Vdc max
- Float Voltage: 50 Vdc max
- Parallel redundant translator for satellite



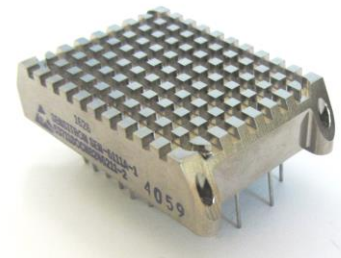
Ultrafast IGBT 3-Phase Bridge

- 600V, 16Amp
- Isolated base plate
- Aluminum nitride substrate
- Plastic shell and epoxy encapsulation



Half Bridge IGBT Module

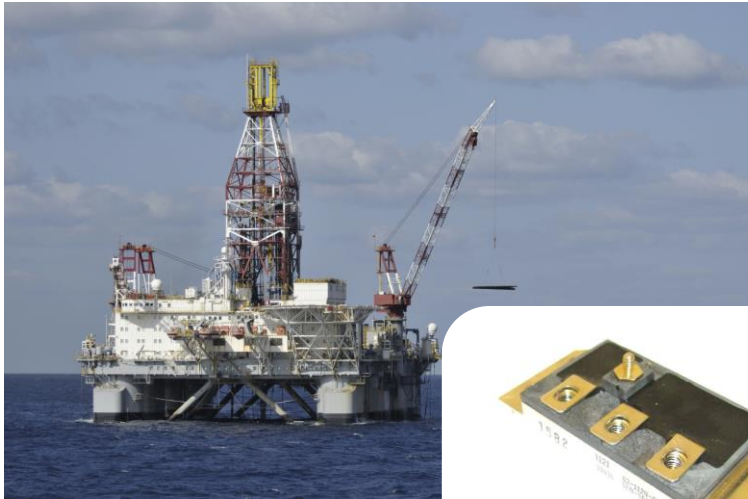
- 600V, 150Amp
- Molybdenum copper base plate
- Space qualified hermetic package
- MIL-PRF-38534 and MIL-STD-883 compliant



Half Bridge Motor Module

- 600V, 7Amp
- High transient power capability
- Very compact package
- High accuracy current monitor on both rails
- Versatile cooling solution

Power Conversion / Power Conditioning



Products

- SuperCap SPAF
- Power Conditioning Modules
- Linear Voltage Regulators
- HV Stacks
- HV Bridge Stacks



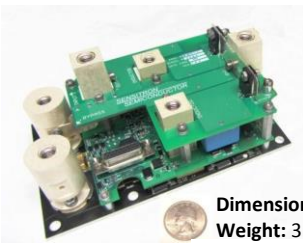
Diode Module

- Ceramic baseplate with plastic lid & epoxy
- 500A, 1200V
- -65°C to 175°C
- Withstands vibration from engine, 200g, 5 to 2000 Hz

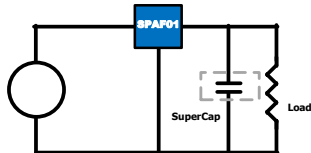
High Voltage Bridge Stacks, SHVB Series

- Compact, smaller footprint than competition
- Insulation resistance 10GΩ at 20kV
- Screening available
- Functional replacement for industry standard parts

Part	PIV	I _{o,ave}	I _{FSM}	R _{θjc}	t _{rr}
SHVB0115T	15kV	1A	25A	2.5C/W	60ns
SHVB0120T	20kV	1A	25A	2.5C/W	60ns
SHVB0220T	20kV	2A	80A	2C/W	75ns



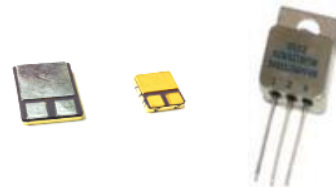
Dimensions: 6.60" x 4.00" x 2.64"
Weight: 3.85lb Max



Bi-directional Charge/Discharge Controller

SPAF Series

- 150A continuous rating
- Programmable current limit up to 150A max
- Bi-Directional
- No auxiliary power required
- Control & status over J1939 r CAN bus,
- Configurable isolated discrete control



Linear Voltage Regulators

- Fixed/Adj standard regulators
- Fixed/Adj LDO regulators
- Fixed/Adj ULDO regulators
- Ultra Low Noise regulators



Power Conditioning Module

- 400HZ, 3 phase 108V AC to 270Vdc
- Per MIL-STD-704
- EMI filter meets MIL-STD-461 PFC
- 500V, 100 joules active bus voltage clamping
- Isolated 28V, 28W auxiliary converter

