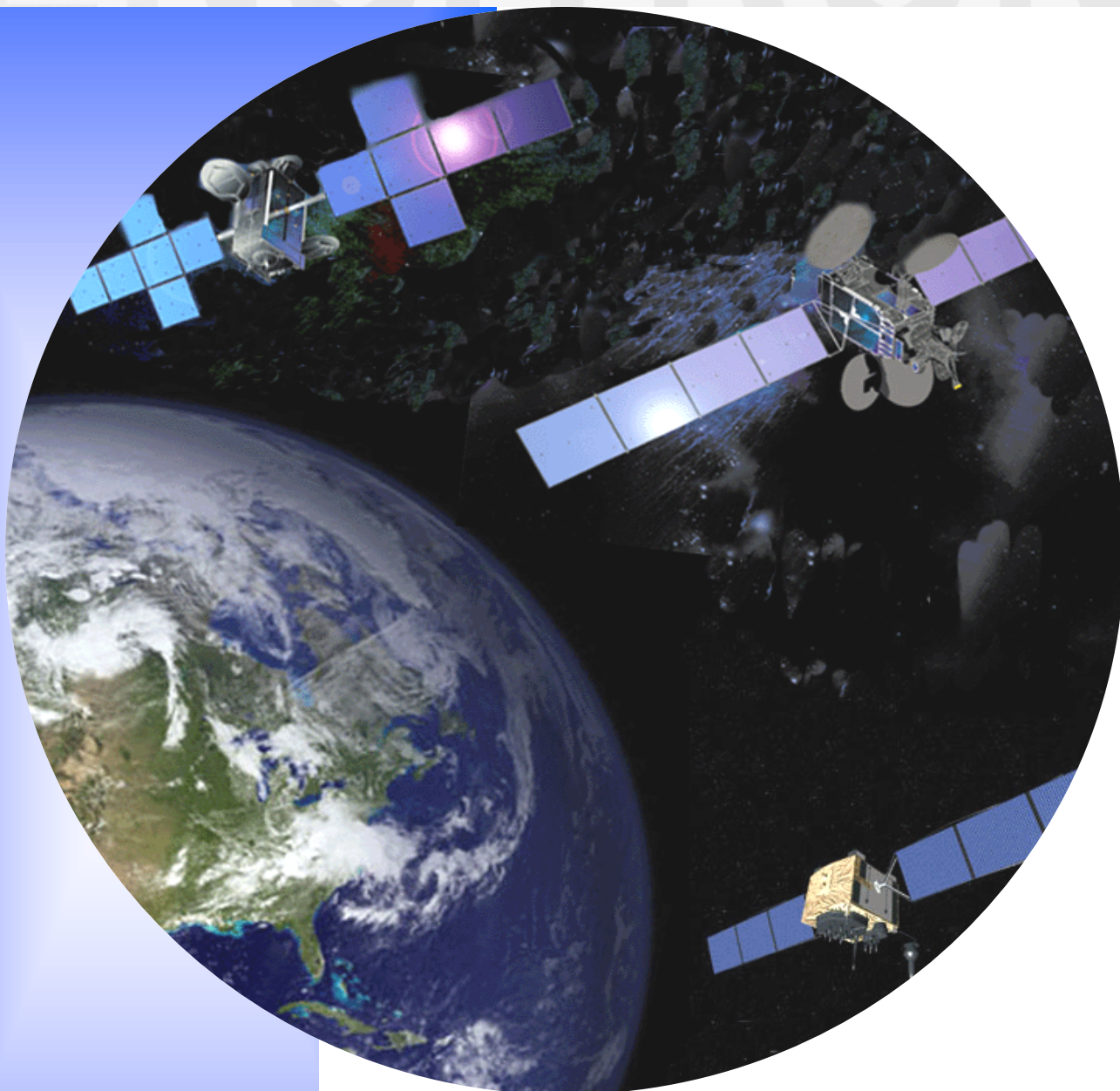


SENSITRON SEMICONDUCTOR



Space Level Solutions Guide

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Space Level Solutions

JAN QPL & Equivalent Diodes

Sensitron

Your Power Solutions Provider

Features/Benefits

- ✓ JAN, JANTX, JANTXV & JANS QPL certified diodes and space level equivalent diodes available
- ✓ Parts available in axial or MELF packaging
- ✓ In-house inventory- to accommodate short lead times
- ✓ Space equivalent devices are manufactured on the space qualified manufacturing line



Part Number						Axial	Melf	Slash	Description
1N3595-1						Yes	US	241	Vf Controlled Diode
1N3611	1N3612	1N3613	1N3614	1N3957		Yes	None	228	1A Std Recovery
1N4099-1	to	1N4135-1				Yes	UR-1	435	500mW Zener
1N4245	1N4246	1N4247	1N4248	1N4249		Yes	None	286	1A Std Recovery
1N4460	to	1N4496				Yes	US	406	1.5W Zener
1N4942	1N4944	1N4946	1N4947	1N4948		Yes	None	359	1A Fast Recovery
1N4954	to	1N4996				Yes	US	356	5W Zener
1N5186	1N5187	1N5188	1N5190			Yes	None	424	3A Fast Recovery
1N5415	1N5416	1N5417	1N5418	1N5419	1N5420	Yes	US	411	3A Fast Recovery
1N5550	1N5551	1N5552	1N5553	1N5554		Yes	US	420	3A Std Recovery
1N5555	to	1N5558				Yes	US	500	1500W Unidirectional TVS
1N5614	1N5616	1N5618	1N5620	1N5622		Yes	US	427	1A Std Recovery
1N5615	1N5617	1N5619	1N5621	1N5623		Yes	US	429	1A Fast Recovery
1N5629	to	1N5665A				Yes	None	500	1500W Unidirectional TVS
1N5802	1N5804	1N5806				Yes	US	477	1A Ultra Fast Rectifier
1N5807	1N5809	1N5811				Yes	US	477	3A Ultra Fast Rectifier
1N5819-1						Yes	UR-1	586	1A/45V Schottky Rectifier
1N6108	to	1N6136A				Yes	US	516	500W Bi-directional TVS
1N6137	to	1N6172A				Yes	US	516	1500W Bi-directional TVS
1N6319	to	1N6355				Yes	US	533	500mW Zener
1N6620	1N6621	1N6622	1N6623	1N6624	1N6625	Yes	US	585	1A Ultra Fast Rectifier HV
1N6626	1N6627	1N6628	1N6629	1N6630	1N6631	Yes	US	590	2A Ultra Fast Rectifier HV
1N6638	1N6642					Yes	US	578	Small Signal Switching
1N6640	1N6641					Yes	US	609	Small Signal Switching

Slash Sheet Extension Diodes

Sensitron

www.sensitron.com/spacediodes.asp

Sensitron offers rectifier diodes as an extension to industry standard slash sheet diodes.

****This list is a selection only. For more information, contact us at sales@sensitron.com**

Package	1A	1A	3A	3A
	Axial 106	MELF-A	Axial 306	MELF-B
150V trr	1N5806 25ns	1N5806US 25ns	1N5811 30ns	1N5811US 30ns
200V trr	SRS120HE 40ns	SRS120HEU 40ns	SRS320HE 30ns	SRS320HEU 30ns
250V trr	SRS125HE 40ns	SRS125HEU 40ns	SRS325HE 30ns	SRS325HEU 30ns
200V trr	1N6620 30ns	1N6620US 30ns	1N6626 30ns	1N6626US 30ns
600V trr	1N6622 30ns	1N6622US 30ns	1N6628 30ns	1N6628US 30ns
1000V trr	1N6625 60ns	1N6625US 60ns	1N6631 60ns	1N6631US 60ns
1200V trr	SRS1120HE 60ns	SRS1120HEU 60ns	SRS3120HE 60ns	SRS3120HEU 60ns
1300V trr	SRS1130HE 80ns	SRS1130HEU 80ns	SRS3130HE 100ns	SRS3130HEU 100ns
1400V trr	SRS1140HE 80ns	SRS1140HEU 80ns	SRS3140HE 100ns	SRS3140HEU 100ns
1500V trr	SRS1150HE 80ns	SRS1150HEU 80ns	SRS3150HE 100ns	SRS3150HEU 100ns

SRS120/125/320/235
(extension of /477)
Higher Breakdown Voltage:
PIV @ 200V to 250V