Die Products: Rectifiers, TVS, Switching and Zener

JANKHC/JANKC Rectifier, Switching and Zener Diodes

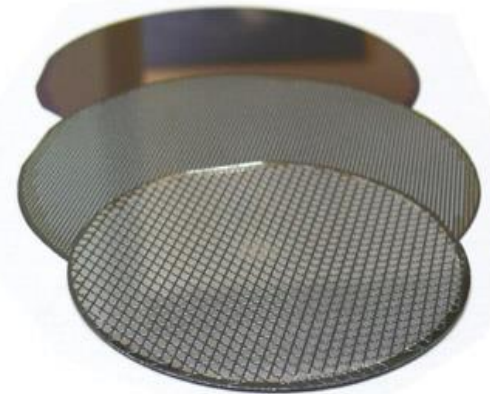
1N Part Number					Slash Sheet	Prefix, Qualified to	Description
757A	to	759A			127	JANHCD/JANKCD	500 mW Zener Diode
962B	to	992B			117	JANHCD/JANKCD	500 mW Zener Diode
3070					169	JANHCC/JANKCC	Small Signal Switching Diode
4148					116	JANHCC/JANKCC	Small Signal Switching Diode
5802	5804	5806			477	JANHCF/JANKCF	150 Volt Ultrafast Rectifier
5807	5809	5811			477	JANHCF/JANKCF	150 Volt Ultrafast Rectifier
6324	to	6351			533	JANHCB/JANKCB	500 mW Zener Diode
6638	6642	6643			578	JANHCD/JANKCD	Small Signal Switching Diode

Rectifier, TVS, Switching and Zener Diodes

- Manufactured on a MIL-STD-19500 JANS qualified line
- Metal options: aluminum, silver, gold. Custom thickness available.
- Moly tab assemblies for high current applications
- MIL-PRF-38534 or MIL-PRF-19500 Class H and K element evaluation

Die Services

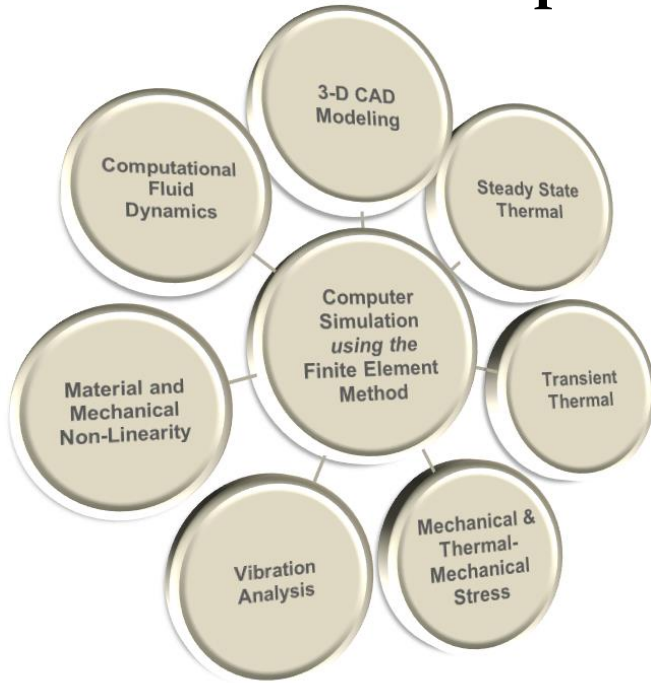
- MIL-STD-883 (or MIL-STD-750) Visual Inspection
- LAT/Element Evaluation Sample Preparation
- LAT/Element Evaluation Testing (Class H/Class K)
- Wafer Lot (or single wafer) traceability
- Molybdenum Tab/ Disc-Die-Disc Assembly
- Waffle packaging
- JANKC available



Part Number						Slash	Description	Die
1N3595-1						241	Vf Controlled	✓
1N3611	1N3612	1N3613	1N3614	1N3957		228	1A Std Recovery	✓
1N4099-1	to	1N4135-1				435	500mW Zener	✓
1N4148-1						116	Small Signal Switching	✓
1N4245	1N4246	1N4247	1N4248	1N4249		286	1A Std Recovery	✓
1N4460	to	1N4496				406	1.5W Zener	✓
1N4942	1N4944	1N4946	1N4947	1N4948		359	1A Fast Recovery	✓
1N4954	to	1N4996				356	5W Zener	✓
1N5186	1N5187	1N5188	1N5190			424	3A Fast Recovery	✓
1N5415	1N5416	1N5417	1N5418	1N5419	1N5420	411	3A Fast Recovery	✓
1N5550	1N5551	1N5552	1N5553	1N5554		420	3A Std Recovery	✓
1N5614	1N5616	1N5618	1N5620	1N5622		427	1A Std Recovery	✓
1N5615	1N5617	1N5619	1N5621	1N5623		429	1A Fast Recovery	✓
1N5711-1						444	Schottky	✓
1N5802	1N5804	1N5806	1N5807	1N5809	1N5811	477	3A Ultra Fast	✓
1N5819-1						586	1A/45V Schottky	✓
1N6102	to	1N6173A				516	500W/1500W Bi-directional TVS	✓
1N6309	to	1N6355				533	500mW Zener	✓
1N6620	1N6621	1N6622	1N6623	1N6624	1N6625	585	1A Ultra Fast Rectifier HV	✓
1N6626	1N6627	1N6628	1N6629	1N6630	1N6631	590	2A Ultra Fast Rectifier HV	✓
1N6638	1N6642					578	Small Signal Switching	✓
1N6639	1N6640	1N6641				609	Small Signal Switching	✓