SRS1120/30/40/50
(extension of /585, /590)
High Voltage Diodes
PIV @ 1200 to 1500V

Sensitron has product in key Space Programs, including the following (10-year pedigree):

Space Program Involvement

Advanced EHF AEHF Satellite Air Force Payloads ASIASAT ASTRO15 Atlas V URCU & BRCU Dawn Satellite Defense Systems Echostar & DirecTV Satellites Eurostar 3000 Galaxy 12,14 &15	Globalstar GPS 3 HAAS Herschel Planck HNS Satellite HORIZONS INTELSAT Int'l Space Station Iridium ISIS JWST Telescope Project	LISA Pathfinder Mars Orbiter & Lander NPOESS OPTUS D1, D2, D3 ORION P858 P982 SENTENIAL 1, 2 & 3 SINOSAT 3 & 6 SMALL GEO Space Based Radar Space Shuttle	Space Tech 5 Spacebus 4000 STAR 2.7 STAR TRACKER STEREO SWARM Swift Satellite TAURUS II TerraSar THOR6 Titan Viasat
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Space Level Die Products

Sensitron

www.sensitron.com/dieproducts.htm



Standard Metalization:

Top: (Al, 25kÅ min) Bottom: (Ti/Ni/Ag, 30kÅ min)

Bottom side: cathode, Top side: anode

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

Sensitron can perform Lot Acceptance Testing to the process flow following these quality levels:

- ✓ MIL-PRF-38534, Class H and Class K
- ✓ MIL-PRF-19500, Class H and Class K

Product Groups:

General Purpose, Fast, Ultrafast Rectifier Die

- Voltage: 50 to 6000V
- 1A to 70A Chip
- Trr: 25ns to 3000ns

TVS Die

- Broad voltage range available
- Broad spectrum transient suppression
- 500W, 1500W surge capability

Zener Die

- Working Voltage: 3.3V to 390V
- Power: 500mW – 5W
- 5% tolerance for Vz

Schottky Die

- Soft reverse recovery at low and high temperature
- Broad voltage range: 15V-200V
- 500W, 1500W surge capability

Small Signal Switching Die

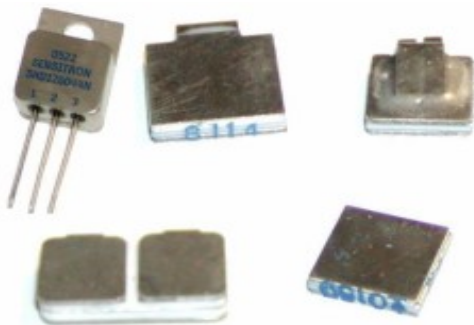
- Voltage: 70 to 150V
- Up to .3A

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	✓

Schottky Rectifier Discretes

Sensitron

www.sensitron.com/schottkyrec.htm



Features/Benefits

- ✓ Available voltages: 15V to 200V
- ✓ Ultra low leakage current for 100V and 150V
- ✓ 200 °C process
- ✓ Low forward voltage drop
- ✓ Ceramic feedthroughs standard
- ✓ Wafer fab in-house
- ✓ Fast delivery time

Sensitron offers full space level traceability and serialization!

Sensitron provides a variety of packages as drop in replacements for industry standard packages, a selection which can be seen below:

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

Surface Mount

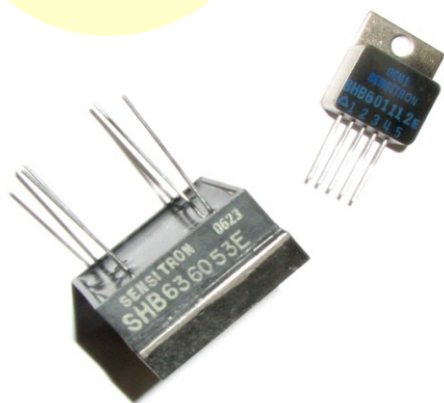
Part Number	Volts	Amps	Package
SHD119568	15	45	SMD-1
SHD114668	15	120	SHD-3
SHD120211	30	15	SMD-0.5
SHD114611	30	120	SHD-3
75SLQ030	30	120	SHD-5
SHD176222	45	15	SHD-1High Profile
8EQ045	45	15	SMD-1
30SLJQ045	45	30	SMD-0.5
SHD119512	45	45	SMD-1
120LQ045	45	120	SHD-3
SHD114622	45	120	SHD-3 High Profile
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