** This list is for reference only. For a comprehensive list, view our catalog for download at: www.sensitron.com/dieproducts.htm

Product Development: Tools and Capability



Software Tools

- AutoCAD 2016
- Solidworks 2010
- Design Modeler
- ANSYS Mechanical v.17
- CFX v.17

Mathematical Tools

- MathCAD 14
- Visual Basic
- APDL
- C++
- Origin 8.1

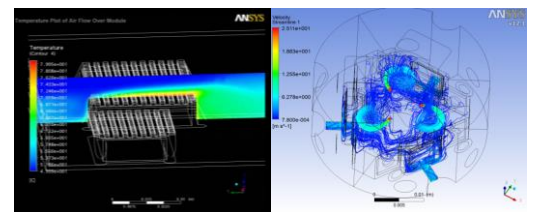
MTBF Computational Tool

- Relx Architect

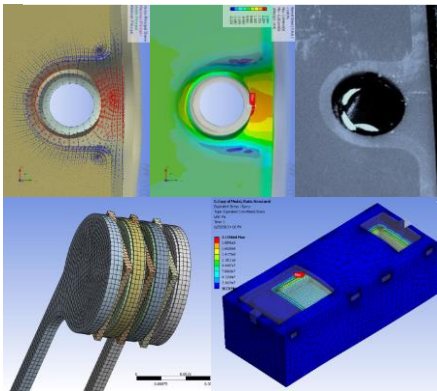
Rapid Prototyping Tool

- ZCorp 3D Plus

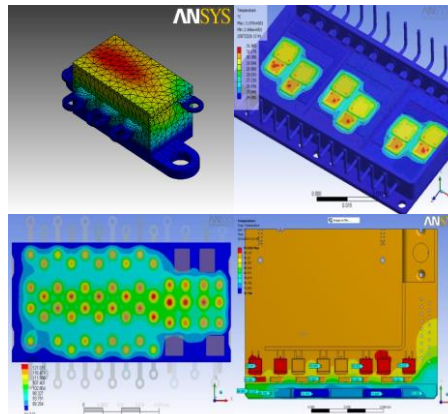
Computational Fluid Dynamics Simulation



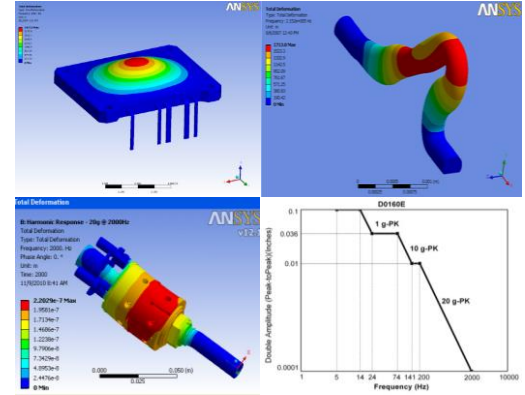
Mechanical Stress (Fracture, Yield, Fatigue)



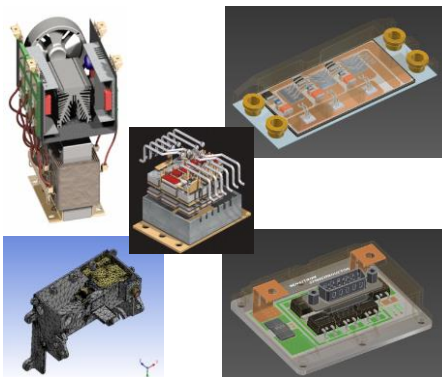
Thermal Simulation (Steady State or Transient)