For a complete list of our standard devices, see the parametric search and cross reference guides online at www.sensitron.com

SiC Schottky Bridges & Discretes

Sensitron

www.sensitron.com/sic.htm



Features/Benefits

- ✓ Essentially zero forward and reverse recovery time
- ✓ Electrical breakdown field 10x more than Si and GaAs
- ✓ Thermal conductivity over 3x that of Si and almost 10x GaAs
- ✓ Smaller, lighter and more reliable
- ✓ Can operate at junction temperatures up to 300C and frequencies in excess of 1MHz
- ✓ Reliability testing available
- ✓ Available screened to MIL-PRF-19500, TX, TXV or S-level

SiC Schottky Bridges

Part Number	PIV	Max DC Output Current	Operating Temperature	Package Type	Type
	Volts	Amps	° C		
SHB601051E	600	20A	-55 to +175	TO-258 (modified)	Single Phase Full Wave
New! SHB601031E	600	8A	-55 to +175	TO-258 (modified)	Single Phase Full Wave
SHB601052FP/N	1200	5A	-55 to +175	TO-258 (modified)	3 Phase Half Wave
SHB601052G	1200	5A	-55 to +175	TO-258 (modified)	3 Phase Full Wave
SHB601052E	1200	10A	-55 to +175	TO-258 (modified)	Single Phase Full Wave
SHB601112E	1200	10A	-55 to +200	TO-258 (modified)	Single Phase Full Wave
SHB681123E	2500	20A	-55 to +150	SCB-1	High Voltage Single Phase Full Wave
SHB636053E	2500	5A	-55 to +150	SCB-2	High Voltage Single Phase Full Wave

SiC Schottky Rectifiers

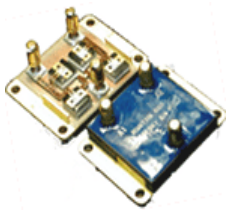
Part Number	PIV	Max DC Output Current	Operating Temperature	Package Type
	Volts	Amps	° C	
SHD626150/D/N/P	300	10A /10A /20A /20A	-55 to +175	TO-257
SHD626160/D/N/P	300	20A /20A /40A /40A	-55 to +175	TO-257
SHD620150/P	300	10A /20A	-55 to +175	LCC-5
SHD626051/P/N/D	600	10A/ 20A/ 20A/ 10A	-55 to +175	TO-257
SHD620051	600	10A	-55 to +175	LCC-5
SHD625061/D/N/P	600	20A /40A	-55 to +175	TO-254
SHD620031 / P	600	4A /8A	-55 to +175	LCC-5
SHD626031/P /N /D	600	4A /8A /8A /4A	-55 to +175	TO-257
SHD625051/P /N /D	600	10A /20A/ 20A /10A	-55 to +175	TO-254
SHD620052	1200	5A	-55 to +175	LCC-5
SHD620112	1200	10A	-55 to +175	LCC-5
SHD619052/P	1200	5A/10A	-55 to +175	LCC-3P
SHDC626112/P/N/D	1200	20A/ 40A/ 20A/ 40A	-55 to +175	TO-257
SHDC624122/P/N/D	1200	20A/ 40A/ 20A/ 40A	-55 to +175	TO-258
SHDC626052/P/N/D	1200	5A/ 10A/ 10A/ 5A	-55 to +175	TO-257

Note: Customers should be aware that at the current stage of technical development of SiC, the reverse avalanche capabilities of the device are limited. Customer designs will need to accommodate these limitations and avoid exposure of the device to this and other potentially damaging conditions in their applications. Test data are available upon request.

Space Level Modules

Sensitron

www.sensitron.com



Diopak Rectifier Module

- Common cathode diode rectifier module featured at 800V, 160A in isolated case
- Non-hermetic diopaks with potting material encapsulating the die
- Used in the electrical power system of a space station



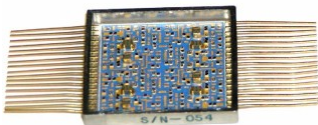
Power Switch

- Program - Power switch for power lines in a satellite
- Combines power hybrid technology with thermally enhanced construction
- Design and prototype manufacturing and testing done by Sensitron



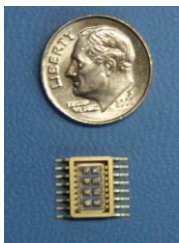
Battery Bypass Module

- Power module used for the discharge function of a bypass
- Used for NiH and Li-Ion batteries in satellite applications
- Available with wire or terminal connections



Small Signal Hybrid

- Program – Parallel redundant translator for a satellite program
- Input Voltage: 12 Vdc max, Float Voltage: 50 Vdc max
- Density :148 components on a 0.7" x 0.8" substrate, 256 wirebonds

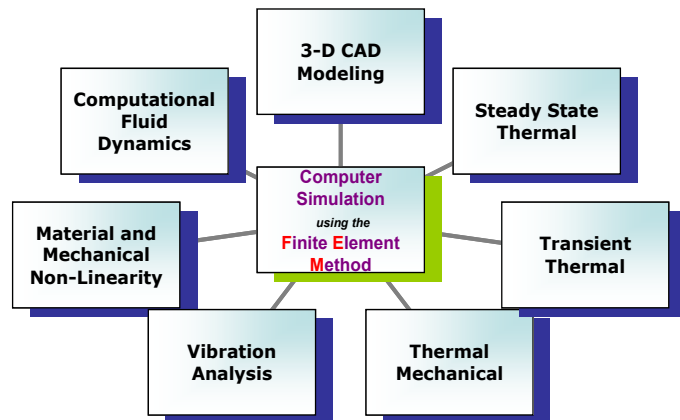


Free Wheeling Diode Array

- Used to prevent voltage spikes in satellite systems switch
- Hybrid design eliminates discrete devices
- Lighter and saves labor and space

Tools and Analysis

***Sensitron has the re-engineering
and manufacturing capabilities
that are your key to
program success!***



Please visit our website:

<http://www.sensitron.com>

SENSITRON SEMICONDUCTOR

Part Number: GO
Product Type: Select a Product Group GO

Products Support Company My Sensitron Contact Us

PRODUCT HIGHLIGHT:
TVS Diode Array-DLTS, DLZ Series



Sensitron offers a series of Transient Voltage Suppressor Array devices that are a direct cross to the industry standard DLTS series. These DLZ / DLTS Diode Array devices are more...

THE POWER BEHIND YOUR SYSTEM

Sensitron is a leading manufacturer of high reliability power electronic solutions. Markets served include the complete spectrum of high reliability markets including space, aerospace, and defense.

Discrete Diodes and Die Products

Zener Diodes, TVS Diodes, Power Rectifier Diodes, Schottky Diodes, Small Signal Switching Diodes, Space Level Diodes, Zener Die, TVS Die, Schottky Rectifier Die, more...

 [learn more](#)

Motor Controllers and Drivers

Fully Integrated Motor Controllers with Ethernet, CAN, Discrete or Analog Controls, MOSFET and IGBT Drivers, Three-Phase Brushless DC Motor Control, Field Oriented Controller, more...

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Schottky Rectifiers, Discrete Power Rectifier Diodes, SiC Schottky Rectifiers and Bridges, Three Phase Bridge Rectifier Assemblies, Primary Power Generation more...

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Multi-Channel Solid State Power Controller Boards, Remote Power Controllers, High Current / High Voltage Modules, Solid State Power Controller Modules, Solid State Relays more...

 [learn more](#)

In The News:

March 2011- Sensitron has announced that they have received a 2010 Boeing Performance Excellence Award. The Boeing Company issues the award annually to recognize more...

January 2011- Sensitron now offers MIL-PRF-19500 JAN QPL Diodes Sensitron has received qualification per MIL-PRF-19500 more...

New Product:

HIGH VOLTAGE ULTRAFAST RECTIFIERS

Sensitron offers high voltage ultrafast rectifiers, from 1200V to 1500V and up to 3A, which are suitable for high efficiency applications. The SRS Series of ultrafast rectifiers uses single chip construction technology, and more...

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www.sensitron.com