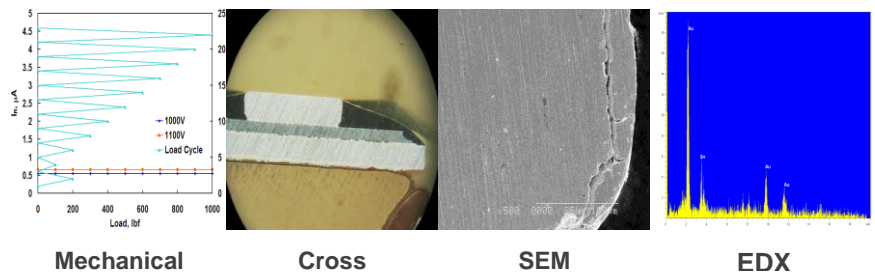
Vibration (Modal, Sine Sweep, or Random)



Complex 3D Modeling



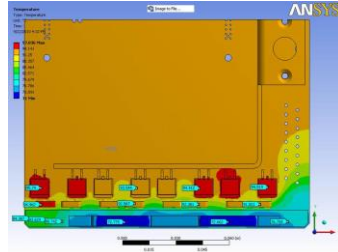
Material Characterization



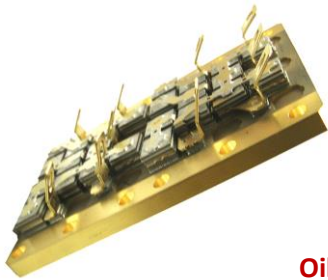
Innovations Using Advanced Tools and Analysis



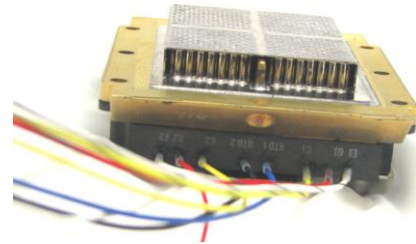
**Multi-Channel Solid State Power Controller:
Diamondback Series**
Conduction cooled card, carrying up to 210 A



Field Oriented Controller
Software controlled
Software configurable



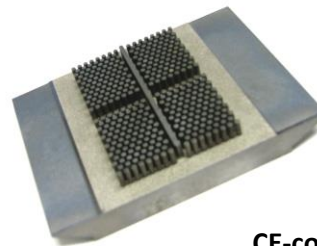
**Oil-Cooled 3 Phase Full Wave Bridge
Rectifier**
Self-locking threaded inserts
High efficiency heatsink



IGBT Module
Pin fin heatsink
Lightweight package



SiC FET Bridge
Lightweight design
Fully isolated packaged



IGBT Module
CE-controlled expansion
Integrated heatsink

From engineering design to finished product, our advanced simulation and modeling tools enable us to provide you with innovative product to meet your power solutions requirements.

SENSITRON SEMICONDUCTOR
YOUR POWER SOLUTIONS PROVIDER

Find a Sales Rep/Distributor | Contact Support | Quote Cart (0) | My history

Enter full or partial part number, keyword, etc

Products Applications Support Company Register Login

HIGH POWER Precision Protection Under 40V
[View Design>>](#)

Focus Products

Lightweight SiC & IGBT Plastic Bridges

- Light weight, low profile electrically isolated package
- SiC FET Bridges up to 1200V/90A
- IGBT Bridges up to 600V/75A
- High temperature plastic shell construction
- -55°C to 175°C
- Part Number: SPM1 Series

SuperClamp TVS

- High power precision protection under 40V
- 100% tested to single pulse of 120A for 100millisec
- Designed for safe paralleling
- LRUs containing up to 3 SuperClamps in IP67 plastic enclosures are available
- Part Number: SCP-5282-4, SCP-5282-9

1N5822DP Schottky Rectifiers

- 3A, 40V Schottky Barrier Rectifier
- Rugged hermetically sealed power package
- Mounts on same footprint as the US package (1N5822US)
- JAN/JANTX/JANTXV/JANS equivalent screening available
- Part Number: 1N5822DP

Application Overview

Sensitron designs products for a wide array of markets including commercial aerospace, space, defense, and other high reliability applications. Sensitron can provide the optimal solution for your application.

- Commercial Aerospace
- Space and Launch Vehicles
- Defense Applications
 - Aerospace
 - Vehicle
 - Naval
 - Missiles
- Medical
- High Reliability



For the most updated product information and for product details and specifications, email or visit our website:
sales@sensitron.com
www.sensitron.com

Sensitron Semiconductor

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Microelectronics Group**
100 Engineers Road
Hauppauge, NY 11788

Discrete Semiconductor Group
221 West Industry Court
Deer Park, NY 11729



About Sensitron: Sensitron has over 50 years of heritage as a leading manufacturer of high reliability power electronic component solutions for the Defense, Aerospace, Space, and Medical markets. Our products provide rugged, light-weight, and cost effective solutions for switching power supplies, AC-DC rectification, primary & secondary power distribution, motion control, transient voltage spike protection, and custom applications.